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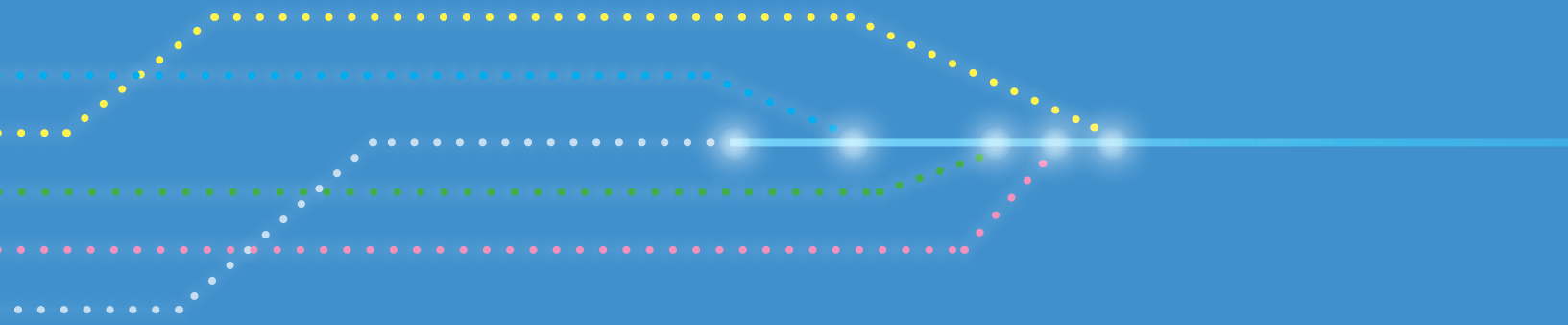
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System of **National Accounts** 2008





European Commission



International Monetary Fund



Organisation for Economic Co-operation and Development



United Nations



World Bank

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System of **National Accounts** 2008



European Commission



International Monetary Fund



Organisation for Economic
Co-operation and Development



United Nations



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Foreword

The *System of National Accounts, 2008* (2008 SNA) is a statistical framework that provides a comprehensive, consistent and flexible set of macroeconomic accounts for policymaking, analysis and research purposes. It has been produced and is released under the auspices of the United Nations, the European Commission, the Organisation for Economic Co-operation and Development, the International Monetary Fund and the World Bank Group. It represents an update, mandated by the United Nations Statistical Commission in 2003, of the *System of National Accounts, 1993*, which was produced under the joint responsibility of the same five organizations. Like earlier editions, the 2008 SNA reflects the evolving needs of its users, new developments in the economic environment and advances in methodological research.

A working group, comprising representatives of each of our organizations, managed and coordinated the work. National statistical offices and central banks from countries throughout the world made valuable contributions. Expert groups carried out research on the issues being reviewed. An advisory expert group was established to provide expert opinions from a broad range of countries. During the update work, the recommendations and the updated text were posted on the website of the United Nations Statistics Division for worldwide comment, thereby achieving full transparency in the process.

The 2008 SNA is intended for use by all countries, having been designed to accommodate the needs of countries at different stages of economic development. It also provides an overarching framework for standards in other domains of economic statistics, facilitating the integration of these statistical systems to achieve consistency with national accounts.

At its fortieth session, the Statistical Commission unanimously adopted the 2008 SNA as the international statistical standard for national accounts. We encourage all countries to compile and report their national accounts on the basis of the 2008 SNA as soon as possible.



BAN Ki-moon
Secretary-General
United Nations



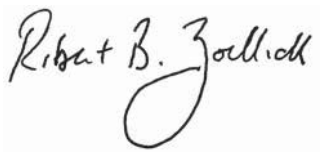
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Preface

A. Introduction

The *System of National Accounts, 2008 (*2008 SNA*)* is an updated version of the *System of National Accounts, 1993 (1993 SNA)*. It is the fifth version of the SNA, the first of which was published over fifty years ago. At its thirty-third session in 2003, the Statistical Commission requested that the *1993 SNA* be updated to bring the national accounting framework into line with the needs of data users. The background was that the economic environment in many countries had evolved significantly since the early 1990s when the *1993 SNA* had been developed and, in addition, methodological research over the past decade or so had resulted in improved methods of measuring some of the more difficult components of the accounts. In accordance with the mandate from the Commission, the 2008 SNA does not recommend fundamental or comprehensive changes that would impede a smooth transition from implementation of the earlier versions, including the *1968 SNA*, which is the national accounting framework still used in a number of countries. Further, consistency with related manuals, such as those on the balance of payments, on government finance statistics and on monetary and financial statistics was an important consideration in the update.

The 2008 SNA was prepared under the auspices of the Inter-Secretariat Working Group on National Accounts (ISWGNA), which consists of five organizations: the Statistical Office of the European Communities (Eurostat), the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Statistics Division and regional commissions of the United Nations, Secretariat and the World Bank. The 2008 SNA is published jointly by the five organizations.

For practical purposes, the 2008 SNA was presented to the United Nations Statistical Commission in the form of two separate volumes, volume 1, consisting of 17 chapters, and volume 2, consisting of a further 12 chapters and four annexes. Volume 1 was adopted in principle by the United Nations Statistical Commission at its thirty-ninth session held in New York from 26-29 February 2008 (see notes 1 and 2). The volume was reviewed extensively during its development and, following an extended review period that ended on 30 April 2008, the United Nations Statistical Commission recommended to the United Nations Economic and Social Council that the 2008 SNA be adopted as the new international standard for compiling national accounts statistics. Volume 2 was adopted by the United Nations Statistical Commission at its fortieth session held in New York from 24-27 February 2009 with the recommendation that the terms “volume 1” and “volume 2” be dropped and that the entire 2008 SNA should be published in one document (see note 3).

The 2008 SNA starts with an introduction and an overview and then presents the accounting rules, the accounts and tables, and their integration. These subjects are the topics of chapters 1-17, previously known as volume 1. Chapters 18 to 29 elaborate various aspects of the accounts, provide details about their presentation and describe some possible extensions to improve the usefulness of the accounts for a wide range of purposes.

The complete publication is to be made available in electronic format at the website of the United Nations Statistics Division with links to that site from the websites of the other international organizations that are members of the ISWGNA. The complete volume will also be published in the traditional printed copy.

Efforts have been made to improve the readability of the text and to make the numeric example running through the text easier to follow. A spreadsheet of the numerical example will be available for downloading. The electronic version will include hyper-links to other areas of the publication and to external links. Over time, live links will be added to related documents, numerical examples and updates about important ongoing research related to key topics.

B. New features of the System of National Accounts

In response to the Commission’s guidance, the new features of the 2008 SNA introduce treatments for those aspects of economies that have become more prominent in recent years, elaborate on points that have increasingly become the focus of analytical attention and clarify the national accounting treatment of a wide range of topics. The new features draw on research, practical experience and, where appropriate, international standards for business and public accounting. The changes between the *1993 SNA* and the 2008 SNA are, however, less extensive than the changes introduced in 1993.

The new features fall into five main groups: assets; the financial sector; globalization and related issues; the general government and public sectors; and the informal sector. The key changes within each group are shown below.

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Assets

The accounting treatment of assets previously called “intangible produced assets” and now called, more descriptively, “intellectual property products” has been clarified and expanded. Many of these assets, often seen as a hallmark of the “new economy,” are associated with the establishment of property rights over knowledge in one form or another.

The treatments of databases and of originals and copies have been modified and the principle of treating expenditure on research and development as capital formation has been introduced.

The definition of assets in general was reviewed to set the framework for the discussion of such assets. The review led to several refinements in the treatment of non-produced non-financial assets, covering both tangible assets (for example natural resources) and intangible assets (now identified as contracts, leases and licenses, which can be treated as assets in certain circumstances).

Expenditures on weapons systems that meet the general definition of assets have been reclassified as fixed capital formation.

The analytical concept of capital services has been introduced. Details can be presented in a supplementary table for market producers, bringing into the SNA the advances in research in recent decades in the fields of growth and productivity and helping to satisfy the analytical needs of many users.

The financial sector

Recommendations regarding the financial sector have been updated to reflect developments in one of the fastest-changing segments of many economies. In particular, the 2008 SNA provides a more comprehensive overview of financial services.

The 1993 SNA was modified several years ago to cater for some developments in financial derivatives during the 1990s. At its meeting in March 1999, the United Nations Statistical Commission approved changes to the treatment of financial derivatives. The two most significant changes were that the financial assets boundary was expanded to include financial derivative contracts regardless of whether “trading” occurred on or off exchange, and flows associated with interest rate swaps and forward rate agreements were recorded as financial transactions rather than interest flows. In addition, some new functional classifications were introduced.

The measurement of non-life insurance services has been modified in order to provide more plausible estimates following extreme events (for example earthquakes) that result in large insurance payouts.

Guidance on the treatment of impaired (non-performing) loans has been elaborated.

The method for calculating financial intermediation services indirectly measured, widely known as FISIM, has been refined in the light of experience in implementing the *1993 SNA* recommendations.

The most far-ranging change in the financial area relates to new guidelines for recording pension entitlements. The SNA now recognizes the liabilities of employers’ pension schemes, regardless of whether funding to meet them exists or not. For pensions provided by government, countries have some flexibility to deviate from this rule in the set of core tables. However, the full range of information required for a comprehensive analysis of pensions is provided in a new standard table that shows the liabilities and associated flows of all private and public pension schemes, whether funded or unfunded and including social security.

Globalization and related issues

The treatments of stocks and flows that are characteristic of economic globalization have been clarified and elaborated.

The treatment of remittances from the movement of persons abroad has been expanded, with coverage of the flows being closer to the economic reality.

The application of the principle of change in ownership of goods has been made universal, resulting in changes to the recording of merchanting and of goods sent for processing, both abroad and within the domestic economy, and then returned to the owner. These changes have shifted the focus away from the physical movements of goods to the impact on the economies of the owner of the products and the processor. As a result, they are consistent with international financial transactions that are increasingly important in a globalized economy.

In recognition of the changing structures of production and finance in many economies, guidance is now provided about when “special purpose entities”, which are sometimes called shell companies or brass plate companies and which can be created by corporations or the government, should be recognized as institutional units, how they should be classified, and how their operations should be treated.

The general government and public sectors

Several principles have been clarified and refined in response to developments in accounting standards for government.

The delineation of the government and the public sectors from the other sectors of the economy has been clarified.

The treatments of super dividends paid by public corporations and capital injections into public enterprises have been clarified.

The principles for the treatment of public-private partnerships have been outlined and the treatment of restructuring agencies elaborated.

Handling transactions between general government and related public corporations and with securitization vehicles has been clarified to improve the recording of items that could significantly affect government debt.

The treatment of several classes of loan guarantees has been clarified, and a new treatment has been introduced for standardized guarantees, such as export credit guarantees and student loan guarantees.

Some other new features are not easily grouped but are no less important. Notable among these are the clarification of ancillary units and holding companies and the introduction of accounting for

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employee stock options, which came into wide usage in some countries during the 1990s.

These new features help maintain the relevance of the SNA in a time of rapid economic and institutional change, building on its solid existing framework. Accordingly, the provision of the guidance on the accounting rules, the accounts and tables, and their integration in the 2008 SNA can be seen as consistent with continuing efforts to implement the *1993 SNA* in all countries. In this regard, the four points made in the Preface to the *1993 SNA* concerning the comprehensiveness of the SNA and the breadth of its applicability not only still hold; they have been reinforced in the 2008 SNA.

The informal sector

The 2008 SNA contains a chapter dedicated to the question of measuring activity carried out within households on an informal basis (the so-called informal sector) and activity that escapes formal statistical measurement (the so-called not-observed economy).

C. The SNA in the context of other statistical systems

The SNA provides guidance for national accounts almost universally

The final stages of work on the *1993 SNA* came at a time when the formerly centrally planned economies making the transition to market economies in the early to mid 1990s. The years since have proven the applicability and robustness of the SNA in those economies. The *European System of Accounts, 1995* was made broadly consistent with the *1993 SNA* with respect to the definitions, accounting rules and classifications. Its update, which is currently under way, will cover the recommendations and clarifications agreed at the international level for the 2008 SNA. The new treatments of goods for processing and remittances from persons working abroad are especially relevant for developing economies that are moving into the global economy. In addition, the new guidelines on handling public-private partnerships and the use of natural resources by non-residents are likely to be especially significant for many countries.

The SNA recognizes the need for flexibility

The *1993 SNA* incorporated the concept of satellite accounts, a major step in the direction of flexibility. Moving forward, satellite accounts are expected to continue to provide a useful way of working towards solutions that give the appropriate level of confidence in challenging measures, such as those for environmental accounting issues. Using satellite accounts as a means of expanding the relevance of the national accounts, but without affecting the comparability of the central framework used for economic policymaking, has become an accepted means of developing and testing new data sources and methods. Further, the 2008 SNA has introduced the item of "supplementary" items and tables. The term "supplementary" is used when the SNA recognizes that items may be of limited relevance in some countries or that while of analytical interest, a table cannot be prepared to the same standard of accuracy as the main set of accounts.

The SNA reinforces the central role of national accounts in statistics

The concepts and classifications of the 2008 SNA are harmonized with other international statistical standards and manuals even more than was the case with the *1993 SNA*. Of special note is the close coordination of the processes during the update of the SNA and the simultaneous revision of the *Balance of Payments Manual*. The chapter on price and volume measures has benefited from work since the *1993 SNA* was released on the International Comparison Program and on the international manuals for consumer and producer price indices. There is closer consistency with advice given in the resolutions of the International Conference of Labour Statisticians. There is a chapter dedicated to the consideration of the role of non-profit institutions in the economy drawing on work in this area since the time of the *1993 SNA*. For environmental accounts, the ground has been laid for consistency with the revised *Handbook of National Accounting: Integrated Environmental-Economic Accounting*, which is expected to become an international standard. Similarly, the 2008 SNA is consistent with the major classification systems, notably the *International Standard Industrial Classification of All Economic Activities, Rev. 4* and the *Central Product Classification, Version 2*.

Future developments: the research agenda

The first comprehensive set of national accounting standards was released in 1953, with major updates in 1968, 1993 and, now, 2008. Clearly, though, developments in national accounting do not emerge in steps every 15 to 20 years, so identifying updates needed in the SNA is a continuing process even if a full-scale rewrite occurs infrequently. Developments depend on a combination of the evolution of economic processes (such as new financial instruments), advances in statistical estimation and measurement techniques, and improvements in data collection.

Some contentious issues were considered during the SNA update process. The decisions made were based on the best information and techniques available at the time. In some cases, though, research was still under way while the SNA was being updated and the results of ongoing research may lead to the need to revisit some of these decisions prior to the next update of the SNA.

The ISWGNA has identified a number of areas of ongoing research. The ISWGNA has recommended these topics should be included in a national accounts research agenda. A list of items for consideration, as identified at the conclusion of the update process, appears in Annex 4.

The ISWGNA will be responsible for advancing the research on these issues (and any other important ones that transpire), but will be relying on assistance from the agencies responsible for national accounts around the world. Depending on the outcomes, it may prove useful to incorporate the outcomes from this research into the 2008 SNA before the next major update.

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D. Acknowledgements

The 2008 SNA is the result of a process that was notable for its transparency and the wide involvement of the international statistical community, both of which were made possible by the innovative use of a project website as a communication tool. The process comprised six steps.

in the first stage of the process, identifying and obtaining agreement on the issues to be considered during the update (2002-2004);

the research into these issues and presenting the proposals for change to the *1993 SNA*;

the consideration of the issues by experts and agreement on provisional recommendations (2004–2006);

consultations with countries on the recommendations (2006);

presenting a set of recommendations to the Statistical Commission in 2007; and

incorporating the agreed recommendations into the text of the 2008 SNA for approval by the Statistical Commission in two stages in 2008 and 2009 (2007-9).

The ISWGNA and project staff

The process involved the five international organizations that comprise the ISWGNA; other international, regional and non-governmental organizations; project staff; agencies responsible for compiling official statistics in many countries; working groups, other expert groups and electronic discussion groups; and individual experts in national accounting and related fields from all regions of the world. As could be expected of a product of such a complex and sustained process, the 2008 SNA reflects many diverse contributions.

The ISWGNA managed and coordinated the process at the request of the Statistical Commission, similarly to what happened for the *1993 SNA*. The ISWGNA member organizations' contributions were in cash and in kind. At the senior level, the representatives were:

Pieter Everaers and Laurs Norlund (Eurostat)

Carol S. Carson and Robert Edwards (IMF)

Enrico Giovannini (OECD)

Willem de Vries and Paul Cheung (United Nations Statistics Division)

Shaida Badiee (World Bank).

National accountants and other professionals of the ISWGNA organizations who regularly participated in tasks of coordination and substantive leadership were as follows:

Eurostat: Gallo Gueye, Christian Ravets, Dieter Glatzel and Brian Newson

IMF: Adriaan Bloem and Kim Zieschang

OECD: François Lequiller and Charles Aspden

United Nations Statistics Division: Ivo Havinga, Viet Vu, Magdolna Csizmadia, Gulab Singh, Herman Smith and Annette Becker

United Nations Economic Commission for Europe: Lidia Bratanova and Tihomira Dimova

World Bank: Barbro Hexeberg.

Other staff members of the ISWGNA organizations who contributed substantively were:

Eurostat: Paolo Passerini, Francis Malherbe, Ligia Frankford and John Verrinder

IMF: Edgar Ayales, Sagé de Clerck, Robert Dippelsman, Keith Dublin, René Fiévet, Cornelis Gorter, Robert Heath, John Joisce, Lucie Laliberté, Alfredo Leone, Ralph Kozlow, Russell Krueger, Jaroslav Kucera, Randall Merris, Jose-Carlos Moreno, Neil Patterson, Lisbeth Rivas, Armida San Jose, Manik Shrestha and Mick Silver

OECD: Nadim Ahmad, William Cave, Jean-Pierre Dupuis, Anders Nordin, and Paul Schreyer

United Nations Statistics Division: Alessandra Alfieri, Youlia Antonova, Ralf Becker and Vetle Hvidsten.

The staff of the Economic Statistics Branch of the United Nations Statistics Division, under Ivo Havinga, served as the secretariat to the ISWGNA. The United Nations Statistics Division developed and maintained the Project website, which provides more information on the contributions summarized in this preface (see http://unstats.un.org/unsd/nationalaccount/snarev1.asp). A team from the Development Data Group of the World Bank, under Misha Belkindas, provided administrative support, including for the multidonor trust fund established for the SNA Update Project.

The Project staff comprised Carol S. Carson, Project Manager from 2004 to February 2008, Paul McCarthy, Project Manager from February 2008, and Anne Harrison, Editor. Anne was an expert voice in all phases of the Project and undertook the enormous task of revising the text of the 2008 SNA.

The Advisory Expert Group

The Advisory Expert Group (AEG) on National Accounts was established in 2003. It was positioned to have a key role in the update process by considering proposals for change and expressing its views. The following served as members of the AEG: Heidi Arboleda, Philippines; Ole Berner, Denmark; Mariam Cover Jimenez, Costa Rica; Meshesha Getahun, Ethiopia; Omar Mohammad Ali Hakouz, Jordan; Peter Harper, Australia; Jan Heller, Czech Republic; Andrey Kosarev, Russian Federation; Akhilesh C. Kulshreshtha, India; Robin Lynch, United Kingdom of Great Britain and Northern Ireland; Jacques Magniez, France; Reimund Mink, European Central Bank; Brent R. Moulton, United

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States of America; Chellam Palanyandy, Malaysia; Peter Pariag, Trinidad and Tobago; Johan Prinsloo, South Africa; Roberto Luís Olinto Ramos, Brazil; Irena Tvarijonaviciute, Lithuania; Peter van de Ven, Netherlands; Karen Wilson, Canada.

The AEG met six times: in February 2004, in Washington, hosted by the IMF; in December 2004, in New York City, hosted by the United Nations Statistics Division; in July 2005, in Bangkok, hosted by the United Nations Economic and Social Commission for Asia and the Pacific; in January-February 2006, in Frankfurt, hosted by the European Central Bank; in March 2007, in New York City, hosted by the United Nations Statistics Division, and in November 2008 in Washington, hosted by the World Bank. In all of these meetings and in electronic consultations, the national accountants of the ISWGNA also participated and expressed their views. Paul McCarthy served as rapporteur for the meetings in July 2005, February 2006 and March 2007.

The papers prepared for consideration of the AEG represent a substantial body of research. They will continue to be available on the Project website noted above. The authors included the following individuals: Nadim Ahmad, Alessandra Alfieri, Charles Aspden, Adriaan Bloem, Stuart Brown, Carol S. Carson, William Cave, W. Erwin Diewert, Robert Dippelsman, Brian Donaghue, René Fiévet, Russel Freeman, Jean Galand, Antonio Galicia-Escotto, Jeff Golland, Cornelis Gorter, Anne Harrison, Ivo Havinga, Tony Johnson, John Joisce, Brett Kaufmann, Andrew Kitili, Ralph Kozlow, François Lequiller, Robin Lynch, Christoph Maier, Reimund Mink, Brent R. Moulton, Anders Nordin, Patrick O'Hagan, Neil Patterson, John Pitzer, Jens Reinke, Lisbeth Rivas, Philippe de Rougemont, John Ruser, Carlos Sánchez Muñoz, Paul Schreyer, Richard Shepherd, Manik Shrestha, Gulab Singh, Herman Smith, Pierre Sola, Philippe Stauffer, Hidetoshi Takeda, Viet Vu, John Walton and Chris Wright.

Other expert groups

Topical expert groups, some standing groups and some created especially for the purpose of advancing the update, carried out most of the research on issues and preparation of proposals for change put forward to the AEG. These groups included the Canberra II Group on the Measurement of Non-financial Assets (Peter Harper, chair, and Charles Aspden, secretary), the IMF-BEA Task Force on Employers' Retirement Schemes (Adriaan Bloem and John Ruser, co-chairs, and Brian Donaghue, secretary), the IMF-OECD Task Force on the Harmonization of Public Sector Accounts (Lucie Laliberté, chair, and Jean-Pierre Dupuis, secretary), the OECD Task Force on Financial Services (Ruth Meier, chair, and Philippe Stauffer and Anders Nordin, secretaries), the OECD Task Force on the Measurement of Non-life Insurance (Fenella Maitland-Smith and then François Lequiller, moderator) and the OECD Task Force on the Valuation and Measurement of Equity (Patrick O'Hagan, moderator). The annex to this preface lists the authors of issues papers prepared for and considered by most of these groups. The IMF Committee on Balance of Payments Statistics (Robert Edwards, chair, and John Joisce, Manik Shrestha and Andrew Kitili, secretaries) and its subgroups considered a number of issues that were of common concern to national accountants and balance of payments compilers. The authors of the issues papers most related to the SNA are also listed in the annex.

A number of other groups considered SNA-related topics as part of their larger agenda. These include the European Central Bank/ Eurostat Task Force on the Statistical Measurement of the Assets and Liabilities of Pension Schemes in General Government (Eduardo Barredo and Reimund Mink, co-chairs, and John Verrinder, secretary), the OECD Group of National Experts on Science and Technology (Fred Gault, chair, and Alessandra Colecchia, secretary), the Paris Group on Labour and Compensation (Denis Ward, moderator), the Delhi Group on Informal Sector Statistics (Pronab Sen, chair), the United Nations Expert Group on Industrial Statistics (Ivo Havinga, chair, and Viet Vu and Gulab Singh, secretaries), the United Nations Expert Group on International Classifications (Ivo Havinga, chair, and Ralf Becker, secretary) and the United Nations Technical Subgroup on the Movement of Persons—Mode 4 (Ivo Havinga, chair, and Alessandra Alfieri, secretary).

Other consultations also informed the process. These included meetings of OECD and Eurostat national accounts working groups, national accounts meetings and workshops of several United Nations regional commissions, and the International Association for Research in Income and Wealth.

Country contributions

Agencies responsible for compiling official statistics contributed in several distinct ways. In the first of these, heads of statistical offices were involved through participation in the Statistical Commission in agreeing the governance of the process and then shaping the list of issues to be considered in the update.

Secondly, to an unprecedented extent, countries provided comments on the provisional recommendations for change. After each meeting, the AEG's recommendations were sent to national statistical offices and interested central banks with an invitation to comment. From 40 to 60 countries commented after each round of recommendations. In all, comments were received from almost 100 countries. All these comments, which are posted on the Project website, provide a rich source of information on why countries supported the recommendations or, in some cases, why they did not; their views on implementation of the recommendations, and ideas about the kind of guidance they would hope to find in the updated SNA.

Thirdly, countries provided comments on draft chapters. Around 70 countries commented on the final draft of volume 1 during April and May 2008 and on volume 2 in January and February of 2009. Fourthly, a number of statistical offices provided in-kind contributions, such as the time of AEG members for meetings (and for developing country AEG members, travel expenses as well).

Finally, a group of national statistical offices and central banks supported the project by financial contributions. These contributions were from Statistics Sweden, the Australian Bureau of Statistics, Statistics Canada, the Central Bank of Cyprus, the Central Bank of Kazakhstan, Statistics Netherlands, the Office of National Statistics of the United Kingdom and the Bureau of Economic Analysis of the United States of America.

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Notes

1. See the report of the 39th session of the Statistical Commission (document E/2008/24 and E/CN.3/2008/34) at **http://unstats.un.org/unsd/statcom/doc08/Report-English.pdf**

2. Referred to, at the time of the United Nations Statistical Commission session, as *1993 SNA, Rev. 1*.

3. See the report of the 40th session of the Statistical Commission (document E/2009/24 and E/CN.3/2009/29) at **http://unstats.un.org/unsd/statcom/doc09/Report-English.pdf**

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Annex: Authors of Issues Papers Prepared for Task Forces, Groups and Committees Considering SNA Update Issues

Canberra II Group on the Measurement of Non-financial Assets

Nadim Ahmad, Charles Aspden, John R. Baldwin, Desmond Beckstead, Dirk van den Bergen, Lauren Binns, Ariel Coremberg, Carol Corrado, Mariam Cover Jimenez, Martin Daniels, W. Erwin Diewert, Emma Edworthy, Barbara Fraumeni, Guy Gellatly, Dominique Guellec, Mark de Haan, Michael Harper, Peter Harper, Anne Harrison, Ivo Havinga, Richard Hemming, Peter Hill, Charles Hulten, Ning Huang, Vetle Hvidsten, Tony Johnson, Andreas Kuipers, François Lequiller, Robin Lynch, Christophe Maier, Pablo Mandler, Ian McPhee, Franciso Moris, Brent Moulton, Carol Moylan, Carl Obst, Sumiye Okubo, Dean Parham, Soli Peleg, John Pitzer, Marshall Reinsdorf, Carol Robbins, Antoine Rose, Paul Romanis, Salem, Oda Schmalwasser, Paul Schreyer, Daniel Sichel, Yusuf Siddiqi, Zuzana Stara, Leo Sveikauskas, Luke Thompson, Jeff Tyndall, André Vanoli, Peter van de Ven, John Verrinder and Viet Vu.

IMF Committee on Balance of Payments Statistics

Stuart Brown, Robert Dippelsman, Robert Edwards, Antonio Galicia-Escotto, René Fiévet, Jean Galand, Robert Heath, John Joisce, Andrew Kitili, Carlos Sanchez Munoz, Neil Patterson, Jens Reinke, Richard Shepherd, Manik Shrestha, Pierre Sola, Hidetoshi Takeda and Chris Wright.

IMF-BEA Task Force on Employers' Retirement Schemes

Bo Bergman, Ole Berner, Dieter Glatzel, Peter Harper, Anne Harrison, Tony Johnson, Ramesh Kolli, François Lequiller, Jacques Magniez, Tonya Manning, Reimund Mink, Tulsi Ram, Marshall Reinsdorf, Ingber Roymans, Peter Van de Ven and J. S. Venkateswarlu.

IMF-OECD Task Force on the Harmonization of Public Sector Accounts

Bruce Baker, Matthew Bohun, Søren Brodersen, Paula Burges, Ian Carruthers, Giseal Csonka, Sagé De Clerck, Tim Dobbs, Jean-Pierre Dupuis, Keith Dublin, Jeff Golland, Betty Gruber, Ivo Havinga, Christopher Heady, Richard Hemming, Graham Jenkinson, Brett Kaufmann, Robert Keys, François Lequiller, Jacques Magniez, Reimund Mink, Robert Kilpatrick, Lucie Laliberté, François Lequiller, Ian Mackintosh, Iana Paviola, John Pitzer, Tulsi Ram, Brooks Robinson, Philippe de Rougemont, Veronique Row, André Schwaller, Richard Shepherd and Paul Sutcliffe, Ken Warren, Kurt Wass and Graham Watkins.

OECD Task Force on Financial Services

Dennis Fixler, Anne Harrison, Anders Nordin, Paul Schreyer, Philippe Stauffer, John Turnbull and John Walton.

OECD Task Force on the Measurement of Non-life Insurance

Robert Dippelsman, Fenella Maitland-Smith, François Lequiller, Anne Harrison, Ingber Roymans, Gabe H. de Vries and John Walton.

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List of abbreviations and acronyms

ABO	Accrued benefit obligation
ADB	Asian Development Bank
AEG	Advisory Expert Group on National Accounts
AMNE	Activities of Multinational Enterprises
BD	OECD Benchmark Definition on Foreign Direct Investment
BIS	Bank for International Settlements
BOOT	Build, own, operate, transfer
BOP	Balance of payments
BPM	Balance of Payments and International Investment Position Manual
CIF	Cost, insurance and freight
CISSTAT	Interstate Statistical Committee of the Commonwealth of Independent States
COFOG	Classification of the Functions of Government
COICOP	Classification of Individual Consumption by Purpose
COLI	Cost of living index
COPNI	Classification of the Purposes of Non-profit Institutions Serving Households
COPP	Classification of Outlays of Producers by Purpose
CPC	Central Product Classification
CPD	Country-product-dummy (method)
CPI	Consumer price index
CPL	Comparative price level
DBMS	Database management system
ED	Exposure draft
EDG	Electronic Discussion Group
EEZ	Exclusive economic zone
EKS	Eltetö-Köves-Szulc (method)
ESO	Employee stock option
FATS	Foreign AffiliaTe Statistics
FDI	Foreign direct investment
FDIR	Framework for Direct Investment Relationships
FISIM	Financial intermediation services indirectly measured
FOB	Free on board
F_P	Fisher price index
FPI	For-profit institution
F_Q	Fisher volume index
FRA	Forward rate agreement
GDI	Gross domestic income
GDP	Gross domestic product
GFS	Government finance statistics
GFSM	Government Finance Statistics Manual
GK	Geary Khamis (method)
GNI	Gross national income
GVATI	Gross value added of the tourism industry
HS	Harmonized commodity description and coding System
IASB	International accounting standards board
IC	Insurance corporation
ICLS	International Conference of Labour Statisticians
ICNPO	International Classification of Non-Profit Organizations
ICP	International Comparison Program
ICPF	Insurance corporations and pension funds
ICSE	Resolution concerning the International Classification of Status in Employment
ICT	Information, communication and telecommunications
IFRS	International Financial Reporting Standards
IIP	International investment position
ILO	International Labour Organization
IMF	International Monetary Fund
IMTS	International Merchandise Trade Statistics: Concepts and Definitions
IPSASB	International Public Sector Accounting Standards Board
ISIC	International Standard Industrial Classification of All Economic Activities
ISWGNA	Inter-Secretariat Working Group on National Accounts
ITC	Invitation to comment
KAU	Kind-of-activity unit
KLEMS	Capital-labour-energy-materials-service inputs
L_P	Laspeyres price index
L_Q	Laspeyres volume index
MFP	Multifactor productivity
MFSM	Monetary and Financial Statistics Manual
MMF	Money market fund
MNE	Multinational enterprise
MPI	Import price index
MSITS	Manual on Statistics of International Trade in Services
n.e.c.	Not elsewhere classified
NDP	Net domestic product
n.i.e.	not included elsewhere
NIF	Note issuance facility
NNDI	Net national disposable income
NNI	Net national income
NOE	Non-Observed Economy
NPI	Non-profit institution

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NPISH	Non-profit institution serving households
NPV	Net present value
OECD	Organisation for Economic Cooperation and Development
OEEC	Organisation for European Economic Cooperation
PAYE	Pay-as-you-earn
PBO	Projected benefit obligation
PF	Pension fund
PFI	Private finance initiative
PIM	Perpetual inventory method
PIM	Perpetual inventory model
P_P	Paasche price index
PPI	Producer price index
PPP	Public/private partnership
PPP	Purchasing power parity
P_Q	Paasche volume index
R&D	Research and development
SAM	Social accounting matrix
SDR	Special drawing right
SEEA	System of Environmental and Economic Accounts
SHA	System of Health Accounts
SITC	Standard Industrial Trade Classification
SNA	System of National Accounts
SPD	Structured product description
SPE	Special purpose entity
TDGDP	Tourism direct gross domestic product
TDGVA	Tourism direct gross value added
TFP	Total factor productivity
T_P	Törnqvist price index
T_Q	Törnqvist volume index
TSA	Tourism satellite account
UJV	Unincorporated joint venture
UNECE	United Nations Economic Commission for Europe
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
WHO	World Health Organization
XMPI	Export and import price indices
XPI	Export price index

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Chapter 1: Introduction

A. What is the System of National Accounts?

1.1 The System of National Accounts (SNA) is the internationally agreed standard set of recommendations on how to compile measures of economic activity in accordance with strict accounting conventions based on economic principles. The recommendations are expressed in terms of a set of concepts, definitions, classifications and accounting rules that comprise the internationally agreed standard for measuring such items as gross domestic product (GDP), the most frequently quoted indicator of economic performance. The accounting framework of the SNA allows economic data to be compiled and presented in a format that is designed for purposes of economic analysis, decision-taking and policymaking. The accounts themselves present in a condensed way a great mass of detailed information, organized according to economic principles and perceptions, about the working of an economy. They provide a comprehensive and detailed record of the complex economic activities taking place within an economy and of the interaction between the different economic agents, and groups of agents, that takes place on markets or elsewhere. The framework of the SNA provides accounts that are:

a. comprehensive, in that all designated activities and the consequences for all agents in an economy are covered;

b. consistent, because identical values are used to establish the consequences of a single action on all parties concerned using the same accounting rules;

c. integrated, in that all the consequences of a single action by one agent are necessarily reflected in the resulting accounts, including the impact on measurement of wealth captured in balance sheets.

1.2 The accounts of the SNA provide more than a snapshot of the economy at a point in time, since in practice the accounts are compiled for a succession of time periods, thus providing a continuing flow of information that is indispensable for the monitoring, analysis and evaluation of the performance of an economy over time. The SNA provides information not only about economic activities taking place within a period but also about the levels of an economy's assets and liabilities, and thus the wealth of its inhabitants, at particular points of time. In addition, the SNA includes an external account that displays the links between an economy and the rest of the world.

1.3 Certain key aggregate statistics, such as GDP, that are widely used as indicators of economic activity at the level of the total economy, are defined within the SNA, but the calculation of such aggregates has long ceased to be the primary purpose for compiling the accounts. In order to understand the workings of the economy, it is essential to be able to observe and analyse the economic interactions taking place between different sectors of the economy. The SNA is designed to be implemented at different levels of aggregation: at the level of individual economic agents, or institutional units as they are called in the SNA; for groups of such units, or institutional sectors; or at the level of the total economy.

1.4 The SNA is designed for economic analysis, decision-taking and peacemaking, whatever the industrial structure or stage of economic development reached by a country. The basic concepts and definitions of the SNA depend upon economic reasoning and principles which should be universally valid and invariant to the particular economic circumstances in which they are applied. Similarly, the classifications and accounting rules are meant to be universally applicable. There is no justification, for example, for seeking to define parts of the SNA differently in less developed than in more developed economies, or in large relatively closed economies than in small open economies, or in high-inflation economies than in low-inflation economies. Certain definitions, or accounting rules, specified in the SNA might become superfluous in certain circumstances (for example, if there were no inflation), but it is nevertheless necessary for a general system to include definitions and rules covering as wide a range of circumstances as possible.

1.5 Some countries may be able, at least initially, to calculate only a small number of accounts and tables for the total economy with little or no disaggregation into sectors, but a reduced set of accounts or tables does not constitute an alternative system. It is not appropriate to try to lay down general priorities for data collection when economic circumstances may vary considerably from one country to another. In practice, priorities can only be established country by country by economic analysts or policymakers familiar with the particular economic situation, needs and problems of the individual countries in question. It is not useful, for example, to try to specify general priorities for developing countries when they constitute a very heterogeneous group of countries at a world level. Data priorities may vary as much between one developing country and another as between a developing and a developed country or indeed between two developed countries.

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B. The conceptual elements of the SNA

1.6 The SNA measures what takes place in the economy, between which agents, and for what purpose. At the heart of the SNA is the production of goods and services. These may be used for consumption in the period to which the accounts relate or may be accumulated for use in a later period. In simple terms, the amount of value added generated by production represents GDP. The income corresponding to GDP is distributed to the various agents or groups of agents as income and it is the process of distributing and redistributing income that allows one agent to consume the goods and services produced by another agent or to acquire goods and services for later consumption. The way in which the SNA captures this pattern of economic flows is to identify the activities concerned by recognizing the institutional units in the economy and by specifying the structure of accounts capturing the transactions relevant to one stage or another of the process by which goods and services are produced and ultimately consumed. These concepts are sketched below and developed further in chapter 2 and later chapters.

1. Activities and transactions

1.7 The SNA is designed to provide information about the behaviour of institutional units and the activities in which they engage, namely production, consumption and the accumulation of assets, in an analytically useful form. This is achieved by recording the exchange of goods, services and assets between institutional units in the form of transactions. At the same time, other transactions are recorded that represent the form of payment for the exchange which may be a good, service or asset of similar value but is often some form of financial claim including notes and coins.

1.8 Data on transactions provide the basic source material from which the values of the various elements in the accounts are built up or derived. The use of transactions data has important advantages. The first of these is that the prices at which goods and services are exchanged in transactions between buyers and sellers on markets provide the information needed for valuing, directly or indirectly, all the items in the accounts. Secondly, a transaction that takes place between two different institutional units has to be recorded for both parties to the transaction and therefore generally appears twice in a system of macroeconomic accounts. This enables important linkages to be established in the SNA. For example, output is obtained by summing the amounts sold, bartered or transferred to other units plus the amounts entered into, less the amounts withdrawn from, inventories. In effect, the value of output is obtained by recording the various uses of that output by means of data on transactions. In this way, flows of goods and services can be traced through the economic system from their producers to their eventual users. Some transactions are only internal bookkeeping transactions that are needed when a single unit engages in two activities, such as the production and consumption of the same good or service, but the great majority of transactions takes place between different units on markets.

2. The institutional sectors of the economy

1.9 Two main kinds of institutional units, or transactors, are distinguished in the SNA; households and legal entities. Legal entities are either entities created for purposes of production, mainly corporations and non-profit institutions (NPIs), or entities created by political processes, specifically government units. The defining characteristic of an institutional unit is that it is capable of owning goods and assets, incurring liabilities and engaging in economic activities and transactions with other units in its own right.

1.10 For the purposes of the SNA, institutional units that are resident in the economy are grouped together into five mutually exclusive sectors composed of the following types of units:

a. Non-financial corporations;

b. Financial corporations;

c. Government units, including social security funds;

d. NPIs serving households (NPISHs);

e. Households.

The five sectors together make up the total economy. Each sector may be further divided into subsectors; for example, the non-financial and financial corporations sectors are divided to distinguish corporations subject to control by governments or foreign units from other corporations. The SNA makes provision for a complete set of flow accounts and balance sheets to be compiled for each sector, and subsector if desired, as well as for the total economy. The total number of accounts that may be compiled is therefore potentially quite large, depending upon the level of disaggregation that is required and feasible. Only by disaggregation into sectors and subsectors is it possible to observe the interactions between the different parts of the economy that need to be measured and analysed for purposes of policymaking.

1.11 Institutional units that are resident abroad form the rest of the world. The SNA does not require accounts to be compiled in respect of economic activities taking place in the rest of the world, but all transactions between resident and non-resident units have to be recorded in order to obtain a complete accounting for the economic behaviour of resident units. Transactions between residents and non-residents are grouped together in a single account, the rest of the world account

3. Accounts and their corresponding economic activities

1.12 This section gives a very brief summary of the accounts of the SNA. It is impossible to do justice to the wealth of information contained in the SNA in a short section of this kind, and reference should be made to chapter 2 for a comprehensive overview.

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The goods and services account

1.13 Fundamental to the SNA is the identity that goods and services produced in the economy must be consumed, used for capital formation or exported while all goods and services used within the economy must be produced in the economy or imported. From this, once suitable allowance is made for the effect on prices of taxes and subsidies on products, the goods and services account is derived and thence GDP.

The sequence of accounts

1.14 This basic identity is elaborated within the SNA into a sequence of interconnected flow accounts linked to different types of economic activity taking place within a given period of time, together with balance sheets that record the values of the stocks of assets and liabilities held by institutional units or sectors at the beginning and end of the period. Each flow relates to a particular kind of activity such as production, or the generation, distribution, redistribution or use of income. Each account shows the resources available to the institutional units and the uses made of these resources. An account is balanced by introducing a balancing item defined residually as the difference between the total resources recorded on one side of the account and the total uses recorded on the other side. The balancing item from one account is carried forward as the first item in the following account, on the opposite side, thereby making the set of accounts an articulated whole. The balancing items typically encapsulate the net result of the activities covered by the account in question and are therefore economic constructs of considerable interest and analytical significance. Examples of balancing items include value added, disposable income and saving. There is also a strong link between the flow accounts and the balance sheets, as all the changes occurring over time that affect the assets or liabilities held by institutional units or sectors are systematically recorded in one or another of the flow accounts.

1.15 The set of accounts just described is referred to as the "sequence of accounts" but it should be noted that, although it is necessary to present the accounts in a particular order, the activities they describe should not be interpreted as taking place sequentially in time. For example, incomes are generated continuously by processes of production, while expenditures on the outputs produced may also be taking place more or less simultaneously. An economy is a general equilibrium system in which interdependent economic activities involving countless transactions between different institutional units are carried out simultaneously. Feedbacks are continually taking place from one type of economic activity to another.

Current accounts

1.16 The current accounts record the production of goods and services, the generation of incomes by production, the subsequent distribution and redistribution of incomes among institutional units, and the use of incomes for purposes of consumption or saving.

1.17 The production account records the activity of producing goods and services as defined within the SNA. Its balancing item, gross value added, is defined as the value of output less the value of intermediate consumption and is a measure of the contribution to GDP made by an individual producer, industry or sector. Gross value added is the source from which the primary incomes of the SNA are generated and is therefore carried forward into the primary distribution of income account. Value added and GDP may also be measured net by deducting consumption of fixed capital, a figure representing the decline in value during the period of the fixed capital used in a production process.

1.18 A set of articulated accounts shows how incomes are:

a. Generated by production;

b. Distributed to institutional units with claims on the value added created by production;

c. Redistributed among institutional units, mainly by government units through social security contributions and benefits and taxes;

d. Used by households, government units or non-profit institutions serving households (NPISHs) for purposes of final consumption or saving;

e. Available as saving for accumulating wealth.

The income accounts have considerable intrinsic economic interest in themselves. In particular, they are needed to explain the behaviour of institutional units as final consumers, that is, as users of the goods and services for the satisfaction of the individual and collective needs and wants of households and the community. The balancing item emerging from the complete set of income accounts is saving.

1.19 As the balancing item, saving is carried forward into the capital account, the first in the sequence of accumulation accounts.

Accumulation accounts

1.20 The accumulation accounts are those that record flows that affect the entries in the balance sheets at the start and end of the accounting period. There are four accumulation accounts; the capital account, the financial account, the other change in the volume of assets account and the revaluation account.

a. The capital account records acquisitions and disposals of non-financial assets as a result of transactions with other units, internal bookkeeping transactions linked to production (such as changes in inventories and consumption of fixed capital) and the redistribution of wealth by means of capital transfers.

b. The financial account records acquisitions and disposals of financial assets and liabilities, also through transactions.

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c. The other changes in the volume of assets account records changes in the amounts of the assets and liabilities held by institutional units or sectors as a result of factors other than transactions; for example, destruction of fixed assets by natural disasters.

d. The revaluation account records those changes in the values of assets and liabilities that result from changes in their prices.

1.21 The link between the accumulation accounts and the current accounts is provided by the fact that saving must be used to acquire financial or non-financial assets of one kind or another, including cash. When saving is negative, the excess of consumption over disposable income must be financed by disposing of assets or incurring liabilities. The financial account shows the way in which funds are channelled from one group of units to another, especially through financial intermediaries. Access to finance is a prerequisite for engaging in many types of economic activities.

Balance sheets

1.22 The balance sheets show the values of the stocks of assets and liabilities held by institutional units or sectors at the beginning and end of an accounting period. As already noted, the values of the assets and liabilities held at any moment in time vary whenever any transactions, price changes or other changes affecting the volume of assets or liabilities held take place. These are all recorded in one or another of the accumulation accounts so that the difference between the values in the opening and closing balance sheets is entirely accounted for within the SNA, provided that the assets and liabilities recorded in the balance sheets are valued consistently with the transactions and other changes.

Other accounts of the SNA

1.23 The SNA is a rich and detailed economic accounting system that extends well beyond the sequence of accounts to encompass other accounts or tables that either contain information that cannot be included in the main accounts or present information in alternative ways, such as matrices, that may be more appropriate for certain types of analysis. It is not proposed to list all these various elements at this point, as they are described in chapter 2, but it is useful to draw attention to two specific elements which play a major role in the SNA.

Supply and use tables

1.24 In addition to the flow accounts and balance sheets described earlier, the central framework of the SNA also contains detailed supply and use tables in the form of matrices that record how supplies of different kinds of goods and services originate from domestic industries and imports and how those supplies are allocated between various intermediate or final uses, including exports. These tables involve the compilation of a set of integrated production and generation of income accounts for industries by drawing upon detailed data from industrial censuses or surveys. The supply and use tables provide an accounting framework within which the product flow method of compiling national accounts, whereby the total supplies and uses of individual types of goods and services have to be balanced with each other, can be systematically exploited. The supply and use tables also provide the basic information for the derivation of detailed input-output tables that may be used for purposes of economic analysis and projections.

Accounts in volume terms

1.25 The SNA also provides specific guidance about the methodology to be used to compile an integrated set of price and volume indices for flows of goods and services, gross and net value added and GDP that are consistent with the concepts and accounting principles of the SNA. It is recommended that annual chain indices should be used where possible.

1.26 Rates of inflation and economic growth appropriately measured by price and volume indices for the main aggregates of the SNA are key variables both for the evaluation of past economic performance and as targets for the formulation of economic policymaking. They are an essential part of the SNA when any amount of inflation appears and become increasingly important as inflation increases. The SNA also recognizes that the growth in the volume of GDP and the growth of an economy's real income are not the same because of trading gains or losses resulting from changes in international terms of trade.

C. Uses of the SNA

1.27 The main objective of the SNA is to provide a comprehensive conceptual and accounting framework that can be used to create a macroeconomic database suitable for analysing and evaluating the performance of an economy. The existence of such a database is a prerequisite for informed, rational policymaking and decision-taking. Some of the more specific uses of the SNA are described in the following sections.

1. Monitoring the behaviour of the economy

1.28 Certain key aggregates of the SNA, such as GDP and GDP per head of population, have acquired an identity of their own and are widely used by analysts, politicians, the press, the business community and the public at large as summary, global indicators of economic activity and welfare. Movements of such aggregates, and their associated price and volume measures, are used to evaluate the overall performance of the economy and hence to judge

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the relative success or failure of economic policies pursued by governments.

1.29 National accounts data provide information covering both different types of economic activities and the different sectors of the economy. It is possible to monitor the movements of major economic flows such as production, household consumption, government consumption, capital formation, exports, imports, etc., in both value and volume terms. Moreover, information is provided about certain key balancing items and ratios which can only be defined and measured within an accounting framework, for example, the budget surplus or deficit, the share of income that is saved or invested by individual sectors of the economy or the economy as a whole, the trade balance, etc. The SNA also provides the background against which movements of short-term indicators, such as monthly indices of industrial production, consumer or producer prices can be interpreted and evaluated. The monitoring of the behaviour of the economy may be significantly improved if at least some of the main aggregates of the SNA are compiled quarterly as well as annually, although many of the accounts, tables or balance sheets of the SNA are not usually compiled more frequently than once a year.

2. Macroeconomic analysis

1.30 National accounts are also used to investigate the causal mechanisms at work within an economy. Such analysis usually takes the form of the estimation of the parameters of functional relationships between different economic variables by applying econometric methods to time series of data in both value and volume terms compiled within a national accounting framework. The types of macroeconomic models used for such investigations may vary according to the school of economic thought of the investigator as well as the objectives of the analysis, but the SNA is sufficiently flexible to accommodate the requirements of different economic theories or models, provided only that they accept the basic concepts of production, consumption, income, etc. on which the SNA is based.

1.31 Economic policy in the short term is formulated on the basis of an assessment of the recent behaviour and current state of the economy and a view, or precise forecast, about likely future developments. Short-term forecasts are typically made using econometric models of the type just described. Over the medium- or long-term, economic policy has to be formulated in the context of a broad economic strategy.

1.32 Economic policymaking and decision-taking take place at all levels of government and also within public and private corporations. Large corporations such as multinationals have the ability to build their own macroeconomic models tailored to their own requirements, for which they need national accounts data. The investment programmes of major corporations must be based on long-term expectations about future economic developments that require national accounts data. There are also specialist agencies that provide forecasts for individual clients in return for fees. Such agencies typically require very detailed national accounts data.

3. International comparisons

1.33 The SNA is used for international reporting of national accounts data that conform to standard, internationally accepted concepts, definitions and classifications. The resulting data are widely used for international comparisons of the volumes of major aggregates, such as GDP or GDP per head, and also for comparisons of structural statistics, such as ratios of investment, taxes or government expenditures to GDP. Such comparisons are used by economists, journalists or other analysts to evaluate the performance of one economy against that of other similar economies. They can influence popular and political judgements about the relative success of economic programmes in the same way as developments over time within a single country. Databases consisting of sets of national accounts for groups of countries can also be used for econometric analyses in which time-series and cross-section data are pooled to provide a broader range of observations for the estimation of functional relationships.

1.34 Levels of GDP or, alternatively, gross national income (GNI) per head in different countries are also used by international organizations to determine eligibility for loans, aid or other funds or to determine the terms or conditions on which such loans, aid or funds are made available. When the objective is to compare the volumes of goods or services produced or consumed per head, data in national currencies must be converted into a common currency by means of purchasing power parities and not exchange rates. It is well known that, in general, neither market nor fixed exchange rates reflect the relative internal purchasing powers of different currencies. When exchange rates are used to convert GDP, or other statistics, into a common currency the prices at which goods and services in high-income countries are valued tend to be higher than in low-income countries, thus exaggerating the differences in real incomes between them. Exchange rate converted data must not, therefore, be interpreted as measures of the relative volumes of goods and services concerned. Levels of GDP, or GDP per head, in different countries are also used to determine, in whole or in part, the size of the contributions which the member countries of an international organization make to finance the operations of the organization.

1.35 Although international organizations use the SNA in order to be able to collect internationally comparable national accounts data, the SNA has not been created for this purpose. It has become the standard, or universal, system used with little or no modification by most countries in the world for their own national purposes. National statistical offices and government agencies have a strong vested interest in ensuring that the SNA meets their own analytic and policy requirements and have taken an active part in the development of the SNA for this reason.

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D. The boundaries of the SNA

1. Non-monetary transactions

1.36 When goods and services produced within the economy are sold in monetary transactions, their values are automatically included in the accounts of the SNA. Many goods or services are not actually sold but are nevertheless supplied to other units: for example, they may be bartered for other goods or services or provided free as transfers in kind. Such goods and services must be included in the accounts even though their values have to be estimated. The goods or services involved are produced by activities that are no different from those used to produce goods or services for sale. Moreover, the transactions in which the goods and services are supplied to other units are also proper transactions even though the producers do not receive money in exchange. It is misleading to describe such output as "imputed". For example, the services of financial intermediaries which are measured indirectly in the SNA do actually take place; but their values have to be measured indirectly. It is the value, not the transaction that is "imputed".

1.37 When goods or services are retained for own use, no transactions with other units take place. In such cases, in order to be able to record the goods or services in the accounts, internal transactions have to be recorded whereby producers allocate the goods or services for their own consumption or capital formation and values also have to be estimated for them.

1.38 Thus, estimates and imputations are needed in order to be able to record in the accounts productive activities whose outputs are not disposed of in monetary transactions with other units. Such estimates and imputations should not be interpreted as introducing hypothetical activities or flows of goods and services into the SNA. Their purpose is the opposite, namely, to capture in the accounts major flows of goods and services actually taking place in the economy that would otherwise be omitted. In order to obtain comprehensive measures, values have to be estimated for all outputs of goods and services that are not sold but disposed of in other ways.

1.39 In practice the SNA does not record all outputs, however, because domestic and personal services produced and consumed by members of the same household are omitted. Subject to this one major exception, GDP is intended to be a comprehensive measure of the total gross value added produced by all resident institutional units. GDP is confined to outputs produced by economic activities that are capable of being provided by one unit to another. Not all activities that require the expenditure of time and effort by persons are productive in an economic sense, for example, activities such as eating, drinking or sleeping cannot be produced by one person for the benefit of another.

2. The production boundary

1.40 The activity of production is fundamental. In the SNA, production is understood to be a physical process, carried out under the responsibility, control and management of an institutional unit, in which labour and assets are used to transform inputs of goods and services into outputs of other goods and services. All goods and services produced as outputs must be such that they can be sold on markets or at least be capable of being provided by one unit to another, with or without charge. The SNA includes within the production boundary all production actually destined for the market, whether for sale or barter. It also includes all goods or services provided free to individual households or collectively to the community by government units or NPISHs.

Household production

1.41 The main problem for defining the range of activities recorded in the production accounts of the SNA is to decide upon the treatment of activities that produce goods or services that could have been supplied to others on the market but are actually retained by their producers for their own use. These cover a very wide range of productive activities, in particular:

a. The production of agricultural goods by household enterprises for own final consumption;

b. The production of other goods for own final use by households: the construction of dwellings, the production of foodstuffs and clothing, etc.;

c. The production of housing services for own final consumption by owner occupiers;

d. The production of domestic and personal services for consumption within the same household: the preparation of meals, care and training of children, cleaning, repairs, etc.

All of these activities are productive in an economic sense. However, inclusion in the SNA is not simply a matter of estimating monetary values for the outputs of these activities. If values are assigned to the outputs, values have also to be assigned to the incomes generated by their production and to the consumption of the output. It is clear that the economic significance of these flows is very different from that of monetary flows. For example, the incomes generated are automatically tied to the consumption of the goods and services produced; they have little relevance for the analysis of inflation or deflation or other disequilibria within the economy. The inclusion of large non-monetary flows of this kind in the accounts together with monetary flows can obscure what is happening on markets and reduce the analytic usefulness of the data.

1.42 The SNA is designed to meet a wide range of analytical and policy needs. A balance has to be struck between the desire for the accounts to be as comprehensive as possible and the need to prevent flows used for the analysis of market behaviour and disequilibria from being swamped by non-monetary values. The SNA therefore includes all production of goods for own use within its production boundary, as the decision whether goods are to be sold or

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retained for own use can be made even after they have been produced, but it excludes all production of services for own final consumption within households (except for the services produced by employing paid domestic staff and the own-account production of housing services by owner-occupiers). The services are excluded because the decision to consume them within the household is made even before the service is provided. The location of the production boundary in the SNA is a compromise, but a deliberate one that takes account of the needs of most users. In this context it may be noted that in labour force statistics economically active persons are defined as those engaged in productive activities as defined in the SNA. If the production boundary were extended to include the production of personal and domestic services by members of households for their own final consumption, all persons engaged in such activities would become self-employed, making unemployment virtually impossible by definition. This illustrates the need to confine the production boundary in the SNA and other related statistical systems to market activities or fairly close substitutes for market activities.

Other production boundary problems

1.43 Certain natural processes may or may not be counted as production depending upon the circumstances in which they occur. A necessary condition for an activity to be treated as productive is that it must be carried out under the instigation, control and responsibility of some institutional unit that exercises ownership rights over whatever is produced. For example, the natural growth of stocks of fish in the high seas not subject to international quotas is not counted as production: the process is not managed by any institutional unit and the fish do not belong to any institutional unit. On the other hand, the growth of fish in fish farms is treated as a process of production in much the same way that rearing livestock is a process of production. Similarly, the natural growth of wild, uncultivated forests or wild fruits or berries is not counted as production, whereas the cultivation of crop-bearing trees, or trees grown for timber or other uses, is counted in the same way as the growing of annual crops. However, the deliberate felling of trees in wild forests, and the gathering of wild fruit or berries, and also firewood, counts as production. Similarly, rainfall and the flow of water down natural watercourses are not processes of production, whereas storing water in reservoirs or dams and the piping, or carrying, of water from one location to another all constitute production.

1.44 These examples show that many activities or processes that may be of benefit to institutional units, both as producers and consumers, are not processes of production in an economic sense. Rainfall may be vital to the agricultural production of a country but it is not a process of production whose output can be included in GDP.

3. The consumption boundary

1.45 The coverage of production in the SNA has ramifications that extend considerably beyond the production account itself. The boundary of production determines the amount of value added recorded and hence the total amount of income generated by production. The range of goods and services that are included in household final consumption expenditures, and actual consumption, is similarly governed by the production boundary. For example, these expenditures include the estimated values of the agricultural products consumed by households that they have produced themselves and also the values of the housing services consumed by owner occupiers, but not the values of “do-it-yourself” repairs and maintenance to vehicles or household durables, the cleaning of dwellings, the care and training of children, or similar domestic or personal services produced for own final consumption. Only the expenditures on goods utilized for these purposes, such as cleaning materials, are included in household final consumption expenditures.

4. The asset boundary

1.46 Balance sheets are compiled for institutional units, or sectors, and record the values of the assets they own or the liabilities they have incurred. Assets as defined in the SNA are entities that must be owned by some unit, or units, and from which economic benefits are derived by their owner(s) by holding or using them over a period of time. Financial assets and fixed assets, such as machinery, equipment and structures which have themselves been produced as outputs in the past, are clearly covered by this definition. However, the ownership criterion is important for determining which natural resources are treated as assets in the SNA. Natural resources such as land, mineral deposits, fuel reserves, uncultivated forests or other vegetation and wild animals are included in the balance sheets provided that institutional units are exercising effective ownership rights over them, that is, are actually in a position to be able to benefit from them. Assets need not be privately owned and could be owned by government units exercising ownership rights on behalf of entire communities. Thus, many environmental assets are included within the SNA. Resources such as the atmosphere or high seas, over which no ownership rights can be exercised, or mineral or fuel deposits that have not been discovered or that are unworkable, are not included as they are not capable of bringing any benefits to their owners, given the technology and relative prices existing at the time.

1.47 Changes in the values of natural resources owned by institutional units between one balance sheet and the next are recorded in the accumulation accounts of the SNA. For example, the depletion of a natural resource as a result of its use in production is recorded in the other changes in volume of assets account, together with losses of fixed assets due to their destruction by natural disasters (floods, earthquakes, etc.). Conversely, when deposits or reserves of minerals or fuels are discovered or previously unworkable deposits become workable, their appearance is recorded in this account and they enter the balance sheets in this way.

5. National boundaries

1.48 The accounts of the SNA are compiled for resident institutional units grouped into institutional sectors and subsectors. The concept of residence is the same as that used in the *Balance of Payments and International Investment Position Manual, Sixth Edition* (International Monetary Fund (IMF), 2008), known as *BPM6*. An institutional unit is said to be resident within the economic

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territory of a country when it maintains a centre of predominant economic interest in that territory, that is, when it engages, or intends to engage, in economic activities or transactions on a significant scale either indefinitely or over a long period of time, usually interpreted as one year.

1.49 The GDP of a country, viewed as an aggregate measure of production, is equal to the sum of the gross value added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). This is not exactly the same as the sum of the gross value added of all productive activities taking place within the geographical boundaries of the national economy. Some of the production of a resident institutional unit may take place abroad, for example, the installation of some exported machinery or equipment or a consultancy project undertaken by a team of expert advisers working temporarily abroad. Conversely, some of the production taking place within a country may be attributable to non-resident institutional units.

1.50 When GDP is derived from the expenditure side, allowance has also to be made for goods and services produced by non-residents but consumed by residents as well as for goods and services produced by residents but consumed abroad. For the SNA to be comprehensive in coverage, all transactions with the rest of the world have to be identified so their impact on measures relating to the resident economy is properly accounted for. The complete set of transactions with the rest of the world in the SNA matches exactly the set of transactions captured in the balance of payments.

6. Final consumption, intermediate consumption and gross fixed capital formation

1.51 The contents of the accounts are determined not only by the conceptual framework, definitions and classifications of the SNA but also by the ways in which they are interpreted and implemented in practice. No matter how simple and precise concepts and classifications may appear in principle, there are inevitably difficult borderline cases which cannot easily be fitted into predetermined categories. These points may be illustrated by considering a fundamental distinction in economics and in the SNA, namely, the distinction between consumption and gross fixed capital formation (or gross fixed investment, as it is often described in other contexts).

1.52 Before considering the difference between consumption and investment, though, it is necessary to look more closely at the nature of consumption. Consumption is an activity in which institutional units use up goods or services, but there are two quite different kinds of consumption. Intermediate consumption consists of goods and services used up in the course of production within the accounting period. Final consumption consists of goods and services used by individual households or the community to satisfy their individual or collective needs or wants. The activity of gross fixed capital formation, like intermediate consumption, is restricted to institutional units in their capacity as producers, being defined as the value of their acquisitions less disposals of fixed assets. Fixed assets are produced assets (such as machinery, equipment, buildings or other structures) that are used repeatedly or continuously in production over several accounting periods (more than one year). The distinction between intermediate consumption and gross capital formation depends on whether the goods and services involved are completely used up in the accounting period or not. If they are, the use of them is a current transaction recorded as intermediate consumption; if not it is an accumulation transaction recorded in the capital account.

1.53 The general nature and purpose of the distinction between gross fixed capital formation and consumption, whether intermediate or final, is clear. The distinction is fundamental for economic analysis and policymaking. Nevertheless, the borderline between consumption and gross fixed capital formation is not always easy to determine in practice. Certain activities contain some elements that appear to be consumption and at the same time others that appear to be capital formation. In order to try to ensure that the SNA is implemented in a uniform way, decisions have to be taken about the ways in which certain difficult, even controversial, items are to be classified. Two examples are given below.

Human capital

1.54 It is often proposed that expenditures on staff training and education should be classified as gross fixed capital formation as a form of investment in human capital. The acquisition of knowledge, skills and qualifications increases the productive potential of the individuals concerned and is a source of future economic benefit to them. However, while knowledge, skills and qualifications are clearly assets in a broad sense of the term, they cannot be equated with fixed assets as understood in the SNA. They are acquired through learning, studying and practising, activities that cannot be undertaken by anyone else on behalf of the student and thus the acquisition of knowledge is not a process of production even though the instruction conveyed by education services is. The education services produced by schools, colleges, universities, etc. are thus treated as being consumed by students in the process of their acquiring knowledge and skills. This type of education is treated as final consumption. When training is given by an employer to enhance the effectiveness of staff, the costs are treated as intermediate consumption.

1.55 This treatment of education costs is consistent with the production and asset boundaries of the SNA but not all users of the SNA find it satisfactory in all instances. However, as explained below, the SNA is such that users are encouraged to explore alternative conventions in the form of satellite accounts, described in chapter 29. An alternative treatment for the recording of human capital is one such application.

Repairs, maintenance and gross fixed capital formation

1.56 Another, less familiar, example of the intrinsic difficulty of trying to draw a dichotomy between consumption and gross fixed capital formation is provided by repairs and maintenance. Ordinary maintenance and repairs undertaken

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by enterprises to keep fixed assets in good working order are treated as intermediate consumption. However, major improvements, additions or extensions to fixed assets, both machinery and structures, which improve their performance, increase their capacity or prolong their expected working lives count as gross fixed capital formation. In practice it is not easy to draw the line between ordinary repairs and major improvements, although the SNA provides certain recommendations for this purpose. Some analysts, however, consider that the distinction between ordinary repairs and maintenance and major improvements and additions is neither operational nor defensible and would favour a more "gross" method of recording in which all such activities are treated as gross fixed capital formation.

E. The SNA as a coordinating framework for statistics

1. Harmonization between different statistical systems

1.57 The SNA has a very important statistical function by serving as a coordinating framework for economic statistics in two different senses. In the first place, the SNA is seen as the conceptual framework for ensuring the consistency of the definitions and classifications used in different, but related, fields of statistics. Secondly, the SNA acts as an accounting framework to ensure the numerical consistency of data drawn from different sources, such as industrial inquiries, household surveys, merchandise trade statistics, VAT returns and other administrative sources.

1.58 Consistency between different statistical systems enhances the analytical usefulness of all the statistics involved. The SNA has always occupied a central position in economic statistics because the data from more specialized systems, such as balance of payments or labour force statistics, typically have to be used in conjunction with national accounts data. The need for harmonization of the SNA and related statistical systems, such as financial statistics or balance of payments statistics, leads to the practice of revising other statistical systems in parallel with, and in close collaboration with, that of the SNA. This coordination eliminates conceptual differences between them other than a few exceptions that can be specifically justified in terms of the special characteristics of different kinds of data, or the special requirements of different kinds of users. Harmonization between the SNA and other major systems has proved to be largely successful and has been achieved by making changes to the SNA as well as to the other systems.

2. The use of microdata for macroeconomic accounting

1.59 The sequence of accounts and balance sheets of the SNA could, in principle, be compiled at any level of aggregation, even that of an individual institutional unit. It might therefore appear desirable if the macroeconomic accounts for sectors or the total economy could be obtained directly by aggregating corresponding data for individual units. There would be considerable analytical advantages in having microdatabases that are fully compatible with the corresponding macroeconomic accounts for sectors or the total economy. Data in the form of aggregates, or averages, often conceal a great deal of useful information about changes occurring within the populations to which they relate. For example, economic theory indicates that changes in the pattern of the distribution of income may be expected to have an impact on aggregate consumption over and above that due to changes in the aggregate level of income. Information relating to individual units may be needed not only to obtain a better understanding of the working of the economy but also to monitor the impact of government policies, or other events, on selected types of units about which there may be special concern, such as households with very low incomes. Microdata sets also make it possible to follow the behaviour of individual units over time. Given the continuing improvements in computers and communications, the management and analysis of very large microdatabases is becoming progressively easier. Data can be derived from a variety of different sources, such as administrative and business records, as well as specially conducted censuses and surveys.

1.60 In practice, however, macroeconomic accounts can seldom be built up by simply aggregating the relevant microdata. Even when individual institutional units keep accounts or records, the concepts that are needed or appropriate at a micro level may not be suitable at a macro level. Individual units may be obliged to use concepts designed for other purposes, such as taxation. The accounting conventions and valuation methods used at a micro level typically differ from those required by the SNA. For example, the widespread use of historic cost accounting means that the accounts of individual enterprises may differ significantly from those used in the SNA. Depreciation as calculated for tax purposes may be quite arbitrary and unacceptable from an economic viewpoint as a measure of consumption of fixed capital. In such situations, it is impractical to try to adjust the individual accounts of thousands of enterprises before aggregating them. Instead the data are adjusted after they have been aggregated to some extent. Of course, the data do not have to be aggregated to the level of the total economy, or even complete sectors or industries, before being adjusted and it is likely to be more efficient to make the adjustments for smaller and more homogenous groups of units. This may involve compiling so-called intermediate systems of accounts. At whatever level of aggregation the adjustments are made, the inevitable consequence is to make the resulting macrodata no longer equivalent to simple aggregations of the microdata from which they are derived. When the microdata are not derived from business accounts or administrative records but from censuses or surveys designed for statistical purposes, the concepts used should be closer to those required, but the results may still require adjustment at a macro level because of incomplete

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coverage (the surveys being confined to enterprises above a certain size, for example) and bias from response errors.

1.61 Most households are unlikely to keep accounts of the kind needed by the SNA. Microdata for households are typically derived from sample surveys that may be subject to significant response and reporting errors. It may be particularly difficult to obtain reliable and meaningful data about the activities of small unincorporated enterprises owned by households. Aggregates based on household surveys have to be adjusted for certain typical biases, such as the underreporting of certain types of expenditure (on tobacco, alcoholic drink, gambling, etc.) and also to make them consistent with macrodata from other sources, such as imports. The systematic exploitation of microdata may also be restricted by the increasing concerns about confidentiality and possible misuse of such databases.

1.62 It may be concluded therefore that, for various reasons, it may be difficult, if not impossible, to achieve microdatabases and macroeconomic accounts that are fully compatible with each other in practice. Nevertheless, as a general objective, the concepts, definitions and classifications used in economic accounting should, so far as possible, be the same at both a micro and macro level to facilitate the interface between the two kinds of data.

F. Links with business accounting

1.63 The accounting rules and procedures used in the SNA are based on those long used in business accounting. The traditional double-entry bookkeeping principle, whereby a transaction gives rise to a pair of matching debit and credit entries within the accounts of each of the two parties to the transaction, is a basic axiom of economic or national accounting. For example, recording the sale of output requires not only an entry in the production account of the seller but also an entry of equal value, often described as the counterpart, in the seller's financial account to record the cash, or short-term financial credit, received in exchange for the output sold. As two matching entries are also needed for the buyer, the transaction must give rise to four simultaneous entries of equal value in a system of macroeconomic accounts covering both the seller and the buyer. In general, a transaction between two different institutional units always requires four equal, simultaneous entries in the accounts of the SNA (that is, quadruple entry accounting) even if the transaction is a transfer and not an exchange and even if no money changes hands. These multiple entries enable the economic interactions between different institutional units and sectors to be recorded and analysed. However, transactions within a single unit (such as the consumption of output by the same unit that produced it) require only two entries whose values have to be estimated.

1.64 The design and structure of the SNA draws heavily on economic theory and principles as well as business accounting practices. Basic concepts such as production, consumption and capital formation are meant to be rooted in economic theory. When business accounting practices conflict with economic principles, priority is given to the latter, as the SNA is designed primarily for purposes of economic analysis and policymaking. The difference between business accounting and economic theory can be illustrated by the concept of cost of production used in the SNA.

1.65 Business accounts commonly (but not invariably) record costs on an historic basis, partly to ensure that they are completely objective. Historic cost accounting requires goods or assets used in production to be valued by the expenditures actually incurred to acquire those goods or assets, however far back in the past those expenditures took place. In the SNA, however, the concept of opportunity cost as defined in economics is employed. In other words, the cost of using, or using up, some existing asset or good in one particular process of production is measured by the amount of the benefits that could have been secured by using the asset or good in alternative ways. Opportunity cost is calculated with reference to the opportunities foregone at the time the asset or resource is used, as distinct from the costs incurred at some time in the past to acquire the asset. The best practical approximation to opportunity cost accounting is current cost accounting, whereby assets and goods used in production are valued at their actual or estimated current market prices at the time the production takes place. Current cost accounting is sometimes described as replacement cost accounting, although there may be no intention of actually replacing the asset in question after it has been used.

1.66 When there is persistent inflation, even at moderate levels, the use of historic costs tends to underestimate the opportunity costs of production in an economic sense so that historic cost profit may be much greater than the operating surplus as defined in the SNA. Profits at historic costs are liable to give very misleading signals as to the profitability of the production processes to which they relate by systematically undervaluing inputs compared with outputs. They can lead to mistaken decisions at both a microeconomic and macroeconomic level.

1.67 Current cost accounting has ramifications that permeate the entire SNA. It affects all the accounts and balance sheets and their balancing items. A fundamental principle underlying the measurement of gross value added, and hence GDP, is that output and intermediate consumption must be valued at the prices current at the time the production takes place. This implies that goods withdrawn from inventories must be valued at the prices prevailing at the times the goods are withdrawn and not at the prices at which they entered inventories. This method of recording changes in inventories is not commonly used in business accounting, however, and may sometimes give very different results, especially when inventory levels fluctuate while prices are rising. Similarly, consumption of fixed capital in the SNA is calculated on the basis of the estimated opportunity costs of using the assets at the time

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they are used, as distinct from the prices at which the assets were acquired. Even when the fixed assets used up are not actually replaced, the amount of consumption of fixed capital charged as a cost of production should be sufficient to enable the assets to be replaced, if desired. When there is persistent inflation, the value of consumption of fixed capital is liable to be much greater than depreciation at historic costs, even if the same assumptions are made in the SNA and in business accounts about the service lives of the assets and their rates of wear and tear and obsolescence. To avoid confusion, the term "consumption of fixed capital" is used in the SNA to distinguish it from "depreciation" as typically measured in business accounts.

1.68 A difference between the SNA and commercial accounting is that the term "profits" is not used to describe a balancing item in the SNA. The item entrepreneurial income is a close approximation to before tax profits and disposable income to after tax profits. The use of the term disposable income comes from the fact that the corresponding item for the household sector represents the maximum amount available to a household for purposes of consumption after maintaining its net worth intact, that is the current value of its assets minus the current value of its liabilities. For corporations, since they do not have final consumption, this is the amount available for investment.

1.69 Unlike commercial accounting, the SNA excludes from the calculation of income any assets received or disposed of as a result of capital transfers that merely redistribute wealth between different units, and also any assets received or disposed of as a result of events not connected with production, such as earthquakes or other natural disasters, or acts of war. Real holding gains or losses on assets or liabilities due to changes in their relative prices are also excluded from income generated by production.

1. International accounting standards

1.70 A feature of the 2008 update of the SNA is recognition of the increasing use of international accounting standards by corporations and in the public sector. Subsequent chapters make reference to International Accounting Standards Board (IASB) and the International Public Sector Accounting Standards Board (IPSASB) norms. In several cases, notably on pension liabilities and intangible assets, the feasibility of including certain items in the SNA is dependent on the application of the international accounting standards.

G. Expanding the scope of the SNA

1.71 The SNA is designed to be sufficiently comprehensive that individual countries, whatever their economic structures, institutional arrangements or level of development, can select from within it those parts of the SNA that are considered to be most relevant and useful to implement in the light of their own needs and capabilities. The SNA is meant to be implemented in a flexible manner and the accounts and tables, classifications and sectoring presented in this volume should not be regarded as fixed. For example, classifications of institutional units, transactions and assets may be implemented flexibly by introducing further aggregation or disaggregation in order to adapt them to the data availability and special circumstances of different countries. The flexible use of classifications does not change the basic concepts and definitions of the SNA.

1.72 In some cases, the SNA explicitly insists on flexibility. For example, two alternative methods of subsectoring the general government sector are proposed in chapter 4 without either being assigned priority. Similarly, although the SNA suggests subsectoring the households sector on the basis of the household's principal source of income, it stresses that this is only one possible criterion for subsectoring. In some cases, it may be more appropriate to subsector on the basis of socio-economic criteria or the type of area in which the household is located or, indeed, to carry the disaggregation of the households sector further by using two or more criteria together in a hierarchical manner.

1.73 Ways in which the SNA may be adapted to meet differing circumstances and needs are addressed in chapters 18 to 29. Chapter 29 shows how flexibility may be taken a stage further by developing satellite accounts that are closely linked to the main SNA but are not bound to employ exactly the same concepts or restricted to data expressed in monetary terms. Satellite accounts are intended for special purposes such as monitoring the community's health or the state of environment. They may also be used to explore new methodologies and to work out new accounting procedures that, when fully developed and accepted, may become absorbed into the main SNA in the course of time, in the way that input-output analysis, for example, has been integrated into the SNA.

1.74 Another way in which the SNA may be implemented flexibly is by rearranging the data in the accounts in the form of a social accounting matrix in order better to serve particular analytical and policy needs. Such matrices should not be construed as constituting different systems but as alternative ways of presenting the mass of information contained in the SNA which some users and analysts find more informative and powerful for both monitoring and modelling social and economic development.

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H. The SNA and measures of welfare

1.75 GDP is often taken as a measure of welfare, but the SNA makes no claim that this is so and indeed there are several conventions in the SNA that argue against the welfare interpretation of the accounts. The implications of some of these conventions are outlined briefly in this section.

1. Qualifications to treating expenditure as a welfare measure

1.76 In a market economy, the prices used to value different goods and services should reflect not only their relative costs of production but also the relative benefits or utilities to be derived from using them for production or consumption. This establishes the link between changes in aggregate production and consumption and changes in welfare. However, changes in the volume of consumption, for example, are not the same as changes in welfare. It is widely accepted that, other things being equal, increased expenditure on goods and services leads to increased welfare. The increase in welfare may not, however, be proportionate to the increase in expenditure. Nor is the unit incurring the expenditure necessarily the one that benefits from an increase in welfare. The SNA makes a distinction between actual consumption, showing the amount of goods and services actually consumed, and consumption expenditure. Household actual consumption is greater than consumption expenditure because it includes expenditures incurred by general government and NPISHs on behalf of individual households.

1.77 An increase in consumption of food by someone living in extreme poverty is likely to lead to a greater increase in welfare than a similar increase in consumption by someone already well-fed. The SNA however, cannot distinguish this because although the rules allow distinguishing which unit incurs the expenditure as opposed to which unit consumes the food, the valuation basis in the SNA is the price paid for the food with no adjustment for the qualitative benefits derived from its consumption. The most that can be claimed for treating expenditure as a measure of welfare is that it may be a reasonable lower bound on the level of welfare engendered by the expenditure.

2. Unpaid services and welfare

1.78 The production boundary of the SNA is such that the services produced and consumed by households are not included except for the imputed rental of owner-occupied dwellings and the payments made to domestic staff. Similarly, no estimate is included in the SNA for the labour services of individuals provided without cost to non-profit institutions. In both these cases, the contribution of time increases the welfare of other individuals in the community. The exclusion of these services from the production boundary is not a denial of the welfare properties of the services but a recognition that their inclusion would detract from rather than add to the usefulness of the SNA for the primary purposes for which it is designed, that is economic analysis, decision-taking and policymaking.

3. The impact of external events on welfare

1.79 The level of an individual's and a nation's welfare may be affected by a wide range of factors that are not economic in origin. Consider the effects of an exceptionally severe winter combined with an influenza epidemic. Other things being equal, the production and consumption of a number of goods and services may be expected to rise in response to extra demands created by the cold and the epidemic; the production and consumption of fuels, clothing and medical services will tend to increase. As compared with the previous year, people may consider themselves to be worse off overall because of the exceptionally bad weather and the epidemic, notwithstanding the fact that production and consumption may have increased in response to the additional demand for heating and health services. Total welfare could fall even though GDP could increase in volume terms.

1.80 This kind of situation does not mean that welfare cannot be expected to increase as GDP increases, other things being equal. Given the occurrence of the cold and the epidemic, the community presumably finds itself much better off with the extra production and consumption of heating and health services than without them. There may even be a general tendency for production to rise to remedy the harmful effects of events that reduce people's welfare in a broad sense. For example, production may be expected to increase in order to repair the damage caused by such natural disasters as earthquakes, hurricanes and floods. Given that the disaster has occurred, the extra production presumably increases welfare. However the question remains how changes in welfare should be measured over time; a community that has suffered a natural disaster will have a higher level of welfare if damage is repaired than if it is not, but how does this new level of welfare compare to the situation in the absence of the disaster?

4. The impact of externalities on welfare

1.81 Some production activities cause a loss in welfare that is not captured in the SNA. A factory, for example, may generate noise and emit pollutants into the air or nearby water systems to the extent of causing a loss of amenity and thus a loss of welfare to individuals living nearby. As long as there is no financial penalty to the factory, the consequences go unmeasured in the SNA. If, in response to government legislation or otherwise, the factory incurs expenditures that reduce the noise or quantity of pollutants emitted, costs will rise and so will welfare but again the match is not necessarily one to one and the level of welfare after the ameliorations may still be lower than it might be if the factory simply closed down.

1.82 Environmental externalities are a major cause of concern both as regards measuring welfare and indeed economic growth itself. In response to these concerns, a satellite account of the SNA has been developed and is being refined to try to answer such questions.

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5. Non-economic impacts on welfare

1.83 An individual's state of well-being, or welfare, is not determined by economic factors alone. Personal and family circumstances, quality of health, the satisfaction of lack of it derived from employment are just some other factors that affect welfare. It is difficult to imagine an objective way in which factors such as these could be quantified and more difficult to imagine the usefulness of including them in a system designed primarily to facilitate economic analysis

6. Welfare indicators and macroeconomic aggregates

1.84 Welfare is a wide-ranging concept with many different facets. Some of these may be captured reasonably well by one or more of the key aggregates of the SNA. Others may be captured by using the basic structure of the SNA and expanding it in certain directions, perhaps by including unpaid services and the effects of environmental damage, for example. Yet other aspects are likely to remain forever outside the reach of a system not designed with the measurement of welfare as a prime consideration. It would be foolish to deny this just as it is unrealistic to expect a system of economic accounts to necessarily and automatically yield a wholly satisfactory measure of welfare.

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Chapter 2: Overview

A. Introduction

2.1 This chapter provides an overview of the accounting framework of the SNA and in doing so gives an overview of most of the following chapters also.

a. It introduces the conceptual elements that form the building blocks of the accounting system and the rules of accounting to be followed. They are further elaborated in section B and C and in their full detail in chapters 3, 4 and 5.

b. It describes the standard view of the central framework of main accounting structure. Each account is introduced with a description of the nature of the account and an insight into the sort of analysis the account can yield. The accounts are described in section D and then in chapters 6 to 17.

c. Thereafter, the chapter shows some of the ways in which the central framework may be applied flexibly, depending on specific country requirements. In particular satellite accounts are introduced. These extensions and applications of the SNA are described briefly in section E and in chapters 18 to 29.

2.2 As explained in chapter 1, the central framework describes the essential phenomena which constitute economic behaviour: production, consumption, accumulation and the associated concepts of income and wealth. The SNA aims to provide a representation of this set of phenomena and their interrelations that is simplified to aid comprehension but still covers all important considerations. To achieve this, the central framework must satisfy two conditions; it must be integrated and consistent.

2.3 To be integrated, the same concepts, definitions and classifications must be applied to all accounts and sub-accounts. For example, once it is decided dwellings are treated as assets, all dwellings must give rise to housing services that are included within the production boundary, regardless of whether the dwellings are occupied by the owners or are rented on the market. Equally, all give rise to income that must be treated in the same way in the SNA, regardless of the relationship between the owner and the occupier.

2.4 To be consistent, each economic flow or stock level appearing in the SNA must be measured identically for the parties involved. This consistency is achieved by applying throughout the SNA the same concepts and definitions and also by using a single set of accounting rules for all entries in the SNA. In practice, the actual data coming from the accounts or statistics provided by elementary units will not be fully consistent for various reasons and so achieving the consistency required by the SNA requires a large amount of additional work.

1. Analysing flows and stocks

2.5 Basically, the purpose of a system of national accounts is to record economic flows and stocks. Economic flows can be thought of in various ways. Consider the question "*Who does what*?" "Who" refers to the economic agent engaged in doing something, the operator. "What" is connected with the kind of action this agent is undertaking. In a few cases, the answer to this simple question provides a good preliminary characterization of an economic flow. However, in general the question is too simple to provide even a rough economic description of a specific flow. Take the example of somebody buying a loaf of bread. In order to characterize the flow, it is necessary to consider from whom this loaf of bread is bought (a baker or a supermarket) and what is given in exchange (a coin or a note). So the starting question is transformed into "Who does what *with whom in exchange for what?*" This rather simple flow involves two operators (a buyer, a seller), two main actions (a purchase, a sale), two secondary actions (a payment, a receipt) and two objects (bread, a coin or a note). Again, a complete description would require more information, at least the weight, kind and price of the bread.

2.6 The picture in the real world is still more complicated. Before this flow occurred, the seller had a certain quantity of bread in his shop; afterwards he has less bread but more money. The buyer had a certain amount of money, now he has less money but some bread (before eating it). So the flow between them has changed their initial situations. This means that flows cannot be looked at in isolation; the situations before and after a flow occurs need to be considered. At those two points in time, one must ask the question "*Who has what*?" The baker not only has bread and currency, he also has a house with the shop, baking equipment, some flour, a deposit in a bank, a car, etc. In other words, he has (he owns) a certain stock of objects. The same is true for the buyer. In addition to what they are in themselves, flows modify stocks. Flows and changes in stocks are intrinsically connected. The previous question is again transformed into "Who does what with whom in exchange for what *with what changes in stocks*?"

2.7 However, the various ways of looking at this example have not yet been exhausted. Before the baker can sell bread, he has to bake it. He uses flour, water, electricity, baking

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equipment, etc. So, an additional question is *"Who does what by what means?"* What he does can also be characterized in two ways: his activity (to bake) and the result of it (a product: bread). With respect to the buyer one can ask *"Why does he buy bread?"* The obvious purpose is to eat, as food; however, it could be to give to a beggar, as charity. This raises the question "Who does what *for what purpose?*"

2.8 Adding all the questions together results in a rather complex combination of simple links: "Who does what, with whom, in exchange for what, by what means, for what purpose, with what changes in stocks?" Answering these questions for all economic flows and stocks and operators in a given economy would provide an enormous amount of information describing the complete network of economic interrelations. However, it would require an enormous amount of basic information, which is not always available nor complete in that it may cover only certain aspects of the complex chain of questions. Further, it is necessary to organize the recording of economic flows and stocks in a comprehensible way, as discussed in the next section.

2. Recording flows and stocks

2.9 Users' needs set certain requirements for the accounting framework. The first requirement is that it should provide a picture of the economy, but the picture must be simplified in order to be both comprehensible and manageable. The second requirement is that it should faithfully represent economic behaviour by covering all important aspects in a balanced way without neglecting or giving too little emphasis to some aspects or giving others too much prominence. Finally, it should portray all significant economic interrelations and the results of economic activity. Although meeting these requirements is necessary, they are somewhat contradictory. Achieving the right balance between them is not easy. Too great a simplification can lose sight of or neglect important aspects of economic behaviour; too detailed a portrayal of reality can overburden the picture and reduce insight; too much sophistication can lower comprehension and mislead some users; and so on.

2.10 To meet these requirements, the SNA uses a limited number of basic categories to analyse and aggregate certain aspects (Who? What? What purpose? What stocks?) of the very numerous elementary flows. However, the SNA simplifies the picture it gives of the economic interrelations by not recording the "from-whom-to-whom?" question in a fully systematic way; that is, it does not always depict the network of flows between the various types of operators. Consider three units, A, B and C, each of which makes payments of the same type to the other two; they might be three shopkeepers, for example, who sell different types of goods. Suppose A buys 2 from B and 3 from C; B buys 6 from A and 1 from C; C buys 4 from each of A and B. A full articulation of the flows could be captured in a three-by-three table as follows:

	A	B	C	Total purchases
A		2	3	5
B	6		1	7
C	4	4		8
Total sales	10	6	4	20

2.11 Although only the purchases were specified, it follows that the receipts of each unit are also available in the table. The totals in the right-most column show the total purchases of each of the three units and the bottommost row shows the total receipts by each of the three units. The sum of each must, obviously, be the same since each is the sum of all entries within the table. Within the central framework, the full detail of the flows from each of A, B and C to each of the others is not generally shown; it is sufficient to show only the totals in the right-most column and the bottommost row and know that these must balance.

2.12 In some presentations, particularly those using a matrix format of presentation, some of these extra details may be shown. Discussion of this appears in chapters 14, 28 and 29. Even in the central framework, the full detail may be available. For example if in some case A, B and C do not interact with one another but only with another unit G, as is the case in the payment of taxes, then there are only four entries to be shown; the payments by each of A, B and C and the receipts by G.

2.13 Another case where the SNA introduces a simplification is in terms of the "what in exchange for what?" question; that is, it does not indicate, for example, the specific nature of the financial counterpart (currency or deposit or short-term loan, etc.) for the purchases of goods and services or the payment of taxes.

2.14 The fact that the SNA is integrated, although articulated in only two and not three dimensions, does not reduce its consistency requirements. In effect, the purpose of the SNA is to derive national accounts that are as consistent as they would be if they were fully articulated; each economic flow or stock should be measured identically for both parties involved. The consistency in the SNA is achieved by applying the same concepts and definitions throughout and also by using a single strict set of accounting rules.

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B. The conceptual elements of the SNA

2.15 The SNA contains a number of conceptual elements that determine the accounting framework of the SNA and permit various aspects of the questions raised above to be answered. These concepts are:

a. Institutional units and sectors (*who*?);

b. Transactions and other flows (*what*?);

c. Assets and liabilities (*what stocks*?);

d. Products and producing units (other aspects of *who* and *what*?);

e. Purposes (*why*?).

They are presented in turn.

1. Institutional units and sectors

2.16 The fundamental units identified in the SNA are the economic units that can engage in the full range of transactions and are capable of owning assets and incurring liabilities on their own behalf. These units are called institutional units. Further, because they have legal responsibility for their actions, institutional units are centres of decision-making for all aspects of economic behaviour. In practice, some institutional units are controlled by others and thus in such cases autonomy of decision is not total and may vary over time. Legally independent holding of assets and liabilities and autonomous behaviour do not always coincide. In the SNA, preference is generally given to the first aspect because it provides a better way to organize the collection and presentation of statistics even if its usefulness is limited in some cases.

Institutional sectors

2.17 The institutional units are grouped together to form institutional sectors, on the basis of their principal functions, behaviour and objectives:

a. *Non-financial corporations* are institutional units that are principally engaged in the production of market goods and non-financial services.

b. *Financial corporations* are institutional units that are principally engaged in financial services including financial intermediation.

c. *General government* consists of institutional units that, in addition to fulfilling their political responsibilities and their role of economic regulation, produce services (and possibly goods) for individual or collective consumption mainly on a non-market basis and redistribute income and wealth.

d. *Households* are institutional units consisting of one individual or a group of individuals. All physical persons in the economy must belong to one and only one household. The principal functions of households are to supply labour, to undertake final consumption and, as entrepreneurs, to produce market goods and non-financial (and possibly financial) services. The entrepreneurial activities of a household consist of unincorporated enterprises that remain within the household except under certain specific conditions.

e. *Non-profit institutions serving households (NPISHs)* are legal entities that are principally engaged in the production of non-market services for households or the community at large and whose main resources are voluntary contributions.

2.18 Each sector contains a number of subsectors distinguished according to a hierarchical classification (described in chapter 4). A subsector comprises entire institutional units, and each institutional unit belongs to only one subsector though alternative groupings are possible. The distinction between public, national private and foreign controlled corporations and between various socio-economic groups of households is included in the SNA in order to respond to policy concerns.

Delimitation of the total economy and the rest of the world

2.19 The total economy is defined in terms of institutional units. It consists of all the institutional units which are resident in the economic territory of a country. The economic territory of a country, although consisting essentially of the geographical territory, does not coincide exactly; some additions and subtractions are made (see chapter 26). The concept of residence in the SNA is not based on nationality or legal criteria. An institutional unit is said to be a resident unit of a country when it has a centre of predominant economic interest in the economic territory of that country; that is, when it engages for an extended period (one year or more being taken as a practical guideline) in economic activities on this territory. The institutional sectors referred to above include only resident units.

2.20 Resident units engage in transactions with non-resident units (that is, units that are residents of other economies). These transactions are the external transactions of the economy and are grouped in the account of the rest of the world. Strictly speaking, the rest of the world is the account of transactions occurring between resident and non-resident units, but it may also be seen as the whole group of non-resident units that enter into transactions with resident units. In the accounting structure of the SNA, the rest of the world plays a role similar to that of an institutional sector, although non-resident units are included only in so far as they are engaged in transactions with resident institutional units.

2. Transactions and other flows

2.21 Institutional units fulfil various economic functions; that is, they produce, consume, save, invest, etc. They may engage in various types of production (agriculture, manufacturing, etc.) as entrepreneurs, providers of labour or suppliers of

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capital. In all aspects of their economic functions and activities, they undertake a great number of elementary economic actions. These actions result in economic flows, which, however they are characterized (wages, taxes, fixed capital formation, etc.), create, transform, exchange, transfer or extinguish economic value; they involve changes in the volume, composition or value of an institutional unit's assets or liabilities. The economic value may take the form of ownership rights on physical objects (a loaf of bread, a dwelling) or intangible assets (a film original) or of financial claims (liabilities being understood as negative economic value). In all cases, economic value is potentially usable to acquire goods or services, pay wages or taxes, etc.

2.22 Most economic actions are undertaken by mutual agreement between institutional units. They are either an exchange of economic value or a voluntary transfer by one unit to another of a certain amount of economic value without a counterpart. These actions undertaken by mutual agreement between two institutional units are called transactions in the SNA. The SNA also treats certain economic actions involving only a single institutional unit as transactions. They are described as internal, or intra-unit, transactions. For example, own-account fixed capital formation is treated as a transaction between a unit in its capacity as a producer with itself in its capacity as an acquirer of fixed capital. Such transactions are similar in nature to actions undertaken by mutual agreement by two different institutional units.

2.23 However, not all economic flows are transactions. For example, certain actions undertaken unilaterally by one institutional unit have consequences on other institutional units without the latter's consent. The SNA records such actions only to a limited extent, essentially when governments or other institutional units take possession of the assets of other institutional units, including non-resident units, without full compensation. In fact, unilateral economic actions bearing consequences, either positive or negative, on other economic units (externalities) are much broader but such externalities are not recorded in the SNA. Human action may result in the transfer of natural assets to economic activities and the subsequent transformation of these assets. These phenomena are recorded in the SNA as economic flows, bringing in economic value. Non-economic phenomena, such as wars and natural disasters, may destroy economic assets, and this extinction of economic value must be accounted for. The value of economic assets and liabilities may change during the time they are held as stocks, as a consequence of changes in prices. These and similar flows that are not transactions, which are called other economic flows in the SNA, are described in chapter 12.

2.24 Economic flows can be actual, observable flows or they can be built up or estimated for analytical purposes. Certain flows may be directly observed in value terms. This is the case for monetary transactions between two institutional units, such as a purchase or sale of a good or the payment of a tax. Other two-unit flows are observable but cannot be immediately valued. These flows include barter of goods and services or education services consumed by students and provided free of charge by government; a value in money terms has to be attributed to them. Barter is an example of a two-unit flow involving a "quid pro quo" that is, a flow in one direction is linked to a counterpart flow in the opposite direction; a social assistance benefit in cash is a two-unit flow that does not involve a quid pro quo. Another kind of flow involves only one institutional unit. Such flows may be physically observable, as in the case of output for own-account consumption or capital formation, or destruction by natural catastrophes. A value has to be attributed to them (this may be fairly easy in certain cases, such as when output is mostly sold). Other intra-unit, or internal, flows may not be observable as such; accounting entries are then constructed in order to measure economic performance correctly. This is the case for the consumption of fixed capital or the revaluation of assets and liabilities. Certain inter-units flows, such as reinvested earnings on foreign direct investment, are also accounting entries created for analytical purposes. Finally, some observable monetary transactions are not recorded as they are observed in practice because they are of a composite nature (nominal interest, total insurance premiums) or their legal nature does not correspond to their economic one (financial leasing). Consequently, for the SNA, they are split up into various components and their classification and routing are modified.

2.25 Although monetary transactions have a basic role in the valuation of flows in the SNA, non-monetary transactions are also significant. They include flows of goods and services that take place between institutional units for which values have to be estimated and also some flows that are assumed to take place within units. The relative importance of non-monetary transactions varies according to the type of economy and the objectives pursued by the accounting system. Although the volume of non-monetary flows is generally greater for less developed economies than for developed ones, even for the latter it is not negligible.

Main types of transactions and other flows

2.26 Elementary transactions and other flows are very numerous. They are grouped into a relatively small number of types according to their nature. The main classification of transactions and other flows in the SNA includes four first-level types, with each subdivided according to a hierarchical classification. It is designed to be used systematically in the accounts and tables of the central framework and cross-classified with institutional sectors, industry and product, and purpose classifications. A full set of transactions and their codes appear in annex 1.

2.27 *Transactions in goods and services (products)* describe the origin (domestic output or imports) and use (intermediate consumption, final consumption, capital formation or exports) of goods and services. By definition, goods and services in the SNA are always a result of production, either domestically or abroad, in the current period or in a previous one. The term products is thus a synonym for goods and services.

2.28 *Distributive transactions* consist of transactions by which the value added generated by production is distributed to labour, capital and government and transactions involving the redistribution of income and wealth (taxes on income and wealth and other transfers). The SNA draws a distinction between current and capital transfers, with the

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latter deemed to redistribute saving or wealth rather than income. (This distinction is discussed in detail in chapter 8.)

2.29 *Transactions in financial instruments* (or financial transactions) refer to the net acquisition of financial assets or the net incurrence of liabilities for each type of financial instrument. Such changes often occur as counterparts of non-financial transactions. They also occur as transactions involving only financial instruments. Transactions in contingent assets and liabilities are not considered transactions in the SNA (see chapter 11).

2.30 *Other accumulation entries* cover transactions and other economic flows not previously taken into account that change the quantity or value of assets and liabilities. They include acquisitions less disposals of non-produced non-financial assets, other economic flows of non-produced assets, such as discovery or depletion of subsoil resources or transfers of other natural resources to economic activities, the effects of non-economic phenomena such as natural disasters and political events (wars for example) and finally, they include holding gains or losses, due to changes in prices, and some minor items (see chapter 12).

Characteristics of transactions in the SNA

2.31 In order to provide more useful answers to the questions raised in the analysis of flows, some transactions are not recorded in the SNA as they might be directly observed. The SNA often uses categories which are more closely identified with an economic concept. For example, gross fixed capital formation, a subcategory of transactions in goods and services, is broader than the limited coverage thought of as “purchases of fixed assets”. In order to be closer to an economic concept, it covers the acquisition of new and existing fixed assets, through purchases, barter transactions or own-account capital formation, less the disposal of existing assets, through sales or barter transactions.

2.32 As the previous example shows, the SNA also often uses categories which are compacted, that is, are the result of combining a number of elementary transactions. The term changes in inventories, for example, refers to the difference between entries into and withdrawals from inventories and recurrent losses. The same netting happens for transactions in financial instruments. All transactions in an instrument held as an asset (or as a liability) are grouped under the heading of this instrument. The item “loans,” for example, covers issuance of new loans, conversions, and redemptions or cancellations of existing loans. Finally, some categories of transactions in the SNA, such as distributive transactions concerning interest and net non-life insurance premiums, require an actual transaction to be split into parts.

3. Assets and liabilities

2.33 Assets and liabilities are the components of the balance sheets of the total economy and institutional sectors. In contrast to the accounts that show economic flows, a balance sheet shows the stocks of assets and liabilities held at one point in time by each unit or sector or the economy as a whole. Balance sheets are normally constructed at the start and end of an accounting period but they can in principle be constructed at any point in time. However, stocks result from the accumulation of prior transactions and other flows, and they are modified by future transactions and other flows. Thus stocks and flows are closely related.

2.34 The coverage of assets is limited to those assets which are subject to ownership rights and from which economic benefits may be derived by their owners by holding them or using them in an economic activity as defined in the SNA. Consumer durables, human capital and those natural resources that are not capable of bringing economic benefits to their owners are outside the scope of assets in the SNA.

2.35 The classification of assets distinguishes, at the first level, financial and non-financial (produced and non-produced) assets (see chapter 10). Most non-financial assets generally serve two purposes. They are primarily objects usable in economic activity and, at the same time, serve as stores of value. Financial assets are necessarily and primarily stores of value, although they may also fulfil other functions.

4. Products and producing units

Products

2.36 Goods and services, also called products, are the result of production. They are exchanged and used for various purposes; as inputs in the production of other goods and services, as final consumption or for investment. The SNA makes a conceptual distinction between market, own final use and non-market goods and services, allowing in principle any kind of good or service to be any of these three types.

Producing units

2.37 Institutional units such as corporations may produce various types of goods and services. These goods and services result from processes of production which may differ as regards materials and supplies consumed, kind of equipment and labour employed and techniques used. In other words, they may come from different production activities. In order to study transactions in goods and services in detail, the SNA uses the *Central Product Classification Version 2 (CPC) 2* (United Nations 2008b).

2.38 To study production and production functions in detail, it is necessary to refer to more homogeneous units. The ideal solution would be to be able to identify and observe units that engaged in only one production activity. As it is also necessary to give a picture of the distribution of production in space, this unit should also be in a single location or nearby sites. In practice, it is not always feasible to distinguish units of production engaged in a single activity, and for which the necessary data are available, inside multiactivity units. Inevitably, therefore, some secondary activities that cannot be separated are covered. For that reason, for the detailed study of production, the SNA uses a unit which, in addition to its principal activity, may cover secondary activities. This unit is the establishment.

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2.39 Establishments that have the same principal activity are grouped into industries according to the *International Standard Industrial Classification of All Economic Activities Revision 4* (*ISIC, Rev.4)* (United Nations, 2008a).

2.40 Given the fundamental role played by the market in modern economies, the SNA distinguishes, as an essential feature of its structure, between establishments that are market producers, producers for own final use and non-market producers. Market establishments produce goods and services mostly for sale at prices that are economically significant. Producers for own final use produce goods and services mostly for final consumption or fixed capital formation by the owners of the enterprises in which they are produced. Non-market establishments supply most of the goods and services they produce without charge or at prices that are not economically significant.

2.41 There is a hierarchical relationship between institutional units and establishments. An institutional unit contains one or more entire establishment(s); an establishment belongs to one and only one institutional unit.

5. Purposes

2.42 The concept of purpose, or function, relates to the type of need a transaction or group of transactions aims to satisfy or the kind of objective it pursues. Transactions are first analysed in the SNA according to their nature. Then, for certain sectors or kind of transactions, they are analysed from the expenditure side, by purpose, answering the earlier question "for what purpose?" Classification by purpose is described in the context of the supply and use tables in chapter 14.

C. Rules of accounting

1. Introduction

Terminology for the two sides of the accounts

2.43 The SNA utilizes the term *resources* for transactions which add to the amount of economic value of a unit or a sector. For example, wages and salaries are a resource for the unit or sector receiving them. Resources are by convention shown on the right-hand side of the current accounts. The left-hand side of the accounts, which includes transactions that reduce the amount of economic value of a unit or sector, is termed *uses*. To continue the example, wages and salaries are a use for the unit or sector that must pay them.

2.44 Balance sheets are presented with *liabilities and net worth* (the difference between assets and liabilities) on the right-hand side and *assets* on the left-hand side. Comparing two successive balance sheets gives changes in liabilities and net worth and changes in assets.

2.45 The accumulation accounts and balance sheets being fully integrated, the right-hand side of the accumulation accounts is called *changes in liabilities and net worth* and their left-hand side is called *changes in assets*. In the case of transactions in financial instruments, the changes in liabilities are often referred to as (net) incurrence of liabilities and the changes in assets as (net) acquisition of financial assets.

Change of ownership and the recording of transactions in goods and services

2.46 A good may be held and be processed by a unit that does not have title to the ownership of the good. One example is a good given to a unit for repair. The activity of the repairer is only the cost incurred to effect the repair and the cost of the good being repaired does not feature in the accounts of the repairer. This is obvious and uncontroversial for every day types of repairs such as repairing shoes or a vehicle. However, the same principle also applies when one unit processes goods on behalf of another unit. For example, one unit may receive a set of components from another unit and return the assembled product.

2.47 Within the SNA, a distinction is made between legal ownership and economic ownership. The criterion for recording the transfer of products from one unit to another in the SNA is that the economic ownership of the product changes from the first unit to the second. The legal owner is the unit entitled in law to the benefits embodied in the value of the product. A legal owner may, though, contract with another unit for the latter to accept the risks and rewards of using the product in production in return for an agreed amount that has a smaller element of risk in it. Such an example is when a bank legally owns a plane but allows an airline to use it in return for an agreed sum. It is the airline that then must take all the decisions about how often to fly the plane, to where and at what cost to the passengers. The airline is then said to be the economic owner of the plane even though the bank remains the legal owner. In the accounts, it is the airline and not the bank that is shown as purchasing the plane. At the same time, a loan, equal in value to payments due to the bank for the duration of the agreement between them is imputed as being made by the bank to the airline.

2.48 The same principle applies to goods sent abroad for processing. If the processor is not concerned about how and where and for how much the item he is assembling is sold, the economic ownership remains with the legal owner. Even though the goods may physically pass from one country to another, they are not treated as imports and exports because the economic ownership has not changed.

2.49 Within a large enterprise with several specialized establishments, it is not immediately obvious whether a delivery of goods from one establishment to another is to be recorded or not. Since all the establishments have the same ownership, the distinction between economic and legal ownership needs refining. The criterion used is to record a delivery when the receiving unit assumes the

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responsibility, in terms of economic risks and rewards, of the items delivered. If the receiving unit does not accept this responsibility, for example by returning the processed items to the original sending unit, then it is only performing a service on the items and they are not recorded as being delivered from the first unit to the second.

Double entry or quadruple entry accounting

2.50 For a unit or sector, national accounting is based on the principle of double entry, as in business accounting. Each transaction must be recorded twice, once as a resource (or a change in liabilities) and once as a use (or a change in assets). The total of transactions recorded as resources or changes in liabilities and the total of transactions recorded as uses or changes in assets must be equal, thus permitting a check of the consistency of the accounts. Economic flows that are not transactions have their counterpart directly as changes in net worth. This is shown in section D below (and also in chapter 12, which describes the other changes in the volume of assets account and the revaluation account).

2.51 The implications of the double entry principle are easy to grasp in a number of cases. A household's purchase on credit of a consumer good will appear as a use under final consumption expenditure and as an incurrence of a liability under loans. If this good is paid for in cash, however, the picture is less simple. The counterpart of a use under final consumption is now a negative acquisition of assets, under currency and deposits. Other transactions are more complicated. Output of goods is recorded as a resource in the account of a producer, its counterpart among uses is recorded as a positive change in inventories. When the output is sold, there is a negative change in inventories, that is, a negative acquisition of non-financial assets, balanced by a positive acquisition of financial assets, for instance under currency and deposits. In many instances, as explained earlier, the difficulty of seeing how the double entry principle applies is due to the fact that the categories of transactions in the SNA are compacted.

2.52 In principle, the recording of the consequences of an action as it affects all units and all sectors is based on a principle of quadruple entry accounting, because most transactions involve two institutional units. Each transaction of this type must be recorded twice by each of the two transactors involved. For example, a social benefit in cash paid by a government unit to a household is recorded in the accounts of government as a use under the relevant type of transfers and a negative acquisition of assets under currency and deposits; in the accounts of the household sector, it is recorded as a resource under transfers and an acquisition of assets under currency and deposits. The principle of quadruple entry accounting applies even when the detailed from-whom-to-whom relations between sectors are not shown in the accounts. Correctly recording the four transactions involved ensures full consistency in the accounts.

2.53 As noted in the introduction, the data available to the national accounts compiler may not in practice initially satisfy the consistency requirements of the SNA. The accounts of the nation are not kept in the same way as a business unit or government, that is, by actually recording all flows occurring in a given period. They rely on accounts of various units that are not always consistent, complete or even available. For household accounts in particular, other statistics such as those from household surveys have to be used. Reconciling disparate data sources within the consistency constraints imposed by the quadruple entry accounting principle is fundamental to compiling a complete set of accounts.

2. Time of recording

2.54 One implication of the quadruple entry accounting principle is that transactions, or other flows, have to be recorded at the same point of time in the various accounts in question for both units involved. The same applies to stocks of financial assets and liabilities.

2.55 The general principle in national accounting is that transactions between institutional units have to be recorded when claims and obligations arise, are transformed or are cancelled. This time of recording is called an accrual basis. Transactions internal to one institutional unit are equivalently recorded when economic value is created, transformed or extinguished. Generally speaking, all transactions, however they are described, can always be viewed as dealing with economic value.

2.56 One has thus to distinguish carefully between the point in time at which a transaction and the corresponding cash movement take place. Even when a transaction (a purchase or sale of a good, for example) and the payment or receipt are simultaneous, the two aspects exist. The purchaser incurs a liability, the seller acquires a claim as a counterpart of the delivery of the good. Then the liability and the claim are cancelled by the payment. In most cases there is a delay between the actual transaction and the corresponding payment or receipt. In principle, national accounts record actual transactions on an accrual basis, not on a cash basis. Conceptually national accounts follow the same principle as business accounting.

2.57 Although the principle is clear, its implementation is far from simple. Institutional units do not always apply the same rules. Even when they do, differences in actual recording may occur for practical reasons such as delays in communication. Consequently, transactions may be recorded at different times by the transactors involved, sometimes even in a different accounting period. Discrepancies exist which national accounts must eliminate by after-the-fact adjustments. In addition, because the time at which a claim or liability arises is not always unambiguous, further implementation problems arise. The rules and conventions adopted in the SNA for particular transactions are specified in subsequent chapters, in particular in chapter 3.

3. Valuation

General principles

2.58 It also follows from the quadruple entry accounting principle that a transaction must be recorded at the same value through all the accounts of both sectors involved. The same principle applies to assets and liabilities. It means that

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a financial asset and its liability counterpart have to be recorded for the same amount in the creditor and the debtor accounts.

2.59 Transactions are valued at the actual price agreed upon by the transactors. Market prices are thus the basic reference for valuation in the SNA. In the absence of market transactions, valuation is made according to costs incurred (for example, non-market services produced by government) or by reference to market prices for analogous goods or services (for example, services of owner-occupied dwellings).

2.60 Assets and liabilities are recorded at current values at the time to which the balance sheet relates, not at their original valuation. Theoretically, national accounts are based on the assumption that the values of assets and liabilities are continuously uprated to current values, even if in fact up-rating occurs only periodically. The appropriate valuation basis for assets and liabilities is the value at which they might be bought in markets at the time the valuation is required. Ideally, values observed in markets or estimated from observed market values should be used. When this is not possible, current values may be approximated for balance sheet valuation in two other ways, by accumulating and revaluing transactions over time or by estimating the discounted present value of future returns expected from a given asset (see also chapter 13).

2.61 Internal transactions are valued at current values at the time these transactions occur, not at the original valuation. These internal transactions include entries into inventories, withdrawals from inventories, intermediate consumption and consumption of fixed capital.

Methods of valuation

2.62 Various methods exist of treating the effect of taxes on products, subsidies and trade and transport margins on the valuation of transactions on products (goods and services).

2.63 The preferred method of valuation of output is at basic prices, although producers' prices may be used when valuation at basic prices is not feasible. The distinction is related to the treatment of taxes and subsidies on products. Basic prices are prices before taxes on products are added and subsidies on products are subtracted. Producers' prices include, in addition to basic prices, taxes less subsidies on products other than value added type taxes. Thus three valuations of output may be encountered; at basic prices, at producers' prices in the absence of value added type taxes, and at producers' prices in the presence of value added type taxes.

2.64 In the same set of accounts and tables, all transactions on the uses of goods and services (such as final consumption, intermediate consumption, capital formation) are valued at purchasers' prices. Purchasers' prices are the amounts paid by the purchasers, excluding the deductible part of value added type taxes. Purchasers' prices are the actual costs to the users.

2.65 The various methods of valuing output, with intermediate consumption always at purchasers' prices, imply consequences for the content and uses of value added (the difference between output and intermediate consumption) by a producer, a sector or an industry. When output is valued at basic prices, value added includes besides primary incomes due to labour and capital, only taxes less subsidies on production other than taxes less subsidies on products; when output is valued at producers' prices, value added includes taxes, less subsidies, on products other than value added type taxes (which means all taxes, less subsidies, on products when value added type taxes do not exist). A complementary definition of value added is at factor cost, which excludes taxes on production of any kind, though this concept is not used explicitly in the SNA.

Volume measures and measures in real terms

2.66 Up until this point, only current values have been described. In addition, the SNA includes calculation of some transactions in volume terms, that is, the use of the systems of prices which prevailed in a past period. The changes over time in the current values of flows of goods and services and of many kinds of assets can be decomposed into changes in the prices of these goods and services or assets and changes in their volumes. Flows or stocks in volume terms take into account the changes in the price of each item covered. However, many flows or stocks do not have price and quantity dimensions of their own. Their current values may be deflated by taking into account the change in the prices of some relevant basket of goods and services or assets, or the change in the general price level. In the latter case, flows or stocks are said to be in real terms (that is, they represent values at constant purchasing power). For example, the SNA provides for the calculation of income in real terms. Interspatial comparisons raise similar but even more complex problems than inter-temporal comparisons because countries at different stages of development are involved.

2.67 Both inter-temporal and interspatial measures are discussed in chapter 15.

4. Consolidation and netting

Consolidation

2.68 Consolidation may cover various accounting procedures. In general, it refers to the elimination from both uses and resources of transactions which occur between units that are grouped together and to the elimination of financial assets and the counterpart liabilities.

2.69 As a matter of principle, flows between constituent units within subsectors or sectors are not consolidated. However, consolidated accounts may be compiled for complementary presentations and analyses. Even then, transactions appearing in different accounts are never consolidated so that the balancing items are not affected by consolidation. Consolidation may be useful, for example, for the government sector as a whole, thus showing the net relations between government and the rest of the economy. This possibility is elaborated in chapter 22.

2.70 Accounts for the total economy, when fully consolidated, give rise to the rest of the world account (external transactions account).

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Netting

2.71 Consolidation must be distinguished from netting. For current transactions, netting refers to offsetting uses against resources. The SNA does this only in a few specific instances; for example, taxes on products may be shown net of subsidies on products. For changes in assets or changes in liabilities, netting may be envisaged in two ways. The first case is where various types of changes in assets (for example, entries in inventories and withdrawals from inventories) or various types of liabilities (for example, incurrence of a new debt and redemption of an existing debt) are netted. The second case is where changes in financial assets and changes in liabilities (or, in the balance sheet, financial assets and liabilities themselves) related to a given financial instrument are netted. As a matter of principle, the SNA discourages netting beyond the degree shown in the classifications of the SNA. Netting financial assets (changes in financial assets) against liabilities (changes in liabilities) is especially to be avoided. Netting is discussed in chapters 3 and 11.

The use of "net"

2.72 With very few exceptions, in the SNA the term "net" is used only in connection with the balancing items of the accounts in juxtaposition to the term "gross". The exceptions are the use of the expressions net worth, net borrowing and net lending in relation to the accumulation accounts and net premiums in the context of insurance.

D. The accounts

1. Introduction

2.73 With the tools introduced in sections B and C above, all flows and stocks can be recorded. This is done in the accounts of the SNA. Each account relates to a particular aspect of economic behaviour. It contains flows or stocks and shows the entries for an institutional unit, a group of units such as a sector or the rest of the world. Typically the entries in the account do not conceptually balance so a balancing item must be introduced. Balancing items are meaningful measures of economic performance in themselves. When calculated for the whole economy, they constitute significant aggregates.

2.74 The accounts can be divided into two main classes:

a. The integrated economic accounts; and

b. The other parts of the accounting structure.

2.75 The integrated economic accounts use the first three of the conceptual elements of the SNA described in section B, (institutional units and sectors, transactions and assets and liabilities) together with the concept of the rest of the world to form a wide range of accounts. These include the full sequence of accounts for institutional sectors, separately or collectively, the rest of the world and the total economy. The full sequence of accounts is described briefly below. A full description of each of the accounts concerned is the subject matter of chapters 6 to 13. The rest of the world account is described in chapter 26.

2.76 The other parts of the accounting system bring in the three other conceptual elements from section B, that is, establishments, products and purposes as well as population and employment. The accounts covered here include the supply and use framework, which is the subject of chapter 14, population and employment tables which are described in chapter 19, the three dimensional analysis of financial transactions and stocks of financial assets and liabilities, showing the relations between sectors (from-whom-to-whom) described in chapter 27 and functional analyses, whereby certain transactions of institutional sectors are presented according to the purpose they serve. These appear in a number of chapters including chapter 14.

2.77 The sections following are devoted to:

a. The full sequence of accounts;

b. An integrated presentation of the accounts including the goods and services account, the accounts for the rest of the world and an examination of the aggregates of the SNA; and

c. The other parts of the accounting structure.

2. The full sequence of accounts

2.78 Before presenting the full sequence of accounts for institutional units and sectors, some preliminary remarks are useful. The purpose of this subsection is to explain the accounting structure of the SNA in general, not to show the precise content of the accounts for each specific unit or

Table 2.1:The production account

Uses	Resources
	Output
Intermediate consumption	
Value added	

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sector. The accounting structure is uniform throughout the SNA. It applies to all institutional units, subsectors, sectors and the total economy. However, some accounts may not be relevant for certain sectors. Similarly, not all transactions are relevant for each sector and, when they are, they may constitute resources for some sectors and uses for others.

2.79 Another remark relates to the way the classification of transactions is used when presenting the general structure of the accounts. Section B above shows only the main categories of transactions, not the detailed ones which are displayed in the relevant chapters of the publication. However, in order to make the accounts clear, it is necessary to include a number of specific transactions. This is done by using the actual classification of transactions in the SNA at a level of detail sufficient for a good understanding of the accounts. Definitions of these transactions are not given at this stage unless absolutely necessary but appear in subsequent chapters.

2.80 It is also worth noting that balancing items can be expressed gross or net, the difference being the consumption of fixed capital. Conceptually, net balancing items are much more meaningful. However, gross concepts, specifically gross aggregates, are widely used and gross accounts are often estimated more easily, accurately and promptly than the net ones. In order to accommodate both solutions and to ease the integrated presentation of the accounts and aggregates, a double presentation of balancing items is allowed.

2.81 Finally, it has to be said that the sequence of accounts shows the accounting structure of the SNA; it is not necessarily a format for publishing the results.

The three sections of the sequence of accounts

2.82 The accounts are grouped into three categories: current accounts, accumulation accounts and balance sheets.

2.83 Current accounts deal with production, the generation, distribution and use of income. Each account after the first starts with the balancing item of the previous one recorded as resources. The last balancing item is saving which, in the context of the SNA, is that part of income originating in production, domestically or abroad that is not used for final consumption.

2.84 Accumulation accounts cover changes in assets and liabilities and changes in net worth (the difference for any institutional unit or group of units between its assets and liabilities). The accounts concerned are the capital account, financial account, the other changes in the volume of assets account and the revaluation account. The accumulation accounts show all changes that occur between two balance sheets.

2.85 Balance sheets present stocks of assets and liabilities and net worth. Opening and closing balance sheets are included with the full sequence of accounts. Even when balance sheets are not compiled, a clear understanding of the conceptual relationship between accumulation accounts and balance sheets is necessary if the accumulation accounts themselves are to be correctly elaborated.

The production account

2.86 The production account (shown in table 2.1) is designed to show value added as one of the main balancing items in the SNA. Consequently, it does not cover all transactions linked with the production process, but only the result of production (output) and the using up of goods and services when producing this output (intermediate consumption). Intermediate consumption does not cover the progressive wear and tear of fixed capital. The latter is recorded as a separate transaction (consumption of fixed capital) which is the difference between the gross and net balancing items.

2.87 As already explained in section C, different types of valuation of output may be used according to the choice made between basic prices and producers' prices and, in the latter case, the existence or absence of value added type taxes. Consequently, the extent to which taxes (less subsidies) on products are included in value added differs.

Table 2.2:The generation of income account

Uses	Resources
	Value added
Compensation of employees	
Taxes on production and imports	
Subsidies (-)	
Operating surplus, net	
Mixed income, net	

Table 2.3:The allocation of primary income account

Uses	Resources
	Operating surplus, net
	Mixed income, net
	Compensation of employees
	Taxes on production and imports
	Subsidies (-)
Property income	Property income
Balance of primary incomes	

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2.88 All institutional sectors have a production account. However, in the production account of institutional sectors, output and intermediate consumption are shown in total only, not broken down by products.

2.89 The balancing item of the production account is value added. Like all balancing items in the current accounts, value added may be measured gross or net.

The distribution of income accounts

2.90 The process of distribution and redistribution of income is so important that it is worth distinguishing various steps and depicting them separately in different accounts. The distribution of income is decomposed into three main steps: primary distribution, secondary distribution and redistribution in kind. As long as all kinds of distributive current transactions included in the SNA are actually measured, increasing the number of accounts adds very little to the work already done, but it allows the introduction of balancing items that are meaningful concepts of income.

The primary distribution of income account

2.91 The primary distribution of income account shows how gross value added is distributed to labour, capital, government and, where necessary, flows to and from the rest of the world. In fact the primary distribution of income account is never presented as a single account but always as two sub-accounts. The first of these is the generation of income account (shown in table 2.2) in which value added is distributed to labour (compensation of employees), capital and government (taxes on production and imports less subsidies as far as they are included in the valuation of output). The distribution to capital appears in the balancing item in this account, operating surplus or mixed income.

2.92 The allocation of primary income account (table 2.3) shows the remaining part of the primary distribution of income. It contains operating surplus or mixed income as a resource. It records, for each sector, property income receivable and payable, and compensation of employees and taxes, less subsidies, on production and imports receivable by households and government, respectively. Since transactions of this kind may appear in the rest of the world account, these must be included also.

2.93 The balancing item of the allocation of primary income account (and of the complete primary distribution of income account) is the balance of primary income.

2.94 For non-financial and financial corporations, the allocation of primary income account is further subdivided in order to show an additional balancing item, entrepreneurial income, which is closer to the concept of current profit before tax familiar in business accounting. This balancing item and the related sub-accounts are shown in chapter 7.

The secondary distribution of income account

2.95 The secondary distribution of income account (table 2.4) covers redistribution of income through current transfers other than social transfers in kind made by government and NPISHs to households. Social transfers in kind are recorded in the redistribution of income in kind account. The secondary distribution of income account records as resources, in addition to balance of primary incomes, current taxes on income, wealth, etc. and other current transfers except social transfers in kind. On the uses side, the same types of transfers are also recorded. Since these transfers are resources for some sectors and uses for others also, their precise content varies from one sector to another.

2.96 It is worth explaining in some detail here the way social contributions are recorded in the SNA. Although employers normally pay social contributions on behalf of their employees directly to the social insurance schemes, in the SNA these payments are treated as if they were made to employees who then make payments to social insurance schemes. In terms of the accounts, this means that they first appear as a component of compensation of employees in the use side of the generation of income account of employers and the resource side of the allocation of primary income account of households (adjusted for external flows in compensation of employees). They are then recorded as uses in the secondary distribution of income account of households (and possibly of the rest of the world), and as resources of the sectors managing social insurance schemes. All employers' social contributions follow this route. This way of recording transactions as if they followed another course is often called "rerouting".

2.97 The balancing item of the secondary distribution of income account is disposable income. For households, this is the income that can be used for final consumption expenditure and saving. For non-financial and financial corporations, disposable income is income not distributed to owners of equity remaining after taxes on income are paid.

The redistribution of income in kind account

2.98 Because of the nature of the transactions concerned, this account is significant only for government, households and NPISHs. Social transfers in kind cover two more elements in the portrayal of the redistribution process. The first of

Table 2.4:The secondary distribution of income account

Uses	Resources
	Balance of primary incomes
Current transfers	Current transfers
Current taxes on income, wealth, etc.	Current taxes on income, wealth, etc.
Net social contributions	Net social contributions
Social benefits other than social transfers in kind	Social benefits other than social transfers in kind
Other current transfers	Other current transfers
Disposable income	

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these is non-market production by government and NPISHs of individual services and the second is the purchase by government and NPISHs of goods and services for transfer to households free or at prices that are not economically significant. The redistribution of income in kind account (table 2.5) records social transfers in kind as resources for households and uses of government and NPISHs.

2.99 The purpose of this account is fourfold. In the first place it aims at giving a clearer picture of the role of government as the provider of goods and services to individual households. Secondly, it delivers a more complete measure of household income. Thirdly, it facilitates international comparisons and comparisons over time when economic and social arrangements differ or change. Fourthly, it gives a more complete view of the redistribution process between subsectors or other groupings of households. Redistribution of income in kind is a tertiary distribution of income.

2.100 The balancing item of the redistribution of income in kind account is adjusted disposable income.

The use of income accounts

2.101 The use of income account exists in two variants, the use of disposable income account (table 2.6) and the use of adjusted disposable income account (table 2.7). The use of disposable income account has the balancing item from the secondary distribution of income account, disposable income, as a resource. The use of adjusted disposable income account has the balancing item from the redistribution of income in kind account, adjusted disposable income, as a resource. Both accounts show how, for those sectors that undertake final consumption (that is, government, NPISHs and households), disposable income or adjusted disposable income is allocated between final consumption and saving. In addition, both variants of the use of income account include, for households and for pension funds, an adjustment item for the change in pension entitlements which relates to the way transactions between households and pension funds are recorded in the SNA. This adjustment item, which is explained in chapter 9, is not discussed here.

2.102 The difference between the resources of the two variants of the use of income account depends on which balancing item is carried down from an earlier account. In terms of uses, the difference is between whether final consumption expenditure or actual final consumption is recorded. The former is recorded in the use of disposable income account; the latter in the use of adjusted disposable income account.

2.103 Final consumption expenditure covers transactions in final consumption of goods and services for which a sector is the ultimate bearer of the expense. Government and NPISHs produce non-market goods and services in their production account, where intermediate consumption and compensation of employees are recorded as uses. Final consumption expenditure of these producers relates to the value of their output of non-market goods and services, less their receipts from the sale of non-market goods and services at prices which are not economically significant. However, it also covers goods and services that are purchased by government or NPISHs for ultimate transfer, without transformation, to households.

2.104 Actual final consumption of households covers goods and services which are effectively available for individual consumption by households, regardless of whether the ultimate bearer of the expense is government, NPISHs or households themselves. Actual final consumption of government and NPISHs is equal to consumption

Table 2.5:The redistribution of income in kind account

Uses	Resources
	Disposable income
Social transfers in kind	Social transfers in kind
Adjusted disposable income	

Table 2.6:The use of disposable income account

Uses	Resources
	Disposable income
Final consumption expenditure	
Adjustment for the change in pension entitlements	Adjustment for the change in pension entitlements
Saving	

Table 2.7:The use of adjusted disposable income account

Uses	Resources
	Adjusted disposable income
Actual final consumption	
Adjustment for the change in pension entitlements	Adjustment for the change in pension entitlements
Saving	

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expenditure less social transfers in kind, or, in other words, collective consumption.

2.105 At the level of total economy, disposable income and adjusted disposable income are equal, as are final consumption expenditure and actual final consumption. They differ only when considering the relevant sectors. For each sector, the difference between final consumption expenditure and actual final consumption is equal to social transfers in kind, provided or received. It is also equal to the difference between disposable income and adjusted disposable income. Thus the figures for saving are the same in both variants of the use of income account as income on the resources side and consumption on the uses side differ by the same amount.

2.106 The balancing item of the use of income account, in its two variants, is saving. Saving ends the subsequence of current accounts.

The accumulation accounts

2.107 Saving, being the balancing item of the last current account is the starting element of accumulation accounts.

2.108 A first group of accounts covers transactions which would correspond to all changes in assets or liabilities and net worth if saving and capital transfers were the only sources of changes in net worth. The accounts concerned are the capital account and the financial account. These two accounts are distinguished in order to show a balancing item which is useful for economic analysis, that is, net lending or net borrowing.

2.109 A second group of accounts relates to changes in assets, liabilities and net worth due to other factors. Examples are discoveries or depletion of subsoil resources, destruction by political events, such as war, or by natural disasters, such as earthquakes. Such factors actually change the volume of assets, either physically or quantitatively. Other changes in assets may also be linked with changes in the level and structure of prices. In the latter case, only the value of assets and liabilities is modified, not their volume. Thus the second group of accumulation accounts is subdivided between an account for other changes in volume of assets and an account for revaluation.

The capital account

2.110 The capital account (table 2.8) records transactions linked to acquisitions of non-financial assets and capital transfers involving the redistribution of wealth. The right-hand side includes saving, net, and capital transfers receivable and capital transfers payable (with a minus sign) in order to arrive at that part of changes in net worth due to saving and capital transfers. The capital account includes among uses the various types of investment in non-financial assets. Because consumption of fixed capital is a negative change in fixed assets, it is recorded, with a negative sign, on the left-hand side of the account. Recording gross fixed capital formation less consumption of fixed capital on the same side is equivalent to recording net fixed capital formation.

2.111 The balancing item of the capital account is called net lending when positive and measuring the net amount a unit or a sector finally has available to finance, directly or indirectly, other units or sectors, or net borrowing when

Table 2.8:The capital account

Changes in assets	Changes in liabilities and net worth
	Saving
Gross fixed capital formation	
Consumption of fixed capital (-)	
Changes in inventories	
Acquisitions less disposals of valuables	
Acquisitions less disposals of non-produced assets	
	Capital transfers, receivable (+)
	Capital transfers payable (-)
	Changes in net worth due to saving and capital transfers
Net lending (+) / net borrowing (–)	

Table 2.9:The financial account

Changes in assets	Changes in liabilities and net worth
	Net lending (+) / net borrowing (–)
Net acquisition of financial assets	Net acquisition of financial liabilities
Monetary gold and SDRs	Monetary gold and SDRs
Currency and deposits	Currency and deposits
Debt securities	Debt securities
Loans	Loans
Equity and investment fund shares	Equity and investment fund shares
Insurance, pension and standardized guarantee schemes	Insurance, pension and standardized guarantee schemes
Financial derivatives and employee stock options	Financial derivatives and employee stock options
Other accounts receivable/payable	Other accounts receivable/payable

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negative, corresponding to the amount a unit or a sector is obliged to borrow from others.

The financial account

2.112 The financial account (table 2.9) records transactions in financial instruments for each financial instrument. These transactions in the SNA show net acquisition of financial assets on the left-hand side or net incurrence of liabilities on the right-hand side.

2.113 The balancing item of the financial account is again net lending or net borrowing, which appears this time on the right-hand side of the account. In principle, net lending or net borrowing is measured identically in both the capital and financial accounts. In practice, achieving this identity is one of the most difficult tasks in compiling national accounts.

The other changes in the volume of assets account

2.114 The other changes in the volume of assets account (table 2.10) records the effect of exceptional events that cause not only the value but also the volume of assets and liabilities to vary. In addition to the kind of events referred to above, such as the consequences of war or earthquakes, this account also includes some adjustment elements such as changes in classification and structure which may or may not have an influence on net worth (see chapter 12). The balancing item, changes in net worth due to other changes in the volume of assets, is recorded on the right-hand side.

The revaluation account

2.115 The revaluation account (table 2.11) records holding gains or losses. It starts with nominal holding gains and losses. This item records the full change in value of the various assets or liabilities due to the change in the prices of those assets and liabilities since the beginning of the accounting period or the time of entry into stock and the time of exit from stock or the end of the accounting period.

2.116 Just as transactions and other flows in assets appear on the left of the account and transactions in liabilities on the right, so nominal gains or losses on assets appear on the left-hand side of the revaluation account, while nominal gains and losses on financial liabilities are recorded on the right-hand side. A positive revaluation of financial liabilities is equivalent to a nominal holding loss; a negative revaluation of liabilities is equivalent to a nominal holding gain.

Table 2.10:The other changes in the volume of assets account

Changes in assets	Changes in liabilities and net worth
Economic appearance of assets	Economic appearance of assets
Economic disappearance of non-produced assets	Economic disappearance of non-produced assets
Catastrophic losses	Catastrophic losses
Uncompensated seizures	Uncompensated seizures
Other changes in volume n.e.c.	Other changes in volume n.e.c.
Changes in classification	Changes in classification
Total other changes in volume	Total other changes in volume
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets	Financial assets
	Changes in net worth due to other changes in volume of assets

Table 2.11:The revaluation account

Changes in assets	Changes in liabilities and net worth
Nominal holding gains and losses	*Nominal holding gains and losses*
Non-financial assets	Non-financial assets
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets/liabilities	Financial assets/liabilities
	Changes in net worth due to nominal holding gain and losses
Neutral holding gains and losses	*Neutral holding gains and losses*
Non-financial assets	Non-financial assets
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets/liabilities	Financial assets/liabilities
	Changes in net worth due to neutral holding gains and losses
Real holding gains and losses	*Real holding gains and losses*
Non-financial assets	Non-financial assets
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets/liabilities	Financial assets/liabilities
	Changes in net worth due to real holding gains and losses

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2.117 The balancing item of the revaluation account is changes in net worth due to nominal holding gains and losses.

2.118 Nominal holding gains and losses are subdivided between two components. The first shows the revaluation in proportion to the general price level which is obtained by applying, during the same periods of time, an index of the change in general price level to the initial value of all assets or liabilities, even to those that are fixed in monetary terms. The results of this operation are called neutral holding gains and losses because all assets and liabilities are revalued so as to preserve exactly their purchasing power.

2.119 The second component of holding gains and losses shows the difference between nominal holding gains and losses and neutral holding gains and losses. This difference is called real holding gains and losses. If the nominal holding gains and losses are higher than the neutral holding gains and losses, there is a real holding gain, due to the fact that on average the actual prices of the assets in question have increased more (or decreased less) than the general price level. In other words, the relative prices of its assets have increased. Similarly, a decrease in relative prices of assets leads to a real holding loss.

2.120 Each of the three types of holding gains or losses are subdivided according to the main groups of assets and liabilities, a decomposition which is necessary even in a simplified accounting presentation. Changes in net worth due to nominal holding gains and losses can be subdivided into changes due to neutral holding gains and losses and changes due to real holding gains and losses.

Balance sheets

2.121 The opening and closing balance sheets (table 2.12), display assets on the left-hand side, liabilities and net worth on the right-hand side. Assets and liabilities, as previously explained, are valued at the prices of the date a balance sheet is established.

2.122 The balancing item of a balance sheet is net worth, the difference between assets and liabilities. Net worth is equivalent to the present value of the stock of economic value a unit or a sector holds.

2.123 The changes in the balance sheet recapitulate the content of the accumulation accounts, that is, the entry for each asset or liability is the sum of the entries in the four accumulation accounts corresponding to that asset or liability. The changes in net worth can be calculated from these entries but must by definition be equal to the changes in net worth due to saving and capital transfers from the capital account plus changes in net worth due to other changes in the volume of assets from the other changes in the volume of assets account plus nominal holding gains and losses from the revaluation account.

2.124 Conceptually, the entries for the closing balance sheet are equal, asset by asset and liability by liability to the entries in the opening balance sheet plus the changes recorded in the four accumulation accounts.

3. An integrated presentation of the accounts

2.125 It is now possible to put together the various elements which have been introduced in the previous subsections and to present in detail the integrated economic accounts. Table 2.13 gives a simplified version of the integrated current accounts. It is formed by taking each of tables 2.1, 2.2, 2.3, 2.4 and 2.6 and placing them immediately one under the other. In this presentation the transactions and other flows are shown in the middle of the table with columns to the left for the uses and columns to the right for resources. In a full presentation of this type there would be one column for each sector or subsector of interest. In the interest of introducing the table in a simple manner, only four columns are shown in table 2.13. The first of these represents the sum of all the five sectors of the total economy (non-financial corporations, financial corporations, general government, NPISHs and households). There follows a column for the rest of the world, then one headed goods and services and the last is a column representing the sum of the previous three. This column has little economic meaning but is a critical way of ensuring that the tables are complete and consistent since the totals on the left-hand side and right-hand side of the accounts must be equal line by line. (When balancing items are shown as the last item in one account and the first in the next account, this equality is misaligned but still obvious.)

2.126 Table 2.14 shows the continuation of the integrated accounts, including the accumulation accounts and balance sheets as previously presented in tables 2.8, 2.9, 2.10, 2.11 and 2.12. Here the columns to the left represent assets or changes in assets and columns to the right liabilities or changes in liabilities and net worth. Together tables 2.13 and 2.14 make up the integrated economic accounts. The data in the two tables are drawn from the numerical example that runs through the entire publication. The tables for each account in chapters 6 to 13 are expanded versions of the tables shown here with columns for all institutional sectors and a full set of transactions and other flows for each of these accounts. A composite version of the tables, with all the details just mentioned, appears in Annex 2.

2.127 The integrated economic accounts give a complete picture of the accounts of the total economy including balance sheets, in a way that permits the principal economic relations and the main aggregates to be shown. This table shows, simultaneously, the general accounting structure of the SNA and presents a set of data for the institutional sectors, the economy as a whole and the rest of the world.

2.128 The presentation of the integrated accounts in this form is one of several ways in which a bird’s eye view of the accounts can be obtained. Another way is by means of a diagram such as figure 2.1, which gives the same information in schematic form.

2.129 The integrated economic accounts provide an overview of the economy as a whole. As already indicated, the integrated presentation contains much more detail than has actually been included in the tables and may be used to give a more detailed view if so desired. Columns might be introduced for subsectors. The rest of the world column can be subdivided according to various geographical zones. The column for goods and services may show market

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goods and services separately. The classification of transactions in the rows might be used at more detailed levels, and so on. However, including more detail directly in this scheme at the same time would result in a very complicated and unmanageable table. For this reason, more detailed analysis of production and transactions in goods and services, transactions in financial instruments, detailed balance sheets, as well as analysis by purpose are done in other frameworks. These are presented in the next section and their links with the integrated economic accounts are also explained.

The rest of the world accounts

2.130 The rest of the world account covers transactions between resident and non-resident institutional units and the related stocks of assets and liabilities where relevant.

2.131 As the rest of the world plays a role in the accounting structure similar to that of an institutional sector, the rest of the world account is established from the point of view of the rest of the world. A resource for the rest of the world is a use for the total economy and vice versa. If a balancing item is positive, it means a surplus of the rest of the world and a deficit of the total economy, and vice versa if the balancing item is negative.

2.132 The external account of goods and services is shown at the same level as the production account for institutional sectors. Imports of goods and services (499) are a resource for the rest of the world, exports (540) are a use. The external balance of goods and services is (-41). With a positive sign, it is a surplus of the rest of the world (a deficit of the nation) and vice versa. To this are added or deducted the various kinds of taxes, compensation of employees and other current transfers payable to, and receivable from, the rest of the world. The current external balance is -32, indicating a deficit for the rest of the world but a surplus for the total economy. Again, if it had a positive sign, it would be a surplus of the rest of the world (a deficit of the total economy).

The goods and services account

2.133 As noted above, the integrated presentation of the account includes a column on each side labelled goods and services. Entries in these columns reflect the various transactions in goods and services that appear in the accounts of the institutional sectors. Uses of goods and services in the institutional sectors accounts are reflected on the right-hand column for goods and services; resources of goods and services in the institutional sectors accounts are reflected on the left-hand column for goods and services. On the resources side of the table, the figures appearing in the column for goods and services are the counterparts of the uses made by the various sectors and the rest of the world: exports (540), intermediate consumption (1 883), final consumption (1 399), gross fixed capital formation (376), changes in inventories (28) and acquisitions less disposals of valuables (10). On the use side of the table, the figures in the column for goods and services are the counterparts of the resources of the various sectors and the rest of the world: imports (499) and output (3 604). Taxes on products (less subsidies) are also included on the resource side of the accounts. The coverage of this item varies according to the way output is valued (see the discussion on valuation in section C). The part (possibly the total) of taxes on products (less subsidies on products), that is not included in the value of output does not originate in any specific sector or industry; it is a resource of the total economy. In the numerical example taxes, less subsidies, on products (133) are shown directly in the column for goods and services. They are a component of the value of the supply of goods and services which has no counterpart in the value of the output of any institutional sector.

2.134 The goods and services account is a particularly important account as it forms the basis of the most familiar definition of GDP. Table 2.15 shows the account in the same format as earlier tables in the chapter (though with numeric values included).

Table 2.12:The opening balance sheet, changes in assets and liabilities and closing balance sheet

Stocks and changes in assets	Stocks and changes in liabilities
Opening balance sheet	*Opening balance sheet*
Non-financial assets	Non-financial assets
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets/liabilities	Financial assets/liabilities
	Net worth
Total transactions and other flows	*Total transactions and other flows*
Non-financial assets	Non-financial assets
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets/liabilities	Financial assets/liabilities
	Changes in net worth, total
	Saving and capital transfers
	Other changes in volume of assets
	Nominal holding gains and losses
Closing balance sheet	*Closing balance sheet*
Non-financial assets	Non-financial assets
Produced assets	Produced assets
Non-produced assets	Non-produced assets
Financial assets/liabilities	Financial assets/liabilities
	Net worth

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Table 2.13:The integrated presentation of the full sequence of the current accounts

Uses						Resources			
Total economy	Rest of the world	Goods and services	Total	Transactions and balancing items	Total economy	Rest of the world	Goods and services	Total
		499	499	Imports of goods and services		499		499
		392	392	Imports of goods		392		392
		107	107	Imports of services		107		107
	540		540	Exports of goods and services			540	540
	462		462	Exports of goods			462	462
	78		78	Exports of services			78	78
				Production account				
		3 604	3 604	Output	3 604			3 604
		3 077	3 077	Market output	3 077			3 077
		147	147	Output for own final use	147			147
		380	380	Non-market output	380			380
1 883			1 883	Intermediate consumption			1 883	1 883
		141	141	Taxes on products	141			141
		- 8	- 8	Subsidies on products (-)	- 8			- 8
1 854			1 854	Value added, gross / Gross domestic product				
222			222	Consumption of fixed capital				
1 632			1 632	*Value added, net / Net domestic product*				
	- 41		- 41	*External balance of goods and services*				
				Generation of income account				
				Value added, gross / Gross domestic product	1 854			1 854
				Value added, net / Net domestic product	1 632			1 632
1 150			1 150	Compensation of employees				
235			235	Taxes on production and imports				
141			141	Taxes on products				
94			94	Other taxes on production				
- 44			- 44	Subsidies				
- 8			- 8	Subsidies on products				
- 36			- 36	Other subsidies on production				
452			452	Operating surplus, gross				
61			61	Mixed income, gross				
214				Consumption of fixed capital on gross operating surplus				
8				Consumption of fixed capital on gross mixed income				
238			238	*Operating surplus, net*				
53			53	*Mixed income, net*				
				Allocation of primary income account				
				Operating surplus, gross	452			452
				Mixed income, gross	61			61
				Operating surplus, net	238			238
				Mixed income, net	53			53
	6		6	Compensation of employees	1 154	2		1 156
			0	Taxes on production and imports	235			235
			0	Subsidies	- 44			- 44
391	44		435	Property income	397	38		435
1 864			1 864	Balance of primary incomes, gross / National income, gross				
1 642			1 642	Balance of primary income, net / National income, net				
				Secondary distribution of income account				
				Balance of primary incomes, gross / National income, gross	1 864			1 864
				Balance of primary income, net / National income, net	1 642			1 642
1 212	17		1 229	Current transfers	1 174	55		1 229
212	1		213	Current taxes on income, wealth, etc.	213	0		213
333	0		333	Net social contributions	333	0		333
384	0		384	Social benefits other than social transfers in kind	384	0		384
283	16		299	Other current transfers	244	55		299
1 826			1 826	Disposable income, gross				
1 604			1 604	*Disposable income, net*				
				Use of disposable income account				
				Disposable income, gross	1 826			1 826
				Disposable income, net	1 604			1 604
1 399			1 399	Final consumption expenditure			1 399	1 399
11	0		11	Adjustment for the change in pension entitlements	11	0		11
427			427	Saving, gross				
205			205	*Saving, net*				
	- 13		- 13	*Current external balance*				

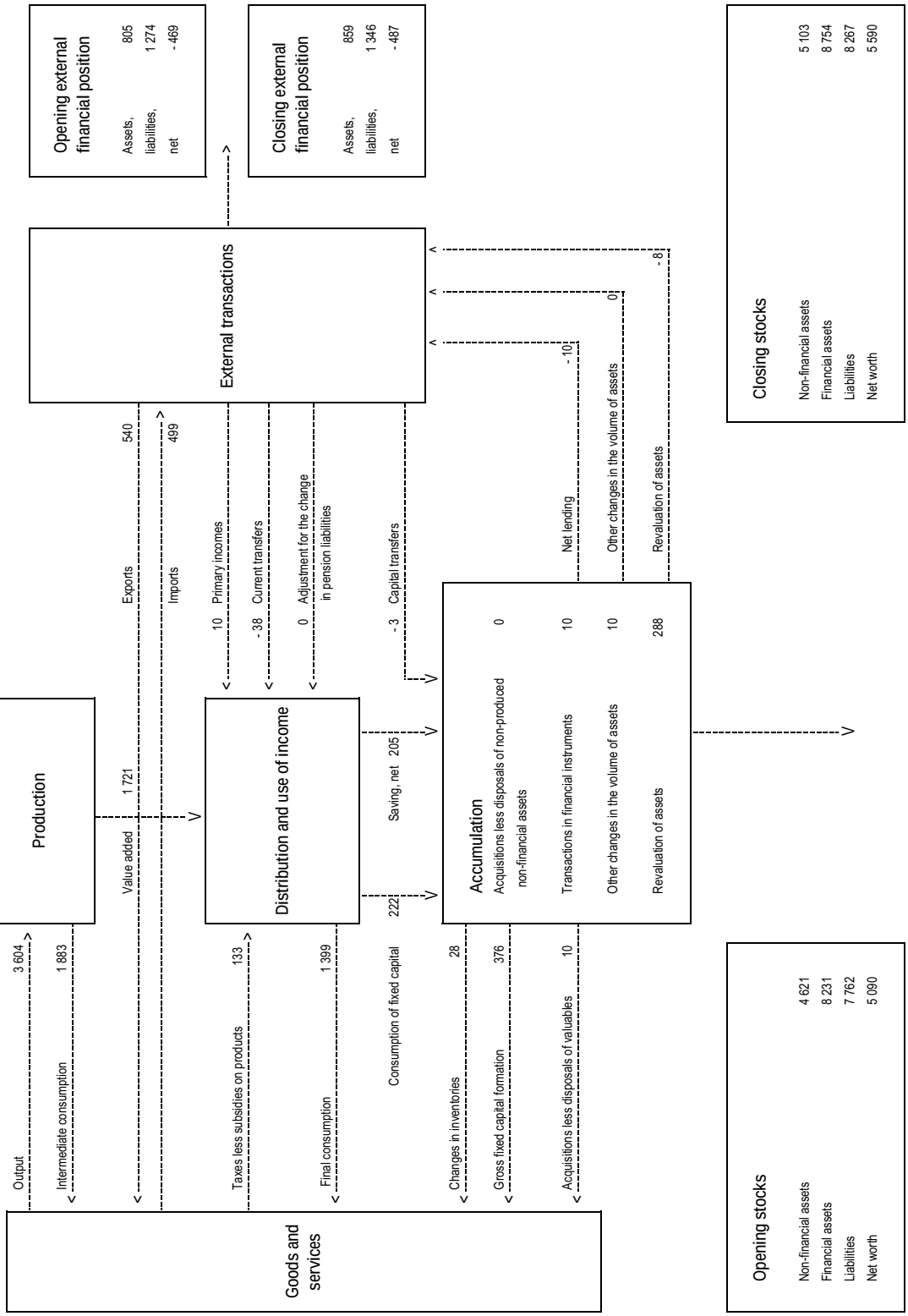
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Table 2.14:The integrated presentation of the full sequence of the accumulation accounts and balance sheets

Changes in assets					Changes in liabilities and net worth			
Total economy	Rest of the world	Goods and services	Total	Transactions and balancing items	Total economy	Rest of the world	Goods and services	Total
				Capital account				
				Saving, net	205			205
				Current external balance		- 13		- 13
414			414	Gross capital formation			414	414
192			192	Net capital formation			192	192
376			376	Gross fixed capital formation			376	376
- 222			- 222	Consumption of fixed capital			- 222	- 222
				Gross fixed capital formation by type of asset				
28			28	Changes in inventories			28	28
10			10	Acquisitions less disposals of valuables			10	10
0			0	Acquisitions less disposals of non-produced assets			0	0
				Capital transfers, receivable	62	4		66
				Capital transfers, payable	- 65	- 1		- 66
				Changes in net worth due to saving and capital transfers	202	- 10		192
10	- 10		0	*Net lending (+) / net borrowing (–)*				
				Financial account				
				Net lending (+) / net borrowing (–)	10	- 10		0
436	47		483	Net acquisition of liabilities	426	57		483
- 1	1		0	Monetary gold and SDRs				
89	11		100	Currency and deposits	102	- 2		100
86	9		95	Debt securities	74	21		95
78	4		82	Loans	47	35		82
107	12		119	Equity and investment fund shares	105	14		119
48	0		48	Insurance, pension and standardized guarantee schemes	48	0		48
14	0		14	Financial derivatives and employee stock options	11	3		14
15	10		25	Other accounts receivable/payable	39	- 14		25
				Other changes in the volume of assets account				
13			13	Total other changes in volume	3			3
- 7			- 7	Produced non-financial assets				
17			17	Non-produced non-financial assets				
3			3	Financial assets	3			3
				Changes in net worth due to other changes in volume of assets	10			
				Revaluation account				
				Nominal holding gains and losses				
280			280	Non-financial assets				
84	7		91	Financial assets/liabilities	76	15		91
				Changes in net worth due to nominal holding gains/losses	288	- 8		280
				Neutral holding gains and losses				
198			198	Non-financial assets				
136	12		148	Financial assets/liabilities	126	22		148
				Changes in net worth due to neutral holding gains/losses	208	- 10		214
				Real holding gains and losses				
82			82	Non-financial assets				
- 52	- 5		- 57	Financial assets/liabilities	- 50	- 7		- 57
				Changes in net worth due to real holding gains/losses	80	2		66
				Stocks and changes in assets				
				Opening balance sheet				
4 621			4 621	Non-financial assets				
8 231	805		9 036	Financial assets/liabilities	7 762	1 274		9 036
				Net worth	5 090	- 469		4 621
				Total changes in assets and liabilities				
482			482	Non-financial assets				
523	54		577	Financial assets/liabilities	505	72		577
				Changes in net worth, total	500	- 18		482
				Saving and capital transfers	202	- 10		192
				Other changes in volume of assets	10			10
				Nominal holding gains/losses	288	- 8		280
				Neutral holding gains/losses	208	- 10		198
				Real holding gains/losses	80	2		82
				Closing balance sheet				
5 103			5 103	Non-financial assets				
8 754	859		9 613	Financial assets/liabilities	8 267	1 346		9 613
				Net worth	5 590	- 487		5 103

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Figure 2.1:Diagram of the integrated accounts for the total economy



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The aggregates

2.135 The aggregates of the SNA, such as value added, income, consumption and saving, are composite values which measure one aspect of the activity of the entire economy. They are summary indicators and key magnitudes for purposes of macroeconomic analysis and comparisons over time and space. The SNA aims to provide a simplified but complete and detailed picture of complex economies, so the calculation of the aggregates is neither the sole nor the main purpose of national accounting; nevertheless summary figures are very important.

2.136 Some aggregates may be obtained directly as totals of particular transactions in the SNA; examples are final consumption, gross fixed capital formation and social contributions. Others may result from aggregating balancing items for the institutional sectors; examples are value added, balance of primary incomes, disposable income and saving. They may need some further elaboration. However, some of them are so commonly used that they deserve additional explanation at this early stage.

2.137 An overview of the aggregates in the SNA and the accounts in which they appear is given in figure 2.2.

Gross domestic product (GDP)

2.138 Basically, GDP derives from the concept of value added. Gross value added is the difference between output and intermediate consumption. GDP is the sum of gross value added of all resident producer units plus that part (possibly the total) of taxes on products, less subsidies on products, that is not included in the valuation of output.

2.139 Next, GDP is also equal to the sum of the final uses of goods and services (all uses except intermediate consumption) measured at purchasers' prices, less the value of imports of goods and services.

2.140 Finally, GDP is also equal to the sum of primary incomes distributed by resident producer units.

Net and gross measures

2.141 In principle, the concept of value added should exclude the allowance for consumption of fixed capital. The latter, in effect, is not newly created value, but a reduction in the value of previously created fixed assets when they are used up in the production process. Thus, theoretically, value added is a net concept. This conclusion applies to domestic product as well; theoretically, domestic product should be a net concept. Net domestic product (NDP) is obtained by deducting the consumption of fixed capital from GDP.

2.142 However, gross measures of product and income are commonly used for various reasons. The depreciation of fixed assets as calculated in business accounting does not generally meet the requirements of the SNA. The calculation of consumption of fixed capital requires that statisticians estimate the present value of the stock of fixed assets, the lifetime of various types of assets, patterns of depreciation, etc. Not all countries make such calculations, and when they do there may be differences in methodology (with some of them using business data even when inadequate). Consequently, gross figures are more often available, or available earlier, and they are generally considered more comparable between countries. So GDP is broadly used even if it is, on a conceptual basis, economically inferior to NDP. However, NDP should also be calculated, with improved estimates of consumption of fixed capital when necessary, in order to provide a significant tool for various types of analysis.

Gross national income (GNI)

2.143 Primary incomes generated in the production activity of resident producer units are distributed mostly to other resident institutional units; however, part of them may go to non-resident units. Symmetrically, some primary incomes generated in the rest of the world may come from resident units. This leads to the definition and measurement of gross national income (GNI). GNI is equal to GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units. In other words, GNI is equal to GDP less taxes (less subsidies) on production and imports, compensation of employees and property income payable to the rest of the world plus the corresponding items receivable from the rest of the world. Thus GNI is the sum of gross primary incomes receivable by resident institutional units or sectors. In contrast to GDP, GNI is not a concept of value added, but a concept of income.

2.144 By deducting the consumption of fixed capital from GNI, net national income (NNI) is obtained. The remarks above about the conceptual relevance of the net concept in case of product apply even more strongly to national income.

Table 2.15:The goods and services account

Uses		Resources	
Intermediate consumption	1 883	Output	3 604
Final consumption expenditure	1 399	Imports of goods and services	499
Gross capital formation	414	Taxes on products	141
Gross fixed capital formation	376	Subsidies on products (-)	- 8
Changes in inventories	28		
Acquisitions less disposals of valuables	10		
Exports of goods and services	540		
Total uses	4 236	*Total resources*	4 236

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National disposable income

2.145 Primary incomes receivable by resident institutional units may be used in part to make transfers to non-resident units and resident units may receive transfers originating out of primary incomes in the rest of the world. Gross national disposable income is equal to GNI less current transfers (other than taxes, less subsidies, on production and imports) payable to non-resident units, plus the corresponding transfers receivable by resident units from the rest of the world. Gross national disposable income measures the income available to the total economy for final consumption and gross saving. By deducting the consumption of fixed capital from gross national disposal income, net national disposable income is obtained. National disposable income is the sum of disposable income of all resident institutional units or sectors.

Accounts in volume terms

2.146 All the aggregates referred to above are calculated in current values. The influence of changes in prices may also be eliminated. Domestic product is calculated in volume terms in order to measure the real change that occurs from one period to another. This is possible because output, intermediate consumption and taxes on products, less subsidies on products can all be calculated in volume terms. On the other hand, aggregates of income may not be expressed in volume terms because income flows may not, strictly speaking, be broken down into a quantity and a price component. They may, however, be calculated at constant purchasing power, which is described as being in real terms. When moving from domestic product in volume terms to national income in real terms, the effect of changes in the terms of trade between the total economy and the rest of the world must be taken into account. The necessary adjustment is described in chapter 15.

4. The other parts of the accounting structure

The central supply and use table and other input-output tables

2.147 The detailed analysis of production by industries and flows of goods and services by kind of products is an integral part of the integrated central framework. It would be feasible to include further details in the integrated economic accounts table; for example, the rows for output, intermediate consumption and value added might be subdivided by kind

Figure 2.2: Summary of the main accounts, balancing items and main aggregates

Account	Balancing item	Main aggregates
Current accounts		
Production account		
Production account	Value added	Domestic product
Distribution and use of income accounts		
Primary distribution of income accounts		
Generation of income account	Operating surplus/ mixed income	
Allocation of primary income account	Balance of primary income	National income (GNI,NNI)
Entrepreneurial income account	Entrepreneurial income	
Allocation of other primary income account	Balance of primary income	
Secondary distribution of income account	Disposable income	National disposable income
Redistribution of income in kind account	Adjusted disposable income	
Use of income accounts		
Use of disposable income account	Saving	
Use of adjusted disposable income account	Saving	National saving
Accumulation accounts		
Capital account	Net borrowing(+)/ net lending (-)	
Financial account	Net borrowing(+)/ net lending (-)	
Other changes in assets accounts		
Other changes in the volume of assets account		
Revaluation account		
Balance sheets		
Opening balance sheet	Net worth	National wealth
Changes in assets and liabilities	Changes in net worth	
Closing balance sheet	Net worth	National wealth
Contributions to change in net worth		
Capital account	*Change in net worth due to saving and capital transfers*	
Other changes in the volume of assets account	*Change in net worth due to other changes in the volume of assets*	
Revaluation account	*Changes in the value of net worth due to nominal holding gains and*	

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of economic activity; the columns for goods and services might be subdivided by type of products. However, the SNA does not adopt this solution, because the table would become cumbersome. Instead, tables that provide a systematic cross-classification by institutional sectors and industries of output, intermediate consumption, and value added and its components are proposed. They are described in detail in chapters 14 and 28 but the main features are outlined here.

2.148 The production and generation of income accounts in the integrated economic accounts are given only by institutional sectors and with a global balance of transactions on goods and services. The detailed analysis of production activities and product balances is made in the supply and use tables presenting:

a. The resources and uses of goods and services for each type of product;

b. The production and generation of income accounts for each industry according to kind of economic activity;

c. Data on factors of production (labour and fixed capital) used by industries.

The tables of financial transactions and financial assets and liabilities

2.149 The integrated economic accounts show which sectors acquire which financial assets and incur which liabilities. In order to examine the working of the financial sector, the first expansion of the financial account is to distinguish nine subsectors within financial corporations and eight categories of financial assets and liabilities. The subsectors of financial institutions are discussed in chapter 4 and the details of the financial instruments are described in chapter 11.

2.150 However, as explained in the introduction to this chapter, the presentation of the financial account as described in this chapter even with the elaboration of subsectors and financial instruments described in chapters 4 and 11, is still not fully articulated. It shows which sectors and subsectors incur loans and make deposits but it does not allow an in-depth examination of the intermediation process whereby a financial institution draws in funds, repackages them and issues them as other instruments to other units. In order to explore this, a three-dimensional "from-whom-to-whom" style of presentation is needed. This is sometimes referred to as a flow of funds matrix. The three-dimensional table of financial transactions is usually presented as a series of matrices, one matrix for each kind of financial instrument showing the flows from one sector to another.

2.151 As such a presentation is not necessarily useful for actually presenting the data, other presentations may be preferred in practice for publication. For example, a table showing each type of financial asset cross-classified by debtor sector and each type of liability cross-classified by creditor sectors may be considered. As compared to the presentation of the financial accounts made in the integrated economic accounts, this means, in short, introducing a sector distinction below headings of financial instruments when relevant. (For a more complete explanation see chapter 27.)

Complete balance sheets and assets and liabilities accounts

2.152 In the integrated economic accounts, balance sheets are presented in a very aggregated way. For each sector or subsector more complete balance sheets may be built up using the detailed classification of assets and liabilities when appropriate. Changes in assets and liabilities for each sector may also be analysed for each type of asset and liability and each source of change.

2.153 In addition, three-dimensional tables may be elaborated showing the "from-whom-to-whom" links for each type of financial instrument, to permit better analysis. The presentation of such tables is exactly the same as for tables of financial transactions except that the stock of assets or liabilities is shown instead of changes in assets or liabilities and the net financial position of each sector appears instead of its net lending or borrowing. These tables closely follow the principles for the similar flow tables and are also described in chapter 27.

Functional analysis

2.154 As explained in section B, the description of a transaction explains what type of flow is being recorded but it does not explain why the transaction is being entered into. In order to analyse the purpose of transactions, it is necessary to apply a functional classification to the basic transaction. For example, instead of disaggregating household consumption by type of product, it may be disaggregated to show how much is spent on food, housing, health, recreation and so on. For government consumption a distinction may be made between consumption related to law and order, defence, health or education, for instance. As compatible but different classifications are used according to the sector concerned, these partial analyses by purpose cannot be integrated in a single table and, in most cases, no exhaustive total for the total economy can be calculated in the central framework.

2.155 Another way of looking at function may be to identify all expenditure related to a particular functional activity, such as, for example, environmental protection. This is not (yet) an area where all relevant expenditures are easily identified and so it may be desirable to develop this further outside the central framework in a satellite account.

Population and labour inputs tables

2.156 A dimension is added to the usefulness of a number of national accounts aggregates by calculating these figures per head. For broad aggregates such as GDP, GNI or household final consumption, the denominator commonly used is the total (resident) population. When subsectoring the accounts or part of the accounts of the household sector, data on the number of households and the number of persons in each subsector are also necessary.

2.157 In productivity studies, data on the labour inputs used by each industry in the process of production are indispensable. Total hours worked is the preferred measure of labour inputs for the SNA. Inferior alternatives are full-

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time equivalent jobs, the number of jobs or the number of persons employed.

2.158 Data on population and labour inputs must generally be adjusted in order to be consistent with the concepts, definitions and classifications of the SNA. The resulting tables are an integral part of the SNA and are explained in chapter 19.

E. The integrated central framework and flexibility

1. Applying the central framework in a flexible way

2.159 The central framework of the SNA is consistent in terms of its concepts and its accounting structure. Links between the various elements of the integrated SNA have been illustrated in order to depict its structure in a simple but complete way. That presentation does not imply any order of priority or frequency (quarterly, annually, etc.) for implementing national accounts. Priorities in compiling national accounts are a matter of statistical policy; no universal recommendation can be made. (Some indications relevant to specific circumstances are provided in relevant handbooks.) Similarly, the accounting structure does not imply that results always have to be presented exactly as they stand in this or other chapters. A country may choose to publish mainly time series, to prepare only some accounts or aggregates, etc.

2.160 In general, the SNA has to be looked at in a consistent but flexible way. According to analytical requirements and data availability, the attention paid to various aspects of the central framework may vary. In general, greater emphasis may be given to one part rather than another by choosing the level of disaggregation to adopt for classifications of institutional sectors, industries, products, transactions, sequence of accounts, etc., by using different methods of valuation; by using different priorities for various parts of the accounts and different frequencies; by rearranging the results; by introducing some additional elements, etc.

2.161 The household sector provides a good illustration of what may be done in order to provide an in-depth analysis of the household conditions and the functioning of the economy as a whole. A detailed approach to the household sector may be undertaken, first of all, by deconsolidating the household sector beyond the subsectors included in the main classification of the SNA, distinguishing, for instance, the type of economic activity carried out (formal or informal), the location of the household (urban or rural) or the level of skill. Secondly, it is possible to adapt the way household activities are portrayed in the sequence of accounts. For instance, a concept of discretionary income may be used by excluding from disposable income those elements which are provided in kind and for which the household has no choice on how to spend this part of income, or the classification of household transactions may be complemented, to show the industry of origin of various types of income, and so on.

2.162 The flexibility of the SNA is further illustrated with the public sector, whose components are systematically shown at various levels of detail in the classification of institutional sectors. The components of the public sector may be rearranged to group the accounts of the overall public sector. These accounts may be shown before consolidation and after consolidation to describe the relations between the public sector and the private sector and between the public sector and the rest of the world (by separating out the external transactions of the public sector).

2.163 Chapters 21-29 provide more detailed analyses of the above examples. They also present illustrations of the flexible uses of the central framework in the field of key sector accounting, external accounts problems and the informal economy.

2. Introducing social accounting matrices

2.164 A social accounting matrix (SAM) is a presentation of the SNA in matrix terms that permits the incorporation of extra details of special interest. To date, builders of SAMs have exploited the flexibility to highlight special interests and concerns such as disaggregating the household sector to show the link between income generation and consumption. The power of a SAM, as well as of the SNA, comes from choosing the appropriate type of disaggregation to study the topic of interest. In addition to a flexible application, SAMs may incorporate more extensive adjustments, which are of a satellite accounting nature, in order to serve specific analytical purposes. For further explanation of the matrix presentation and SAMs, see chapters 28 and 29.

3. Introducing satellite accounts

2.165 In some cases, working with the central framework, even in a flexible way, is not sufficient. Even when conceptually consistent, the central framework may become overburdened with details. Moreover, some requirements may conflict with the concepts and architecture of the central framework.

2.166 In some types of analysis, the basic intention is not to use alternative economic concepts, but simply to focus on a certain field or aspect of economic and social behaviour in the context of national accounts. The intent is to make apparent and to describe in more depth aspects that are hidden in the accounts of the central framework or surface only to a limited extent. Tourism is a good example. Various aspects of producing and consuming activities connected with tourism may appear in detailed classifications of activities, products and purposes. However, transactions and purposes specific to tourism

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appear separately in only a few cases. In order to describe and measure tourism in a national accounts framework, it is necessary to make a choice between two approaches: either subdivide many elements in the accounts of the central framework to get the required figures for tourism and pay the price of overburdening and unbalancing the various components of the accounts, or elaborate a specific framework for tourism. The latter approach also allows adaptation of the various classifications and measurement of additional aggregates, such as national expenditure on tourism, which may cover intermediate as well as final consumption.

2.167 In other types of analysis, more emphasis is given to alternative concepts. For instance, the production boundary may be changed, generally by enlarging it, for example, the production of domestic services by members of the household for their own final consumption may be brought within the production boundary. The concept of fixed assets and the related fixed capital formation may be broadened, by covering consumer durables or human capital. It is also possible in environmental accounting to record the relationships between natural resources and economic activities differently by recording the depletion and the degradation of subsoil or other natural resources. In these approaches, the economic process itself is depicted differently and complementary or alternative aggregates are calculated. The analysis of a number of important fields such as social protection, health or the environment may benefit from building a framework to accommodate elements which are included in the central accounts, explicitly or implicitly, plus complementary elements (either monetary or in physical quantities) possibly as well as alternative concepts and presentations. In all cases, however, the links with the central framework are made explicit; there are a number of common elements and any contradictory features are introduced, not by chance, but after explicitly considering various ways of looking at reality.

2.168 Those special constructs, which are consistent with but not fully integrated the central framework, are called satellite accounts and are described in more detail in chapter 29.

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Chapter 3: Stocks, flows and accounting rules

A. Introduction

3.1 The SNA is a system of accounts designed to measure stocks of, and changes in, economic value and to identify the person, group of persons, legal or social entity with claims on the economic value. This chapter discusses the concept of stocks of economic value, the flows that reflect changes in economic value and the accounting rules applied to the recording of stocks and flows. In order to portray stocks and flows in an accounting system, it is necessary to identify the parties with a claim to economic value measured in stocks or affected by flows. These parties are the persons, groups of persons, legal and social entities already referred to. They are described as institutional units in the SNA and are grouped into institutional sectors according to their economic objectives, functions and behaviour. Units and sectors are the subject of chapter 4.

3.2 Stocks measure economic value at a point in time. Flows measure changes in economic value over a period of time. Stocks appear in the balance sheets and related tables (and, for certain stocks, with the use table in an input-output context). Flows appear in all the other accounts and tables of the SNA. The flow accounts in the full sequence of accounts for institutional sectors consist of the current accounts, which deal with production, income and use of income, and the accumulation accounts, which show all changes between two balance sheets.

3.3 In order to have a system that is complete and consistent, all changes in economic value between stock measures at two points in time must be captured in flows. The first requirement in specifying the accounting conventions is thus to define precisely what is meant by stocks and flows. Once that is done, the rules to set the changes in economic value within an accounting system need to be specified. These rules are defined so as to ensure that the SNA is consistent in terms of value, time of recording and classification.

1. Stocks and flows

3.4 ***Stocks are a position in, or holdings of, assets and liabilities at a point in time.*** The SNA records stocks in accounts, usually referred to as balance sheets, compiled in respect of the beginning and end of the accounting period. However, stocks are connected with flows: they result from the accumulation of prior transactions and other flows, and they are changed by transactions and other flows in the period. They result in fact from a continuum of entries and withdrawals, with some changes in volume or in value occurring during the time a given asset or liability is held.

3.5 ***An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.*** Assets may be financial in nature or not. For almost all financial assets, there is a corresponding [financial] liability. ***A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor).*** An elaboration of these definitions and the concepts embodied in them as well as a typology of the different assets and liabilities in the SNA is given in section B of this chapter.

3.6 ***Economic flows reflect the creation, transformation, exchange, transfer or extinction of economic value; they involve changes in the volume, composition, or value of an institutional unit's assets and liabilities.*** Mirroring the diversity of the economy, economic flows have specific natures as wages, taxes, interest, capital flows, etc., that record the ways in which a unit's assets and liabilities are changed.

3.7 Economic flows consist of transactions and other flows. ***A transaction is an economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that it is analytically useful to treat like a transaction, often because the unit is operating in two different capacities.*** The value of an asset or a liability may be affected by economic flows that do not satisfy the requirements of a transaction. Such flows are described as "other flows". ***Other flows are changes in the value of assets and liabilities that do not result from transactions.*** Examples are losses due to natural disasters and the effect of price changes on the value of assets and liabilities.

3.8 There is a discussion of the different types of economic flows in section C of this chapter.

2. Balancing items

3.9 Economic flows are grouped together into accounts with outflows (which may be called debit entries, uses or changes in assets) on the left-hand side and inflows (credit entries, resources, or changes in liabilities or net worth) on the right-hand side. ***A balancing item is an accounting construct obtained by subtracting the total value of the entries on one side of an account (resources or changes in liabilities) from the total value of the entries on the other side (uses or changes in assets). It cannot be measured***

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independently of the entries in the accounts; as a derived entry, it reflects the application of the general accounting rules to the specific entries on the two sides of the account. There is also a balancing item for the balance sheet where the difference between assets and liabilities is known as net worth.

3.10 Balancing items are constructed because they convey interesting economic information. Many of the key aggregates of the SNA including GDP actually emerge as balancing items. Balancing items are discussed in section D.

3. Grouping stocks and flows into accounts

3.11 The accounts and tables of the SNA contain information relating to the economic actions or events that take place within a given period of time and the effect of these events on the stocks of assets and liabilities at the beginning and end of that period.

3.12 The flows and stocks are grouped according to the classification hierarchy of the SNA, shown in annex 1. The classification of transactions and other flows has five headings at the highest level, dealing with transactions in products, transactions showing how income is distributed and redistributed within the SNA, transactions in non-produced assets, financial assets and liabilities, and other accumulation entries. In the accumulation accounts, the hierarchy may show both the transaction and the type of asset it applies to.

3.13 The flows and stocks are entered in the accounts of the institutional units involved and thus in the accounts of the sectors into which the institutional units are grouped. Institutional units and sectors are the subject of chapter 4. In general, flows and stocks are entered in the accounts of the institutional units that own or owned the goods and assets involved, in the accounts of units that deliver or take delivery of services, or in the accounts of units that provide labour and capital or use them in production. For some purposes, an institutional unit participating in production is viewed as one or more establishments and establishments may be grouped into industries. Establishments and industries are defined and discussed in chapter 5.

4. Accounting rules

3.14 All entries in the accounts have to be measured in terms of money, and therefore the elements from which the entries are built up must be measured in terms of money. In some cases, the amounts entered are the actual payments that form part of flows that involve money; in other cases the amounts entered are estimated by reference to actual monetary values. Money is thus the unit of account in which all stocks and flows are recorded.

3.15 In principle, any lapse of time may be chosen as the accounting period. Periods that are too short have the disadvantage that statistical data are influenced by incidental factors, while long periods do not adequately portray changes going on in the economy. Merely seasonal effects can be avoided by having the accounting period cover a whole cycle of regularly recurrent economic phenomena. Most business and government accounting refers to complete years. In general, calendar or financial years or quarters are best suited for drawing up a full set of national accounts.

3.16 The SNA covers all economic activity in such a way that it is possible to derive accounts for individual groups of units or for all units in the economy. To permit this, the accounting rules ensure consistency with respect to valuation, timing, classification and grouping of flows and stocks. These rules are summarized below to provide a context for the discussion of the nature of stocks, flows, and balancing items in sections B, C and D.

a. Flows and stocks must be recorded consistently with respect to their valuation. Entries are at current value on the market (that is, the amount agreed upon by two parties) or at its closest equivalent. The value on the market may need to be adjusted to the coverage of the flow or stock as defined in the SNA and expressed appropriately given the nature of the flow or stock with respect to taxes and subsidies on products, transport costs and trade margins.

b. Flows and stocks must be recorded consistently with respect to timing. Flows are recorded at the moment of accrual within the accounting period (that is, the moment economic value is created, transformed, exchanged, transferred or extinguished). Stocks are recorded at the moment to which the account relates, typically the beginning or end of the accounting period.

c. Individual flow and stock entries must be recorded consistently with respect to their classification, both in respect of the categories in the classifications of transactions, other flows and assets and the categories in the classification of transactors as (sub)sectors or industries.

d. Depending on the character of the entry, a distinction should be made between resources and uses or between assets and liabilities. In the process of grouping, netting is implicit for several items, but consolidation is not advised.

3.17 The basic accounting framework of the SNA is one of quadruple accounting. This implies that a transaction gives rise to two entries for each party to the transaction. There is vertical consistency within each unit and horizontal consistency between the two units for each type of entry. The principles of quadruple accounting are explained in more detail in section E in this chapter.

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B. Stocks

3.18 Stocks relate to the total level of assets or liabilities in an economy at a point of time. (In balance of payments methodology, the levels of stocks are referred to as positions.) In order to discuss stocks, it is necessary to define assets and liabilities and these definitions depend crucially on the concepts of benefits and ownership. Once the definitions are clear, the way in which assets and liabilities are classified within a balance sheet are touched on as well as the way in which items enter and leave the balance sheet.

1. Benefits

3.19 The heart of the SNA describes how labour, capital and natural resources including land are used to produce goods and services. These goods and services are used for the three economic activities recognized in the SNA, production, consumption and accumulation. An economic benefit is defined as denoting a gain or positive utility arising from an action. It implies a comparison between two states. This can be elaborated within the SNA so that benefits are seen as rewards for providing services, such as those of labour and capital to production and also the means of acquiring goods and services for production, consumption or accumulation in the current period or in future periods.

3.20 Sometimes the immediate benefit is in terms of goods and services directly, for example own account production or wages and salaries in kind. More often a benefit is in the form of the medium of exchange (money), for example as wages and salaries. Consumption is an activity that takes place in the current period only but may be financed from past benefits. Production and accumulation also involve benefits postponed to future periods. Thus, means of allowing benefits to be moved from one accounting period to another have to be recognized. These take the form of assets and liabilities where a benefit in one period is converted to a benefit in one or more future periods. Similarly goods and services, or current benefits, may be acquired by committing future benefits in the form of financial liabilities.

2. Ownership

3.21 Two types of ownership can be distinguished, legal ownership and economic ownership. ***The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the entities.***

3.22 Sometimes government may claim legal ownership of an entity on behalf of the community at large. No entity that does not have a legal owner, either on an individual or collective basis, is recognized in the SNA.

3.23 The acts of production, consumption and accumulation involve varying degrees of risk. Two main forms of risk can be identified. The first sort refers to production. These arise because of such uncertainties as the demand for goods and services once produced, developments in the economy in general and technical innovation that affects the benefits to be earned from capital and natural resources. The consequence is that benefits from capital, natural resources and labour in the form of operating surplus and income from employment are not wholly predictable in advance, but embody a degree of risk.

3.24 The second type of risk refers to the process of transferring benefits between time periods. It arises because of uncertainty over interest rates in future periods, which in turn affects the comparative performance of different types of benefits.

3.25 When economic agents make decisions about consumption or accumulation, they have to make a judgement about the relative advantages of benefits being converted to goods and services in the current period as against conversion in a later period. Thus all economic activity involves both benefits and risks. Transferring benefits between time periods inevitably involves transferring risks also. An agent may opt for a lower but more certain benefit in future rather than a benefit that might be higher but is less certain. Of particular interest is the case when an agent swaps benefits and risks associated with production with those associated with financial assets and liabilities.

3.26 The economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks.

3.27 Every entity has both a legal owner and an economic owner, though in many cases the economic owner and the legal owner of an entity are the same. Where they are not, the legal owner has handed responsibility for the risk involved in using the entity in an economic activity to the economic owner along with associated benefits. In return the legal owner accepts another package of risks and benefits from the economic owner. In general within the SNA, when the expression “ownership” or “owner” is used and the legal and economic owners are different, the reference should be understood to be to the economic owner. Part 5 of chapter 17, on contracts, leases and licences, discusses a number of cases where legal and economic ownership are different.

3.28 When government claims legal ownership of an entity on behalf of the community at large, the benefits also accrue to the government on behalf of the community at large. Thus government is both the legal and economic owner of these entities.

3.29 The benefits inherent in financial assets and liabilities are seldom transferred from a legal owner to an economic owner in exactly the same state. They are usually transformed to new forms of financial assets and liabilities by the intermediation of a financial institution that assumes some of the risk and benefits while passing the balance on to other units.

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3. The definition of an asset

3.30 Leading on from the above it is possible to define an asset as follows. ***An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.***

3.31 All assets in the SNA are economic assets. Attributes such as reputation or skill, which are sometimes described in common parlance as an asset, are not recognized as such in the SNA because they are not economic in nature in the sense described under ownership.

4. Financial assets and liabilities

3.32 A particularly important mechanism in the economy is the device whereby one economic unit exchanges a particular set of benefits with another economic unit. Benefits are exchanged by means of payments. From this a financial claim, and hence a liability, can be defined. There are no non-financial liabilities recognized in the SNA, thus the term liability necessarily refers to a liability that is financial in nature.

3.33 ***A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor).*** The most common circumstance in which a liability is established is a legally binding contract that specifies the terms and conditions of the payment(s) to be made and payment according to the contract is unconditional.

3.34 In addition, a liability may be established not by contract but by long and well-recognized custom that is not easily refuted. In these cases, the creditor has a valid expectation of payment, despite the lack of a legally binding contract. Such liabilities are called constructive liabilities.

3.35 Whenever either of these types of liability exists, there is a corresponding financial claim that the creditor has against the debtor. ***A financial claim is the payment or series of payments due to the creditor by the debtor under the terms of a liability.*** Like the liabilities, the claims are unconditional. In addition, a financial claim may exist that entitles the creditor to demand payment from the debtor but whereas the payment by the debtor is unconditional if demanded, the demand itself is discretionary on the part of the creditor.

3.36 ***Financial assets consist of all financial claims, shares or other equity in corporations plus gold bullion held by monetary authorities as a reserve asset.*** Gold bullion held by monetary authorities as a reserve asset is treated as a financial asset even though the holders have no claim over other designated units. Shares are treated as financial assets even though the financial claim their holders have on the corporation is not a fixed or predetermined monetary amount.

5. The asset boundary and the first-level classification of assets

3.37 All entities that meet the definition of an asset given above are included in the asset boundary of the SNA. Assets that are not financial assets are non-financial assets. Non-financial assets are further subdivided into those that are produced and those that are non-produced.

3.38 Because assets represent a store of future benefits, all assets can be represented by a monetary value. This value represents the market's view of the total of the benefits embodied by the asset. Where a direct market view of this value is not available, it must be approximated by other means. There is a discussion of this topic in chapter 11.

3.39 The only non-financial assets included in the asset boundary of an economy are those whose economic owners are resident in the economy. However, in the case of most natural resources and immobile fixed capital, which physically cannot leave the economy, a notional resident unit is established if the economic owner is technically a non-resident unit. In this way the assets in question do become those with resident economic owners and so are included within the asset boundary and are included on the balance sheet. Portable non-financial assets that are physically located in an economy but are owned by non-residents are excluded from the balance sheet; those that are physically located in the rest of the world but owned by residents are included in the asset boundary. For example, planes belonging to a domestic airline are always assets of the domestic economy regardless of where in the world they happen to be.

Contingent liabilities and provisions

3.40 A liability, as defined in paragraph 3.33 above, is unconditional once the contract establishing the liability is agreed by both parties. If the liability is established not by a legal contract but by long and well-established custom, it is referred to as a constructive liability. Some liabilities may involve a legal contract but specify that one party is obliged to provide a payment or series of payments to another unit only if certain specified conditions prevail. Such liabilities are called contingent liabilities. In general, the SNA includes (legal) liabilities and constructive liabilities but not contingent liabilities. An exception is made for standardized guarantees where, although each individual arrangement involves a contingent liability, the number of similar guarantees is such that an actual liability is established for the proportion of guarantees likely to be called.

3.41 A corporation may set aside funds to cover unexpected events or to cover default by their customers. Such monies may be described as provisions. These are not treated as liabilities in the SNA because they are not the subject of the sort of contract, legal or constructive, associated with a liability. Though financial institutions may regularly write off bad debts, for example, it would not be appropriate to regard the provisions set aside for this as assets of the borrowers. Even though they may be earmarked for specific purposes, the amounts designated as provisions remain part of the net worth of the corporation. Provisions are thus a designation of the purpose for which funds may

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be used rather than a category of financial assets and liabilities in and of themselves.

6. Entry and exit of assets from the balance sheet

3.42 All assets appear on the balance sheet of the economy. The first level of classification of assets is important since the process by which assets enter and leave the balance sheet differs for the three types of assets.

3.43 Produced non-financial assets come into being via the production process or as imports. Two exceptions exist. Historical monuments are included as produced assets even though they may have been constructed long before economic accounts existed. Occasionally a monument may be newly recognized as having value and thus enter the asset boundary as a produced asset other than through a current production process. Similar arguments apply to artefacts treated as valuables. Produced non-financial assets leave the asset boundary by being exhausted or by being sold to resident units that will not continue to use the asset in production as a source of future benefits or by being sold to non-resident units.

3.44 Non-produced non-financial assets are of three types; natural resources; contracts, leases and licences; and purchased goodwill and marketing assets. The borderline determining which natural resources are considered assets and which are not depends on a number of factors described in chapter 10. Contracts, leases and licences may represent an asset to the holder when the agreement restricts the general use or supply of products covered by the agreement and thus enhances the benefits accruing to the party to the agreement beyond what would accrue in the case of unrestricted supply. These assets come into existence when the agreement is made and the enhanced benefits become apparent. They leave the balance sheet when the conditions restricting access are lifted or when there is no longer a benefit to be earned from having restricted access to the asset. Goodwill and marketing assets are only recognized as assets in the SNA when they are evidenced by a sale.

3.45 Financial assets and liabilities come into being when a commitment is made by one unit to make a payment to another unit. They cease to exist when there is no longer a commitment for one unit to make payments to the other. This may be because the term of the agreement specified in the commitment has expired or for other reasons.

7. Exclusions from the asset boundary

3.46 The coverage of assets is limited to those assets used in economic activity and that are subject to ownership rights; thus for example, consumer durables and human capital, as well as natural resources that are not owned, are excluded.

3.47 Consumer durables are not regarded as assets in the SNA because the services they provide are not within the production boundary. Because the information on the stock of durables is of analytical interest, though, it is suggested that this information appear as a memorandum item in the balance sheet but not be integrated into the totals of the table.

3.48 Human capital is not treated by the SNA as an asset. It is difficult to envisage “ownership rights” in connection with people, and even if this were sidestepped, the question of valuation is not very tractable.

3.49 There are some environmental resources excluded from the SNA asset boundary. These are usually of the same type as those within the boundary but are of no economic value.

C. Flows

3.50 Economic flows are of two kinds. Most flows are transactions. Flows included in the SNA that do not meet the characteristics of transactions as described below are called “other flows”. Transactions appear in all of the accounts and tables in which flows appear except the other changes in the volume of assets account and the revaluation account. Other flows appear in only these two accounts. More meaning can be given to the definition of flows by describing the two kinds.

1. Transactions

3.51 ***A transaction is an economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that it is analytically useful to treat like a transaction, often because the unit is operating in two different capacities***.

3.52 Institutional units, referred to in the definition, are the fundamental economic units of the SNA. They are described and defined in chapter 4. The following are the main attributes of institutional units that are relevant to their engaging in transactions:

a. They are entitled to own goods or assets in their own right, and therefore are able to exchange them;

b. They are able to take economic decisions and engage in economic activities for which they are held to be directly responsible and accountable at law;

c. They are able to incur liabilities on their own behalf, to take on other obligations or future commitments and to enter into contracts.

3.53 The definition of a transaction stipulates that an interaction between institutional units be by mutual agreement. When

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a transaction is undertaken by mutual agreement, the prior knowledge and consent of the institutional units is implied. This does not mean, however, that both units necessarily enter a transaction voluntarily, because some transactions are imposed by force of law, such as payments of taxes or other compulsory transfers. Although individual institutional units are not free to fix the amounts of taxes they pay, there is nevertheless collective recognition and acceptance by the community of the obligation to pay taxes. Thus, payments of taxes are considered transactions despite being compulsory.

3.54 Transactions take so many different forms that, even with these explanations, any general definition is inevitably rather imprecise. To give more precision, the various kinds of transactions have to be systematically described and classified. A first distinction is between monetary and non-monetary transactions. Other distinctions, such as between transactions with and without a quid pro quo, are drawn within each of these kinds of transactions. Frequently the individual, identifiable transactions of everyday economic life are simply grouped together in the accounts; sometimes they are subdivided and rearranged in order to form the transaction categories of the SNA.

Monetary transactions

3.55 ***A monetary transaction is one in which one institutional unit makes a payment (receives a payment) or incurs a liability (receives an asset) stated in units of currency.*** In the SNA, all flows are recorded in monetary terms, but the distinguishing characteristic of a monetary transaction is that the parties to the transaction express their agreement in monetary terms. For example, a good is purchased or sold at a given number of units of currency per unit of the good, or labour is hired or provided at a given number of units of currency per hour or day.

3.56 All monetary transactions are interactions between institutional units; that is, all monetary transactions are two-party transactions. The following is a list of common monetary transactions:

a. Expenditure on consumption of goods and services,

b. Acquisition of a security,

c. Wages and salaries,

d. Interest, dividends and rent,

e. Taxes,

f. Social assistance benefits in cash.

Transactions with and without a recompense

3.57 The expenditure on consumption goods and services, the acquisition of a security, wages and salaries, and interest, dividends, and rent are two-party transactions in which one party provides a good, service, labour or asset to the other and receives a recompense of commensurate value in return. This kind of transaction is sometimes called a "something for something" transaction or a transaction with a quid pro quo. Such transactions are sometimes called exchanges.

3.58 Taxes and social assistance benefits are examples of two-party transactions in which one party provides a good, service or asset to the other but does not receive a recompense in return. This kind of transaction, sometimes called a "something for nothing" transaction, or a transaction without a quid pro quo, is called a transfer in the SNA.

3.59 The scope of the recompenses mentioned in describing exchanges and transfers does not cover entitlement to contingent benefits or collective services. Such benefits are generally uncertain or not quantifiable, or both. Moreover, the amount of benefit that may eventually be received by an individual unit is not proportional to the amount of the previous payment and may be very much greater or smaller than the latter. Thus, payments such as a social insurance contribution or a non-life insurance premium may entitle the unit making the payment to some contingent future benefits, and a household paying taxes may be able to consume certain collective services provided by government units, but these payments are regarded as transfers rather than exchanges.

3.60 A distinction is made between current and capital transfers. A capital transfer is one in which the ownership of an asset (other than cash or inventories) is transferred or which obliges one or both parties to acquire, or dispose of, an asset (other than cash or inventories). Capital transfers redistribute wealth but leave saving unaffected. They include, for example, capital taxes and investment grants. Other transfers are described as current. Current transfers redistribute income. They include, for example, taxes on income and social benefits. A fuller description of transfers appears in chapter 8.

Rearrangements of transactions

3.61 Monetary transactions may not always be recorded in the accounts in the same way as they appear to the institutional units involved. The values of these actual, or observed, transactions are already available in the accounts of the units concerned, but the SNA rearranges certain transactions to bring out the underlying economic relationships more clearly. The three kinds of rearrangements affect the channels through which the transactions are seen as taking place, the number of transactions that are seen as taking place, or the units that are seen as being involved. The three sections below illustrate the main characteristics of these rearrangements and the kind of analytical purpose they serve.

Rerouting transactions

3.62 Rerouting records a transaction as taking place through channels that differ from the actual ones or as taking place in an economic sense when it does not take place in fact. In the first kind of rerouting, a direct transaction between unit A and unit C is recorded as taking place indirectly through a third unit B, usually, however, with some change in the transaction category. In the second kind of rerouting, a transaction of one kind from unit A to unit B is recorded

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with a matching transaction of a different kind from unit B to unit A.

3.63 The recording of the payment of social security contributions is an example of the first kind of rerouting. In practice, employers typically deduct the contributions that the employees are obliged to make to social security funds from the employee's wages and salaries. In addition the employers make contributions to social security funds from their own resources on behalf of the employees. Both contributions go directly from the employer to social security funds. However, in the SNA, the employers' contributions are treated as part of compensation of employees and are recorded as being paid to the employee. The employee is then recorded as making a payment to social security funds consisting of both the employer's and employee's own contributions. Social security contributions are thus recorded strictly according to the general principles governing the recording of transactions in the SNA to bring out the economic substance behind arrangements adopted for administrative convenience. As a result of the rerouting, employers' social contributions are included as a part of labour cost.

3.64 An example of the second kind of rerouting is provided by the treatment of the retained earnings of foreign direct investment enterprises. The retention of some or all of the earnings of a foreign direct investment enterprise within that enterprise can be regarded as a deliberate investment decision by the foreign owners. Accordingly, the retained earnings are rerouted in the SNA by showing them as first remitted to the foreign owners as property income and then reinvested in the equity of the direct investment enterprise.

3.65 Similarly, the property income earned on the reserves of certain life insurance corporations is deemed to be paid out to policyholders and then paid back again as premium supplements even though in actuality the property income is retained by the insurance enterprises. As a result, the saving of persons or households includes the amount of the rerouted property income while the saving of insurance enterprises does not. This alternative picture of saving, which better reflects economic reality, is the purpose of the rerouting.

Partitioning transactions

3.66 Partitioning records a transaction that is a single transaction from the perspective of the parties involved as two or more differently classified transactions. For example, the rental actually paid by the lessee under a financial lease is not recorded as a payment for a service; instead, it is partitioned into two transactions, a repayment of principal and a payment of interest. This partitioning of the rental payment is part of a treatment that implements an economic view of financial leasing in the SNA. Financial leasing is viewed as a method of financing the purchase of a fixed asset and a financial lease is shown in the SNA as a loan from the lessor to the lessee.

3.67 Another example is the treatment of certain financial services. For example, the SNA prescribes partitioning interest payable by financial intermediaries on deposits and payable to financial intermediaries on loans into two components. One component represents interest as defined in the SNA while the remainder represents the purchase of financial intermediation services for which the intermediaries do not charge explicitly. The purpose of the partitioning is to make the service item explicit. In consequence, intermediate and final consumption of particular industries and institutional sectors as well as gross domestic product are affected. However, the saving of all the units concerned, including the financial intermediaries themselves, is not affected.

3.68 The recording in the SNA of transactions for wholesalers and retailers does not mirror the way in which those involved view them. The purchases of goods for resale by wholesalers and retailers are not recorded by these units explicitly, and they are viewed as selling, not the goods, but the services of storing and displaying a selection of goods in convenient locations and making them easily available for customers. This partitioning measures output for traders by the value of the margins realized on goods they purchase for resale.

Units facilitating a transaction on behalf of other parties

3.69 Many service activities consist of one unit arranging for a transaction to be carried out between two other units in return for a fee from one or both parties to the transaction. In such a case, the transaction is recorded exclusively in the accounts of the two parties engaging in the transaction and not in the accounts of the third party facilitating the transaction. Some service output may be recognized with the facilitator. For example, purchases a commercial agent makes under the orders of, and at the expense of, another party are directly attributed to the latter. The accounts of the agent only show the fee charged to the principal for the facilitation services rendered.

3.70 A second example is the collection of taxes by one government unit on behalf of another. The SNA follows the guidance of the *Government Finance Statistics Manual* (International Monetary Fund (IMF), 2001), known as *GFSM2001* as follows. In general, a tax is attributed to the government unit that

a. exercises the authority to impose the tax (either as a principal or through the delegated authority of the principal), and

b. has final discretion to set and vary the rate of the tax.

3.71 Where an amount is collected by one government for and on behalf of another government, and the latter government has the authority to impose the tax, set and vary its rate, then the former is acting as an agent for the latter and the tax is reassigned. Any amount retained by the collecting government as a collection charge should be treated as a payment for a service. Any other amount retained by the collecting government, such as under a tax-sharing arrangement, should be treated as a current grant. If the collecting government was delegated the authority to set and vary the rate, then the amount collected should be treated as tax revenue of this government.

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3.72 Where different governments jointly and equally set the rate of a tax and jointly and equally decide on the distribution of the proceeds, with no individual government having ultimate overriding authority, then the tax revenues are attributed to each government according to its respective share of the proceeds. If an arrangement allows one government unit to exercise ultimate overriding authority, then all of the tax revenue is attributed to that unit.

3.73 There may also be the circumstance where a tax is imposed under the constitutional or other authority of one government, but other governments individually set the tax rate in their jurisdictions. The proceeds of the tax generated in each respective government's jurisdiction are attributed as tax revenues of that government.

3.74 Similar principles are applied for the payment of subsidies or social benefits.

Non-monetary transactions

3.75 ***Non-monetary transactions are transactions that are not initially stated in units of currency.*** The entries in the SNA therefore represent values that are indirectly measured or otherwise estimated. In some cases, the transaction may be an actual one and a value has to be estimated to record it in the accounts. Barter is an obvious example. In other cases, the entire transaction must be constructed and then a value estimated for it. Consumption of fixed capital is an example. (In the past, the estimation of a value has sometimes been called imputation, but it is preferable to reserve that term for the kind of situation that involves not only estimating a value but also constructing a transaction.)

3.76 The amounts of money associated with non-monetary transactions are entries whose economic significance is different from cash payments as they do not represent freely disposable sums of money. The various methods of valuation to be employed for non-monetary transactions are dealt with in the section on valuation in section E.

3.77 Non-monetary transactions can be either two-party transactions or actions within an institutional unit. The two-party transactions consist of barter, remuneration in kind, payments in kind other than compensation in kind and transfers in kind. These two-party transactions are discussed first, followed by a discussion of internal transactions.

3.78 Although two-party transactions in kind do exist in practice, in the SNA they are frequently recorded in the same way as a monetary transaction with an associated expenditure of the item provided in kind. This ensures that there is a change in wealth of the donor without the donor acquiring the product transferred while the recipient acquires the product without any change in wealth. There is further discussion on this in respect of current transfers in chapter 8 and of capital transfers in chapter 10.

Barter transactions

3.79 Barter transactions involve two parties, with one party providing a good, service or asset other than cash to the other in return for a good, service or asset other than cash. As mentioned above, barter is an example of an actual transaction for which a value must be estimated. Barter transactions in which goods are traded for goods have always been important. The barter of goods may be systematically organized on proper markets or, in some countries, may occur only sporadically on a small scale. Barter between nations involving exports and imports also occurs.

Remuneration in kind

3.80 Remuneration in kind occurs when an employee accepts payment in the form of goods and services instead of money. This practice is extensive in most economies for reasons ranging from the desire of employers to find captive markets for part of their output, to tax avoidance or evasion. Remuneration in kind takes various forms and the following list includes some of the most common types of goods and services provided without charge, or at reduced prices, by employers to their employees:

a. Meals and drinks,

b. Housing services or accommodation of a type that can be used by all members of the household to which the employee belongs,

c. The services of vehicles provided for the personal use of employees,

d. Goods and services produced as outputs from the employer's own processes of production, such as free coal for miners.

Further, in addition to goods and services, some employees may be willing, or obliged, to accept part of their compensation in the form of financial or other assets.

Payments in kind other than remuneration in kind

3.81 Payments in kind other than remuneration in kind occur when any of a wide variety of payments is made in the form of goods and services rather than money. For example, a doctor may accept payment in wine instead of money. Or, instead of paying rent or rentals in money, the user of land or fixed capital, respectively, may pay the owner in goods or services. In agriculture, for example, the "rent" may be paid by handing over part of the crops produced to the landlord. (This is known as share cropping.) Tax payments, also, may be paid in kind; for example, inheritance taxes may be paid by making donations of paintings or other valuables.

Transfers in kind

3.82 As noted above, transactions in kind are normally recorded in the accounts as if they are monetary transfers followed by the expenditure by the recipient on the products concerned. This treatment applies to government international cooperation, gifts and charitable contributions. Government international cooperation, gifts, and charitable contributions are often made in kind for convenience, efficiency, or tax purposes. For example,

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international aid after a natural disaster may be more effective and delivered faster if made directly in the form of medicine, food, and shelter instead of money. Charitable contributions in kind sometimes avoid taxes that would be due if the item in question were sold and the money given to the charity.

3.83 A special case of transfers in kind is that of social transfers in kind. These consist of goods and services provided by general government and non-profit institutions serving households (NPISHs) that are delivered to individual households. Health and education services are the prime examples. Rather than provide a specified amount of money to be used to purchase medical and educational services, the services are often provided in kind to make sure that the need for the services is met. (Sometimes the recipient purchases the service and is reimbursed by the insurance or assistance scheme. Such a transaction is still treated as being in kind because the recipient is merely acting as the agent of the insurance scheme.)

3.84 Social transfers in kind are recorded as an implicit transfer of income from government and NPISHs to households and a transfer of consumption goods and services. The measure of income after the transfer is called adjusted disposable income (rather than disposable income) and the measure of consumption is called actual final consumption (rather than final consumption expenditure).

Internal transactions

3.85 The SNA treats certain kinds of actions within a unit as transactions to give a more analytically useful picture of final uses of output and of production. These transactions that involve only one unit are called internal, or intra-unit, transactions.

3.86 Some households, all NPISHs and general government units operate as both producers and as final consumers. When an institutional unit engages in both activities, it may make the choice to consume some or all of the output itself after the production is completed. In such a case, no transaction takes place between institutional units, but it is useful to construct a transaction and estimate its value to record both output and consumption in the accounts.

3.87 For households, the principle in the SNA is that all goods produced by persons that are subsequently used by the same persons, or members of the same households, for purposes of final consumption are to be included in output in a manner analogous to that for goods sold on the market. This means that transactions are assumed in which the persons responsible for the production of the goods are deemed to deliver the goods to themselves as consumers, or members of their own households, and then values have to be associated with them in order to enter them in the accounts.

3.88 Establishments owned by governments or NPISHs commonly provide education, health, or other kinds of services to individual households without charge or at prices that are not economically significant. The costs of providing these services are incurred by the governments or NPISHs, and the values are recorded as internal transactions: that is, as final expenditures by governments or NPISHs on outputs produced by establishments they own themselves. (As already explained, the acquisition of these services by households is recorded separately under social transfers in kind, another form of non-monetary transactions that take place between the government units or NPISHs and the households in question.)

3.89 The SNA recognizes several other transactions within enterprises to give a fuller view of production. For example, when enterprises produce fixed assets for their own use, the SNA records deliveries by the enterprises to themselves as the subsequent users. Also, when enterprises use fixed assets (whether own-account or purchased) during production, the SNA charges the decline in the value of the asset during the period of production as a cost.

3.90 The recording of deliveries between one establishment and another belonging to the same enterprise is discussed in paragraph 6.104.

Externalities and illegal actions

3.91 The sections above describe the kinds of actions that are considered transactions in the SNA. This section focuses on externalities and illegal actions, explaining why externalities are not considered transactions and distinguishing among kinds of illegal actions that are and are not considered transactions.

Externalities

3.92 Certain economic actions carried out by institutional units cause changes in the condition or circumstances of other units without their consent. These are externalities; they can be regarded as unsolicited services, or disservices, delivered without the agreement of the units affected. It is an uncooperative action, usually with undesirable consequences, which is the antithesis of a market transaction.

3.93 It is necessary to consider, however, whether values should be assigned to such externalities. Economic accounts have to measure economic functions such as production or consumption in the context of a particular legal and socio-economic system within which relative prices and costs are determined. Further, there would be considerable technical difficulties involved in trying to associate economically meaningful values with externalities when they are intrinsically non-market phenomena. As externalities are not market transactions into which institutional units enter of their own accord, there is no mechanism to ensure that the positive or negative values attached to externalities by the various parties involved would be mutually consistent. Moreover, accounts including values for externalities could not be interpreted as representing equilibrium, or economically sustainable, situations. If such values were to be replaced by actual payments the economic behaviour of the units involved would change, perhaps considerably.

3.94 A typical example is the pollution by one producer of the air or water used by other units for purposes of production or consumption. If the producer is allowed to pollute without charge or risk of being penalized, the private costs of production of the polluter will be less than the social

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costs to the community. Some countries, at least at certain points in their history, may choose to frame their laws so that some producers are permitted to reduce their private costs by polluting with impunity. This may be done deliberately to promote rapid industrialization, for example. The wisdom of such a policy may be highly questionable, especially in the long run, but it does not follow that it is appropriate or analytically useful for economic accounts to try to correct for presumed institutional failures of this kind by attributing costs to producers that society does not choose to recognize. For example, the whole purpose of trying to internalize some externalities by imposing taxes or other charges on the discharge of pollutants is to bring about a change in production methods to reduce pollution. A complete accounting for externalities would be extremely complex as it is not sufficient merely to introduce costs into the accounts of the producers but would also necessitate introducing various other adjustments of questionable economic significance to balance the accounts.

3.95 This sort of example illustrates why some analyses are best carried out in the context of a satellite account where some of the normal constraints and conventions of the SNA are relaxed. In the case of pollution, the SEEA2003 has been developed precisely to explore this issue among other environmental topics.

Illegal actions

3.96 Illegal actions that fit the characteristics of transactions (notably the characteristic that there is mutual agreement between the parties) are treated the same way as legal actions. The production or consumption of certain goods or services, such as narcotics, may be illegal but market transactions in such goods and services have to be recorded in the accounts. If expenditures on illegal goods or services by households were to be ignored on grounds of principle, household saving would be overestimated and households presumed to obtain assets that they do not in fact acquire. Clearly, the accounts as a whole are liable to be seriously distorted if monetary transactions that in fact take place are excluded. It may be difficult, or even impossible, to obtain data about illegal transactions, but in principle they should be included in the accounts if only to reduce error in other items, including balancing items.

3.97 However, many illegal actions are crimes against persons or property that in no sense can be construed as transactions. For example, theft can scarcely be described as an action into which two units enter by mutual agreement. Conceptually, theft or violence is an extreme form of externality in which damage is inflicted on another institutional unit deliberately and not merely accidentally or casually. Thus, thefts of goods from households, for example, are not treated as transactions and estimated values are not recorded for them under household expenditures.

3.98 If thefts, or acts of violence (including war), involve significant redistributions, or destructions, of assets, it is necessary to take them into account. As explained below, they are treated as other flows, not as transactions.

2. Other flows

3.99 ***Other flows are changes in the value of assets and liabilities that do not result from transactions.*** The reason that these flows are not transactions is linked to their not meeting one or more of the characteristics of transactions. For example, the institutional units involved may not be acting by mutual agreement, as with an uncompensated seizure of assets. Or the change may be due to a natural event such as an earthquake rather than a purely economic phenomenon. Alternatively the value of an asset expressed in foreign currency may change as a result of an exchange rate change.

3.100 The entries for other flows appear in one of the two accounts that comprise the other changes in assets accounts. The other changes in the volume of assets account includes changes that lead to a change in value of an asset because of a change in the quantity or physical characteristics of the asset in question. The revaluation account includes changes in the value of assets, liabilities, and net worth due to only changes in the level and structure of prices, which are reflected in holding gains and losses.

Other changes in the volume of assets

3.101 Other changes in the volume of assets fall into three main categories.

3.102 The first category relates to the appearance and disappearance of assets and liabilities other than by transactions. Some of these may relate to naturally occurring assets, such as subsoil resources, so that the entrances and exits come about as interactions between institutional units and nature. Others relate to assets created by human activity, such as valuables. For valuables, for example, the capital account records their acquisition as newly produced goods or imports in transactions, and it records transactions in existing goods already classified as valuables. It is the recognition of a significant or special value for goods not already recorded in the balance sheets that is considered an economic appearance to be recorded as an other flow. These valuables may not be in the balance sheets for any of several reasons. For example, they may antedate the accounts or were originally recorded as consumption goods.

3.103 The second category relates to the effects of externalities and disasters. One such event is one institutional unit's effectively removing an asset from its owner without the owner's agreement, an action that is not considered a transaction because the element of mutual agreement is absent. These events also include those that destroy assets, such as natural disaster or war. In contrast, transactions, such as consumption of fixed capital or change in inventories, refer to normal rates of loss or damage.

3.104 The third category relates to changes in assets and liabilities that reflect changes in the classification of institutional units among sectors and in the structure of institutional units, or in the classification of assets and liabilities. For example, if an unincorporated enterprise becomes more financially distinct from its owner and takes on the characteristics of a quasi-corporation, it and the assets and liabilities it holds move from the household

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sector to the non-financial corporations sector and changes in the sector allocation of the assets and liabilities owned by the quasi-corporation are recorded under this heading.

Holding gains and losses

3.105 Positive or negative nominal holding gains accrue during the accounting period to the owners of assets and liabilities as a result of a change in their prices. Holding gains are sometimes described as "capital gains", but "holding gain" is preferred here because it emphasizes that holding gains accrue purely as a result of holding assets or liabilities over time without transforming them in any way. Holding gains include not only gains on "capital" such as fixed assets, land and financial assets but also gains on inventories of all kinds of goods held by producers, including work-in-progress, often described as "stock appreciation". Holding gains may accrue on assets held for any length of time during the accounting period, not only on assets held throughout the period and may thus appear for assets appearing on neither the opening or closing balance sheet.

3.106 Nominal holding gains depend upon changes in the prices of assets and liabilities over time. The prices in question are the prices at which the assets may be sold on the market. Nominal holding gains may be further decomposed into neutral holding gains, which reflect changes in the general price level, and real holding gains which reflect changes in the relative prices of assets.

D. Balancing items

3.107 ***A balancing item is an accounting construct obtained by subtracting the total value of the entries on one side of an account from the total value for the other side.*** It cannot be measured independently of the other entries; as a derived entry, it reflects the application of the general accounting rules to the specific entries on the two sides of the account. It does not relate to any specific set of transactions, or any set of assets, and so it cannot be expressed in terms of its own price or quantity units.

Balancing items in the flow accounts

3.108 Balancing items are not simply devices introduced to ensure that accounts balance. They are often used as key macroeconomic indicators to assess economic performance. They encapsulate a great deal of information and include some of the most important entries in the accounts, as can be seen by the examples of balancing items for the accounts containing flows reproduced below:

a. Value added or domestic product,

b. Operating surplus,

c. Disposable income,

d. Saving,

e. Net lending or net borrowing,

f. Current external balance.

Balancing items in the balance sheets

3.109 Net worth, which is defined as the value of all the non-financial and financial assets owned by an institutional unit or sector less the value of all its outstanding liabilities, is the balancing item in the balance sheets. As is true for other balancing items in the SNA, net worth cannot be measured independently of the other entries, nor does it relate to any specific set of transactions.

3.110 As well as net worth appearing as a stock level, changes in net worth due to different sorts of transactions and other flows may also be derived. Just as the changes in the levels of any asset can be traced through changes in transactions and other flows throughout the period, so changes in total net worth can be exhaustively described according to the transactions and other flows that led to changes in the total level of assets and liabilities.

E. Accounting rules

3.111 As noted in the introduction, this section covers the quadruple entry accounting principle, valuation, time of recording, classification of accounting entries and grouping of transactions. The application of each of these to the individual flows and stocks is explained in detail in the chapters that describe the entries in the various tables and accounts of the central framework. The details on classifications of accounting entries are discussed, account by account, in chapters 6 to 13.

1. Quadruple-entry accounting

3.112 The accounting system underlying the SNA derives from broad bookkeeping principles. To understand the accounting system for the SNA, three bookkeeping principles can be distinguished:

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1. Vertical double-entry bookkeeping, also known as simply double-entry bookkeeping used in business accounting,

2. Horizontal double-entry bookkeeping, and

3. Quadruple-entry bookkeeping.

3.113 The main characteristic of vertical double-entry bookkeeping is that each transaction leads to at least two entries, traditionally referred to as a credit entry and a debit entry, in the books of the transactor. This principle ensures that the total of all credit entries and that of all debit entries for all transactions are equal, thus permitting a check on consistency of accounts for a single unit. Each transaction requires two entries.

3.114 Other flows have their counterpart entries directly in changes in net worth. As a result, vertical double-entry bookkeeping ensures the fundamental identity of a unit's balance sheet, that is, the total value of assets equals the total value of liabilities plus net worth. The total value of the assets owned by an entity minus the total value of liabilities provides net worth.

3.115 The concept of horizontal double-entry bookkeeping is useful for compiling accounts that reflect the mutual economic relationships between different institutional units in a consistent way. It implies that if unit A provides something to unit B, the accounts of both A and B show the transaction for the same amount: as a payment in A's account and as a receipt in B's account. Horizontal double-entry bookkeeping ensures the consistency of recording for each transaction category by counterparties. For example, dividends payable throughout the economy should be equal to dividends receivable throughout the economy once transactions with the rest of the world are taken into account.

3.116 The simultaneous application of both the vertical and horizontal double-entry bookkeeping results in a quadruple-entry bookkeeping, which is the accounting system underlying the recording in the SNA. It deals in a coherent way with multiple transactors or groups of transactors, each of which satisfies vertical double-entry bookkeeping requirements. A single transaction between two counterparties thus gives rise to four entries. In contrast to business bookkeeping, national accounts deal with interactions among a multitude of units in parallel, and thus require special care from a consistency point of view. As a liability of one unit is mirrored in a financial asset of another unit, for instance, they should be identically valued, allocated in time and classified to avoid inconsistencies in aggregating balance sheets of units by sectors or for the total economy. The same is also true for all transactions and other flows that affect balance sheets of two counterparties.

3.117 The SNA uses the following conventions and terminologies for recording flows with the rest of the world. Imports, for instance, are a resource of the rest of the world used in the domestic economy and payments for imports represent a drawdown of wealth for the domestic economy but a financial resource for the rest of the world. By treating the rest of the world account as a pseudo-sector, the quadruple entry accounting principle can be applied and all stocks and flows within the economy and with the rest of the world are completely balanced. The balance of payments accounts show the consolidated position of all domestic sectors relative to the rest of the world. It is thus an exact mirror image of the accounts for the rest of the world within the SNA. However, despite the reversal of the sides of the accounts on which items are shown, there is equality in coverage, measurement and classification between the two systems. This is discussed further in chapter 24.

2. Valuation

General rules

3.118 The power of the SNA as an analytical tool stems largely from its ability to link numerous, very varied economic phenomena by expressing them in a single accounting unit. The SNA does not attempt to determine the utility of the flows and stocks that come within its scope. Rather, it measures the current exchange value of the entries in the accounts in money terms, that is, the values at which goods, services, labour or assets are in fact exchanged or else could be exchanged for cash (currency or transferable deposits).

Valuation of transactions

3.119 Market prices for transactions are defined as amounts of money that willing buyers pay to acquire something from willing sellers; the exchanges are made between independent parties and on the basis of commercial considerations only, sometimes called "at arm's length." Thus, according to this strict definition, a market price refers only to the price for one specific exchange under the stated conditions. A second exchange of an identical unit, even under circumstances that are almost exactly the same, could result in a different market price. A market price defined in this way is to be clearly distinguished from a price quoted in the market, a world market price, a going price, a fair market price, or any price that is intended to express the generality of prices for a class of supposedly identical exchanges rather than a price actually applying to a specific exchange. Furthermore, a market price should not necessarily be construed as equivalent to a free market price; that is, a market transaction should not be interpreted as occurring exclusively in a purely competitive market situation. In fact, a market transaction could take place in a monopolistic, monopsonistic, or any other market structure. Indeed, the market may be so narrow that it consists of the sole transaction of its kind between independent parties.

3.120 When a price is agreed by both parties in advance of a transaction taking place, this agreed, or contractual, price is the market price for that transaction regardless of the prices that prevail when the transaction takes place.

3.121 Actual exchange values in most cases will represent market prices as described in the preceding paragraph. Paragraphs 3.131 to 3.134 describe cases where actual exchange values do not represent market prices. Transactions that involve dumping and discounting represent market prices. Transaction prices for goods and services are inclusive of appropriate taxes and subsidies. A market price is the price

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payable by the buyer after taking into account any rebates, refunds, adjustments, etc. from the seller.

3.122 Transactions in financial assets and liabilities are recorded at the prices at which they are acquired or disposed of. Transactions in financial assets and liabilities should be recorded exclusive of any commissions, fees, and taxes whether charged explicitly, included in the purchaser's price, or deducted from the seller's proceeds. This is because both debtors and creditors should record the same amount for the same financial instrument. The commissions, fees, and taxes should be recorded separately from the transaction in the financial asset and liability, under appropriate categories. The valuation of financial instruments, which excludes commission charges, differs from the valuation of non-financial assets, which includes any costs of ownership transfer.

3.123 When market prices for transactions are not observable, valuation according to market-price-equivalents provides an approximation to market prices. In such cases, market prices of the same or similar items when such prices exist will provide a good basis for applying the principle of market prices. Generally, market prices should be taken from the markets where the same or similar items are traded currently in sufficient numbers and in similar circumstances. If there is no appropriate market in which a particular good or service is currently traded, the valuation of a transaction involving that good or service may be derived from the market prices of similar goods and services by making adjustments for quality and other differences.

Agricultural products sold from the farm

3.124 A significant qualification to the foregoing remark is necessary in the case of agricultural products sold directly from the farm. The so-called farm-gate price may be significantly lower than a price in the nearest market where prices can be observed since the latter include the costs of bringing the goods to market. Further, if only a small fraction of a crop gets to the market, it may command a higher price than would be the case if all the available crop were traded. Such considerations are to be understood by the qualification that observed market prices are appropriate only when similar products are traded in sufficient number and in similar circumstances. When these conditions do not hold, adjustments must be made to the observed prices.

Barter

3.125 The case of barter requires specific consideration. The products bartered must be valued when produced as well as when acquired for consumption or for capital formation. While it may often be the case that for small scale barter transactions entered into by the producer, there are no taxes on products payable (or if they are nominally payable the conditions of the barter means they are avoided and not paid) there is no automatic exclusion of bartered products from liability to taxes on products. Subsidies on bartered products are possible conceptually but unlikely to be significant. By the nature of barter, there are no wholesale or retail margins applicable to bartered products. Goods subject to barter may, however, have associated transportation costs. If the unit providing the goods for barter also provides the transport, this will, in general, mean that the barter "package" includes some transportation services and the value to the recipient will be a purchaser's price including this transportation cost. If the unit receiving the goods must provide the transport, this may reduce the valuation of the goods to the recipient.

3.126 Barter transactions may concern new or existing goods acquired by one party to the barter in which case the value to that party will be the cost of acquisition (in the case of new goods) or the realizable value in the case of existing goods.

3.127 Barter transactions necessarily involve two units and (at least) two products. Each unit may place a different value on either item being bartered. In such a case, since the accounting rules of the SNA require a single value to be recorded for both parties, on pragmatic grounds a simple average of the different valuations (after allowing for any taxes and transportation costs) may be taken as the value of the transaction.

3.128 Barter transactions do not always take place simultaneously. When this is not the case, an account receivable/payable should be recorded even though neither part of the barter transaction takes place in monetary terms.

Quotation prices

3.129 Market valuation also poses problems for transactions in goods in which the contracts establish a quotation period often months after the goods have changed hands. In such cases, market value at the time of change of ownership should be estimated. The estimate should be revised with the actual market value, when known. Market value is given by the contract price even if it is unknown at the time of change of ownership.

Valuation of transfers in kind

3.130 When non-financial resources are provided without a quid pro quo, such resources should be valued at the market prices that would have been received if the resources had been sold in the market. In the absence of a market price, the donor's view of the imputed value of the transaction will often be quite different from that of the recipient. The suggested rule of thumb is to use the value assigned by the donor as a basis for recording.

Transfer pricing

3.131 In some cases actual exchange values may not represent market prices. Examples are transactions involving transfer prices between affiliated enterprises, manipulative agreements with third parties, and certain non-commercial transactions, including concessional interest (that is, interest payable at a reduced rate as a matter of policy). Prices may be under- or over-invoiced, in which case an assessment of a market-equivalent price needs to be made. Although adjustment should be made when actual exchange values do not represent market prices, this may not be practical in many cases. Adjusting the actual exchange values to reflect market prices will have

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consequences in other accounts. Therefore, when such adjustments are made, corresponding adjustments in other accounts should also be made, for example, if prices of goods are adjusted, associated income account or financial account transactions or both should also be adjusted.

3.132 Values put on an invoice may deviate systematically or to such a large extent from the prices paid in the market for similar items that it must be presumed that the sums paid cover more than the specified transactions. An example is so-called transfer pricing: affiliated enterprises may set the prices of the transactions among themselves artificially high or low in order to effect an unspecified income payment or capital transfer. Such transactions should be made explicit if their value is considerable and would hinder a proper interpretation of the accounts. In some cases, transfer pricing may be motivated by income distribution or equity build-ups or withdrawals. Replacing book values (transfer prices) with market-value equivalents is desirable in principle, when the distortions are large and when availability of data (such as adjustments by customs or tax officials or from partner economies) makes it feasible to do so. Selection of the best market-value equivalents to replace book values is an exercise calling for cautious and informed judgment.

3.133 The exchange of goods between affiliated enterprises may often be one that does not occur between independent parties (for example, specialized components that are usable only when incorporated in a finished product). Similarly, the exchange of services, such as management services and technical know-how, may have no near equivalents in the types of transactions in services that usually take place between independent parties. Thus, for transactions between affiliated parties, the determination of values comparable to market values may be difficult, and compilers may have no choice other than to accept valuations based on explicit costs incurred in production or any other values assigned by the enterprise.

Concessional pricing

3.134 While some non-commercial transactions, such as a grant in kind, have no market price, other non-commercial transactions may take place at implied prices that include some element of grant or concession so that those prices also are not market prices. Examples of such transactions could include negotiated exchanges of goods between governments and government loans bearing lower interest rates than those with similar grace and repayment periods or other terms for purely commercial loans. Concessional lending is described in chapter 24. Transactions by general government bodies and private non-profit entities not engaged in purely commercial undertakings are often subject to non-commercial considerations. However transfers involving provision of goods and services may also be provided or received by other sectors of the economy.

Valuation at cost

3.135 If there is no appropriate market from which the value of a particular non-monetary flow or stock item can be taken by analogy, its valuation may be derived from prices that are established in less closely related markets. Ultimately, some goods and services can only be valued by the amount that it would cost to produce them currently. Market and own-account goods and services valued in this way should include a mark-up that reflects the net operating surplus or mixed income attributable to the producer. For non-market goods and services produced by government units or NPISHs, however, no allowance should be made for any net operating surplus.

Valuation of assets

3.136 Sometimes it is necessary to value stocks at their estimated written down current acquisition values or production costs. The write-down should then include all changes that have occurred to the item since it was purchased or produced (such as consumption of fixed capital, partial depletion, exhaustion, degradation, unforeseen obsolescence, exceptional losses and other unanticipated events). The same method could be applied to non-monetary flows of existing assets.

3.137 If none of the methods mentioned above can be applied, stocks, or flows arising from the use of assets, may be recorded at the discounted present value of expected future returns. For some financial assets, particularly those with a face value applicable at some point in the future, the present market value is established as the face value discounted to the present by the market interest rate. In principle, therefore, if a reasonably robust estimate of the stream of future earnings to come from an asset can be made, along with a suitable discount rate, this allows an estimate of the present value to be established. However, because it may be difficult to determine the future earnings with the appropriate degree of certainty, and given that assumptions are also needed about the asset's life length and the discount factor to be applied, the other possible sources of valuation described in the preceding paragraphs should be exhausted before resorting to this method. Further, if this method is used, some sensitivity testing of the assumptions made may be appropriate. In fact, the method most commonly used to derive estimates of consumption of fixed capital and the capital stock of fixed assets associates a stream of future earnings with the decline in value of a fixed asset in use in production. (This method, the perpetual inventory method, is described further in chapters 13 and 20.)

3.138 Although the net present value method depends on making projections of future earnings and discount rates, it is theoretically sound as can often be verified for a number of financial assets. If it is used for non-financial assets, some sensitivity testing of the assumptions made may be appropriate.

3.139 In conformity with the general rule, provision of assets, services, labour or capital in exchange for foreign cash is recorded at the actual exchange value agreed upon by the two parties to the transaction. Flows and stocks concerning foreign currency are converted to their value in national currency at the rate prevailing at the moment they are entered in the accounts, that is, the moment the transaction or other flow takes place or the moment to which the balance sheet applies. The midpoint between the buying and selling rate should be used so that any service charge is excluded.

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Business accounting valuation

3.140 Business accounts, tax returns and other administrative records are main sources of data for drawing up the national accounts. One should be aware, however, that none of these necessarily satisfies the valuation requirements of the SNA and that accordingly adjustments may have to be made. In particular, in the interest of prudence, business accounting often adopts valuations that are not appropriate for the national accounts. Similarly, valuations for tax purposes often serve objectives that differ from those of macroeconomic analysis. For example, the depreciation methods favoured in business accounting and those prescribed by tax authorities almost invariably deviate from the concept of consumption of fixed capital employed in the SNA.

Valuation of partitioned flows

3.141 Where a single payment refers to more than one transaction category (as they are defined in the SNA), the individual flows need to be recorded separately. In such a case, the total value of the individual transactions after partitioning must equal the market value of the exchange that actually occurred. For example, actual exchange values involving foreign currency include commission for currency conversion. The portion related to currency conversion should be recorded separately as transactions in services. As another example, the SNA recommends dividing interest transactions with financial corporations between two transaction categories, one showing interest as understood in the SNA and the other representing the implicit payment for financial intermediation services.

3.142 Partitioning is not limited to transactions; an example is real holding gains, which are separated for analytical reasons from neutral holding gains that are simply proportionate to changes in the general price level.

3.143 In some cases partitioning is connected with deceptive behaviour. An example is the sort of transfer pricing discussed in paragraph 3.132.

3.144 A less obvious mingling of transactions occurs when the provision of an asset and the related money payment or payments do not take place simultaneously. When the time gap becomes unusually long and the amount of trade credit extended is very large, the conclusion may be that implicitly an interest fee has been charged. In such extreme cases, the actual payment or payments should be adjusted for accrued interest in order to arrive at the correct value of the asset transferred. Such adjustments are not recommended for normal trade credit.

Special valuations concerning products

3.145 Usually, the producer and the user of a given product perceive its value differently owing to the existence of taxes and subsidies on products, transport costs to be paid and the occurrence of trade margins. In order to keep as close as possible to the views of the economic transactors themselves, the SNA records all uses at purchasers' prices including these elements, but excludes them from the value of output of the product.

3.146 Output of products is recorded at basic prices. The basic price is defined as the amount receivable by the producer from the purchaser for a unit of good or service produced as output minus any tax payable and plus any subsidy receivable on the product as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer. If it proves impossible to obtain the required information at basic prices, output may be valued at producers' prices. The producer's price is defined as the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any value added tax (VAT), or similar deductible tax, invoiced to the purchaser. It also excludes any transport charges invoiced separately by the producer.

3.147 Use of products is recorded at purchasers' prices. The purchaser's price is defined as the amount payable by the purchaser, excluding any deductible VAT or similar deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place.

3.148 The difference in value recorded for a product between when it is produced and the moment it is used for, say, final consumption expenditure can be considerable. Components of this difference may be:

a. Taxes less subsidies on products payable by the producer;

b. Trade and transport margins, including taxes less subsidies on products payable by wholesale and retail traders;

c. Transport, including taxes less subsidies on products, paid separately by the consumer;

d. Predictable quality increases producing additional output volume less current losses during storage;

e. Holding gains while the product is with the producer and with wholesale and retail traders.

As one can see from the above, the difference between the original basic price and ultimate purchasers' price of a particular good encompasses both pure price and volume elements. In practice, of course, the estimates do not keep track of individual products but are made at a more global level for groups of products.

3.149 Imports and exports of goods are recorded in the SNA at border values. Total imports and exports of goods are valued free-on-board (FOB, that is, at the exporter's customs frontier). As it may not be possible to obtain FOB values for detailed product breakdowns, the tables containing details on foreign trade show imports of goods valued at the importer's customs frontier (CIF, that is, cost, insurance and freight), supplemented with global adjustments to FOB values. CIF values include the insurance and freight charges incurred between the exporter's frontier and that of the importer. The value on the commercial invoice may of course differ from both of these.

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3.150 As the overall balance of imports and exports must conform to actual circumstances, border valuation of goods has consequences for the recording of freight and insurance in the SNA. Usually, the values of both imports and exports for these service items have to be adapted to compensate for the special conventions on goods traded with the rest of the world. Further details on this treatment are in chapters 14 and 26.

Valuation of other flows

Other changes in the volumes of assets

3.151 In order to determine the valuation of the other changes in the volume of assets, it is usually necessary to value the asset before and after the change in volume and take the difference that is not explained by any transaction as the value of the other change.

3.152 Other changes in the volume of financial assets and liabilities are recorded at the market-equivalent prices of similar instruments. For writing-off of financial instruments that are valued at nominal values, the value recorded in the other changes in the volume of assets account should correspond to their nominal value prior to being written off. For all reclassifications of assets and liabilities, values of both the new and old instruments should be the same.

Holding gains and losses

3.153 Holding gains and losses accrue continuously and apply to both non-financial and financial assets and liabilities. In general, they are estimated by deducting from the total change in the value of assets those that can be attributed to transactions and to other changes in volumes.

3.154 Since most financial assets are matched by liabilities, either within the domestic economy or with the rest of the world, it is important that holding gains in one are matched by holding losses in the other and vice versa. A holding gain occurs when an asset increases in value or a liability decreases in value; a holding loss occurs when an asset decreases in value or a liability increases in value. The value of holding gains and losses during an accounting period shows net changes in holding gains and holding losses for an asset and a liability separately. In practice, the value of holding gains and losses is calculated for each asset and liability between two points in time: the beginning of the period or when the asset or liability is acquired or incurred and the end of the period or when the asset or liability is sold or extinguished.

Valuation of positions of financial assets and liabilities

3.155 Stocks of financial assets and liabilities should be valued as if they were acquired in market transactions on the balance sheet reporting date. Many financial assets are traded in markets on a regular basis and therefore can be valued by directly using the price quotations from these markets. If the financial markets are closed on the balance sheet date, the market prices that should be used in the valuation are those that prevailed on the closest preceding date when the markets were open. Debt securities have a current market value as well as a nominal value, and for some purposes supplementary data on the nominal values of positions of debt securities may be useful.

3.156 Valuation according to market-value equivalent is needed for valuing financial assets and liabilities that are not traded in financial markets or are traded only infrequently. For these assets and liabilities, it will be necessary to estimate fair values that, in effect, approximate market prices. The present value of future cash flows can also be used as an approximation to market prices, provided an appropriate discount rate can be used.

3.157 Market values, fair values, and nominal values should be distinguished from such notions as amortized values, face values, book values, and historic cost.

a. Fair value is a market-equivalent value. It is defined as the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction. It thus represents an estimate of what could be obtained if the creditor had sold the financial claim.

b. Nominal value refers to the amount the debtor owes to the creditor, which comprises the outstanding principal amount including any accrued interest.

c. Amortized value reflects the amount at which the financial asset or liability was measured at initial recognition minus the principal repayments. Excess payments over the scheduled principal repayments reduce the amortized value whereas payments that are less than the scheduled principal repayments or scheduled interest increase the amortized value. On each scheduled date, amortized value is the same as nominal value, but it may differ from the nominal value on other dates due to the accrued interest being included in the nominal value.

d. Face value is the undiscounted amount of principal to be repaid.

e. Book value in business accounts generally refers to the value recorded in the enterprise's records. Book values may have different meanings because their values are influenced by timing of acquisition, company takeovers, frequency of revaluations, and tax and other regulations.

f. Historic cost, in its strict sense, reflects the cost at the time of acquisition, but sometimes it may also reflect occasional revaluations.

3.158 The valuation of financial assets and liabilities in data reported by enterprises or other respondents may be based on commercial, supervisory, tax, or other accounting standards that do not fully reflect the market prices of the assets and liabilities. In such cases, the data should be adjusted to reflect, as closely as possible, the market value of the financial assets and liabilities. (More information on valuation rules can be found in *External Debt Statistics: Guide for Compilers and Users (*Bank for International Settlements, the Commonwealth Secretariat, Eurostat,

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International Monetary Fund, Organisation for Economic Co-operation and Development, the Paris Club Secretariat, the United Nations Conference on Trade and Development and World Bank (2003)), known as the *External Debt Guide*.)

3. Time of recording

Choice of time of recording

3.159 When discussing timing in the SNA, an essential distinction should be made between stock data as recorded in balance sheets, on the one hand, and flow data as recorded in the accounts, on the other. Balance sheets, by definition, refer to specific points in time. In contrast, flows are aggregations, over some chosen accounting period, of individual transactions or other flows, which are themselves scattered over the accounting period.

3.160 Thus, the SNA does not show individual transactions or other flows, but there are two reasons why precise rules on their individual timing must be given. In the first place, rules have to be formulated to say in which accounting period the discrete flows are to be recorded. Secondly, an exact timing of individual flows within the accounting period is crucial to distinguish between changes in net worth due to transactions and changes due to holding gains or losses. This distinction is particularly important in situations of high inflation.

3.161 One of the problems in pinning down the timing of transactions is that activities of institutional units often extend over periods in which several important moments can be distinguished. For instance, many commercial sales commence with the signing of a contract between a seller and a buyer, encompass a date of delivery and a date or dates on which payments become due and are only completed as of the date the last payment is received by the seller. Each of these distinct moments in time is to some extent economically relevant.

3.162 Similarly, in analysing government expenditure one can distinguish the day that a budget is voted upon by the legislature, the day on which the ministry of finance authorizes a department to pay out specified funds, the day a particular commitment is entered into by the departments, the day deliveries take place and finally the day payment orders are issued and cheques are paid. With regard to taxes, for example, important moments are the day or the period in which the liability arises, the moment the tax liability is definitively assessed, the day that it becomes due for payment without penalty and the day the tax is actually paid or refunds are made.

3.163 Clearly, making entries for all successive stages discernible within the activities of institutional units, although theoretically possible, would severely overburden the SNA. A choice has to be made, recognizing (a) the needs of macroeconomic analysis, (b) microeconomic views, and (c) commonly available sources. Often, in this respect, a distinction is drawn between recording flows on a cash basis, due-for-payment basis, the commitment basis and accrual basis. There may be other timing bases, such as physical movement or administrative process, used in some data sources. The SNA recommends recording on an accrual basis throughout.

Choice for recording on an accrual basis

3.164 Cash accounting records only cash payments and records them at the times these payments occur. This method is widely used for certain business purposes. A practical advantage is the avoidance of problems connected with valuing non-monetary flows. Yet, cash accounting cannot be used generally for economic and national accounting as the times at which payments take place may diverge significantly from the economic activities and transactions to which they relate and it is these underlying activities and transactions that the SNA seeks to portray. Moreover, cash recording cannot be applied to the many non-monetary flows included in the SNA.

3.165 Due-for-payment recording shows flows that give rise to cash payments at the latest times they can be paid without incurring additional charges or penalties and, in addition to these, actual cash payments at the moments they occur. The period of time (if any) between the moment a payment becomes due and the moment it is actually made is bridged by recording a receivable or a payable in the financial accounts. Due-for-payment recording furnishes a more comprehensive description of monetary flows than does cash accounting. A disadvantage is, of course, that the registration is still limited to monetary flows.

3.166 Accrual accounting records flows at the time economic value is created, transformed, exchanged, transferred or extinguished. This means that flows that imply a change of ownership are entered when the change occurs, services are recorded when provided, output at the time products are created and intermediate consumption when materials and supplies are being used. The SNA favours accrual accounting because:

a. The timing of accrual accounting is in full agreement with the way economic activities and other flows are defined in the SNA. This agreement allows the profitability of productive activities to be evaluated correctly (that is, without the disturbing influence of leads and lags in cash flows) and a sector's net worth to be calculated correctly at any point in time;

b. Accrual accounting can be applied to non-monetary flows.

3.167 Many transactions, such as everyday purchases of households in shops, are monetary transactions in which some asset is delivered against immediate, or nearly immediate, payment in cash. In those instances there are no differences between the three methods discussed here. Accrual accounting is particularly relevant to the timing of various internal transactions (such as output that is added to the inventories of the producer), exchanges in which the parties deliver at differing times (such as sales with deferred payments) and obligatory transfers (taxes and flows connected with social security).

3.168 Usually, accrual accounting is the norm for the institutional units involved. Numerous transactions consist of an exchange between two enterprises of, say, goods for

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financial assets. In such an exchange, accounting entries will be made in the books of each enterprise, showing the same dates for the acquisition of the goods and the surrender of the financial assets, on the one hand, and for the acquisition of the financial assets and the surrender of the goods, on the other. Sometimes, however, the two parties involved in a transaction will not perceive it as occurring at the same moment. Furthermore, some transactors, in particular government units, do not keep records of purchases on an accrual basis. In these cases, the rules of consistency in the SNA require that efforts should be undertaken to correct basic statistics for major deviations and flaws. The application of the general rule of recording on an accrual basis to the most common circumstances is discussed below.

Time of recording of acquisitions of goods and services

3.169 The time of recording of the acquisition of goods is the moment when the economic ownership of those goods changes hands. When change of ownership is not obvious, the moment of entering in the books of the transaction partners may be a good indication and, failing that, the moment when physical possession and control is acquired. These subsidiary rules apply in particular to internal transactions or when a change of ownership is taken to occur under a financial lease or hire-purchase arrangement. Imports and exports of goods are recorded when change of ownership occurs. In the absence of sources specifying the date on which ownership changes, there is a strong presumption that the goods will cross the frontiers of the countries concerned either shortly before or soon after the change of ownership takes place. Trade statistics based on customs documents reflecting the physical movement of goods across the national or customs frontier may therefore often be used as an approximation.

3.170 Services are recorded in the SNA when they are provided. Some services are special in the sense that they are characteristically supplied on a continuous basis. Examples are operating leasing, insurance and housing services (including those of owner-occupied dwellings). These services are recorded as provided continuously over the whole period the contract lasts or the dwelling is available.

Time of recording of redistributive transactions

3.171 Following the general rule, distributive transactions are recorded at the moment the related claims arise. As a result, for example, compensation of employees, interest, rent on land, social contributions and benefits are all registered in the period during which the amounts payable are built up. Equally, entries for taxes are made at the moment on which the underlying transactions or other flows occur that give rise to the liability to pay. This implies that taxes on products and imports are recorded at the times the products in question are produced, imported or sold, depending on the basis for taxation. Current taxes on income are recorded when the income to which they pertain is earned although taxes deducted at source may have to be recorded when they are deducted. With respect to some distributive transactions, the time of accrual depends on the unit's decision when to distribute income or make a transfer. The level of dividends is not unambiguously attributable to a particular earning period, and dividends are to be recorded as of the moment the associated share starts to be quoted "ex dividend". Other examples are withdrawals from income of quasi-corporations and various voluntary transfers, which are recorded when effected.

Time of recording of transactions in financial assets and liabilities

3.172 Transactions in financial assets (including payments of cash) are recorded in the SNA on a change-of-ownership basis. Some financial claims or liabilities defined in the SNA, in particular trade credits and advances, are the implicit result of a non-financial transaction and are not otherwise evidenced. In these cases the financial claim is deemed to arise when its non-financial counterpart occurs. The same holds for financial transactions that the SNA records between a quasi-corporation and its owner.

3.173 Both parties involved in a financial transaction may record it at varying dates in their own books because they acquire the documents evidencing the transaction at different times. This variation is caused by the process of clearing, the time cheques are in the mail, etc. The amounts involved in such "floats" are generally substantial in the case of transferable deposits and other accounts receivable and payable. Again, reasons of consistency require that the transactions are entered on the same date for both parties. If no precise date can be fixed on which the change of ownership occurs, the date on which the transaction is fully completed (thus the date on which the creditor receives his payment) is decisive.

3.174 For securities, the transaction date (that is, the time of the change in ownership of the securities) may precede the settlement date (that is, the time of the delivery of the securities). Both parties should record the transactions at the time ownership changes, not when the underlying financial asset is delivered. Any significant difference between transaction and settlement dates gives rise to accounts payable or receivable.

3.175 According to the accrual basis, repayments of debts are recorded when they are extinguished (such as when they are paid, or rescheduled, or forgiven by the creditor). When arrears occur, no transactions should be imputed, but the arrears should continue to be shown in the same instrument until the liability is extinguished. If the contract provided for a change in the characteristics of a financial instrument when it goes into arrears, this change should be recorded as a reclassification in the other changes in the financial assets and liabilities account. The reclassification applies to situations where the original contract remains, but the terms within it changes (for example, interest rates or repayment periods). If the contract is renegotiated or the nature of the instrument changes from one instrument category to another (for example, from bonds to equity), the consequences are to be recorded as new transactions.

Time of recording of output and intermediate consumption

3.176 The principle of recording on an accrual basis implies that output is recorded over the period in which the process of

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production takes place. Thus, additions to work-in-progress are recorded continuously as work proceeds. When the production process is terminated, the whole of the work-in-progress accumulated up to that point is effectively transformed into a stock of finished product ready for delivery or sale.

3.177 Similarly, the intermediate consumption of a good or service is recorded at the time when the good or service enters the process of production, as distinct from the time it was acquired by the producer.

Time of recording of changes in inventories and consumption of fixed capital

3.178 Inventories may be materials and supplies held as inputs by producers, output as yet unsold, or products held by wholesale and retail traders. In all cases, additions to inventories are recorded when products are purchased, produced or otherwise acquired. Deductions from inventories are recorded when products are sold, used up as intermediate consumption or otherwise relinquished.

3.179 The timing of consumption of fixed capital is inextricably linked with the question of its valuation. Consumption of fixed capital is a cost category that accrues over the whole period the fixed asset in question is available for productive purposes. The exact proportioning to accounting periods depends on the rate of depreciation.

Time of recording of composite transactions and balancing items

3.180 Transactions that are measured as the balance of two or more other transactions follow the timing of the constituent basic flows. For example, financial intermediation services indirectly measured (FISIM) are recorded as interest on loans and deposits accrues.

3.181 The same rule for time of recording applies to balancing items. However, due to the variety of transactions and other flows covered, each with its own characteristics, some thought is needed in interpreting balancing items. For instance, in analysing the balancing item “saving” of non-financial corporations, one should be aware that the time when the operating surplus arises does not necessarily tally with the timing of the other factors, such as when dividends are payable.

Time of recording of other flows

3.182 Other changes in the volume of assets are usually discrete events that accrue at precise moments or within fairly short periods of time.

Time of recording of holding gains and losses

3.183 Changes in prices often have a more continuous character, particularly in respect of assets for which active markets exist. In practice, nominal holding gains or losses will be computed between two points in time:

a. The moment at which:

- The accounting period begins; or
- Ownership is acquired from other units (through purchase or a transaction in kind); or
- An asset is produced; and

b. The moment at which:

- The accounting period ends; or
- The ownership of an asset is relinquished (through sale or a transaction in kind); or
- An asset is consumed in the production process.

3.184 One may wonder why nominal holding gains and losses are not calculated over a period beginning at the moment on which two units agree to a mutual exchange of assets instead of the period that starts with the moment on which the assets are acquired. After all, does not the signing of the contract fix prices, implying that the risk for any later price changes is being transferred? The SNA, however, regards commitments resulting from a contract as contingent until one of the parties has performed its obligation (by passing the ownership of some asset to the other party, providing a service or providing labour or capital). Also, a unit can incur holding gains and losses only on the assets or liabilities over which it has economic ownership. The combination of these two rules implies that during the period between the signing of the contract and the date on which the first party delivers, the second party cannot incur any price risks on this contract: the second party neither owns the assets to be delivered nor owns a claim on the first party to be recorded in the financial accounts.

3.185 Changes in structure and classification should be entered at the moment when, according to the rules adopted in the SNA, a unit or an asset is moved to a different category than that to which it was classified previously. An integrated stock-flow system like the SNA requires that all reclassifications are recorded and all entries for the reclassification are recorded at the same time.

3.186 In order to obtain statistical series that are more comparable over time, one might be tempted to stockpile major reclassifications for a number of years and enter them as one block at the end of this period. However understandable this procedure might be, it does not conform to the recommendations of the SNA, which aim at correct estimates on levels. Keeping records of reclassifications makes it possible in principle to reconstruct time series based on the situation in any accounting period.

Timing adjustments for international transactions

3.187 Differences in the time of recording by partner economies may occur due to various factors. One of the intrinsic problems with recording international transactions is the difference in time zones. Differences in time of recording may also arise from delays in mail deliveries or settlement clearing processes. In most cases, data at some aggregate level rather than individual records are used in the

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compilation of international accounts. Several data sources may often only approximate the required basis. It is important to make timing adjustments where there are major divergences from the required basis.

3.188 In choosing among available statistical sources, compilers may wish to consider the advantage of using data for which the correct timing is already recorded. For example, records of actual drawings on loans are preferred to sources that quote authorization dates or program dates that may not be realized in fact. Some sources chosen by compilers as generally the most suitable may not have been specifically designed to yield information for balance of payments purposes.

Balance sheet items

3.189 Balance sheets can be drawn up for any point in time. The SNA defines balance sheets for all sectors at the moment when one accounting period ends and a new accounting period begins. The closing balance sheet of one period is identical to the opening balance sheet of the next one, so there remain no price changes, reclassifications or other economic flows that are not duly recognized by the SNA.

4. Aggregation, netting, consolidation

Aggregation

3.190 The immense number of individual transactions, other flows and assets within the scope of the SNA have to be arranged in a manageable number of analytically useful groups. In the SNA, such groups are constructed by crossing two or more classifications. As a minimum, a classification of institutional sectors or industries is crossed with the classification of transactions, other accumulation entries or assets. Additionally, resources must be distinguished from uses and assets from liabilities. In order to accommodate more detailed analysis, the classes thus generated may be further subdivided: examples are specifications of kind of product or asset, of function and of transaction partners.

3.191 Since the classifications in the SNA contain a number of levels made explicit in the codes, corresponding levels of aggregation may be distinguished.

3.192 Although conceptually the value for each aggregate is the sum of the values for all elementary items in the relevant category, in practice other estimation methods are frequently used. In the first place, information on elementary transactions, other flows and assets may be incomplete or even non-existent. Secondly, the data obtained from different primary sources are usually not fully consistent due to variations in definitions and coverage, so adjustments at aggregate level are necessary to reconcile them.

Netting

3.193 Individual units or sectors may have the same kind of transaction both as a use and as a resource (for example, they both pay and receive interest) and the same kind of financial instrument both as an asset and as a liability. Combinations in which all elementary items are shown for their full values are called gross recordings. Combinations whereby the values of some elementary items are offset against items on the other side of the account or which have an opposite sign are called net recordings.

3.194 The SNA recommends gross recording apart from the degree of netting that is inherent in the classifications themselves. In fact, netting is already a feature of many of the recommendations of the SNA. It mostly serves to highlight an economically important property that is not apparent from gross data.

3.195 Netting is implicit in various transaction categories, the most outstanding example being “changes in inventories”, which underlines the analytically significant aspect of overall capital formation rather than tracking daily additions and withdrawals. Similarly, with few exceptions, the financial account and other changes in assets accounts record increases in assets and in liabilities on a net basis, bringing out the final consequences of these types of flows at the end of the accounting period. All balancing items also involve netting. To avoid confusion, the SNA uses the words “gross” and “net” in a very restrictive sense. Apart from a few headings (“net premiums”, “net worth” and “net lending or net borrowing”), the SNA classifications employ the word “net” exclusively to indicate the value of variables after deduction of consumption of fixed capital.

3.196 In the case of flows of financial assets and liabilities, the terms “net changes in assets” and “net changes in liabilities” are used to reflect the nature of the financial flows. Financial flows reflect changes due to all credit and debit entries during an accounting period. That is, financial flows are recorded on a net basis separately for each financial asset and liability. The use of the terms “net changes in assets” and “net changes in liabilities” brings the financial account into line with the convention used in the accumulation accounts. These are general terms that apply to both the financial account and other changes in financial assets and liabilities account. The use of these terms also simplifies the interpretation of data. For both assets and liabilities, a positive change indicates an increase in stocks and a negative change indicates a decrease in stocks. The interpretation of increase or decrease under the credit or debit notion, however, depends on whether the increase or decrease refers to assets or liabilities (a debit for an asset is an increase while a debit for a liability is a decrease). While the debit and credit presentation is not emphasized for financial account transactions, it is important to recognize and maintain the accounting identities; for example, a credit is always conceptually matched with a corresponding debit, the latter relating to either an increase in an asset, or reduction in a liability.

Consolidation

3.197 Consolidation is a special kind of cancelling out of flows and stocks that should be distinguished from other kinds of netting. It involves the elimination of those transactions or debtor or creditor relationships that occur between two transactors belonging to the same institutional sector or subsector. Consolidation should not be seen as a sheer loss of information; it entails an elementary specification by the transaction partner. Consolidation may be most relevant for

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financial institutions and general government. There is more detail on this in chapters 22 and 27. For certain kinds of analysis, information on the transactions of these (sub)sectors with other sectors and the corresponding "external" financial position is more significant than overall gross figures. As a rule, however, the entries in the SNA are not consolidated.

3.198 The rule of non-consolidation takes a special form regarding the transaction categories "output" and "intermediate consumption". These transactions are to be recorded throughout at the level of establishments. This implies specifically that the accounts for institutional sectors and for industries should not be consolidated in respect of output delivered between establishments belonging to the same institutional unit.

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Chapter 4: Institutional units and sectors

A. Introduction

4.1 This chapter is concerned with the definition and description of institutional units and the way in which they are grouped to make up the sectors and subsectors of the SNA. Another key concept to be discussed is residence since the total economy consists of the entire set of resident institutional units.

1. Institutional units

4.2 ***An institutional unit is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities.*** The main attributes of institutional units may be described as follows:

a. An institutional unit is entitled to own goods or assets in its own right; it is therefore able to exchange the ownership of goods or assets in transactions with other institutional units;

b. It is able to take economic decisions and engage in economic activities for which it is itself held to be directly responsible and accountable at law;

c. It is able to incur liabilities on its own behalf, to take on other obligations or future commitments and to enter into contracts;

d. Either a complete set of accounts, including a balance sheet of assets and liabilities, exists for the unit, or it would be possible and meaningful, from an economic viewpoint, to compile a complete set of accounts if they were to be required.

4.3 There are two main types of units in the real world that may qualify as institutional units, namely persons or groups of persons in the form of households, and legal or social entities.

4.4 For purposes of the SNA, ***a household is a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.*** As well as individual households, there are units described as institutional households that comprise groups of persons staying in hospitals, retirement homes, convents, prisons, etc. for long periods of time.

4.5 The individual members of multiperson households are not treated as separate institutional units. Many assets are owned, or liabilities incurred, jointly by two or more members of the same household while some or all of the income received by individual members of the same household may be pooled for the benefit of all members. Moreover, many expenditure decisions, especially those relating to the consumption of food, or housing, may be made collectively for the household as a whole. It may be impossible, therefore, to draw up meaningful balance sheets or other accounts for members of the household on an individual basis. For these reasons, the household as a whole rather than the individual persons in it must be treated as the institutional unit.

4.6 The second type of institutional unit is a legal or social entity that engages in economic activities and transactions in its own right, such as a corporation, non-profit institution (NPI) or government unit. ***A legal or social entity is one whose existence is recognized by law or society independently of the persons, or other entities, that may own or control it.*** Such units are responsible and accountable for the economic decisions or actions they take, although their autonomy may be constrained to some extent by other institutional units; for example, corporations are ultimately controlled by their shareholders. Some unincorporated enterprises belonging to households or government units may behave in much the same way as corporations, and such enterprises are treated as quasi-corporations when they have complete sets of accounts.

4.7 In the legal sense, corporations may be described by different names: corporations, incorporated enterprises, public limited companies, public corporations, private companies, joint-stock companies, limited liability companies, limited liability partnerships, and so on. Conversely, some legal entities that are non-profit institutions may sometimes be described as “corporations”. The status of an institutional unit cannot always be inferred from its name, and it is necessary to examine its objectives and functions. In the SNA, ***the term corporation covers legally constituted corporations and also cooperatives, limited liability partnerships, notional resident units and quasi-corporations.*** The description of these various institutional units is given in section B.

4.8 ***Non-profit institutions (NPIs) are legal or social entities created for the purpose of producing goods and services but whose status does not permit them to be a source of income, profit or other financial gain for the units that***

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establish, control or finance them. In practice, their productive activities are bound to generate either surpluses or deficits but any surpluses they happen to make cannot be appropriated by other institutional units. The articles of association by which they are established are drawn up in such a way that the institutional units that control or manage them are not entitled to a share in any profits or other income they generate. For this reason, they are frequently exempted from various kinds of taxes. A description of the treatment of NPIs within the SNA is given in section C.

4.9 ***Government units are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area.*** Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production.

2. Residence

4.10 ***The residence of each institutional unit is the economic territory with which it has the strongest connection, in other words, its centre of predominant economic interest.*** The concept of economic territory in the SNA coincides with that of the *BPM6*. Some key features are as follows. In its broadest sense, an economic territory can be any geographic area or jurisdiction for which statistics are required. The connection of entities to a particular economic territory is determined from aspects such as physical presence and being subject to the jurisdiction of the government of the territory. The most commonly used concept of economic territory is the area under the effective economic control of a single government. However economic territory may be larger or smaller than this, as in a currency or economic union or a part of a country or the world.

4.11 The economic territory includes the land area, airspace, territorial waters, including jurisdiction over fishing rights and rights to fuels or minerals. In a maritime territory, the economic territory includes islands that belong to the territory. The economic territory also includes territorial enclaves in the rest of the world. These are clearly demarcated land areas (such as embassies, consulates, military bases, scientific stations, information or immigration offices, aid agencies, central bank representative offices with diplomatic immunity, etc.) located in other territories and used by governments that own or rent them for diplomatic, military, scientific, or other purposes with the formal agreement of governments of the territories where the land areas are physically located.

4.12 Economic territory has the dimensions of physical location as well as legal jurisdiction. The concepts of economic territory and residence are designed to ensure that each institutional unit is a resident of a single economic territory. The use of an economic territory as the scope of economic statistics means that each member of a group of affiliated enterprises is resident in the economy in which it is located, rather than being attributed to the economy of location of the head office.

4.13 In general, an institutional unit is resident in one and only one economic territory determined by the unit's centre of predominant economic interest. Exceptions may be made for multiterritory enterprises that operate a seamless operation over more than one economic territory. Although the enterprise has substantial activity in more than one economic territory, it cannot be broken up into separate branches or a parent and branch(es) because it is run as an indivisible operation with no separate accounts or decisions. Such enterprises are typically involved in cross-border activities and include shipping lines, airlines, hydroelectric schemes on border rivers, pipelines, bridges, tunnels and undersea cables. If it is not possible to identify a parent or separate branches, it is necessary to prorate the total operations of the enterprise into the individual economic territories. For more information on these special cases, reference should be made to *BPM6*.

4.14 An institutional unit has a centre of predominant economic interest in an economic territory when there exists, within the economic territory, some location, dwelling, place of production, or other premises on which or from which the unit engages and intends to continue engaging, either indefinitely or over a finite but long period of time, in economic activities and transactions on a significant scale. The location need not be fixed so long as it remains within the economic territory. Actual or intended location for one year or more is used as an operational definition; while the choice of one year as a specific period is somewhat arbitrary, it is adopted to avoid uncertainty and facilitate international consistency.

4.15 The concept of residence in the SNA is exactly the same as in *BPM6*. Some key consequences follow:

a. The residence of individual persons is determined by that of the household of which they form part and not by their place of work. All members of the same household have the same residence as the household itself, even though they may cross borders to work or otherwise spend periods of time abroad. If they work and reside abroad so long that they acquire a centre of economic interest abroad, they cease to be members of their original households;

b. Unincorporated enterprises that are not quasi-corporations are not separate institutional units from their owners and, therefore, have the same residence as their owners;

c. Corporations and NPIs may normally be expected to have a centre of economic interest in the country in which they are legally constituted and registered. Corporations may be resident in countries different from their shareholders and subsidiary corporations may be resident in countries different from their parent corporations. When a corporation, or unincorporated enterprise, maintains a branch, office or production site in another country in order to engage in production over a long period of time (usually taken to be one year or more) but without creating a subsidiary corporation for the purpose, the branch, office or site is considered

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to be a quasi-corporation (that is, a separate institutional unit) resident in the country in which it is located;

d. Owners of land, buildings and immovable structures in the economic territory of a country, or units holding long leases on either, are deemed always to have a centre of economic interest in that country, even if they do not engage in other economic activities or transactions in the country. All land and buildings are therefore owned by residents;

e. Extraction of subsoil resources can only be undertaken by resident institutional units. An enterprise that will undertake extraction is deemed to become resident when the requisite licences or leases are issued, if not before;

f. For entities such as many special purpose entities, that have few if any attributes of location, the location is determined by their place of incorporation.

Further elaboration of borderline cases is given in chapter 26 and in *BPM6*.

3. Sectoring and economic behaviour

4.16 The institutional sectors of the SNA group together similar kinds of institutional units. Corporations, NPIs, government units and households are intrinsically different from each other in that their economic objectives, functions and behaviour are different.

4.17 Institutional units are allocated to sector according to the nature of the economic activity they undertake. The three basic economic activities recorded in the SNA are production of goods and services, consumption to satisfy human wants or needs and accumulation of various forms of capital. Corporations undertake either production or accumulation (or both) but do not undertake (final) consumption. Government undertakes production (but mainly of a different type from corporations), accumulation and final consumption on behalf of the population. All households undertake consumption on their own behalf and may also engage in production and accumulation. NPIs are diverse in nature. Some behave like corporations, some are effectively part of government and some undertake activities similar to government but independently of it.

4.18 Fundamental to the distinction between corporations and government is the basis on which production is undertaken. Corporations produce for the market and aim to sell their products at economically significant prices. Prices are said to be economically significant if they have a significant effect on the amount that producers are willing to supply and the amounts purchasers wish to buy. These prices normally result when the producer has an incentive to adjust supply either with the goal of making a profit in the long run (or at a minimum, covering capital and other costs) and consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged. There is more extensive discussion of the definition of economically significant prices and the meaning of market and non-market production in chapters 6 and 22.

4.19 Corporations are divided between those mainly providing financial services and those mainly providing goods and other services. The two groups are known as financial corporations and non-financial corporations respectively. The distinction is made because of the special role that financial corporations play in the economy.

4.20 The economic objectives, functions and behaviour of government units are quite distinct. They organize and finance the provision of goods and services, to individual households and the community at large and therefore incur expenditures on final consumption. They may produce most of these goods and services themselves but the products are usually either provided free or at prices determined by considerations other than purely market forces. Government units are also concerned with distribution and redistribution of income and wealth through taxation and other transfers. Government units include social security funds.

4.21 The economic objectives, functions and behaviour of households are different again. Although primarily consumer units, they can also engage in production. Often this production activity is relatively small scale and includes informal and subsistence activities. When the production units of households are not legal entities (and cannot be treated as such) they are described as unincorporated enterprises. They remain part of the same institutional unit as the household to which they belong.

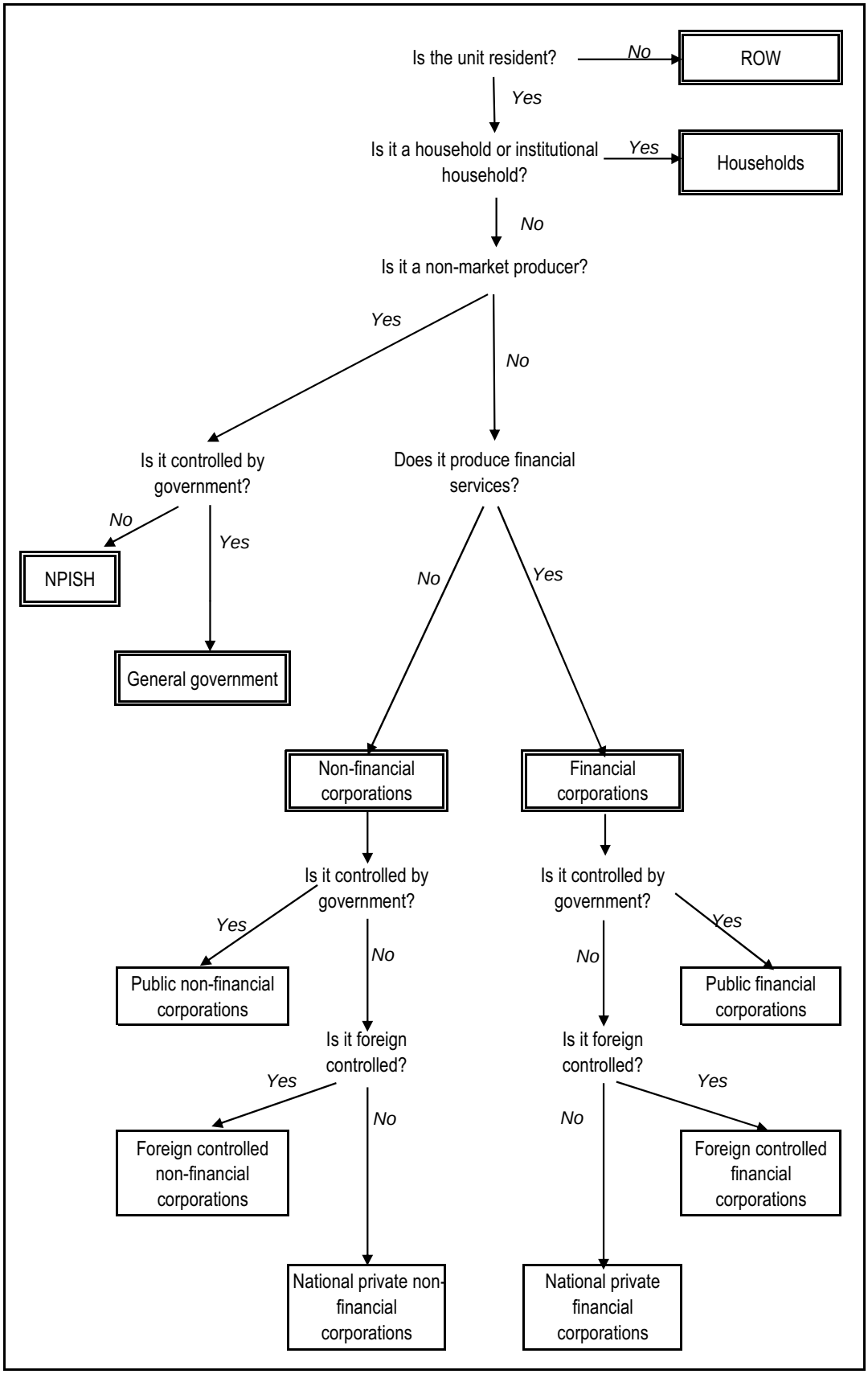
4.22 NPIs are institutional units created for the purpose of producing or distributing goods or services but not for the purpose of generating any income or profit for the units that control or finance them. Nevertheless, some NPIs deliver goods and services to customers at economically significant prices and, when they do, these NPIs are treated in the same way as corporations in the SNA. Other NPIs that are controlled by government are treated as government units. The remaining NPIs, those that produce goods and services but do not sell them at economically significant prices and are not controlled by government, are treated as a special group of units called non-profit institutions serving households (NPISHs). They are in effect non-governmental social institutions.

4. The total economy

4.23 ***The total economy is defined as the entire set of resident institutional units.*** The resident institutional units that make up the total economy are grouped into five mutually exclusive institutional sectors. Sectors are groups of institutional units and the whole of each institutional unit must be classified to one or other sector of the SNA. The full sequence of accounts of the SNA may be constructed for a single institutional unit or a group of units. The attributes of an institutional unit described in paragraph 4.2 explain why it is not possible to compile a full set of accounts for only part of a unit. However, it is possible, useful and common practice to compile some accounts for sub-divisions of corporations, discriminating on the basis of the type of production the parts undertake. This is the subject of chapter 5. For the present chapter attention focuses on the allocation of complete units to one sector or another.

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Figure 4.1: Illustrative allocation of units to institutional sectors



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5. An overview of institutional sectors

4.24 All resident institutional units are allocated to one and only one of the following five institutional sectors:

The non-financial corporations sector;

The financial corporations sector;

The general government sector;

The non-profit institutions serving households sector;

The households sector.

4.25 The conceptual basis for the allocation of a unit to the appropriate sector can be seen in figure 4.1. The boxes for the sectors of the total economy, plus the box for the rest of the world, appear with double borders. Once non-resident units and households are set aside, only resident legal and social entities remain. Three questions determine the sectoral allocation of all such units. The first is whether the unit is a market or non-market producer. This depends on whether the majority of the unit's production is offered at economically significant prices or not.

4.26 The second question determining sectoral allocation applies to non-market units, all of which, including non-market NPIs, are allocated either to general government or to the NPISH sector. The determining factor is whether the unit is part of, or controlled by, government. The criteria to establish control are discussed in section C below.

4.27 The third question determining sectoral allocation applies to market units, all of which, including market NPIs, are allocated to either the non-financial corporations sector or the financial corporations sector. In the context of sectors as elsewhere in the SNA, the term "corporation" is used to encompass cooperatives, limited liability partnerships, notional resident units and quasi-corporations as well as legally constituted corporations.

4.28 All resident non-financial corporations are included in the non-financial corporations sector and make up most of the sector in practice. In addition, the sector includes non-profit institutions (NPIs) engaged in the market production of goods and non-financial services: for example, hospitals, schools or colleges that charge fees that enable them to recover their current production costs, or trade associations financed by subscriptions from non-financial corporate or unincorporated enterprises whose role is to promote and serve the interests of those enterprises. The non-financial corporations sector is described further in section D.

4.29 The financial corporations sector includes all resident corporations whose principal activity is providing financial services including financial intermediation, insurance and pension fund services, and units that provide activities that facilitate financial intermediation. In addition, the sector includes NPIs engaged in market production of a financial nature such as those financed by subscriptions from financial enterprises whose role is to promote and serve the interests of those enterprises. The financial corporations sector is described further in section E.

4.30 The general government sector consists mainly of central, state and local government units together with social security funds imposed and controlled by those units. In addition, it includes NPIs engaged in non-market production that are controlled by government units or social security funds.

4.31 The non-profit institutions serving households sector consists of all resident NPIs, except those controlled by government, that provide non-market goods or services to households or to the community at large.

4.32 The households sector consists of all resident households. These include institutional households made up of persons staying in hospitals, retirement homes, convents, prisons, etc. for long periods of time. As already noted, an unincorporated enterprise owned by a household is treated as an integral part of the latter and not as a separate institutional unit unless the accounts are sufficiently detailed to treat the activity as that of a quasi-corporation.

6. Subsectors

4.33 Each of the five institutional sectors listed above may be divided into subsectors. No single method of subsectoring may be optimal for all purposes or all countries, so that alternative methods of subsectoring are recommended for certain sectors. Dividing the total economy into sectors enhances the usefulness of the accounts for purposes of economic analysis by grouping together institutional units with similar objectives and types of behaviour. Sectors and subsectors are also needed in order to be able to target or monitor particular groups of institutional units for policy purposes. For example, the household sector has to be divided into subsectors in order to be able to observe how different sections of the community are affected by, or benefit from, the process of economic development or government economic and social policy measures. Similarly, it may be important to treat corporations subject to control by non-residents as subsectors of the financial and non-financial corporate sectors not only because they are liable to behave differently from domestically controlled corporations but because policymakers may wish to be able to identify and observe those parts of the economy that are subject to influence from abroad. The division of sectors into subsectors depends upon the type of analysis to be undertaken, the needs of policymakers, the availability of data and the economic circumstances and institutional arrangements within a country.

Public and foreign control

4.34 One common subsectoring is to identify those non-financial and financial corporations that are controlled by the government, called public corporations, and those that are controlled from abroad. The remaining corporations form the national private corporations in an economy. The criteria for determining control by government and from abroad are discussed in section B. Figure 4.1 includes this type of subsectoring for both groups of corporations.

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Non-profit institutions

4.35 As described above, the SNA assigns NPIs to different sectors according to whether they produce for the market or not, regardless of motivation, status of employees or the activity they are engaged in. However, there is increasing interest in considering the full set of NPIs as evidence of "civil society" so it is recommended that NPIs within the corporate and government sectors be identified in distinct subsectors so that supplementary tables summarizing all NPI activities can be derived in a straightforward manner as and when required.

Other subsectoring

4.36 The question of subsectoring is included in the more extensive consideration of each institutional sector in following sections. Particular subsectors are suggested for general government, financial corporations and households.

7. The rest of the world

4.37 On occasion it is convenient to refer to non-resident households or corporations as units that are resident in the rest of the world. Whenever accounts are drawn up for institutional sectors, as well as an account for the total economy, a further account is shown showing the relationship with the rest of the world. In effect, therefore transactions with the rest of the world are recorded as if the rest of the world is a de facto sixth sector.

B. Corporations in the SNA

1. Types of corporations

4.38 In the SNA, the term corporation is used more broadly than in just the legal sense. In general, all entities that are:

a. capable of generating a profit or other financial gain for their owners,

b. recognized at law as separate legal entities from their owners who enjoy limited liability,

c. set up for purposes of engaging in market production,

are treated as corporations in the SNA, however they may describe themselves or whatever they may be called. As well as legally constituted corporations the term corporations is used to include cooperatives, limited liability partnerships, notional resident units and quasi-corporations. Whenever the term corporation is used, the broader coverage rather than the narrow legal definition is intended unless otherwise stated. Each of the main components of the broader coverage is discussed in turn below.

Legally constituted corporations

4.39 Legally constituted corporations may be described by different names: corporations, incorporated enterprises, public limited companies, public corporations, private companies, joint-stock companies, limited liability companies, limited liability partnerships, and so on. ***A legally constituted corporation is a legal entity, created for the purpose of producing goods or services for the market, that may be a source of profit or other financial gain to its owner(s); it is collectively owned by shareholders who have the authority to appoint directors responsible for its general management.***

4.40 The laws governing the creation, management and operations of legally constituted corporations may vary from country to country so that it is not feasible to provide a precise, legal definition of a corporation that would be universally valid. It is possible, however, to indicate in more detail the typical features of corporations that are most relevant from the point of view of the SNA. They may be summarized as follows:

a. A corporation is an entity created by process of law whose existence is recognized independently of the other institutional units that may own shares in its equity. The existence, name and address of a corporation are usually recorded in a special register kept for this purpose. A corporation may normally be expected to have a centre of predominant economic interest (that is, to be resident) in the country in which it is created and registered.

b. A corporation that is created for the purpose of producing goods or services for sale on the market does so at prices that are economically significant. This implies that it is a market producer. (A description of economically significant prices and the difference between market and non-market production is given in chapters 6 and 22.)

c. A corporation is fully responsible and accountable at law for its own actions, obligations and contracts, this being an essential attribute of an institutional unit in the SNA. A corporation is subject to the tax regime of the country where it is resident in respect of its productive activities, income or assets.

d. Ownership of a corporation is vested in the shareholders collectively. The amount of income actually distributed to shareholders as dividends in any single accounting period is decided by the directors of the corporation. Income is usually distributed to shareholders in proportion to the value, or amounts, of

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the shares or other capital participations they own. There may be different kinds of shares in the same corporation carrying different entitlements.

e. In the event of a corporation being wound up, or liquidated, the shareholders are similarly entitled to a share in the net worth of the corporation remaining after all assets have been sold and all liabilities paid. If a corporation is declared bankrupt because its liabilities exceed the value of its assets, the shareholders are not liable to repay the excess liabilities.

f. Control of a corporation is ultimately exercised by the shareholders collectively. A corporation has a board of directors that is responsible for the corporation's policy and appoints the senior management of the corporation. The board of directors is usually appointed by the collective vote of the shareholders.

g. In practice, however, some shareholders may exert much more influence or control over the policies and operations of a corporation than others.

h. The voting rights of shareholders may not be equal. Some types of shares may carry no voting rights, while others may carry exceptional rights, such as the right to make specific appointments to the board of directors or the right to veto other appointments made on a majority vote. Such exceptional rights may be held by the government when it is a shareholder in a corporation.

i. Many shareholders with voting rights do not choose to exercise them, so that a small, organized minority of active shareholders may be in a position to control the policy and operations of a corporation.

Cooperatives, limited liability partnerships, etc.

4.41 Cooperatives are set up by producers for purposes of marketing their collective output. The profits of such cooperatives are distributed in accordance with their agreed rules and not necessarily in proportion to shares held, but effectively they operate like corporations. Similarly, partnerships whose members enjoy limited liability are separate legal entities that behave like corporations. In effect, the partners are at the same time both shareholders and managers.

Quasi-corporations

4.42 Some unincorporated enterprises function in all (or almost all) respects as if they were incorporated. These are termed quasi-corporations in the SNA and are included with corporations in the non-financial and financial corporations sectors. ***A quasi-corporation is:***

a. either an unincorporated enterprise owned by a resident institutional unit that has sufficient information to compile a complete set of accounts and is operated as if it were a separate corporation and whose de facto relationship to its owner is that of a corporation to its shareholders, or

b. an unincorporated enterprise owned by a non-resident institutional unit that is deemed to be a resident institutional unit because it engages in a significant amount of production in the economic territory over a long or indefinite period of time.

4.43 Three main kinds of quasi-corporations are recognized in the SNA:

a. Unincorporated enterprises owned by government units that are engaged in market production and that are operated in a similar way to publicly owned corporations;

b. Unincorporated enterprises, including unincorporated partnerships or trusts, owned by households that are operated as if they were privately owned corporations;

c. Unincorporated enterprises that belong to institutional units resident abroad, referred to as "branches".

4.44 The intent behind the concept of a quasi-corporation is clear: namely, to separate from their owners those unincorporated enterprises that are sufficiently self-contained and independent that they behave in the same way as corporations. If they function like corporations, they must keep complete sets of accounts. Indeed, the existence of a complete set of accounts, including balance sheets, for the enterprise is a necessary condition for it to be treated as a quasi-corporation. Otherwise, it would not be feasible from an accounting point of view to distinguish the quasi-corporation from its owner.

4.45 As a quasi-corporation is treated as a separate institutional unit from its owner, it must have its own value added, saving, assets, liabilities, etc. It must be possible to identify and record any flows of income and capital that are deemed to take place between the quasi-corporation and its owner. The amount of income withdrawn from a quasi-corporation during a given accounting period is decided by the owner, such a withdrawal being equivalent to the payment of a dividend by a corporation to its shareholder(s). Given the amount of the income withdrawn, the saving of the quasi-corporation (that is, the amount of earnings retained within the quasi-corporation) is determined. A balance sheet is also needed for the quasi-corporation showing the values of its non-financial assets used in production and also the financial assets and liabilities owned or incurred in the name of the enterprise.

4.46 Experience has shown that countries have difficulty treating unincorporated enterprises owned by households as quasi-corporations. However, it is not useful to introduce additional criteria, such as size, into the definition of quasi-corporations owned by households. If an enterprise is not in fact operated like a corporation and does not have a complete set of accounts of its own, it cannot and should not be treated as a quasi-corporation however large it may be.

Branches

4.47 When a non-resident unit has substantial operations over a significant period in an economic territory, but no separate

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legal entity, a branch may be identified as an institutional unit. This unit is identified for statistical purposes because the operations have a strong connection to the location of operations in all ways other than incorporation. An unincorporated enterprise abroad should be treated as a quasi-corporation when indications of substantial operations can be identified separately from the rest of the entity. As with other quasi-corporations, either a complete set of accounts for the unit exists or it would be meaningful from an economic point of view to compile them. The availability of separate records indicates that an actual unit exists and makes it practical to prepare statistics. In addition, all or most of the following factors tend to be present for a branch to be recognized:

a. Production based in the territory is undertaken or intended for one year or more in a territory other than that of its head office:

· If the production process involves physical presence, then the operations should be physically located in that territory. Some indicators of an intention to locate in the territory include purchasing or renting business premises, acquiring capital equipment, and recruiting local staff.

· If the production does not involve physical presence, such as some cases of banking, insurance, or other financial services, the operations should be recognized as being in the territory by virtue of the registration or legal domicile of those operations in that territory.

b. The operations are recognized as being subject to the income tax system, if any, of the economy in which it is located even if it may have a tax-exempt status.

4.48 Some construction projects undertaken by a nonresident contractor may give rise to a branch. Construction may be carried out or managed by a nonresident enterprise, without the creation of a local legal entity, for example, major projects (such as bridges, dams, power stations) that take a year or more to complete and that are managed through a local site office.

Notional resident units

4.49 Immovable assets such as land and other natural resources, and buildings and structures are treated as being owned by resident units except in one particular circumstance. If the legal owner is actually non-resident, an artificial unit, called a notional resident unit, is created in the SNA. The notional resident unit is recorded as owning the asset and receiving the rent or rentals that accrue to the asset. The legal owner owns the equity in the notional resident unit and then receives income from the notional resident unit in the form of property income paid abroad. The only exception is made for land and buildings in extraterritorial enclaves of foreign governments (such as embassies, consulates and military bases) that are subject to the laws of the home territory and not those of the territory where they are physically situated.

4.50 A long-term lease to use immovable assets such as land and other natural resources must also be held by a resident. If necessary, a notional resident unit is identified in this case also.

2. Special cases

Groups of corporations

4.51 Large groups of corporations, or conglomerates, may be created whereby a parent corporation controls several subsidiaries, some of which may control subsidiaries of their own, and so on. For certain purposes, it may be desirable to have information relating to a group of corporations as a whole. However, each individual corporation should be treated as a separate institutional unit, whether or not it forms part of a group. Even subsidiaries that are wholly owned by other corporations are separate legal entities that are required by law and the tax authorities to produce complete sets of accounts, including balance sheets. Although the management of a subsidiary corporation may be subject to the control of another corporation, it remains responsible and accountable for the conduct of its own production activities.

4.52 Another reason for not treating groups of corporations as single institutional units is that groups are not always well defined, stable or easily identified in practice. It may be difficult to obtain data for groups whose activities are not closely integrated. Moreover, many conglomerates are much too large and heterogeneous for them to be treated as single units, and their size and composition may be continually shifting over time as a result of mergers and takeovers.

Head offices and holding companies

4.53 Two quite different types of units exist that are both often referred to as holding companies. The first is the head office that exercises some aspects of managerial control over its subsidiaries. These may sometimes have noticeably fewer employees, and more at a senior level, than its subsidiaries but it is actively engaged in production. These types of activities are described in *ISIC Rev. 4* in section M class 7010 as follows:

This class includes the overseeing and managing of other units of the company or enterprise; undertaking the strategic or organizational planning and decision making role of the company or enterprise; exercising operational control and manage the day-to-day operations of their related units.

Such units are allocated to the non-financial corporations sector unless all or most of their subsidiaries are financial corporations, in which case they are treated by convention as financial auxiliaries in the financial corporations sector.

4.54 The type of unit properly called a holding company is a unit that holds the assets of subsidiary corporations but does not undertake any management activities. They are described in *ISIC Rev. 4* in section K class 6420 as follows:

This class includes the activities of holding companies, i.e. units that hold the assets (owning controlling-levels of equity) of a group of subsidiary corporations and whose

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principal activity is owning the group. The holding companies in this class do not provide any other service to the enterprises in which the equity is held, i.e. they do not administer or manage other units.

Such units are always allocated to the financial corporations sector and treated as captive financial institutions even if all the subsidiary corporations are non-financial corporations.

Special purpose entities

4.55 A number of institutional units may be described as special purpose entities (SPEs) or special purpose vehicles. There is no common definition of an SPE but some of the following characteristics may apply.

4.56 Such units often have no employees and no non-financial assets. They may have little physical presence beyond a "brass plate" confirming their place of registration. They are always related to another corporation, often as a subsidiary, and SPEs in particular are often resident in a territory other than the territory of residence of the related corporations. In the absence of any physical dimension to an enterprise, its residence is determined according to the economic territory under whose laws the enterprise is incorporated or registered. For more detail on problematical cases see *BPM6*.

4.57 Entities of this type are commonly managed by employees of another corporation which may or may not be a related one. The unit pays fees for services rendered to it and in turn charges its parent or other related corporation a fee to cover these costs. This is the only production the unit is involved in though it will often incur liabilities on behalf of its owner and will usually receive investment income and holding gains on the assets it holds.

4.58 Whether a unit has all or none of these characteristics, and whether it is described as an SPE or some similar designation or not, it is treated in the SNA in the same way as any other institutional unit by being allocated to sector and industry according to its principal activity unless it falls into one of the three following categories:

a. Captive financial institutions,

b. Artificial subsidiaries of corporations,

c. Special purpose units of general government.

Each of these is described below.

Captive financial institutions

4.59 A holding company that simply owns the assets of subsidiaries is one example of a captive financial institution. Other units that are also treated as captive financial institutions are units with the characteristics of SPEs as described above including investment and pension funds and units used for holding and managing wealth for individuals or families, holding assets for securitization, issuing debt securities on behalf of related companies (such a company may be called a conduit), securitization vehicles and to carry out other financial functions.

4.60 The degree of independence from its parent may be demonstrated by exercising some substantive control over its assets and liabilities to the extent of carrying the risks and reaping the rewards associated with the assets and liabilities. Such units are classified in the financial corporations sector.

4.61 An entity of this type that cannot act independently of its parent and is simply a passive holder of assets and liabilities (sometimes described as being on auto-pilot) is not treated as a separate institutional unit unless it is resident in an economy different from that of its parent. If it is resident in the same economy as its parent, it is treated as an "artificial subsidiary" as described immediately below.

Artificial subsidiaries of corporations

4.62 Within the SNA, the term corporation is used to denote both those institutions legally recognized as corporations and other units treated in the SNA as corporations, specifically quasi-corporations, branches and notional units. For the following six paragraphs, however, the term corporation is used in the sense of a corporation as a legal entity.

4.63 A subsidiary corporation, wholly owned by a parent corporation, may be created to provide services to the parent corporation, or other corporations in the same group, in order to avoid taxes, to minimize liabilities in the event of bankruptcy, or to secure other technical advantages under the tax or corporation legislation in force in a particular country. For example, the parent may create a subsidiary to which ownership of its land, buildings or equipment is transferred and whose sole function is to lease them back again to the parent corporation; the subsidiary may be the nominal employer of all the staff who are then contracted to other corporations in the group, the subsidiary may keep the accounts and records of the parent on a separate computer installation; the role of the subsidiary may be established to take advantage of favourable funding or regulatory treatments and so on. In some cases, corporations may create "dormant" subsidiaries that are not actually engaged in any production but which may be activated at the convenience of the parent corporation.

4.64 In general, these sorts of corporations do not satisfy the definition of an institutional unit in the SNA because they lack the ability to act independently from their parent corporation and may be subject to restrictions on their ability to hold or transact assets held on their balance sheets. Their level of output and the price they receive for it are determined by the parent that (possibly with other corporations in the same group) is their sole client. They are thus not treated as separate institutional units in the SNA but are treated as an integral part of the parent and their accounts are consolidated with those of the parent. As noted above, the accounts for passive SPEs (those on auto-pilot) are also consolidated with their parent corporation unless they are resident in an economy different from that where the parent is resident.

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4.65 Quasi-corporations such as a partnership or trust may also be set up by a parent corporation for similar reasons to the subsidiary corporations just described. Within the SNA, these are also treated as an integral part of the parent and their accounts are consolidated with the parent.

4.66 A distinction must be made between artificial subsidiaries as just described and a unit undertaking only ancillary activities. As described in more detail in section D of chapter 5, ancillary activities are limited in scope to the type of service functions that virtually all enterprises need to some extent or another such as cleaning premises, running the staff payroll or providing the information technology infrastructure for the enterprise. Units undertaking only ancillary activities will in general not satisfy the conditions of being an institutional unit (for the same sort of reason as artificial subsidiaries do not) but they may sometimes be treated as a separate establishment of the enterprise if this is analytically useful.

Special purpose units of general government

4.67 General government may also set up special units, with characteristics and functions similar to the captive financial institutions and artificial subsidiaries of corporations just described. Such units do not have the power to act independently and are restricted in the range of transactions they can engage in. They do not carry the risks and rewards associated with the assets and liabilities they hold. Such units, if they are resident, are treated as an integral part of general government and not as separate units. If they are non-resident they are treated as separate units. Any transactions carried out by them abroad are reflected in corresponding transactions with government. Thus a unit that borrows abroad is then regarded as lending the same amount to general government, and on the same terms, as the original borrowing.

3. Ownership and control of corporations

4.68 The ownership of a listed corporation is diffused among the institutional units that own its shares in proportion to the shareholdings. It is possible for one single institutional unit, whether another corporation, a household or a government unit, to own all the equity or shares in a corporation but, in general, ownership of a listed corporation is diffused among several, possibly very many, institutional units.

4.69 A single institutional unit owning more than a half of the shares, or equity, of a corporation is able to control its policy and operations by outvoting all other shareholders, if necessary. Similarly, a small, organized group of shareholders whose combined ownership of shares exceeds 50 per cent of the total is able to control the corporation by acting in concert. There may be exceptional cases in which certain shareholders enjoy privileged voting rights, such as a “golden share” giving a right of veto, but in general an individual institutional unit or group of units owning more than half the voting shares of a corporation can exercise complete control by appointing directors of its own choice. The degree of autonomy exercised by the directors and managers of a corporation is, therefore, likely to vary considerably, depending upon the extent to which the ownership of its shares is concentrated in the hands of a small number of other institutional units, whether these are other corporations, households or government units. In general, institutional units do not have to be autonomous but they do have to be responsible, and accountable, for the decisions and actions they take.

4.70 Because many shareholders do not exercise their voting rights, a single shareholder, or small number of shareholders acting together, may be able to secure control over a corporation, even though they may hold considerably less than half of the total shares. When ownership of shares is widely diffused among a large number of shareholders, control may be secured by owning considerably less than half of the total shares.

4.71 However, it is not possible to stipulate a minimum shareholding below 50 per cent that will guarantee control in all cases. The minimum must vary depending upon the total number of shareholders, the distribution of shares among them, and the extent to which small shareholders take an active interest, etc.

Subsidiary and associate corporations

4.72 It is common for corporations to own shares in other corporations, and certain interrelationships between corporations need to be specified for purposes of the SNA.

Subsidiary corporations

4.73 Corporation B is said to be a subsidiary of corporation A when:

a. Either corporation A controls more than half of the shareholders’ voting power in corporation B; or

b. Corporation A is a shareholder in corporation B with the right to appoint or remove a majority of the directors of corporation B.

4.74 Corporation A may be described as the parent corporation in this situation. As the relationship of a parent corporation to a subsidiary is defined in terms of control rather than ownership, the relationship must be transitive: that is, if C is a subsidiary of B and B is a subsidiary of A, then C must also be a subsidiary of A. If A has a majority shareholding in B while B has a majority shareholding in C, A cannot also have a majority shareholding in C. Nevertheless, A must be able to control C if it controls B. By analogy with families of persons, corporation B can be described as a first generation subsidiary of corporation A, and corporation C as a second generation subsidiary of A. Evidently, large families of corporations may be built up with any number of subsidiaries at each level or generation and also any number of generations. Very large families of corporations, described as conglomerates, are encountered in some countries. Conglomerates that include corporations resident in different countries are usually described as multinational corporations.

Associate corporations

4.75 Corporation B is said to be an associate of corporation A when corporation A and its subsidiaries control between 10

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per cent and 50 per cent of the shareholders' voting power in B so that A has some influence over the corporate policy and management of B.

4.76 By definition, a corporation is able to exert less influence over an associate corporation than over a subsidiary. Although some corporations may be able to exert considerable influence over their associates, this cannot be guaranteed. The relationship between associates is weaker than that between parent and subsidiary corporations, and groups of associates may not be well defined.

Government control of corporations

4.77 A corporation is a public corporation if a government unit, another public corporation, or some combination of government units and public corporations controls the entity, where control is defined as the ability to determine the general corporate policy of the corporation. The expression "general corporate policy" as used here is understood in a broad sense to mean the key financial and operating policies relating to the corporation's strategic objectives as a market producer.

4.78 Because governments exercise sovereign powers through legislation, regulations, orders and the like, care needs to be applied in determining whether the exercise of such powers amounts to a determination of the general corporate policy of a particular corporation and therefore control of the corporation. Laws and regulations applicable to all units as a class or to a particular industry should not be viewed as amounting to control of these units.

4.79 The ability to determine general corporate policy does not necessarily include the direct control of the day-to-day activities or operations of a particular corporation. The officers of such corporations would normally be expected to manage these in a manner consistent with and in support of the overall objectives of the particular corporation. Nor does the ability to determine the general corporate policy of a corporation include the direct control over any professional, technical or scientific judgments, as these would normally be viewed as part of the core competence of the corporation itself. For example, the professional or technical judgments exercised by a corporation set up to certify aircraft airworthiness would not be considered controlled in respect of individual approvals and disapprovals, though its broader operating and financial policies, including the airworthiness criteria, may well be determined by a government unit as part of the corporation's corporate policy.

4.80 Because the arrangements for the control of corporations can vary considerably, it is neither desirable nor feasible to prescribe a definitive list of factors to be taken into account. The following eight indicators, however, will normally be the most important and likely factors to consider:

a. *Ownership of the majority of the voting interest.* Owning a majority of shares will normally constitute control when decisions are made on a one-share one-vote basis. The shares may be held directly or indirectly, and the shares owned by all other public entities should be aggregated. If decisions are not made on a one-share one-vote basis, the classification should be based on whether the shares owned by other public entities provide a majority voice.

b. *Control of the board or other governing body.* The ability to appoint or remove a majority of the board or other governing body as a result of existing legislation, regulation, contractual, or other arrangements will likely constitute control. Even the right to veto proposed appointments can be seen as a form of control if it influences the choices that can be made. If another body is responsible for appointing the directors, it is necessary to examine its composition for public influence. If a government appoints the first set of directors but does not control the appointment of replacement directors, the body would then be part of the public sector until the initial appointments had expired.

c. *Control of the appointment and removal of key personnel.* If control of the board or other governing body is weak, the appointment of key executives, such as the chief executive, chairperson and finance director, may be decisive. Non-executive directors may also be relevant if they sit on key committees such as the remuneration committee determining the pay of senior staff.

d. *Control of key committees of the entity.* Subcommittees of the board or other governing body could determine the key operating and financial policies of the entity. Majority public sector membership on these subcommittees could constitute control. Such membership can be established under the constitution or other enabling instrument of the corporation.

e. *Golden shares and options.* A government may own a "golden share," particularly in a corporation that has been privatized. In some cases, this share gives the government some residual rights to protect the interests of the public by, for example, preventing the company selling off some categories of assets or appointing a special director who has strong powers in certain circumstances. A golden share is not of itself indicative of control. If, however, the powers covered by the golden share do confer on the government the ability to determine the general corporate policy of the entity in particular circumstances and those circumstances currently existed, then the entity should be in the public sector from the date in question. The existence of a share purchase option available to a government unit or a public corporation in certain circumstances may also be similar in concept to the golden share arrangement discussed above. It is necessary to consider whether, if the circumstance in which the option may be exercised exists, the volume of shares that may be purchased under the option and the consequences of such exercise means that the government has "the ability to determine the general corporate policy of the entity" by exercising that option. An entity's status in general should be based on the government's existing ability to determine corporate policy exercised under normal conditions rather than in exceptional economic or other circumstances such as wars, civil disorders or natural disasters.

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f. *Regulation and control.* The borderline between regulation that applies to all entities within a class or industry group and the control of an individual corporation can be difficult to judge. There are many examples of government involvement through regulation, particularly in areas such as monopolies and privatized utilities. It is possible for regulatory involvement to exist in important areas, such as in price setting, without the entity ceding control of its general corporate policy. Choosing to enter into or continue to operate in a highly regulated environment suggests that the entity is not subject to control. When regulation is so tight as to effectively dictate how the entity performs its business, then it could be a form of control. If an entity retains unilateral discretion as to whether it will take funding from, interact commercially with, or otherwise deal with a public sector entity, the entity has the ultimate ability to determine its own corporate policy and is not controlled by the public sector entity.

g. *Control by a dominant customer.* If all of the sales of a corporation are to a single public sector customer or a group of public sector customers, there is clear scope for dominant influence. The presence of a minority private sector customer usually implies an element of independent decision-making by the corporation so that the entity would not be considered controlled. In general, if there is clear evidence that the corporation could not choose to deal with non-public sector clients because of the public sector influence, then public control is implied.

h. *Control attached to borrowing from the government.* Lenders often impose controls as conditions of making loans. If the government imposed controls through lending or issuing guarantees that are more than would be typical when a healthy private sector entity borrows from a bank, control may be indicated. Similarly, control may be implied if only the government was prepared to lend.

Although a single indicator could be sufficient to establish control, in other cases, a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators must necessarily be judgmental in nature but clearly similar judgements must be made in similar cases.

Control by a non-resident unit

4.81 In general, a non-resident unit controls a resident corporation if the non-resident unit owns more than 50 per cent of the equity of the corporation. Branches of non-resident corporations are by their nature always under foreign control. However, control may also be possible with a holding of less than half the equity if the non-resident unit can exercise some of the powers just described as indicating possible control by government, for example the control of the board or other governing body, control of the appointment and removal of key personnel, control of key committees of the corporations and so on.

4.82 Within the balance of payments, a distinction is made between corporations where over 50 per cent of the equity is held by non-residents and those corporations where between 10 and 50 per cent of the equity is held abroad. All corporations with foreign holdings of 10 per cent or more are described as foreign direct investment enterprises and special treatment of their earnings is applied. Further details on this are given in chapters 7 and 26. It is important to note, however, that while all foreign controlled corporations are foreign direct investment enterprises, the reverse is not true, for example even a publicly controlled corporation may be a foreign direct investment enterprise if, in addition to government controlling half of the equity, a further 10 per cent is owned by a non-resident.

C. Non-profit institutions

4.83 ***Non-profit institutions are legal or social entities, created for the purpose of producing goods and services, whose status does not permit them to be a source of income, profit or other financial gain for the units that establish, control or finance them.*** In practice, their productive activities are bound to generate either surpluses or deficits but any surpluses they happen to make cannot be appropriated by other institutional units. The articles of association by which they are established are drawn up in such a way that the institutional units that control or manage them are not entitled to a share in any profits or other income they receive. For this reason, they are frequently exempted from various kinds of taxes.

4.84 NPIs may be created by households, corporations, or government but the motives leading to their creation are varied. For example, NPIs may be created to provide services for the benefit of the households or corporations who control or finance them; or they may be created for charitable, philanthropic or welfare reasons to provide goods or services to other persons in need; or they may be intended to provide health or education services for a fee, but not for profit; or they may be intended to promote the interests of pressure groups in business or politics; etc.

1. The characteristics of NPIs

4.85 The main features of NPIs may be summarized as follows:

a. Most NPIs are legal entities created by process of law whose existence is recognized independently of the persons, corporations or government units that establish, finance, control or manage them. The purpose of the NPI is usually stated in the articles of association or similar document drawn up at the time of its establishment. In some countries, especially developing countries, an NPI may be an informal entity whose existence is recognized by society but does not have any formal legal status; such NPIs may be created

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for the purpose of producing non-market goods or services for the benefit of individual households or groups of households.

b. Many NPIs are controlled by associations whose members have equal rights, including equal votes on all major decisions affecting the affairs of the NPI. Members enjoy limited liability with respect to the NPI's operations.

c. There are no shareholders with a claim on the profits or equity of the NPI. The members are not entitled to a share in any profits, or surplus, generated by the productive activities of the NPI, such profits being retained within the NPI.

d. The direction of an NPI is usually vested in a group of officers, executive committee or similar body elected by a simple majority vote of all the members. These officers are the counterpart of the board of directors of a corporation and are responsible for appointing any paid managers.

e. The term "non-profit institution" derives from the fact that the members of the association controlling the NPI are not permitted to gain financially from its operations and cannot appropriate any surplus that it may make. It does not imply that an NPI cannot make an operating surplus on its production.

4.86 In some countries NPIs are subject to preferential tax treatment, possibly to exemption from income tax, but this is not necessarily so and is not a determining factor in the identification of an NPI.

4.87 As in the case of producer units owned by government units, it is important to distinguish between NPIs engaged in market and non-market production as this affects the sector of the economy to which an NPI is allocated. NPIs do not necessarily engage in non-market production.

2. NPIs engaged in market production

4.88 Market producers are producers that sell most or all of their output at prices that are economically significant, that is, at prices that have a significant influence on the amounts the producers are willing to supply and on the amounts purchasers wish to buy. Schools, colleges, universities, clinics, hospitals, etc. constituted as NPIs are market producers when they charge fees that are based on their production costs and that are sufficiently high to have a significant influence on the demand for their services. Their production activities must generate an operating surplus or loss. Any surpluses they make must be retained within the institutions as their status prevents them from distributing them to others. On the other hand, because of their status as "non-profit institutions" they are also able to raise additional funds by appealing for donations from persons, corporations or government. In this way, they may be able to acquire assets that generate significant property income in addition to their revenues from fees, thereby enabling them to charge fees below average costs. However, they must continue to be treated as market producers so long as their fees are determined mainly by their costs of production and are high enough to have a significant impact on demand. Such NPIs are not charities, their real objective often being to provide educational, health or other services of a very high quality using their incomes from endowments merely to keep down somewhat the high fees they have to charge.

Market NPIs serving enterprises

4.89 Some market NPIs restrict their activities to serving a particular subset of other market producers. Most market NPIs serving enterprises are created by associations of the enterprises whose interests they are designed to promote. They consist of chambers of commerce, agricultural, manufacturing or trade associations, employers' organizations, research or testing laboratories or other organizations or institutes that engage in activities that are of common interest or benefit to the group of enterprises that control and finance them. The NPIs often engage in publicity on behalf of the group, lobby politicians or provide advice or assistance to individual members in difficulty for one reason or another. The NPIs are usually financed by contributions or subscriptions from the group of enterprises concerned. The subscriptions are treated not as transfers but as payments for services rendered and these NPIs are, therefore, classed as market producers. However, as explained below, when chambers of commerce or similar organizations intended for the benefit of enterprises are controlled by government units, they are classified as non-market NPIs and allocated to the general government sector.

3. NPIs engaged in non-market production

4.90 The majority of NPIs in most countries are non-market rather than market producers. Non-market producers are producers that provide most of their output to others free or at prices that are not economically significant. Thus, NPIs engaged mainly in non-market production may be distinguished not only by the fact that they are incapable of providing financial gain to the units that control or manage them, but also by the fact that they must rely principally on funds other than receipts from sales to cover their costs of production or other activities. Their principal source of finance may be regular subscriptions paid by the members of the association that controls them or transfers or donations from third parties, including government or from property income.

4.91 NPIs engaged mainly in non-market production are divided into two groups: those NPIs controlled by government and those that are not. The former are included in the general government sector. The latter are described as "non-profit institutions serving households" (NPISHs) and constitute a separate sector in the SNA.

Government control of non-profit institutions

4.92 Control of an NPI is defined as the ability to determine the general policy or programme of the NPI. All NPIs allocated to the general government sector should retain their identity as NPIs in statistical records, to facilitate analysis of the complete set of NPIs. To determine if an NPI is controlled by the government, the following five indicators of control should be considered:

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a. *The appointment of officers*. The government may have the right to appoint the officers managing the NPI either under the NPI's constitution, its articles of association or other enabling instrument.

b. *Other provisions of enabling instrument.* The enabling instrument may contain provisions other than the appointment of officers that effectively allow the government to determine significant aspects of the general policy or programme of the NPI. For example, the enabling instrument may specify or limit the functions, objectives and other operating aspects of the NPI, thus making the issue of managerial appointments less critical or even irrelevant. The enabling instrument may also give the government the right to remove key personnel or veto proposed appointments, require prior approval of budgets or financial arrangements by the government, or prevent the NPI from changing its constitution, dissolving itself, or terminating its relationship with government without government approval.

c. *Contractual agreements.* The existence of a contractual agreement between a government and an NPI may allow the government to determine key aspects of the NPI's general policy or programme. As long as the NPI is ultimately able to determine its policy or programme to a significant extent, such as by being able to renege on the contractual agreement and accept the consequences, by being able to change its constitution or dissolve itself without requiring government approval other than that required under the general regulations, then it would not be considered controlled by government.

d. *Degree of financing.* An NPI that is mainly financed by government may be controlled by that government. Generally, if the NPI remains able to determine its policy or programme to a significant extent along the lines mentioned in the previous indicator, then it would not be considered controlled by government.

e. *Risk exposure.* If a government openly allows itself to be exposed to all, or a large proportion of, the financial risks associated with an NPI's activities, then the arrangement constitutes control. The criteria are the same as in the previous two indicators.

A single indicator could be sufficient to establish control in some cases, but in other cases, a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators will necessarily be judgmental in nature.

NPIs serving households (NPISHs)

4.93 ***Non-profit institutions serving households (NPISHs) consist of non-market NPIs that are not controlled by government.*** They provide goods and services to households free or at prices that are not economically significant. Most of these goods and services represent individual consumption but it is possible for NPISHs to provide collective services.

D. The non-financial corporations sector and its subsectors

4.94 ***Non-financial corporations are corporations whose principal activity is the production of market goods or non-financial services.*** The non-financial corporations sector is composed of the following set of resident institutional units:

a. All resident non-financial corporations (as understood in the SNA and not just restricted to legally constituted corporations), regardless of the residence of their shareholders;

b. The branches of non-resident enterprises that are engaged in non-financial production on the economic territory on a long-term basis;

c. All resident NPIs that are market producers of goods or non-financial services.

4.95 Some non-financial corporations or quasi-corporations may have secondary financial activities: for example, producers or retailers of goods may provide consumer credit directly to their own customers. As explained more fully below, such corporations or quasi-corporations are nevertheless classified as belonging in their entirety to the non-financial corporate sector provided their principal activity is non-financial. Sectors are groups of institutional units, and the whole of each institutional unit must be classified to one or other sector of the SNA even though that unit may be engaged in more than one type of economic activity.

Table 4.1:Subsectors of the non-financial corporations sector

Non-financial corporations	NPIs	FPIs
Public non-financial corporations	Public non-financial NPIs	Public non-financial FPIs
National private non-financial corporations	National private non-financial NPIs	National private non-financial FPIs
Foreign controlled non-financial corporations	Foreign controlled non-financial NPIs	Foreign controlled non-financial FPIs
Total non-financial corporations	Total non-financial NPIs	Total non-financial FPIs

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4.96 Two classification criteria are used to subsector the non-financial corporations sector. One criterion is to show NPIs separately from other units in the sector. These units other than NPIs may be described as for profit institutions (FPIs). The second criterion is that of control to show:

a. Public non-financial corporations,

b. National private non-financial corporations, and

c. Foreign controlled non-financial corporations.

The criteria for control of corporations and NPIs by government and non-resident units are described in detail in section B. Corporations controlled by non-resident units are described as being foreign controlled.

4.97 The full subsectoring of the non-financial corporations sector can be seen as a two-way table as shown in table 4.1. The exact form of presentation of the subsectors will depend on both analytical and statistical considerations. It may be that the number of NPIs is such that some control categories are empty or sufficiently sparse that the detail cannot be shown for reasons of confidentiality. At the least, though, it is useful, and should be feasible, to distinguish the entries for the left-most column and bottom row of table 4.1.

E. The financial corporations sector and its subsectors

4.98 ***Financial corporations consist of all resident corporations that are principally engaged in providing financial services, including insurance and pension funding services, to other institutional units.*** The financial corporations sector is composed of the following set of resident institutional units:

a. All resident financial corporations (as understood in the SNA and not just restricted to legally constituted corporations), regardless of the residence of their shareholders;

b. The branches of non-resident enterprises that are engaged in financial activity on the economic territory on a long-term basis;

c. All resident NPIs that are market producers of financial services.

The production of financial services is the result of financial intermediation, financial risk management, liquidity transformation or auxiliary financial activities. Because the provision of financial services is typically subject to strict regulation, it is usually the case that units providing financial services do not produce other goods and services and financial services are not provided as secondary production.

4.99 One form of financial innovation has seen a substantial growth in activity of a kind traditionally carried out by, or through, financial corporations but that may also be done directly by non-financial enterprises themselves. For example, there is a tendency in some countries for producers or retailers of goods to provide consumer credit directly to their customers. Another example is the tendency for non-financial enterprises in some countries to raise funds themselves by selling their own obligations directly on the money or capital markets. However, the enterprise as a whole must continue to be classified as non-financial provided that:

a. A non-financial enterprise does not create a new institutional unit, such as a subsidiary corporation, to carry out the financial activity; and

b. The financial activity remains secondary to the principal activity of the enterprise.

4.100 The same principle applies to the subsectoring of financial corporations. For example, many central banks also engage in some commercial banking. However, as a single institutional unit, the central bank as a whole, including its commercial banking activities, is classified in the subsector "central banks". For the same reason, central bank or monetary authority-type functions carried out by agencies within the central government that are not separate institutional units from government are not allocated to the central bank subsector. (This is discussed further in the following section and in chapter 22.)

4.101 Financial corporations can be divided into three broad classes namely, financial intermediaries, financial auxiliaries and other financial corporations. ***Financial intermediaries are institutional units that incur liabilities on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market.*** They include insurance corporations and pension funds. ***Financial auxiliaries are institutional units principally engaged in serving financial markets, but do not take ownership of the financial assets and liabilities they handle. Other financial corporations are institutional units providing financial services, where most of their assets or liabilities are not available on open financial markets.***

4.102 The financial corporations sector can be divided into nine subsectors according to its activity in the market and the liquidity of its liabilities. These nine subsectors are shown in table 4.2 and each is described later in this section. Subsector 6 corresponds to financial auxiliaries; subsector 7 corresponds to other financial corporations. All the other subsectors are financial intermediaries of one sort or another.

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4.103 As well as being subsectored according to the nature of the financial activity being undertaken, the financial corporations sector can also be subsectored in the same manner as the non-financial corporations sector to show the difference between NPIs and FPIs and to show which units are subject to public control, which are national private corporations and which are foreign controlled. Thus in principle each of the rows in table 4.2 may be further disaggregated in the manner of table 4.1 though it is unlikely that all possible cross-classifications exist and a compressed subsectoring based on local circumstance and particular analytical interest may be sufficient.

1. Central bank

4.104 ***The central bank is the national financial institution that exercises control over key aspects of the financial system***. In general, the following financial intermediaries are classified in this subsector:

a. The national central bank, including where it is part of a system of central banks.

b. Currency boards or independent currency authorities that issue national currency that is fully backed by foreign exchange reserves.

c. Central monetary agencies of essentially public origin (for example, agencies managing foreign exchange or issuing bank notes and coin) that keep a complete set of accounts but are not classified as part of central government. Supervisory authorities that are separate institutional units are not included with the central bank but are included with financial auxiliaries.

As long as the central bank is a separate institutional unit, it is always allocated to the financial corporations sector even if it is primarily a non-market producer.

2. Deposit-taking corporations except the central bank

4.105 ***Deposit-taking corporations except the central bank have financial intermediation as their principal activity. To this end, they have liabilities in the form of deposits or financial instruments (such as short-term certificates of deposit) that are close substitutes for deposits.*** The liabilities of deposit-taking corporations are typically included in measures of money broadly defined.

4.106 In general, the following financial intermediaries are classified in this subsector:

a. Commercial banks, “universal” banks, “all-purpose” banks;

b. Savings banks (including trustee savings banks and savings and loan associations);

c. Post office giro institutions, post banks, giro banks;

d. Rural credit banks, agricultural credit banks;

e. cooperative credit banks, credit unions; and

f. Specialized banks or other financial corporations if they take deposits or issue close substitutes for deposits.

3. Money market funds (MMFs)

4.107 ***Money market funds (MMFs) are collective investment schemes that raise funds by issuing shares or units to the public. The proceeds are invested primarily in money market instruments, MMF shares or units, transferable debt instruments with a residual maturity of not more than one year, bank deposits and instruments that pursue a rate of return that approaches the interest rates of money market instruments. MMF shares can be transferred by cheque or other means of direct third-party payment.*** Because of the nature of the instruments the schemes invest in, their shares or units may be regarded as close substitutes for deposits.

4. Non-MMF investment funds

4.108 ***Non-MMF investment funds are collective investment schemes that raise funds by issuing shares or units to the public. The proceeds are invested predominantly in financial assets, other than short-term assets, and in non-financial assets (usually real estate).*** Investment fund shares or units are generally not close substitutes for deposits. They are not transferable by means of cheque or direct third-party payments.

Table 4.2:Subsectors of the financial corporations sector

1. Central Bank
2. Deposit-taking corporations except the Central Bank
3. Money market funds (MMF)
4. Non-MMF investment funds
5. Other financial intermediaries except insurance corporations and pension funds (ICPF)
6. Financial auxiliaries
7. Captive financial institutions and money lenders
8. Insurance corporations (IC)
9. Pension funds (PF)

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5. Other financial intermediaries, except insurance corporations and pension funds (ICPFs)

4.109 ***Other financial intermediaries except insurance corporations and pension funds consist of financial corporations that are engaged in providing financial services by incurring liabilities, in forms other than currency, deposits or close substitutes for deposits, on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market.*** It is a feature of a financial intermediary that transactions on both sides of the balance sheet are carried out in open markets.

4.110 In general, the following financial intermediaries are classified in this subsector:

a. Financial corporations engaged in the securitization of assets;

b. Security and derivative dealers (operating on own account);

c. Financial corporations engaged in lending, including the finance associates of retailers, who may be responsible for financial leasing and both personal or commercial finance;

d. Central clearing counterparties. These organizations provide clearing and settlement transactions in securities and derivatives. Clearing relates to identifying the obligations of both parties to the transaction, while settlement is the exchange of the securities or derivatives and the corresponding payment. The central clearing counterparties involve themselves in the transaction and mitigate counterparty risk;

e. Specialized financial corporations that provide:

· Short-term financing for corporate mergers and takeovers;

· Export/import finance;

· Factoring services;

· Venture capital and development capital firms.

6. Financial auxiliaries

4.111 ***Financial auxiliaries consist of financial corporations that are principally engaged in activities associated with transactions in financial assets and liabilities or with providing the regulatory context for these transactions but in circumstances that do not involve the auxiliary taking ownership of the financial assets and liabilities being transacted.***

4.112 In general, the following financial auxiliaries are classified in this subsector:

a. Insurance brokers, salvage and claims adjusters (whether employed by the insurance company, an independent adjuster or a public adjuster employed by the policyholder), insurance and pension consultants;

b. Loan brokers, securities brokers, investment advisers, etc.;

c. Flotation corporations that manage the issue of securities;

d. Corporations whose principal function is to guarantee, by endorsement, bills and similar instruments;

e. Corporations that arrange derivative and hedging instruments, such as swaps, options and futures (without issuing them);

f. Corporations providing infrastructure for financial markets;

g. Managers of pension funds, mutual funds, etc. (but not the funds they manage);

h. Corporations providing stock exchange and insurance exchange;

i. Foreign exchange bureaux;

j. Non-profit institutions recognized as independent legal entities serving financial corporations,;

k. Head offices of financial corporations that are principally engaged in controlling financial corporations or groups of financial corporations but that do not themselves conduct the business of financial corporations;

l. Central supervisory authorities of financial intermediaries and financial markets when they are separate institutional units.

7. Captive financial institutions and money lenders

4.113 ***Captive financial institutions and money lenders consist of institutional units providing financial services, where most of either their assets or liabilities are not transacted on open financial markets.*** It includes entities transacting within only a limited group of units (such as with subsidiaries) or subsidiaries of the same holding corporation or entities that provide loans from own funds provided by only one sponsor.

4.114 In general, the following financial corporations are classified in this subsector:

a. Units which are legal entities such as trusts, estates, agencies accounts or brass plate companies.

b. Holding corporations that hold only the assets (owning controlling-levels of equity) of a group of subsidiary corporations and whose principal activity is owning the

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group without providing any other service to the enterprises in which the equity is held, that is, they do not administer or manage other units.

c. SPEs or conduits that qualify as institutional units and raise funds in open markets to be used by their parent corporation.

d. Units which provide financial services exclusively with own funds, or funds provided by a sponsor to a range of clients and incur the financial risk of the debtor defaulting, including

· Moneylenders.

· Corporations engaged in lending (for example providing student loans, import/export loans) from funds received from a sponsor such as a government unit or non-profit institution.

· Pawnshops that predominantly engage in lending.

8. Insurance corporations (ICs)

4.115 ***Insurance corporations consist of incorporated, mutual and other entities whose principal function is to provide life, accident, sickness, fire or other forms of insurance to individual institutional units or groups of units or reinsurance services to other insurance corporations***. Captive insurance is included, that is, an insurance company that serves only its owners. Deposit insurers, issuers of deposit guarantees and other issuers of standardized guarantees that are separate entities and act like insurers by charging premiums and have reserves, are classified as insurance corporations.

9. Pension funds (PFs)

4.116 Pension liabilities arise when an employer or government obliges or encourages members of households to participate in a social insurance scheme that will provide income in retirement. The social insurance schemes may be organized by employers or by government, they may be organized by insurance corporations on behalf of employees or separate institutional units may be established to hold and manage the assets to be used to meet the pensions and to distribute the pensions. ***The pension fund subsector consists of only those social insurance pension funds that are institutional units separate from the units that create them.***

F. The general government sector and its subsectors

1. Government units as institutional units

4.117 Government units are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area. Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes, to redistribute income and wealth by means of transfers, and to engage in non-market production. In general terms:

a. A government unit usually has the authority to raise funds by collecting taxes or compulsory transfers from other institutional units. In order to satisfy the basic requirements of an institutional unit in the SNA, a government unit, whether at the level of the total economy, a region or a locality, must have funds of its own either raised by taxing other units or received as transfers from other government units and the authority to disburse some, or all, of such funds in the pursuit of its policy objectives. It must also be able to borrow funds on its own account;

b. Government units typically make three different kinds of final outlays:

· The first group consists of actual or imputed expenditures on the free provision to the community of collective services such as public administration, defence, law enforcement, public health, etc. that are organized collectively by government and financed out of general taxation or other income;

· The second group consists of expenditures on the provision of goods or services free, or at prices that are not economically significant, to individual households. These expenditures are deliberately incurred and financed out of taxation or other income by government in the pursuit of its social or political objectives, even though individuals could be charged according to their usage;

· The third group consists of transfers paid to other institutional units, mostly households, in order to redistribute income or wealth.

4.118 Within a single territory there may be many separate government units when there are different levels of government, specifically central, state or local governments. In addition, social security funds also constitute government units. These different kinds of government units are described later when the subsectoring of the general government sector is explained.

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Government units as producers

4.119 The fact that governments choose to supply not only collective services but also many goods and individual services free, or at prices that are not economically significant, to households or other units does not necessitate that they produce them themselves. Even in the case of most collective services, or so-called "public goods", governments are obliged only to assume responsibility for organizing and financing their production. They are not obliged to produce them. However, government units do usually engage in a wide range of productive activities in practice, covering not only collective services but also many other goods and individual services. Because it is largely a matter of political choice, the range of goods and services produced by government units varies greatly from one country to another. Apart from some collective services such as public administration and defence, it is therefore difficult to categorize certain types of production, such as the production of education or health services, as intrinsically governmental, even though they are often produced by government units.

4.120 When a government unit wishes to intervene in the sphere of production it has three options:

a. it may create a public corporation whose corporate policy, including pricing and investment, it is able to control;

b. it may create an NPI that it controls;

c. it may produce the goods or services itself in an establishment that it owns but that does not exist as a separate legal entity from the government unit itself.

4.121 However, a government establishment, or group of establishments engaged in the same kind of production under common management, should be treated as a quasi-corporation if the following three criteria hold:

a. the unit charges prices for its outputs that are economically significant;

b. the unit is operated and managed in a similar way to a corporation; and

c. the unit has a complete set of accounts that enable its operating surpluses, savings, assets and liabilities to be separately identified and measured.

Such quasi-corporations are market producers that are treated as separate institutional units from the government units that own them. They are classified, sectored and subsectored in the same way as public corporations.

4.122 In order to be treated as a quasi-corporation the government must allow the management of the enterprise considerable discretion not only with respect to the management of the production process but also the use of funds. Government quasi-corporations must be able to maintain their own working balances and business credit and be able to finance some or all of their capital formation out of their own savings, depreciation reserves or borrowing. The ability to distinguish flows of income and capital between quasi-corporations and government implies that their operating and financing activities are not fully integrated with government revenue or finance statistics in practice, despite the fact that they are not separate legal entities.

4.123 Producer units of government that cannot be treated as quasi-corporations, like all unincorporated enterprises that cannot be separated from their owners, remain in the same institutional unit as the owner, in this case within the general government sector. They are likely to consist largely, or entirely, of non-market producers: that is, producers most or all of whose output is supplied to other units free, or at prices that are not economically significant. In addition to providing non-market goods or services to the general public, such units may include government producers supplying non-market goods or services to other government units for purposes of intermediate consumption or gross fixed capital formation: for example, munitions factories, government printing offices, transport agencies, computer or communications agencies, etc. However, it is possible for an unincorporated enterprise within a government to be a market producer. The example often quoted is that of a bookshop within a museum.

Social security schemes and social security funds

4.124 Social security schemes are social insurance schemes that cover the community as a whole or large sections of the community and are imposed and controlled by government units. The schemes cover a wide variety of programmes, providing benefits in cash or in kind for old age, invalidity or death, survivors, sickness and maternity, work injury, unemployment, family allowance, health care, etc. There is not necessarily a direct link between the amount of the contribution paid by an individual and the benefits he or she may receive.

4.125 When social security schemes are separately organized from the other activities of government units and hold their assets and liabilities separately from the latter and engage in financial transactions on their own account, they qualify as institutional units that are described as social security funds. However, institutional arrangements in respect of social security schemes differ from country to country and in some countries they may become so closely integrated with the other finances of government as to bring into question whether they should be treated as separate institutional units.

4.126 The amounts raised, and paid out, in social security contributions and benefits may be deliberately varied in order to achieve objectives of government policy that have no direct connection with the concept of social security as a scheme to provide social benefits to members of the community. They may be raised or lowered in order to influence the level of aggregate demand in the economy, for example. Nevertheless, so long as they remain separately constituted funds, they must be treated as separate institutional units in the SNA.

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2. The general government sector

4.127 The general government sector consists of the following groups of resident institutional units:

a. All units of central, state or local government (as described immediately below);

b. All non-market NPIs that are controlled by government units.

The sector also includes social security funds, either as separate institutional units or as part of any or all of central, state or local government. The sector does not include public corporations, even when all the equity of such corporations is owned by government units. Nor does it include quasi-corporations that are owned and controlled by government units. However, unincorporated enterprises owned by government units that are not quasi-corporations remain integral parts of those units and, therefore, must be included in the general government sector.

3. Subsectors of the general government sector

4.128 A full subsectoring of the general government would allow for both NPIs and social security funds to be distinguished for each of central, state and local government. In practice, though, it is usual to show all social security funds together as one subsector or to merge them all with their appropriate level of government and not show social security funds by level of government separately. Further, NPIs may be shown as an "of which" item for general government as a whole or for central, state and local government individually.

4.129 The first method of subsectoring general government is as follows:

a. Central government;

b. State government;

c. Local government;

d. Social security funds;

where it is understood that each of the subsectors a, b and c include NPIs but exclude social security funds at that level of government.

4.130 The second method of subsectoring general government is as follows:

a. Central government;

b. State government;

c. Local government;

where it is understood that each of the subsectors a, b and c include both NPIs and social security funds at that level of government.

4.131 Under either method of subsectoring, NPIs should be shown as an "of which" heading under the appropriate level of government.

4.132 The choice between the two methods of subsectoring depends mainly on the size, or importance, of social security funds within a country and on the way in which they are managed.

4.133 In some countries there may not exist a proper intermediate level of government between central and local government, in which case the subsector "state government" is not distinguished. In others there may be more than two levels of government below the central government. In that case, the lower levels should be aggregated with state or local government as appropriate.

Central government

4.134 The central government subsector consists of the institutional unit or units making up the central government plus those non-market NPIs that are controlled by central government.

4.135 The political authority of central government extends over the entire territory of the country. Central government has therefore the authority to impose taxes on all resident and non-resident units engaged in economic activities within the country. Its political responsibilities include national defence, the maintenance of law and order and relations with foreign governments. It also seeks to ensure the efficient working of the social and economic system by means of appropriate legislation and regulation. It is responsible for providing collective services for the benefit of the community as a whole, and for this purpose incurs expenditures on defence and public administration. In addition it may incur expenditures on the provision of services, such as education or health, primarily for the benefit of individual households. Finally, it may make transfers to other institutional units, namely to households, NPIs, corporations and other levels of government.

4.136 Central government is a large and complex subsector in most countries. It is generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units. The departments may be responsible for considerable amounts of expenditure within the framework of the government's overall budget, but often they are not separate institutional units capable of owning assets, incurring liabilities, engaging in transactions, etc., independently of central government as a whole.

4.137 The departments of central government are often deliberately dispersed geographically and located in different parts of the country, but they nevertheless remain parts of a single institutional unit. Similarly, if the central government maintains branch offices or agencies in different parts of the country to meet local needs, including military bases or installations that serve national defence

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purposes, these must also be counted as parts of a single institutional unit for central government.

4.138 In addition to government departments and ministries, there may be agencies of central government with separate legal identity and substantial autonomy; they may have discretion over the volume and composition of their expenditures and may have a direct source of revenue such as earmarked ("hypothecated") taxes. Such agencies are often established to carry out specific functions such as road construction or the non-market production of health or education services. These should be treated as separate institutional units if they maintain full sets of accounts but are part of the central government subsector if the services they produce are non-market and if they are controlled by central government.

4.139 In some countries, the central government may include units that engage in financial transactions that in other countries would be performed by central banks. In particular, units of central government may be responsible for the issue of currency, the maintenance of international reserves and the operation of exchange stabilization funds, and also transactions with the International Monetary Fund (IMF). When the units in question remain financially integrated with central government and under the direct control and supervision of central government, they cannot be treated as separate institutional units. Moreover, whatever monetary authority functions are carried out by central government are recorded in the government sector and not the financial corporations sector. However, because of the analytical importance that is attached to obtaining accounts covering the monetary authorities as a whole, and in order to provide links with other statistical systems, such as the *BPM6*, the *GFSM2001* and the *Monetary and Financial Statistics Manual* (International Monetary Fund (IMF) 2000, known as *MSFM*), it is recommended that the transactions of central government agencies carrying out monetary authority and deposit-taking functions should be separately identified, so that they can be combined with those of the central bank and other deposit-taking corporations in special tabulations if desired.

State government

4.140 The state government subsector consists of state governments that are separate institutional units plus those non-market NPIs that are controlled by state governments.

4.141 State governments are institutional units exercising some of the functions of government at a level below that of central government and above that of the governmental institutional units existing at a local level. They are institutional units whose fiscal, legislative and executive authority extends only over the individual "states" into which the country as a whole may be divided. Such "states" may be described by different terms in different countries. In some countries, especially small countries, individual states and state governments may not exist. However, in large countries, especially those that have federal constitutions, considerable powers and responsibilities may be assigned to state governments.

4.142 A state government usually has the fiscal authority to levy taxes on institutional units that are resident in, or engage in economic activities or transactions within, its area of competence (but not other areas). In order to be recognized as an institutional unit it must be able to own assets, raise funds and incur liabilities on its own account. It must also be entitled to spend or allocate some, or possibly all, of the taxes or other income that it receives according to its own policies, within the general rules of law of the country, although some of the transfers it receives from central government may be tied to certain specified purposes. It should also be able to appoint its own officers, independently of external administrative control. On the other hand, if a regional unit is entirely dependent on funds from central government, and if the central government also dictates the ways in which those funds are to be spent at the regional level, it should be treated as an agency of central government rather than as a separate institutional unit.

4.143 State governments, when they exist, are distinguished by the fact that their fiscal authority extends over the largest geographical areas into which the country as a whole may be divided for political or administrative purposes. In a few countries more than one level of government exists between the central government and the smallest governmental institutional units at a local level; in such cases, for purposes of sectoring within the SNA, these intermediate levels of government are grouped together with the level of government, either state or local, with which they are most closely associated.

4.144 State governments may own, or control, corporations in the same way as central government. Similarly, they may have units that engage in market production, in which case the relevant producer units should be treated as quasi-corporations whenever their operations and accounting records justify this.

Local government

4.145 The local government subsector consists of local governments that are separate institutional units plus those non-market NPIs that are controlled by local governments. In principle, local government units are institutional units whose fiscal, legislative and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes. The scope of their authority is generally much less than that of central government or state governments, and they may, or may not, be entitled to levy taxes on institutional units resident in their areas. They are often heavily dependent on grants or transfers from higher levels of government, and they may also act as agents of central or regional governments to some extent. However, in order to be treated as institutional units they must be entitled to own assets, raise funds and incur liabilities by borrowing on their own account; similarly, they must have some discretion over how such funds are spent. They should also be able to appoint their own officers, independently of external administrative control. The fact that they may also act as agents of central or state governments to some extent does not prevent them from being treated as separate institutional units provided they are also able to raise and spend some funds on their own initiative and own responsibility.

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4.146 As they are the government units that are in closest contact with the institutional units resident in their localities, they typically provide a wide range of services to local residents, some of which may be financed out of transfers from higher levels of government. The same rules govern the treatment of the production of goods and services by local government units as are applied to central and state governments. Units such as municipal theatres, museums, swimming pools, etc., that supply goods or services on a market basis should be treated as quasi-corporations whenever the appropriate accounting information is available and classified to the non-financial corporations sector. Other units supplying goods and services on a market basis are treated as unincorporated enterprises within local government. Units supplying services such as education or health on a non-market basis remain an integral part of the local government unit to which they belong.

Social security funds

4.147 The social security funds subsector consists of the social security funds operating at all levels of government.

4. The alternative method of subsectoring

4.148 The alternative method of subsectoring the general government sector is to group the social security funds operating at each level of government with the corresponding government units and government controlled and financed NPIs at that level of government. The two alternative methods of subsectoring are designed to accommodate different analytical needs. The decision as to which method is more appropriate in a given country cannot be made a priori. It depends on how important social security funds are and on the extent to which they are managed independently of the government units with which they are associated. If the management of social security funds is so closely integrated with the short- or medium-term requirements of the government's general economic policy that contributions and benefits are deliberately adjusted in the interests of overall economic policy, it becomes difficult, at a conceptual level, to draw any clear distinction between the management of social security and the other economic functions of government. Alternatively, in some countries, social security funds may exist in only a very rudimentary form. In either of these circumstances it is difficult to justify treating social security funds as a separate subsector on a par with central, state and local government, and it is more appropriate to use the alternative method of subsectoring in which they are grouped with the corresponding government units at each level of government. This is the approach generally favoured in the *GFSM 2001***.**

G. The households sector and its subsectors

1. Households as institutional units

4.149 For the purposes of the SNA, a household is defined as a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. In general, each member of a household should have some claim upon the collective resources of the household. At least some decisions affecting consumption or other economic activities must be taken for the household as a whole.

4.150 Households often coincide with families, but members of the same household do not necessarily have to belong to the same family so long as there is some sharing of resources and consumption. Households may be of any size and take a wide variety of different forms in different societies or cultures depending on tradition, religion, education, climate, geography, history and other socio-economic factors. The definition of a household that is adopted by survey statisticians familiar with the socio-economic conditions within a given country is likely to approximate closely to the concept of a household as defined in the SNA, although survey statisticians may add more precise, or operational, criteria within a particular country.

4.151 Domestic staff who live on the same premises as their employer do not form part of their employer's household even though they may be provided with accommodation and meals as remuneration in kind. Paid domestic employees have no claim upon the collective resources of their employers' households and the accommodation and food they consume are not included with their employer's consumption. They should therefore be treated as belonging to separate households from their employers.

4.152 Persons living permanently in an institution, or who may be expected to reside in an institution for a very long, or indefinite, period of time are treated as belonging to a single institutional household when they have little or no autonomy of action or decision in economic matters. Some examples of persons belonging to institutional households are the following:

a. Members of religious orders living in monasteries, convents or similar institutions;

b. Long-term patients in hospitals, including mental hospitals;

c. Prisoners serving long sentences;

d. Persons living permanently in retirement homes.

4.153 On the other hand, persons who enter hospitals, clinics, convalescent homes, religious retreats, or similar institutions for short periods, who attend residential schools, colleges or universities, or who serve short prison

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sentences should be treated as members of the individual households to which they normally belong.

4.154 The residence of individual persons is determined by that of the household of which they form part and not by their place of work. All members of the same household have the same residence as the household itself, even though they may cross borders to work or otherwise spend periods of time abroad. If they work and reside abroad so long that they acquire a centre of economic interest abroad, they cease to be members of their original households.

2. Unincorporated enterprises within households

4.155 As noted in the introduction, households are unlike corporations in that they undertake final consumption. However, like corporations, they may also engage in production. Household unincorporated market enterprises are created for the purpose of producing goods or services for sale or barter on the market. They can be engaged in virtually any kind of productive activity: agriculture, mining, manufacturing, construction, retail distribution or the production of other kinds of services. They can range from single persons working as street traders or shoe cleaners with virtually no capital or premises of their own through to large manufacturing, construction or service enterprises with many employees.

4.156 Household unincorporated market enterprises also include unincorporated partnerships that are engaged in producing goods or services for sale or barter on the market. The partners may belong to different households. When the liability of the partners for the debts of the enterprises is unlimited, the partnerships must be treated as unincorporated enterprises and remain within the household sector since all the assets of the household, including the dwelling itself, are at risk if the enterprise goes bankrupt. However, unincorporated partnerships with many partners, such as some large legal, accounting or architectural firms, are likely to behave like corporations and should be treated as quasi-corporations assuming complete sets of accounts are available for the partnerships. Partnerships whose partners enjoy limited liability are effectively separate legal entities and, as already noted, are treated as corporations.

4.157 An unincorporated enterprise can only be treated as a corporation if it is possible to separate all assets, including financial assets down to the level of cash, into those that belong to the household in its capacity as a consumer from those belonging to the household in its capacity as a producer.

3. The household sector and its subsectors

4.158 The household sector consists of all resident households. There are many useful ways in which the households sector may be subsectored and statistical agencies are advised to give due consideration to the various possibilities. More than one method may be adopted if there is a demand for different breakdowns of the households sector from different users, analysts or policymakers.

4.159 The SNA has to be applied flexibly, not rigidly. In order to implement any of the possible methods of subsectoring the households sector suggested below, individual countries are obliged to make their own decisions about what they consider to be the most relevant classification. Thus, the fact that a specific, detailed classification according to a criterion of interest is proposed here should not be interpreted as implying that the characteristics proposed are necessarily or always the most important for purposes of economic analysis and policymaking.

Subsectoring according to income

4.160 Households may be grouped into subsectors according to the nature of their largest source of income. For this purpose, the following types of household income need to be distinguished:

a. Income accruing to the owners of household unincorporated enterprises with paid employees (employers' mixed income);

b. Incomes accruing to the owners of household unincorporated enterprises without paid employees (own-account workers mixed income);

c. Compensation of employees;

d. Property and transfer incomes.

4.161 Households are allocated to subsectors according to which of the four categories of income listed above is the largest for the household as a whole, even if it does not always account for more than half of total household income. When more than one income of a given category is received within the same household, for example, because more than one member of the household earns compensation of employees or because more than one property or transfer income is received, the classification should be based on the total household income within each category. The four subsectors are described as follows:

a. Employers;

b. Own-account workers;

c. Employees;

d. Recipients of property and transfer incomes.

4.162 The fourth subsector, households for which property and transfer incomes make up the largest source of income, constitutes a heterogeneous group and it is recommended that it should be divided into three further subsectors when possible. These subsectors are defined as follows:

· Recipients of property incomes;

· Recipients of pensions;

· Recipients of other transfer incomes.

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Subsectoring according to characteristics of a reference person

4.163 Other methods of subsectoring usually require a reference person to be identified for each household. The reference person is not necessarily the person that other members of the household regard as the "head of the household", as the reference person should be decided on grounds of economic importance rather than age or seniority. The reference person should normally be the person with the largest income although the reference person could also be the person who makes the major decisions with regard to the consumption of the household.

4.164 Once a reference person has been identified, it is possible to group households into subsectors on the basis of the reference person's characteristics. For example, subsectors may be defined according to:

a. Occupation of the reference person;

b. Industry, if any, in which the reference person works;

c. Educational attainment of the reference person;

d. Qualifications or skills possessed by the reference person.

Each of the criteria listed above provides its own possible scheme of subsectoring. It would also be possible to group households into subsectors according to the main income of the reference person if, for some reason, it was not possible to group on the basis of the largest income received by the household. For this purpose, the same income categories may be used as those recommended for the household's largest income.

Subsectoring according to household size and location

4.165 Finally, it may be noted that households may be subsectored using criteria that apply to the household as a whole. For example, subsectors may be defined according to:

a. Size of the total income of the household;

b. Size of the household as measured by number of persons;

c. Type of area in which the household is located.

The last criterion enables households living in agricultural, urban or metropolitan areas to be distinguished from each other, or from households located in different geographical regions.

H. The non-profit institutions serving households sector

4.166 Previous sections have explained that NPIs are allocated to the corporations sectors when they are engaged in market production and to the general government sector if they are engaged in non-market production but subject to government control. The remaining NPIs are termed non-profit institutions serving households (NPISHs). All provide goods and services free or at prices that are not economically significant.

4.167 One type of NPISHs consists of those that are created by associations of persons to provide goods or, more often, services primarily for the benefit of the members themselves. The services are usually provided free, being financed by regular membership subscriptions or dues. They include NPISHs such as professional or learned societies, political parties, trades unions, consumers' associations, churches or religious societies, and social, cultural, recreational or sports clubs. They do not include bodies serving similar functions that are controlled by government units. Religious institutions are treated as NPISHs even when mainly financed by government units if this majority financing is not seen as empowering control by government. Political parties in countries with one-party political systems that are controlled by government units by means of providing the necessary finance are included in the general government sector.

4.168 In some communities, NPISHs may be found that do not possess any legal status or formal articles of association. They should be treated as NPISHs when they perform the same kinds of functions as the societies, political parties, trades unions, etc., described above, even if they are not legally constituted as NPISHs. However, when groups of households collaborate on communal construction projects (such as construction of buildings, roads, bridges, ditches, dykes, etc.), they should be treated as informal partnerships engaged on own-account construction rather than NPISHs. NPISHs should normally have a continuing role to play and not be deemed to be created for single projects of limited duration.

4.169 A second type of NPISH consists of charities, relief or aid agencies that are created for philanthropic purposes and not to serve the interests of the members of the association controlling the NPISH. Such NPISHs provide goods or services on a non-market basis to households in need, including households affected by natural disasters or war. The resources of such NPISHs are provided mainly by donations in cash or in kind from the general public, corporations or governments. They may also be provided by transfers from non-residents, including similar kinds of NPISHs resident in other countries.

4.170 The third type of NPISHs consist of those that provide collective services, such as research institutions that make their results freely available, environmental groups, etc. These are less common that the first two types of NPISHs

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and may not always be significantly represented in a country.

4.171 If the number or size of NPISHs funded from abroad is significant, it may be useful to disaggregate NPISHs into those that are mainly funded domestically and those that are mainly funded from abroad.

I. The rest of the world

4.172 For purposes of the SNA, ***the rest of the world consists of all non-resident institutional units that enter into transactions with resident units, or have other economic links with resident units.*** It is not a sector for which complete sets of accounts have to be compiled, although it is often convenient to describe the rest of the world as if it were a sector. The accounts, or tables, for the rest of the world are confined to those that record transactions between residents and non-residents or other economic relationships, such as claims by residents on non-residents, and vice versa. The rest of the world includes certain institutional units that may be physically located within the geographic boundary of a country; for example, foreign enclaves such as embassies, consulates or military bases, and also international organizations.

1. International organizations

4.173 Certain international organizations have all the essential attributes of institutional units. The special characteristics of an "international organization" as this term is used in the SNA may be summarized as follows:

a. The members of an international organization are either national states or other international organizations whose members are national states; they thus derive their authority either directly from the national states that are their members or indirectly from them through other international organizations;

b. They are entities established by formal political agreements between their members that have the status of international treaties; their existence is recognized by law in their member countries;

c. Because they are established by international agreement, they are accorded sovereign status; that is, international organizations are not subject to the laws or regulations of the country, or countries, in which they are located; they are not treated as resident institutional units of the countries in which they are located;

d. International organizations are created for various purposes including, among others, the following types of activities:

· The provision of non-market services of a collective nature for the benefit of their members;

· Financial intermediation at an international level, that is, channelling funds between lenders and borrowers in different countries.

4.174 Formal agreements concluded by all the member countries of an international organization may sometimes carry the force of law within those countries.

4.175 Most international organizations are financed wholly or partly by contributions (transfers) from their member countries, but some organizations may raise funds in other ways such as borrowing on financial markets or by subscriptions to the capital stock of international organizations and lending by member countries. For purposes of the SNA, international organizations are treated as units that are resident in the rest of the world.

2. Central banks of currency unions

4.176 The central bank of a currency union is treated as a special kind of international organization. The members of the international organization of which the central bank is part are the governments or the national central banks of the countries in the currency union. The central bank is treated as being non-resident in any of the member countries of the currency union but is resident in the currency area as a whole. More on the treatment of currency and economic unions can be found in appendix 3 of *BPM6.*

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Chapter 5: Enterprises, establishments and industries

A. Introduction

5.1 Institutional units are defined in chapter 4. The present chapter is concerned with production activities and the units that undertake them, starting with institutional units and then considering parts of institutional units. ***An enterprise is the view of an institutional unit as a producer of goods and services.*** The term enterprise may refer to a corporation, a quasi-corporation, an NPI or an unincorporated enterprise. Since corporations and NPIs other than NPISHs are primarily set up to engage in production, the whole of their accounting information relates to production and associated accumulation activities. Government, households and NPISHs necessarily engage in consumption and may engage in production also; indeed government and NPISHs always engage in production and many, but not all, households do. As explained in chapter 4, whenever the necessary accounting information exists, the production activity of these units is separated from their other activities into a quasi-corporation. It is when this separation is not possible that an unincorporated enterprise exists within the government unit, household or NPISH. It is thus possible to define an unincorporated enterprise as follows. ***An unincorporated enterprise represents the production activity of a government unit, NPISH or household that cannot be treated as the production activity of a quasi-corporation.***

5.2 The majority of enterprises by number engages in only one sort of production. The majority of production, though, is carried out by a relatively small number of large corporations that undertake many different kinds of production, there being virtually no upper limit to the extent of diversity of production in a large enterprise. If enterprises are grouped together on the basis of their principal activities, at least some of the resulting groupings are likely to be very heterogeneous with respect to the type of production processes carried out and also the goods and services produced. Thus, for analyses of production in which the technology of production plays an important role, it is necessary to work with groups of producers that are engaged in essentially the same kind of production. This requirement means that some institutional units must be partitioned into smaller and more homogeneous units, which the SNA defines as establishments. ***An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.*** Further, the SNA defines industries in terms of establishments. ***An industry consists of a group of establishments engaged in the same, or similar, kinds of activity.*** In the SNA, production accounts and generation of income accounts are compiled for industries as well as sectors.

5.3 This chapter first discusses productive activity and its classification in order to lay the ground for defining establishments and subsequently industries. All enterprises require some basic, routine services to support their production activities. When they are provided in house they are called ancillary activities. The recording of ancillary activities follows a number of conventions depending on exactly how they are provided. Ancillary activities are described in section D.

5.4 The definitions that emerge, as well as the underlying definitions of kinds of activities and of statistical units other than establishments, are consistent with the definitions in *ISIC, Rev. 4.* Any slight differences in wording between this chapter and the "Introduction" to the *ISIC* are noted and explained in the appropriate places below. Here and elsewhere reference is also made to the *CPC 2,* which is the classification of products used in the SNA.

B. Productive activities

5.5 Production in the SNA, as will be discussed in detail in chapter 6, consists of processes or activities carried out under the control and responsibility of institutional units that use inputs of labour, capital, goods and services to produce outputs of goods and services. Any such activity may be described, and classified, with reference to various characteristics, for example:

a. Type of goods or services produced as outputs,

b. Type of inputs used or consumed,

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c. Technique of production employed,

d. Ways in which the outputs are used.

The same goods or services may be produced using different methods of production. Certain types of goods may be produced from quite different inputs; for example, sugar may be produced from sugar cane or from sugar beet, or electricity from coal, oil, nuclear power stations or from hydroelectric plants. Many production processes also produce joint products, such as meat and hides, whose uses are quite different.

1. The classification of activities in the SNA

5.6 The classification of production activities used in the SNA is *ISIC* (Rev.4). The criteria used in *ISIC* to delineate each of its four levels of the classification are complex. The structure consists of 21 Sections, 88 Divisions, 238 Groups and 419 Classes. At the Division and Group levels, substantial weight is placed on the nature of the good or service that is produced as the principal product of the activity in question by referring to the physical composition and stage of fabrication of the item and the needs served by the item. This criterion furnishes the basis for grouping producer units according to similarities in, and links between, the raw materials consumed and the sources of demand for the items. As well, two other major criteria are considered at these levels: the uses to which the goods and services are put, and the inputs, the process and the technology of production.

5.7 While it is not necessary for purposes of this chapter to explain the concept of an activity in any detail, it is necessary to clarify the fundamental distinction between principal and secondary activities on the one hand and ancillary activities on the other.

2. Principal and secondary activities

Principal activities

5.8 ***The principal activity of a producer unit is the activity whose value added exceeds that of any other activity carried out within the same unit.*** (The producer unit may be an enterprise or an establishment as defined below.) The classification of the principal activity is determined by reference to *ISIC*, first at the highest level of the classification and then at more detailed levels. The principal activity of an enterprise consists of the principal product and any by-products, that is, products necessarily produced together with principal products. The output of the principal activity must consist of goods or services that are capable of being delivered to other units even though they may be used for own consumption or own capital formation.

Secondary activities

5.9 ***A secondary activity is an activity carried out within a single producer unit in addition to the principal activity and whose output, like that of the principal activity, must be suitable for delivery outside the producer unit.*** The value added of a secondary activity must be less than that of the principal activity, by definition of the latter. The output of the secondary activity is a secondary product. Most producer units produce at least some secondary products.

3. Ancillary activities

5.10 As its name implies, an ancillary activity is incidental to the main activity of an enterprise. It facilitates the efficient running of the enterprise but does not normally result in goods and services that can be marketed. For enterprises that are relatively small and have only a single location, ancillary activities are not separately identified. For larger enterprises with multiple locations, it may be useful to treat ancillary activities in the same way as a secondary or even a principal product. A detailed discussion of the recording of ancillary activities is given in section D after the discussion on the recording of primary and secondary production is complete.

C. Partitioning enterprises into more homogeneous units

5.11 Although it is possible to classify enterprises according to their principal activities using the *ISIC* and to group them into “industries”, some of the resulting “industries” are likely to be very heterogeneous because some enterprises may have several secondary activities that are quite different from their principal activities. In order to obtain groups of producers whose activities are more homogeneous, enterprises have to be partitioned into smaller and more homogeneous units.

1. Types of production units

Kind-of-activity units

5.12 One way to partition an enterprise is by reference to activities. A unit resulting from such a partitioning is called a kind-of-activity unit (KAU). ***A kind-of-activity unit is an enterprise, or a part of an enterprise, that engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added.*** Each enterprise must, by definition, consist of one or more kind-of-activity units. When partitioned into two or more

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kind-of-activity units, the resulting units must be more homogeneous with respect to output, cost structure and technology of production than the enterprise as a whole.

Local units

5.13 Enterprises often engage in productive activity at more than one location, and for some purposes it may be useful to partition them accordingly. Thus, ***a local unit is an enterprise, or a part of an enterprise, that engages in productive activity at or from one location.*** The definition has only one dimension in that it does not refer to the kind of activity that is carried out. Location may be interpreted according to the purpose, narrowly, such as a specific address, or more broadly, such as within a province, state, county, etc.

Establishments

5.14 The establishment combines both the kind-of-activity dimension and the locality dimension. ***An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.*** Establishments are sometimes referred to as local kind-of activity units (local KAUs).

5.15 Although the definition of an establishment allows for the possibility that there may be one or more secondary activities carried out, they should be on a small scale compared with the principal activity. If a secondary activity within an enterprise is as important, or nearly as important, as the principal activity, then that activity should be treated as taking place within a separate establishment from that in which the principal activity takes place.

5.16 Thus, establishments are designed to be units that provide data that are more suitable for analyses of production in which the technology of production plays an important role. However, it may still be necessary to transform the resulting data subsequently for purposes of input-output analysis, as explained briefly below in describing the unit of homogeneous production and in more detail in chapter 28.

5.17 In practice, an establishment may usually be identified with an individual workplace in which a particular kind of productive activity is carried out: an individual farm, mine, quarry, factory, plant, shop, store, construction site, transport depot, airport, garage, bank, office, clinic, etc.

2. Data and accounts for establishments

5.18 The only data that can meaningfully be compiled for an establishment relate to its production activities. They include the following:

a. The items included in the production account and the generation of income account;

b. Statistics of numbers of employees, types of employees and hours worked;

c. Estimates of the stock of non-financial capital and natural resources used;

d. Estimates of changes in inventories and gross fixed capital formation undertaken.

5.19 The compilation of a production account and a generation of income account implies that it must be feasible to calculate output and intermediate consumption and thus value added and also compensation of employees, taxes on production and imports, subsidies and the operating surplus or mixed income. In principle, it must be feasible to collect at least the above kinds of statistics for an establishment, even if they may not always be available, or needed, in practice.

3. Application of the principles in specific situations

5.20 The application of the principles given above for partitioning an enterprise into establishments is not always straightforward. This section discusses several situations in which the organization of production is such that the application is particularly difficult.

Establishments within integrated enterprises

5.21 ***A horizontally integrated enterprise is one in which several different kinds of activities that produce different kinds of goods or services for sale on the market are carried out simultaneously using the same factors of production.*** This definition is consistent with *ISIC* Rev.4 which reads in part:

Horizontal integration occurs when an activity results in end-products with different characteristics. This could theoretically be interpreted as activities carried out simultaneously using the same factors of production. In this case, it will not be possible to separate them statistically into different processes, assign them to different units or generally provide separate data for these activities. Another example would be the production of electricity through a waste incineration process. The activity of waste disposal and the activity of electricity production cannot be separated in this case.

5.22 Within the SNA, a separate establishment should be identified for each different kind of activity wherever possible.

5.23 ***A vertically integrated enterprise is one in which different stages of production, which are usually carried out by different enterprises, are carried out in succession by different parts of the same enterprise.*** The output of one stage becomes an input into the next stage, only the output from the final stage being actually sold on the market. *ISIC* describes vertically integrated enterprises as follows:

Vertical integration of activities occurs where the different stages of production are carried out in succession by the same unit and where the output of one process serves as input to the next. Examples of common vertical integration include tree felling and subsequent on-site sawmilling, a

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clay pit combined with a brickworks, or production of synthetic fibres in a textile mill.

5.24 In *ISIC* Rev.4, vertical integration should be treated like any other form of multiple activities. A unit with a vertically integrated chain of activities should be classified to the class corresponding to the principal activity within this chain, that is, to the activity accounting for the largest share of value added, as determined by the top-down method. This treatment has changed from previous versions of *ISIC*. It should be noted that the term "activity" in this context is used for each step in the production process that is defined in a separate *ISIC* class, even though the output of each step may not be intended for sale.

5.25 If value added or substitutes for the individual steps in a vertically integrated process cannot be determined directly from accounts maintained by the unit itself, comparisons with other units (for example, based on market prices for intermediate and final products) could be used. The same precautions for using substitutes as listed above apply here. If it is still impossible to determine the share of value added for the different stages in the chain of production activities, default assignments for typical forms of vertical integration can be applied. *The Companion Guide to ISIC and CPC* (United Nations (forthcoming)) provides a set of examples for such cases.

5.26 While the procedure for the treatment of vertically integrated activities could be applied to any unit, it should be noted that the SNA recommends that when a vertically integrated enterprise spans two or more sections of *ISIC*, at least one establishment must be distinguished within each section. With such a treatment, activities of units engaged in vertically integrated activities will not cross section boundaries of *ISIC*.

5.27 From an accounting point of view it can be difficult to partition a vertically integrated enterprise into establishments because values have to be imputed for the outputs from the earlier stages of production which are not actually sold on the market and which become intermediate inputs into later stages. Some of these enterprises may record the intra-enterprise deliveries at prices that reflect market values, but others may not. Even if adequate data are available on the costs incurred at each stage of production, it may be difficult to decide what is the appropriate way in which to allocate the operating surplus of the enterprise among the various stages. One possibility is that a uniform rate of operating surplus be applied to the costs incurred at each stage.

5.28 Despite the practical difficulties involved in partitioning vertically integrated enterprises into establishments, it is recommended in the SNA, as noted in the section of *ISIC* quoted above, that when a vertically integrated enterprise spans two or more sections of the *ISIC*, at least one establishment must be distinguished within each section. *ISIC* sections correspond to broad industry groups such as agriculture, fishing, mining and quarrying, manufacturing, etc.

Establishments owned by general government

5.29 Government units, especially central governments, may be particularly large and complex in terms of the kinds of activities in which they engage. The principles outlined above have to be applied consistently and systematically to government units. The procedures to be followed when dealing with the main kinds of producer units owned by government may be summarized as follows.

5.30 If an unincorporated enterprise of government is a market producer and there is sufficient information available to treat it as a quasi-corporation, it should be treated as a publicly controlled unit in the non-financial or financial corporations sectors as appropriate. The usual conventions about distinguishing different establishments within the quasi-corporation apply.

5.31 An example of an unincorporated market enterprise that can be treated as a quasi-corporation is a municipal swimming pool that is independently managed and whose accounts permit its income, saving and capital to be measured separately from government so that flows of income, or capital, between the unit and government can be identified.

5.32 If an unincorporated enterprise of government is a market producer and there is insufficient information to treat it as a quasi-corporation, or if the unincorporated enterprise is a non-market producer, then it remains within the general government sector but it should be treated as an establishment in its own right and allocated to the appropriate industry.

5.33 Non-market producers such as public administration, defence, health and education providing final goods or services should be partitioned into establishments using the activity classification given in Sections O, P and Q of *ISIC Rev. 4*. Agencies of central government may be dispersed over the country as a whole in which case it will be necessary to distinguish different establishments for activities that are carried out in different locations.

5.34 When a government agency supplies goods to other government agencies it should be treated as a separate establishment and classified under the appropriate heading of *ISIC*. This applies to the production of munitions or weapons, printed documents or stationery, roads or other structures, etc. A government that produces its own weapons to supply to its own armed forces is, in effect, a vertically integrated enterprise that spans two or more sections of *ISIC*. Therefore, at least one separate establishment should be distinguished in each heading. The same argument applies to a government printing office and other goods producers owned by government.

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D. Ancillary activities

5.35 As noted in section B, ancillary activities require special consideration because of the different ways of recording that are recommended depending on circumstances. As a preliminary step, though, it is as well to review exactly what is meant by an ancillary activity. Essentially, they are the basic services that every enterprise needs to have in order to operate effectively. The sorts of services referred to include keeping records, files or accounts in written form or on computers; providing electronic and traditional written communication facilities; purchasing materials and equipment; hiring, training, managing and paying employees; storing materials or equipment: warehousing; transporting goods or persons inside or outside the producer unit; promoting sales; cleaning and maintenance of buildings and other structures; repairing and servicing machinery and equipment; and providing security and surveillance.

5.36 These types of services can be produced in house or can be purchased on the market from specialist service producers though, in practice, the requisite services may not be readily available in the right quantities on local markets. When the services are produced in house, they are termed ancillary activities. ***An ancillary activity is a supporting activity undertaken within an enterprise in order to create the conditions within which the principal or secondary activities can be carried out.*** In addition, ancillary activities have certain common characteristics related to their output. These additional characteristics include:

a. The output of an ancillary activity is not intended for use outside the enterprise.

b. Ancillary activities typically produce outputs that are commonly found as inputs into almost any kind of productive activity;

c. Ancillary activities produce services (and, as exceptions, goods that do not become a physical part of the output of the principal or secondary activity) as output;

d. The value of ancillary activity output is likely to be small compared with that of the principal or secondary activities of an enterprise.

5.37 The defining characteristics that ancillary activities support the principal and secondary activities of an enterprise and are used within the enterprise are by no means sufficient to identify an ancillary activity. There are many kinds of activities whose outputs are entirely consumed within the same enterprise but which could not possibly be considered as ancillary. Goods are not commonly used as inputs in the same way as services such as accounting, transportation or cleaning. For example, an enterprise may produce milk, all of which is processed into butter or cheese within the same enterprise. However, milk production cannot be considered an ancillary activity, because milk is a particular kind of input found only in special types of productive activity. In general, goods that become embodied in the output of the principal or secondary activities are not outputs of ancillary activities.

5.38 Certain activities, although common, are not so common as to be considered ancillary. Many enterprises produce their own machinery and equipment, build their own structures and carry out their own research and development. These activities are not to be treated as ancillary, whether carried out centrally or not, as they are not found frequently and extensively in all kinds of enterprises, small as well as large.

Recording (or not) the output of ancillary activities

5.39 An ancillary activity is not undertaken for its own sake but purely in order to provide supporting services for the principal or secondary activities with which it is associated. If all the ancillary activity is undertaken in the establishment where its output is used, the ancillary activity is regarded as an integral part of the principal or secondary activities with which it is associated. As a result:

a. The output of an ancillary activity is not explicitly recognized and recorded separately in the SNA. It follows that the use of this output is also not recorded.

b. All the inputs consumed by an ancillary activity, materials, labour, consumption of fixed capital, etc., are treated as inputs into the principal or secondary activity that it supports.

In this case it is not possible to identify the value added of an ancillary activity because that value added is combined with the value added of the principal or secondary activity.

5.40 When the production of an enterprise takes place in two or more different establishments, certain ancillary activities may be carried out centrally for the benefit of all the establishments collectively. For example, the purchasing, sales, accounts, computing, maintenance or other departments of an enterprise may all be the responsibility of a head office located separately from the establishments in which the principal or secondary activities of the enterprise are carried out.

5.41 If an establishment undertaking purely ancillary activities is statistically observable, in that separate accounts for the production it undertakes are readily available, or if it is in a geographically different location from the establishments it serves, it may be desirable and useful to consider it as a separate unit and allocate it to the industrial classification corresponding to its principal activity. However, it is recommended that statisticians do not make extraordinary efforts to create separate establishments for these activities artificially in the absence of suitable basic data being available.

5.42 When such a unit is recognized, the ancillary activity is recognized as a primary output. The value of its output should be derived on a sum of costs basis, including the cost of the capital used in the unit. The output will be deemed to be non-market output when the parent enterprise is a non-market enterprise and market otherwise. If the output is treated as non-market, the cost of capital should

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be replaced by the consumption of fixed capital when summing costs to determine the value of output. The output of the ancillary unit is treated as intermediate consumption of the establishments it serves and should be allocated across them using an appropriate indicator such as the output, value added or employment of these establishments.

5.43 It is appropriate to treat specialized agencies serving central government as a whole, for example, computer or communications agencies, which tend to be large, as separate establishments.

5.44 Even when an ancillary activity is undertaken in the establishment where it is used, it may grow to the point that it has the capacity to provide services outside the enterprise. For example, a computer processing unit may develop in-house capabilities for which there is an outside demand. When an activity starts to provide a proportion of its services to outsiders, the part of the output that is sold has to be treated as secondary rather than ancillary output.

The role of ancillary activities in the SNA

5.45 The production accounts of the SNA do not provide comprehensive information about the production of services treated in some cases as ancillary services. It is therefore difficult to obtain information about their role in the economy. For example, it is difficult to know how much output is produced, how many persons are engaged in such activities, how many resources are consumed, etc. This may be regarded as a serious disadvantage for certain purposes, such as analysing the impact of "information technology" on productivity when the processing and communication of information are typical ancillary activities or when looking at the role of freight transport. For some purposes, a satellite account may be compiled that makes estimates of all activities of a certain type regardless of whether they are ancillary or not. The overall measure of value added does not alter because both output and intermediate consumption increase by the same amount but a more inclusive picture of the role of the activity in the economy can be obtained. There is a discussion on the role of satellite accounts in chapter 29.

E. Industries

5.46 Industries are defined in the SNA in the same way as in *ISIC*: ***an industry consists of a group of establishments engaged in the same, or similar, kinds of activity.*** At the most detailed level of classification, an industry consists of all the establishments falling within a single Class of *ISIC*. At higher levels of aggregation corresponding to the Groups, Divisions and, ultimately, Sections of the *ISIC*, industries consist of a number of establishments engaged on similar types of activities.

1. Market, own account and non-market producers

5.47 The term "industry" is not reserved for market producers. An industry, as defined in the *ISIC* and in the SNA, consists of a number of establishments engaged in the same type of production, whether the institutional units to which they belong are market producers or not. The distinction between market and other production is a different dimension of production and economic activity. For example, the health industry in a particular country may consist of a number of establishments, some of which are market producers while others are non-market producers. Because the distinction between market and other kinds of production is based on a different criterion from the nature of activity itself, it is possible to cross-classify establishments by type of activity and by whether they are market producers, non-market producers or producers for own final use.

2. Industries and products

5.48 As already mentioned, a one-to-one correspondence does not exist between activities and products and hence between industries and products. Certain activities produce more than one product simultaneously, while the same product may sometimes be produced by using different techniques of production.

5.49 When two or more products are produced simultaneously by a single productive activity they are "joint products". Examples of joint products are meat and hides produced by slaughtering animals or sugar and molasses produced by refining sugar canes. The by-product from one activity may also be produced by other activities, but there are examples of by-products, such as molasses, that are produced exclusively as the by-products of one particular activity.

5.50 The relationship between an activity and a product classification is exemplified by that between the *ISIC* and the *CPC*. The *CPC* is a classification based on the physical characteristics of goods or on the nature of the services rendered, while the *ISIC* also takes into account the inputs in the production process and the technology used in the production process. In the development of the *CPC*, it is intended that each good or service distinguished in the *CPC* is defined in such a way that it is normally produced by only one activity as defined in *ISIC*. However, due to different types of criteria employed, this is not always possible. An example would be the product of mushrooms, which can be produced by controlled growing, that is, an activity classified in Agriculture in *ISIC*, or by simply gathering wild growing mushrooms, an activity classified in Forestry. More detailed national classifications may distinguish different forms of energy production in *ISIC*, based on different technologies, resulting in separate activities for the operation of hydroelectric power plants, nuclear power plants etc. The output of all these activities, however, would be the single product electricity.

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5.51 Conversely, each activity of the *ISIC*, no matter how narrowly defined, will tend to produce a number of products as defined in the *CPC*, although they are often clustered within the *CPC* structure and could be perceived as one "type" of product. As far as practically possible, an attempt is made to establish a correspondence between the two classifications, by allocating to each category of the *CPC* a reference to the *ISIC* class in which the good or service is mainly produced. However, due to the reasons outlined above, this typically does not result in a one-to-one correspondence. The majority of links between *ISIC* and *CPC* will tend to be one-to-many links, with a few cases requiring many-to-one links. It is possible to force this correspondence into a stricter relationship by selecting one link out of the many-to-one correspondence. This selection may facilitate data conversion, but is not a real description of the link between the two classifications.

F. Units of homogeneous production

5.52 In most fields of statistics the choice of statistical unit, and methodology used, are strongly influenced by the purposes for which the resulting statistics are to be used. For purposes of input-output analysis, the optimal situation would be one in which each producer unit were engaged in only a single productive activity so that an industry could be formed by grouping together all the units engaged in a particular type of production without the intrusion of any secondary activities. Such a unit is called a "unit of homogeneous production".

5.53 Although the unit of homogeneous production may be the optimal unit for purposes of certain kinds of analysis, particularly input-output analysis, it may not be possible to collect directly from the enterprise or establishment the accounting data corresponding to units of homogeneous production. Such data may have to be estimated subsequently by transforming the data supplied by enterprises on the basis of various assumptions or hypotheses. Units that are constructed by statistical manipulation of the data collected by the agency are called analytical units.

5.54 If a producer unit carries out a principal activity and also one or more secondary activities, it will be partitioned into the same number of units of homogeneous production. If it is desired to compile production accounts and input-output tables by region, it is necessary to treat units of homogeneous production located in different places as separate units even though they may be engaged in the same activity and belong to the same institutional unit.

5.55 Chapter 28 discusses the estimation of analytical units for use in an input-output context.

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Chapter 6: The production account

A. Introduction

6.1 The production account is the starting point for the sequence of accounts for institutional units and sectors displaying how income is generated, distributed and used throughout the economy. Activities defined as production therefore determine the extent of GDP and the level of income for the economy. In concept, the economy-wide production account is the aggregation of a similar account for each production unit. Importantly, while production accounts can be compiled for an individual institutional unit as well as for sectors, they can also be compiled for establishments and thus for industries. It is this feature that allows the study of industrial activity in the economy and permits the compilation of supply and use tables and input-output tables.

6.2 The production account is linked to the definition of production. ***Production is an activity, carried out under the responsibility, control and management of an institutional unit, that uses inputs of labour, capital, and goods and services to produce outputs of goods and services***. The production account shows the output of production and the various inputs to it. To do this, three concepts need clarifying.

6.3 The first concept to be clarified is what constitutes production within the SNA. This delineation is referred to as the production boundary of the SNA. Thereafter several key types of production need to be identified depending on whether production is for sale, for own use or is made available to others at little or no cost.

6.4 The next concept to be addressed is how output is to be valued. Key to this question is the role played by the various types of taxes imposed by (and subsidies given by) government on products and on the activity of production.

6.5 The third major concept to be considered is how the production process adds to the value of goods and services and leads to the generation of income. Does the whole contribution of labour and capital add to the value of these goods and services or should the fact that most capital declines in value as it is used need to be taken into account?

6.6 The general format of an account in the sequence of accounts is to show how resources are received and, after uses are deducted, a balancing item is left. Because the production account is the first in the sequence of accounts, it is the first time the concept of a balancing item appears. The importance of balancing items in general and the one in this account in particular is also discussed before considering each of the entries of the production account in turn.

6.7 The production account for institutional units and sectors is illustrated in table 6.1. It contains only three items apart from the balancing item. The output from production is recorded under resources on the right-hand side of the account. This item may be disaggregated to distinguish different kinds of output. For example, non-market output should be shown separately from market output and output for own final use in the sector accounts, when possible. The uses recorded on the left-hand side of the account consist of intermediate consumption and consumption of fixed capital. Both of these may also be disaggregated.

6.8 The balancing item in the production account is value added. It can be measured either gross or net, that is, before or after deducting consumption of fixed capital:

a. Gross value added is the value of output less the value of intermediate consumption;

b. Net value added is the value of output less the values of both intermediate consumption and consumption of fixed capital.

6.9 As value added is intended to measure the value created by a process of production, it ought to be measured net, since the consumption of fixed capital is a cost of production. However, as explained later, consumption of fixed capital can be difficult to measure in practice and it may not always be possible to make a satisfactory estimate of its value and hence of net value added. Provision has therefore to be made for value added to be measured gross as well as net. It follows that provision has also to be made for the balancing items in subsequent accounts of the SNA to be measured either gross or net of the consumption of fixed capital.

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B. The concept of production

1. Production as an economic activity

6.10 Production can be described in general terms as an activity in which an enterprise uses inputs to produce outputs. The economic analysis of production is mainly concerned with activities that produce outputs of a kind that can be delivered or provided to other institutional units. Unless outputs are produced that can be supplied to other units, either individually or collectively, there can be no division of labour, no specialization of production and no gains from trading. There are two main kinds of output, namely goods and services, and it is necessary to examine their characteristics in order to be able to delineate activities that are productive in an economic sense from other activities. Collectively, goods and services are described as products.

6.11 In the SNA, it is seldom if ever necessary to make a clear distinction between goods and services but in making the link to other data sets it is often necessary to understand which products have been treated as goods and which as services.

6.12 Industrial classifications, such as *ISIC*, identify a group of manufacturing industries. However, many of these industries also produce services. For example, some aircraft engine manufacturers may both fabricate aircraft engines and repair and service existing engines. When goods dispatched to another unit for processing do not change ownership, the work done on them constitutes a service even though it may be undertaken by a manufacturing industry. The fact that the processing is classified as a service does not prevent the processor from being classified within manufacturing.

6.13 Similarly, some service-producing industries may produce products that have many of the characteristics of goods. For convenience, the products of these industries are described in the SNA as knowledge-capturing products.

6.14 ***Products are goods and services*** (***including knowledge-capturing products) that result from a process of production***.

Goods

6.15 ***Goods are physical, produced objects for which a demand exists, over which ownership rights can be established and whose ownership can be transferred from one institutional unit to another by engaging in transactions on markets.*** They are in demand because they may be used to satisfy the needs or wants of households or the community or used to produce other goods or services. The production and exchange of goods are quite separate activities. Some goods may never be exchanged while others may be bought and sold numerous times. The production of a good can always be separated from its subsequent sale or resale.

Services

6.16 The production of services must be confined to activities that are capable of being carried out by one unit for the benefit of another. Otherwise, service industries could not develop and there could be no markets for services. It is also possible for a unit to produce a service for its own consumption provided that the type of activity is such that it could have been carried out by another unit.

6.17 ***Services are the result of a production activity that changes the conditions of the consuming units, or facilitates the exchange of products or financial assets.*** These types of service may be described as change-effecting services and margin services respectively. Change-effecting services are outputs produced to order and typically consist of changes in the conditions of the consuming units realized by the activities of producers at the demand of the consumers. Change-effecting services are not separate entities over which ownership rights can be established. They cannot be traded separately from their production. By the time their production is completed, they must have been provided to the consumers.

6.18 The changes that consumers of services engage the producers to bring about can take a variety of different forms as follows:

Table 6.1:The production account - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Output								3 604	3 604
Market output								3 077	3 077
Output for own final use								147	147
Non-market output								380	380
Intermediate consumption	1 477	52	222	115	17	1 883			1 883
Taxes on products								141	141
Subsidies on products (-)								- 8	- 8
Value added, gross / Gross domestic product	1 331	94	126	155	15	1 854			1 854
Consumption of fixed capital	157	12	27	23	3	222			222
Value added, net / Net domestic product	1 174	82	99	132	12	1 632			1 632

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a. Changes in the condition of the consumer's goods: the producer works directly on goods owned by the consumer by transporting, cleaning, repairing or otherwise transforming them;

b. Changes in the physical condition of persons: the producer transports the persons, provides them with accommodation, provides them with medical or surgical treatments, improves their appearance, etc.;

c. Changes in the mental condition of persons: the producer provides education, information, advice, entertainment or similar services in a face to face manner.

6.19 The changes may be temporary or permanent. For example, medical or education services may result in permanent changes in the condition of the consumers from which benefits may be derived over many years. On the other hand, attending a football match is a short-lived experience. In general, the changes may be presumed to be improvements, as services are produced at the demand of the consumers. The improvements usually become embodied in the persons of the consumers or the goods they own and are not separate entities that belong to the producer. Such improvements cannot be held in inventories by the producer or traded separately from their production.

6.20 A single process of production may provide services to a group of persons, or units, simultaneously. For example, groups of persons or goods belonging to different institutional units may be transported together in the same plane, ship, train or other vehicle. People may be instructed or entertained in groups by attending the same class, lecture or performance. Certain services are provided collectively to the community as a whole, or large sections of the community, for example, the maintenance of law and order, and defence.

6.21 Margin services result when one institutional unit facilitates the change of ownership of goods, knowledge-capturing products, some services or financial assets between two other institutional units. Margin services are provided by wholesalers and retailers and by many types of financial institutions. Margin services resemble change-effecting services in that they are not separate entities over which ownership rights can be established. They cannot be traded separately from their production. By the time their production is completed they must have been provided to the consumers.

Knowledge-capturing products

6.22 Knowledge-capturing products concern the provision, storage, communication and dissemination of information, advice and entertainment in such a way that the consuming unit can access the knowledge repeatedly. The industries that produce the products are those concerned with the provision, storage, communication and dissemination of information, advice and entertainment in the broadest sense of those terms including the production of general or specialized information, news, consultancy reports, computer programs, movies, music, etc. The outputs of these industries, over which ownership rights may be established, are often stored on physical objects (whether on paper or on electronic media) that can be traded like ordinary goods. They have many of the characteristics of goods in that ownership rights over these products can be established and they can be used repeatedly. Whether characterized as goods or services, these products possess the essential common characteristic that they can be produced by one unit and supplied to another, thus making possible division of labour and the emergence of markets.

2. The production boundary

6.23 Given the general characteristics of the goods and services produced as outputs, it becomes possible to define production. A general definition of production is given first, followed by the rather more restricted definition that is used in the SNA. Following this there is a discussion of the production boundary as it affects household activities and non-observed activities.

The general production boundary

6.24 Economic production may be defined as an activity carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital, and goods and services to produce outputs of goods or services. There must be an institutional unit that assumes responsibility for

Table 6.1 (cont):The production account - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Output	2 808	146	348	270	32	3 604			3 604
Market output	2 808	146	0	123	0	3 077			3 077
Output for own final use	0	0	0	147	0	147			147
Non-market output			348		32	380			380
Intermediate consumption								1 883	1 883
Taxes on products						141			141
Subsidies on products (-)						- 8			- 8

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the process of production and owns any resulting goods or knowledge-capturing products or is entitled to be paid, or otherwise compensated, for the change-effecting or margin services provided. A purely natural process without any human involvement or direction is not production in an economic sense. For example, the unmanaged growth of fish stocks in international waters is not production, whereas the activity of fish farming is production.

6.25 While production processes that produce goods can be identified without difficulty, it is not always so easy to distinguish the production of services from other activities that may be both important and beneficial. Activities that are not productive in an economic sense include basic human activities such as eating, drinking, sleeping, taking exercise, etc., that it is impossible for one person to employ another person to perform instead. Paying someone else to take exercise is no way to keep fit. On the other hand, activities such as washing, preparing meals, caring for children, the sick or aged are all activities that can be provided by other units and, therefore, fall within the general production boundary. Many households employ paid domestic staff to carry out these activities for them.

The production boundary in the SNA

6.26 The production boundary in the SNA is more restricted than the general production boundary. For reasons explained below, activities undertaken by households that produce services for their own use are excluded from the concept of production in the SNA, except for services provided by owner-occupied dwellings and services produced by employing paid domestic staff. Otherwise, the production boundary in the SNA is the same as the more general one defined in the previous paragraphs.

6.27 The production boundary of the SNA includes the following activities:

a. The production of all goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services;

b. The own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation;

c. The own-account production of knowledge-capturing products that are retained by their producers for their own final consumption or gross capital formation but excluding (by convention) such products produced by households for their own use;

d. The own-account production of housing services by owner occupiers; and

e. The production of domestic and personal services by employing paid domestic staff.

The production boundary within households

The exclusion of most services produced for own use by households

6.28 The production of services by members of the household for their own final consumption has traditionally been excluded from measured production in national accounts and it is worth explaining briefly why this is so. It is useful to begin by listing those services for which no entries are recorded in the accounts when they are produced by household members and consumed within the same household:

a. The cleaning, decoration and maintenance of the dwelling occupied by the household, including small repairs of a kind usually carried out by tenants as well as owners;

b. The cleaning, servicing and repair of household durables or other goods, including vehicles used for household purposes;

c. The preparation and serving of meals;

d. The care, training and instruction of children;

e. The care of sick, infirm or old people;

f. The transportation of members of the household or their goods.

6.29 In most countries a considerable amount of labour is devoted to the production of these services, and their consumption makes an important contribution to economic welfare. However, national accounts serve a variety of analytical and policy purposes and are not compiled simply, or even primarily, to produce indicators of welfare. The reasons for not imputing values for unpaid domestic or personal services produced and consumed within households may be summarized as follows:

a. The own-account production of services within households is a self-contained activity with limited repercussions on the rest of the economy. The decision to produce a household service entails a simultaneous decision to consume that service. This is not true for goods. For example, if a household engages in the production of agricultural goods, it does not follow that it intends to consume them all. Once the crop has been harvested, the producer has a choice about how much to consume, how much to store for future consumption or production and how much to offer for sale or barter on the market. Indeed, although it is customary to refer to the own-account production of goods, it is not possible to determine at the time the production takes place how much of it will eventually be consumed by the producer. For example, if an agricultural crop turns out to be better than expected, the household may dispose of some of it on the market even though it may have originally supposed it would consume it all. This kind of possibility is non-existent for services; it is not possible to produce a service and then decide whether to offer it for sale or not.

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b. As the vast majority of household services are not produced for the market, there are typically no suitable market prices that can be used to value such services. It is therefore extremely difficult to estimate values not only for the outputs of the services but also for the associated incomes and expenditures that can be meaningfully added to the values of the monetary transactions on which most of the entries in the accounts are based.

c. With the exception of the imputed rental of owner-occupied dwellings, the decision to produce services for own consumption is not influenced by and does not influence economic policy because the imputed values are not equivalent to monetary flows. Changes in the levels of household services produced do not affect the tax yield of the economy or the level of the exchange rate, to give two examples.

6.30 Thus, the reluctance of national accountants to impute values for the outputs, incomes and expenditures associated with the production and consumption of services within households is explained by a combination of factors, namely the relative isolation and independence of these activities from markets, the extreme difficulty of making economically meaningful estimates of their values, and the adverse effects it would have on the usefulness of the accounts for policy purposes and the analysis of markets and market disequilibria.

6.31 The exclusion of household services from the production boundary has consequences for labour force and employment statistics. According to International Labour Organization (ILO) guidelines, economically active persons are persons engaged in production included within the boundary of production of the SNA. If that boundary were to be extended to include the production of own-account household services, virtually the whole adult population would be economically active and unemployment eliminated. In practice, it would be necessary to revert to the existing boundary of production in the SNA, if only to obtain meaningful employment statistics.

Own-account production of goods

6.32 Although services produced for own consumption within households fall outside the boundary of production used in the SNA, it is nevertheless useful to give further guidance with respect to the treatment of certain kinds of household activities which may be particularly important in some developing countries. The SNA includes the production of all goods within the production boundary. The following types of production by households are included whether intended for own final consumption or not:

a. The production of agricultural products and their subsequent storage; the gathering of berries or other uncultivated crops; forestry; wood-cutting and the collection of firewood; hunting and fishing;

b. The production of other primary products such as mining salt, cutting peat, etc.;

c. The processing of agricultural products; the production of grain by threshing; the production of flour by milling; the curing of skins and the production of leather; the production and preservation of meat and fish products; the preservation of fruit by drying, bottling, etc.; the production of dairy products such as butter or cheese; the production of beer, wine, or spirits; the production of baskets or mats; etc.;

d. Other kinds of processing such as weaving cloth; dress making and tailoring; the production of footwear; the production of pottery, utensils or durables; making furniture or furnishings; etc.;

e. The supply of water is also considered a goods-producing activity in this context. In principle, supplying water is a similar kind of activity to extracting and piping crude oil.

6.33 It is not feasible to draw up a complete, exhaustive list of all possible productive activities but the above list covers the most common types. When the amount of a good produced within households is believed to be quantitatively important in relation to the total supply of that good in a country, its production should be recorded. Otherwise, it may not be worthwhile trying to estimate it in practice.

Services of owner-occupied dwellings

6.34 The production of housing services for their own final consumption by owner occupiers has always been included within the production boundary in national accounts, although it constitutes an exception to the general exclusion of own-account service production. The ratio of owner-occupied to rented dwellings can vary significantly between countries, between regions of a country and even over short periods of time within a single country or region, so that both international and inter-temporal comparisons of the production and consumption of housing services could be distorted if no imputation were made for the value of own-account housing services. The imputed value of the income generated by such production is taxed in some countries.

Production of domestic and personal services by employing paid domestic staff

6.35 Although paid domestic staff produce many of the services excluded from the production boundary of the SNA when undertaken by household members, paying a person who comes to the house to wash, cook or look after children, for example, is as much a market activity as taking clothes to a laundry, eating at a restaurant or paying a nursery to care for children. By convention, though, only the wages of the domestic staff are treated as the value of output. Other materials used in their work are treated as household consumption expenditure because of the difficulty of identifying what is used by the staff and what by household members. Nor are payments to other household members treated as payments for services even if the payments are nominally for the performance of chores, for example pocket-money paid to children.

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"Do-it-yourself" decoration, maintenance and small repairs

6.36 "Do-it-yourself" repairs and maintenance to consumer durables and dwellings carried out by members of the household constitute the own-account production of services and are excluded from the production boundary of the SNA. The materials purchased are treated as final consumption expenditure.

6.37 In the case of dwellings, "do-it-yourself" activities cover decoration, maintenance and small repairs, including repairs to fittings, of types that are commonly carried out by tenants as well as by owners. On the other hand, more substantial repairs, such as replastering walls or repairing roofs, carried out by owners, are essentially intermediate inputs into the production of housing services. However, the production of such repairs by an owner-occupier is only a secondary activity of the owner in his capacity as a producer of housing services. The production accounts for the two activities may be consolidated so that, in practice, the purchases of materials for repairs become intermediate expenditures incurred in the production of housing services. Major renovations or extensions to dwellings are fixed capital formation and recorded separately.

The use of consumption goods

6.38 The use of goods within the household for the direct satisfaction of human needs or wants is not treated as production. This applies not only to materials or equipment purchased for use in leisure or recreational activities but also to foodstuffs purchased for the preparation of meals. The preparation of a meal is a service activity and is treated as such in the SNA and *ISIC Rev.4.* It therefore falls outside the production boundary when the meal is prepared for own consumption within the household. The use of a durable good, such as a vehicle, by persons or households for their own personal benefit or satisfaction is intrinsically a consumption activity and should not be treated as if it were an extension, or continuation, of production.

The "non-observed" economy

6.39 There is considerable interest in the phenomenon of the non-observed economy. This term is used to describe activities that, for one reason or another, are not captured in regular statistical enquiries. The reason may be that the activity is informal and thus escapes the attention of surveys geared to formal activities; it may be that the producer is anxious to conceal a legal activity, or it may be that the activity is illegal. Chapter 25 discusses measurement of the informal economy within households.

6.40 Certain activities may clearly fall within the production boundary of the SNA and also be quite legal (provided certain standards or regulations are complied with) but deliberately concealed from public authorities for the following kinds of reasons:

a. To avoid the payment of income, value added or other taxes;

b. To avoid the payment of social security contributions;

c. To avoid having to meet certain legal standards such as minimum wages, maximum hours, safety or health standards, etc.;

d. To avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms.

6.41 Because certain kinds of producers try to conceal their activities from public authorities, it does not follow that they are not included in national accounts in practice. Many countries have had considerable success in compiling estimates of production that cover the non-observed economy as well as the ordinary economy. In some industries, such as agriculture or construction, it may be possible by using various kinds of surveys and the commodity flow method to make satisfactory estimates of the total output of the industry without being able to identify or measure that part of it that is not observed. Because the non-observed economy may account for a significant part of the total economy of some countries, it is particularly important to try to make estimates of total production that include it, even if it cannot always be separately identified as such.

6.42 There may be no clear borderline between the non-observed economy and illegal production. For example, production that does not comply with certain safety, health or other standards could be described as illegal. Similarly, the evasion of taxes is itself usually a criminal offence. However, it is not necessary for the purposes of the SNA to try to fix the precise borderline between non-observed and illegal production as both are included within the production boundary in any case. It follows that transactions on unofficial markets that exist in parallel with official markets (for example, for foreign exchange or goods subject to official price controls) must also be included in the accounts, whether or not such markets are actually legal or illegal.

6.43 There are two kinds of illegal production:

a. The production of goods or services whose sale, distribution or possession is forbidden by law;

b. Production activities that are usually legal but become illegal when carried out by unauthorized producers; for example, unlicensed medical practitioners.

6.44 Examples of activities that may be illegal but productive in an economic sense include the manufacture and distribution of narcotics, illegal transportation in the form of smuggling of goods and of people, and services such as prostitution.

6.45 Both kinds of illegal production are included within the production boundary of the SNA provided they are genuine production processes whose outputs consist of goods or services for which there is an effective market demand. The units that purchase smuggled goods, for example, may not be involved in any kind of illegal activities and may not even be aware that the other party to the transaction is behaving illegally. Transactions in which illegal goods or services are bought and sold need to be recorded not simply to obtain comprehensive measures of production and consumption but also to prevent errors appearing elsewhere

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in the accounts. The incomes generated by illegal production may be disposed of quite legally, while conversely, expenditures on illegal goods and services may be made out of funds obtained quite legally. The failure to record illegal transactions may lead to significant errors within the accounts if the consequences of the activity are recorded in the financial account and the external accounts, say, but not in the production and income accounts.

6.46 Regular thefts of products from inventories are not included in the value of output. Suppose a shop suffers regular theft from inventories. In calculating the value of output of the shop, part of the margin on the goods sold must cover the cost of the goods stolen. Thus the margin is calculated as the value received for the goods sold less the cost of both the goods sold and the goods stolen. If the stolen products are sold elsewhere, for example on a street stall, the value of the output of the street trader is still calculated as the difference between the value received for the goods and the value paid for them. In this case, though, if nothing is paid for the goods, the whole of the sales value appears as the margin.

6.47 Illegal production does not refer to the generation of externalities such as the discharge of pollutants. Externalities may result from production processes that are themselves quite legal. Externalities are created without the consent of the units affected and no values are imputed for them in the SNA.

6.48 Although non-observed and illegal activities require special consideration, it is not necessarily the case that they are excluded from normal data collection processes.

C. Basic, producers' and purchasers' prices

6.49 More than one set of prices may be used to value outputs and inputs depending upon how taxes and subsidies on products, and also transport charges, are recorded. Moreover, value added taxes (VAT), and similar deductible taxes may also be recorded in more than one way. The methods of valuation used in the SNA are explained in this section.

6.50 The detailed discussion of taxes related to production appears in section C of chapter 7 but it is important in the context of discussing alternative price measures to make the distinction between taxes (and subsidies) on products and other taxes (and subsidies) on production. As the name implies, taxes on products are payable per unit of the product. The tax may be a flat amount dependent on the physical quantity of the product or may be a percentage of the value at which the product is sold. Other taxes on production are taxes imposed on the producer that do not apply to products nor are levied on the profits of the producer. Examples include taxes on land or premises used in production or on the labour force employed. The distinction between subsidies on products and other subsidies on production is made on similar grounds.

1. Basic and producers' prices

6.51 The SNA utilizes two kinds of prices to measure output, namely, basic prices and producers' prices:

a. The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

b. The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer.

Neither the producer's nor the basic price includes any amounts receivable in respect of VAT, or similar deductible tax, invoiced on the output sold.

6.52 Unlike the basic price, the producer's price includes taxes on products (taxes payable per unit of output) and excludes subsidies on products (subsidies receivable per unit of output). The producer's price is the price, excluding VAT, that the producer invoices to the purchaser. The basic price measures the amount retained by the producer and is, therefore, the price most relevant for the producer's decision-taking. It is becoming increasingly common in many countries for producers to itemize taxes separately on their invoices so that purchasers are informed about how much they are paying to the producer and how much as taxes to the government.

6.53 Basic prices exclude any taxes on products the producer receives from the purchaser and passes on to government but include any subsidies the producer receives from government and uses to lower the prices charged to purchasers.

6.54 Both producers' and basic prices are actual transaction prices that can be directly observed and recorded. Basic prices are often reported in statistical inquiries and some official "producer price" indices actually refer to basic prices rather than to producers' prices as defined here.

VAT and similar deductible taxes

6.55 Many countries have adopted some form of VAT. VAT is a wide-ranging tax usually designed to cover most or all goods and services. In some countries, VAT may replace most other forms of taxes on products, but VAT may also be levied in addition to some other taxes on products, such as excise duties on tobacco, alcoholic drink or fuel oils.

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6.56 VAT is a tax on products collected in stages by enterprises. Producers are required to charge certain percentage rates of VAT on the goods or services they sell. The VAT is shown separately on the sellers' invoices so that purchasers know the amounts they have paid. However, producers are not required to pay to the government the full amounts of the VAT invoiced to their customers because they are usually permitted to deduct the VAT that they themselves have paid on goods and services purchased for their own intermediate consumption, resale or gross fixed capital formation. Producers are obliged to pay only the difference between the VAT on their sales and the VAT on their purchases for intermediate consumption or capital formation, hence the expression value added tax. The percentage rate of VAT is liable to vary between different categories of goods and services and also according to the type of purchaser. For example, sometimes goods purchased by visiting non-residents, which count as exports, may be exempt from VAT.

6.57 Other tax regimes exist, not called VAT, that operate in a similar manner. Within the SNA, the term VAT is used to apply to any similar deductible tax scheme even if the scope is narrower than a full system of VAT.

6.58 The following terminology needs to be defined:

a. Invoiced VAT is the VAT payable on the sales of a producer; it is shown separately on the invoice that the producer presents to the purchaser.

b. Deductible VAT is the VAT payable on purchases of goods or services intended for intermediate consumption, gross fixed capital formation or for resale that a producer is permitted to deduct from his own VAT liability to the government in respect of VAT invoiced to his customers.

c. Non-deductible VAT is VAT payable by a purchaser that is not deductible from his own VAT liability, if any.

Thus, a market producer is able to recover the costs of any deductible VAT payable on his own purchases by reducing the amount of his own VAT liability in respect of the VAT invoiced to his own customers. On the other hand, the VAT paid by households for purposes of final consumption or fixed capital formation in dwellings is not deductible. The VAT payable by non-market producers owned by government units or NPISHs may also not be deductible.

Gross and net recording of VAT

6.59 There are two alternative systems that may be used to record VAT, the "gross" or "net" systems. Under the gross system, all transactions are recorded including the amounts of any invoiced VAT. Thus, the purchaser and the seller record the same price, irrespective of whether or not the purchaser is able to deduct the VAT subsequently.

6.60 While the gross system of recording seems to accord with the traditional notion of recording at "market" prices, it presents some difficulties. Practical experience with the operation of VAT over many years in a number of countries has shown it may be difficult, if not impossible, to utilize the gross system because of the way business accounts are computed and records are kept. Sales are normally reported excluding invoiced VAT in most industrial inquiries and business surveys. Conversely, purchases of goods and services by producers are usually recorded excluding deductible VAT. Although the gross system has been tried in some countries, it has had to be abandoned for these reasons. Further, it can be argued that the gross system distorts economic reality to the extent that it does not reflect the amounts of VAT actually paid by businesses. Large amounts of invoiced VAT are deductible and thus represent only notional or putative tax liabilities.

6.61 The SNA therefore requires that the net system of recording VAT should be followed. In the net system:

a. Outputs of goods and services are valued excluding invoiced VAT; imports are similarly valued excluding invoiced VAT;

b. Purchases of goods and services are recorded including non-deductible VAT.

Under the net system, VAT is recorded as being payable by purchasers, not sellers, and then only by those purchasers who are not able to deduct it. Almost all VAT is therefore recorded in the SNA as being paid on final uses, mainly on household consumption. However, small amounts of VAT may be paid by businesses in respect of certain kinds of purchases on which VAT may not be deductible.

6.62 The disadvantage of the net system is that different prices must be recorded for the two parties to the same transaction when the VAT is not deductible. The price recorded for the producer does not include invoiced VAT whereas the price recorded for the purchaser does include the invoiced VAT to the extent that it is not deductible. Thus, in aggregate, the total value of the expenditures recorded for purchasers must exceed the total value of the corresponding sales receipts recorded for producers by the total amount raised as non-deductible VAT.

6.63 The producer's price thus defined is a hybrid that excludes some, but not all, taxes on products. The basic price, which does not include any taxes on the product (but includes subsidies on the product) becomes a clearer concept in these circumstances and is the preferred method for valuing the output of producers.

2. Purchasers' prices

6.64 ***The purchaser's price is the amount paid by the purchaser, excluding any VAT or similar tax deductible by the purchaser, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place***.

6.65 When a purchaser buys directly from the producer, the purchaser's price may exceed the producer's price by:

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a. The value of any non-deductible VAT, payable by the purchaser; and

b. The value of any transport charges on a good paid separately by the purchaser and not included in the producer's price.

It follows that the purchaser's price may exceed the basic price by the amount of the two items just listed plus the value of any taxes less subsidies on the product (other than VAT).

6.66 If purchasers buy output not from the producer directly but from a wholesaler or retailer, it is necessary to include their margins in the difference between basic and purchasers' prices also.

6.67 For certain purposes, including input-output analysis, it may be convenient to consider that the purchase of a product consists of two separate transactions. The first of these is the purchase of the product from the producer and the second is the margin paid to the wholesaler or retailer of the product. The margin represents the difference between the price paid by the final purchaser of a product after it has passed through the wholesale and retail distribution chains and the producer's price received by its original producer.

6.68 The traditional concept of the ""market" price becomes somewhat blurred under a system of VAT or similar deductible taxes because there may be two different prices for a single transaction: one from the seller's point of view and another from the purchaser's, depending upon whether or not the tax is deductible. It is recommended in the SNA that the term "market prices" should be avoided when referring to value added and the price basis used, (basic, producers' or purchasers'), be specified to avoid ambiguity.

3. Basic, producers' and purchasers' prices – a summary

6.69 Figure 1 gives an overview of the essential differences between basic, producers' and purchasers' prices.

Figure 6.1:Basic, producers' and purchasers' prices

Basic prices
+
Taxes on products excluding invoiced VAT
-
Subsidies on products
=
Producers' prices
+
VAT not deductible by the purchaser
+
Separately invoiced transport charges
+
Wholesalers' and retailers' margins
=
Purchasers' prices

D. Value added and GDP

1. Gross and net value added

6.70 The balancing item of a current account is the excess of resources over uses. The rationale for dividing transactions into sets of accounts is that the balancing item of each account is of economic interest. The balancing item of the production account is value added, so called because it measures the value created by production. Because a production account may be compiled for an institutional unit or sector, or establishment or industry, so value added may be derived for any of these. Value added is of analytical interest because when the value of taxes on products (less subsidies on products) is added, the sum of value added for all resident units gives the value of gross domestic product (GDP).

6.71 Value added represents the contribution of labour and capital to the production process. Once the amount of value added appropriated by government in the form of other taxes on production is deducted from value added and the value of subsidies is added, the compensation of labour and capital is revealed. However, capital in the form of fixed capital has a finite life length. Some part of value added should therefore be regarded as the reduction in value of fixed capital due to its use in production. This allowance is called consumption of fixed capital.

6.72 Consumption of fixed capital is one of the most important elements in the SNA. In most cases, when a distinction is drawn between "gross" and "net" recording, "gross" means without deducting consumption of fixed capital while recording "net" means after deducting consumption of fixed capital. In particular, all the major balancing items in the accounts from value added through to saving may be recorded gross or net, that is, before or after deducting consumption of fixed capital. It should also be noted that consumption of fixed capital is typically quite large compared with most of the net balancing items. It may account for 10 per cent or more of GDP.

6.73 Consumption of fixed capital is one of the most difficult items in the accounts to define conceptually and to estimate in practice. Further, consumption of fixed capital does not represent the aggregate value of a set of transactions. It is an imputed value whose economic significance is different from entries in the accounts based mainly on market transactions. For these reasons, the major balancing items in national accounts have always tended to be recorded both gross and net of consumption of fixed capital. This tradition is continued in the SNA where provision is made for balancing items from value added through to saving to be recorded both ways. In general, the gross figure is the easier to estimate and so may be more reliable, but the net

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figure is usually the one that is conceptually more appropriate and relevant for analytical purposes.

6.74 As stated above:

a. Gross value added is defined as the value of output less the value of intermediate consumption;

b. Net value added is defined as the value of output less the values of both intermediate consumption and consumption of fixed capital.

To avoid repetition, only gross value added will be cited in the following sections when the corresponding conclusions for net value added are obvious.

2. Alternative measures of value added

6.75 In the SNA, intermediate inputs are valued and recorded at the time they enter the production process, while outputs are recorded and valued as they emerge from the process. Intermediate inputs are normally valued at purchasers' prices and outputs at basic prices, or alternatively at producers' prices if basic prices are not available. The difference between the value of the intermediate inputs and the value of the outputs is gross value added against which must be charged consumption of fixed capital, taxes on production (less subsidies) and compensation of employees. The positive or negative balance remaining is the net operating surplus or mixed income.

6.76 As indicated above, alternative measures of gross value added may be obtained by associating different sets of prices with a set of quantities of inputs and outputs. The various measures that may be derived using the different sets of prices recognized in the SNA are considered below.

Gross value added at basic prices

6.77 ***Gross value added at basic prices is defined as output valued at basic prices less intermediate consumption valued at purchasers' prices***. Although the outputs and inputs are valued using different sets of prices, for brevity the value added is described by the prices used to value the outputs. From the point of view of the producer, purchasers' prices for inputs and basic prices for outputs represent the prices actually paid and received. Their use leads to a measure of gross value added that is particularly relevant for the producer.

Gross value added at producers' prices

6.78 ***Gross value added at producers' prices is defined as output valued at producers' prices less intermediate consumption valued at purchasers' prices***. As already explained, in the absence of VAT, the total value of the intermediate inputs consumed is the same whether they are valued at producers' or at purchasers' prices, in which case this measure of gross value added is the same as one that uses producers' prices to value both inputs and outputs. It is an economically meaningful measure that is equivalent to the traditional measure of gross value added at market prices. However, in the presence of VAT, the producer's price excludes invoiced VAT, and it would be inappropriate to describe this measure as being at "market" prices.

6.79 Both this measure of gross value added and that described in the previous section use purchasers' prices to value intermediate inputs. The difference between the two measures is entirely attributable to their differing treatments of taxes or subsidies on products payable on outputs (other than invoiced VAT). By definition, the value of output at producers' prices exceeds that at basic prices by the amount, if any, of the taxes on products, less subsidies on products so that the two associated measures of gross value added must differ by the same amount.

Gross value added at factor cost

6.80 Gross value added at factor cost is not a concept used explicitly in the SNA. Nevertheless, it can easily be derived from either of the measures of gross value added presented above by subtracting the value of any taxes on production, less subsidies on production, payable out of gross value added as defined. For example, the only taxes on production remaining to be paid out of gross value added at basic prices consist of "other taxes on production". These consist mostly of current taxes (or subsidies) on the labour or capital employed in the enterprise, such as payroll taxes or current taxes on vehicles or buildings. Gross value added at factor cost can thus be derived from gross value added at basic prices by subtracting other taxes on production, less subsidies on production.

6.81 The conceptual difficulty with gross value added at factor cost is that there is no observable set of prices such that gross value added at factor cost is obtained directly by multiplying this set of prices by the sets of quantities of outputs. By definition, other taxes or subsidies on production are not taxes or subsidies on products that can be eliminated from the input and output prices. Thus, despite its traditional name, gross value added at factor cost is not strictly a measure of value added; it is essentially a measure of income and not output. It represents the amount remaining for distribution out of gross value added, however defined, after the payment of all taxes on production and the receipt of all subsidies on production. It makes no difference which measure of gross value added is used to derive this income measure because the alternative measures of value added considered above differ only in respect of the amounts of the taxes or subsidies on production that remain payable out of gross value added.

3. Gross domestic product (GDP)

6.82 The underlying rationale behind the concept of gross domestic product (GDP) for the economy as a whole is that it should measure the total gross value added from all institutional units resident in the economy. However, while the concept of GDP is based on this principle, GDP as defined in the SNA is such that an identity exists between a measure built on value added, a measure built on income and one based on final expenditures. To achieve this, it is important that the same contribution to GDP is made by taxes on production under all three measures. The expenditure measure of GDP includes all taxes on production and taxes on imports since ultimately these are included in the purchasers' prices of the final users.

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6.83 Given this definition of GDP, the following identities hold when the summations are taken over all resident producers:

a. GDP = the sum of the gross value added at producers' prices,

plus taxes on imports,

less subsidies on imports,

plus non-deductible VAT.

b. GDP = the sum of the gross value added at basic prices,

plus all taxes on products,

less all subsidies on products.

c. GDP = the sum of the gross value added at factor cost

plus all taxes on products,

less all subsidies on products,

plus all other taxes on production,

less all other subsidies on production.

In cases (b) and (c), the items taxes on products and subsidies on products includes taxes and subsidies on imports as well as on outputs.

4. Domestic production

6.84 GDP measures the production of all resident producers. This does not necessarily coincide with all production taking place within the geographical boundary of the economic territory. Some of the production of a resident producer may take place abroad, while some of the production taking place within the geographical boundary of the economy may be carried out by non-resident producer units. For example, a resident producer may have teams of employees working abroad temporarily on the installation, repair or servicing of equipment. This output is an export of a resident producer and the productive activity does not contribute to the GDP of the country in which it takes places. Thus, the distinction between resident and non-resident institutional units is crucial to the definition and coverage of GDP. In practice most of the productive activity of resident producers takes place within the country in which they are resident. However, producers in service industries that typically have to deliver their outputs directly to their clients wherever they are located are increasingly tending to engage in production in more than one country, a practice that is encouraged by rapid transportation and instantaneous communication facilities. Geographical boundaries between adjacent countries are becoming less significant for mobile service producers, especially in small countries bordered by several other countries.

E. The measurement of output

1. Production versus output

6.85 Production is an activity carried out by an establishment. It may not always be clear whether an establishment is producing a good or is providing a service. For example, an oil refinery processing crude oil that it owns is producing a good (refined petroleum); if the same refinery processes crude oil belonging to another unit, then it is providing a refinery service to that unit. This lack of clarity may often appear for goods passing between establishments of the same enterprise and it is important to know when to record the output of a good and when of a change-effecting service. When the establishments belong to different enterprises (that is to different institutional units), the defining principle is that of economic ownership. If an establishment has no discretion about the level of production, the price to be charged for the good or the destination of the good, there is evidence that the establishment has not taken economic ownership of the goods being processed and the value of the output should be treated as the processing element only. This is the case for the refinery service cited above.

6.86 When the establishments involved belong to the same enterprise, there is no change of ownership since both establishments have the same owner. However, the principle of transferring risk, which accompanies change of ownership, can still be applied. Suppose, for example, that an establishment receives coal from another establishment in the same enterprise, uses it to generate electricity and then sells the electricity on the open market. The electricity generator has discretion about the amount of coal it demands, the amount of electricity to be generated and the prices to be charged. In such a case, the value of electricity generated should be measured including the cost of the coal consumed in the process even though there is no legal change in ownership given that both establishments belong to the same enterprise.

6.87 In general, all goods and services that are produced and used by the same establishment are excluded from the measure of output. However, there are exceptions here also. For example, output is recorded if the goods and services being produced are used for capital formation of the establishment. Similarly output is recorded for products entering inventories even if eventually they are withdrawn from inventories for use as intermediate consumption in the same establishment in a later period. If the establishment is a household unincorporated enterprise growing maize, the value of maize produced includes maize kept for household consumption.

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6.88 An establishment may produce goods and services that are used as its own intermediate consumption. An example is unglazed china that is only delivered to other units after glazing. In general the unglazed china is not recorded as output but if there is some china remaining unglazed at the end of the production period, it should be recorded as being produced and entering inventories. In the subsequent period, the unglazed china is withdrawn from inventories and the act of glazing constitutes output in the second period.

6.89 Although production is related to activities and thus the output of one production process is one set of products, output is measured for an establishment and may include the output of several production processes. Thus ***output is defined as the goods and services produced by an establishment,***

a. excluding the value of any goods and services used in an activity for which the establishment does not assume the risk of using the products in production, and

b. excluding the value of goods and services consumed by the same establishment except for goods and services used for capital formation (fixed capital or changes in inventories) or own final consumption.

2. Time of recording

6.90 The output of most goods or services is usually recorded when their production is completed. However, when it takes a long time to produce a unit of output, it becomes necessary to recognize that output is being produced continuously and to record it as "work-in-progress". For example, the production of certain agricultural goods or large durable goods such as ships or buildings may take months or years to complete. In such cases, it would distort economic reality to treat the output as if it were all produced at the moment of time when the process of production happens to terminate. Whenever a process of production extends over two or more accounting periods, it is necessary to calculate the work-in-progress completed within each of the periods in order to be able to measure how much output is produced in each period.

6.91 On the other hand, goods and services may be completed in an accounting period but not delivered (sold) to a user in that period. Output is recorded when the work is completed and not when sold. There is thus a significant difference between the value of output in a period and the value of sales, the difference being accounted for by changes in inventories of finished goods and work-in-progress.

3. Valuation of output

6.92 Goods and services produced for sale on the market at economically significant prices may be valued either at basic prices or at producers' prices. The preferred method of valuation is at basic prices, especially when a system of VAT, or similar deductible tax, is in operation. Producers' prices should be used only when valuation at basic prices is not feasible.

6.93 Output produced by market producers for own final use should be valued at the average basic prices of the same goods or services sold on the market, provided they are sold in sufficient quantities to enable reliable estimates to be made of those average prices. If not, the output should be valued by the total production costs incurred, including consumption of fixed capital, plus any taxes (less subsidies) on production other than taxes or subsidies on products, plus a net return on the fixed capital and natural resources used in production. The concept of the net return to capital is introduced in section H and discussed more fully in chapter 20.

6.94 The non-market output produced by government units and NPISHs that is supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole is valued by total production costs, including consumption of fixed capital, plus taxes (less subsidies) on production other than taxes or subsidies on products. By convention, no net return to capital is included for non-market production. Similarly, no net return to capital is included in the estimates of production for own final use by non-market producers when these are estimated as the sum of costs.

4. Market output, output for own final use and non-market output

6.95 A fundamental distinction is drawn in the SNA between market output and non-market output because of the way the output of each is valued. Market output is the normal situation in a market economy where producers make decisions about what to produce and how much to produce in response to expected levels of demand and expected costs of supply. The determining factor behind production decisions is that economically significant prices prevail. ***Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy. These prices normally result when:***

a. The producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs; and

b. Consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged.

6.96 There is further discussion on economically significant prices in chapter 22.

6.97 Non-market output is output undertaken by general government and NPISHs that takes place in the absence of economically significant prices. A price is said to be not economically significant when it has little or no influence on how much the producer is prepared to supply and is expected to have only a marginal influence on the quantities demanded. It is a price that is not quantitatively significant from the point of view of either supply or demand. Such prices are likely to be charged in order to raise some revenue or achieve some reduction in the excess demand that may occur when services are provided completely free, but they are not intended to eliminate such excess demand. Once a decision has been taken on

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administrative, social or political grounds about the total amount of a particular non-market good or service to be supplied, its price is deliberately fixed below the equilibrium price that would clear the market. The difference between a price that is not economically significant and a zero price is, therefore, a matter of degree. The price merely deters those units whose demands are the least pressing without greatly reducing the total level of demand.

6.98 Non-market output may be produced for two reasons:

a. It may be technically impossible to make individuals pay for collective services because their consumption cannot be monitored or controlled. The pricing mechanism cannot be used when transactions costs are too high and there is market failure. The production of such services has to be organized collectively by government units and financed out of funds other than receipts from sales, namely taxation or other government incomes;

b. Government units and NPISHs may also produce and supply goods or services to individual households for which they could charge but choose not to do so as a matter of social or economic policy. The most common examples are the provision of education or health services, free or at prices that are not economically significant, although other kinds of goods and services may also be supplied.

Market output

6.99 ***Market output consists of output intended for sale at economically significant prices.*** The value of market output is determined as the sum of the following items:

a. The value of goods and services sold at economically significant prices;

b. The value of goods or services bartered in exchange for other goods, services or assets;

c. The value of goods or services used for payments in kind, including compensation in kind;

d. The value of goods or services supplied by one establishment to another belonging to the same market enterprise to be used as intermediate inputs where the risk associated with continuing the production process is transferred along with the goods;

e. The value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses;

f. The margins charged on the supply of goods and services, transport margins, margins on the acquisition and disposal of financial assets, etc.

Recording of sales

6.100 The times at which sales are to be recorded are when the receivables and payables are created: that is, when the ownership of the goods passes from the producer to the purchaser or when the services are provided to the purchaser. Goods or services are valued at the basic prices at which they are sold. If valuation at basic prices is not feasible, they may be valued at producers' prices instead. If it is necessary to value the sale of goods at producers' prices rather than basic prices, then the implicit value of margin services should also include any applicable taxes on products. For some margin services, especially those concerning financial assets, the value of the service provided may be implicit.

6.101 The values of sales are determined by the amounts receivable and payable by the producers and purchasers, suitably adjusted for trade and transport margins. The amounts receivable and payable do not always coincide with the amounts actually received and paid. The amount payable should be shown in the production account and the difference between amounts payable and paid should be shown as accounts payable or receivable in the financial account. Subsequent payments of these amounts outstanding are recorded as financial transactions and not as part of the production account. If payments made in advance or in arrears attract interest charges, these should be shown as separate transactions and not included in the value of sales.

Recording of barter

6.102 Barter occurs when goods and services are exchanged for other goods, services or assets. The value of goods or services bartered should be recorded when the ownership of the goods is transferred or the services are provided. The output of goods bartered is valued at the basic prices that would have been received if they had been sold.

Recording of compensation in kind or other payments in kind

6.103 Goods or services provided to employees as compensation in kind, or used for other payments in kind, should be recorded when the legal ownership of the goods is transferred or the services are provided. They should be valued at the basic prices that would have been received if they had been sold.

Recording of intra-enterprise deliveries

6.104 Intra-enterprise deliveries are recorded only when the establishment receiving the goods assumes responsibility for making the decisions about the levels of supply and prices at which their output is delivered to the market. When incoming deliveries are recorded, they should be valued at the basic prices that would have been received if they had been sold.

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Changes in inventories of finished goods

6.105 The basic principle underlying the measurement of changes in inventories of finished goods is that output should be recorded at the time it is produced and valued at the same price whether it is sold, otherwise used or entered into inventories for sale or use later. In effect, goods only enter inventories when they are not immediately used for sale or other use in the period they are produced. Similarly, goods are withdrawn from inventories when the demand for the goods exceeds the amount produced in a period. No output is recorded when goods produced previously are withdrawn from inventories and sold or otherwise used unless a storage activity as described below in section F takes place.

6.106 Inventories of finished goods therefore explain the difference between production and sales (or other use) in a single period. It follows that entries into inventories must be valued at the basic prices prevailing at the time of entry, while withdrawals must be valued at the prices at which they are then sold. This method of valuing changes in inventories, which may be described as the "perpetual inventory method" or PIM, is not always easy to implement in practice, however, and it sometimes leads to results that may be counter intuitive.

6.107 When prices are stable, the measurement of changes in inventories is relatively simple. However, when there is inflation (or deflation), significant price increases (decreases) may occur while goods are held in inventories. Holding gains (losses) accruing on goods held in inventories after they have been produced must not be included in the value of output. It follows from the valuation method used that, when prices are changing, goods entering and leaving inventories at different times are valued at different prices, even within the same accounting period (as also are goods sold at different times). This requires that, in principle, all entries to, and withdrawals from, inventories be recorded continuously as they occur, and helps explain the complexity of the perpetual inventory method. The perpetual inventory method ensures their exclusion by valuing goods withdrawn from inventories at the prices prevailing at the time they are withdrawn and not at the prices at which they are entered, or their "historic costs". This method of valuation can lead to much lower figures for both output and profits in times of inflation than those obtained by business accounting methods based on historic costs. Further discussion on the valuation of inventories appears in chapter 10.

6.108 It follows from the general principles outlined in the previous section that:

a. Goods entering inventories are valued at the basic prices prevailing at that time: that is, at the prices at which they could have been sold when first produced;

b. Goods withdrawn from inventories are valued at the basic prices prevailing at that time: that is, at the prices at which they can then be sold.

6.109 Goods held in inventories are subject to deterioration through the passage of time and are at risk from theft or accidental damage. Recurrent losses due to normal rates of wastage, theft and accidental damage are treated in the same way as withdrawals from inventories and thus reduce the value of output. This practice is followed even if the losses are high relative to output as long as they are recurrent. The total value of the changes in inventories of finished goods recorded within a specified accounting period is then given by:

the sum of the values of all goods entering inventories

less the sum of the values of all goods withdrawn from inventories

less the value of any recurrent losses of goods held in inventories.

Changes in inventories of work-in-progress

6.110 When the process of production takes a long time to complete, output must be recognized as being produced continuously as work-in-progress. As the process of production continues, intermediate inputs are continually being consumed so that it is necessary to record some corresponding output. Otherwise, recording the inputs and outputs as if they took place at different times, or even in different accounting periods would give meaningless figures for value added. Work-in-progress is essentially incomplete output that is not yet marketable: that is, output that is not sufficiently processed to be in a state in which it can easily be supplied or sold to other institutional units. It is essential to record such output whenever the process of production is not completed within a single accounting period so that work-in-progress is carried forward from one period to the next. In this case, the current value of the work-in-progress completed up to the end of one period is recorded in the closing balance sheet, which also serves as the opening balance sheet for the next period.

6.111 Work-in-progress may need to be recorded in any industry, including service industries such as the production of movies, depending upon the length of time it takes to produce a unit of output. It is particularly important in industries with long gestation periods, such as certain types of agricultural production or durable producers' goods production, where the period of production may extend over several years.

6.112 Work-in-progress is treated in the SNA as one component of inventories of outputs held by producers. However, the borderline between inventories of partially completed buildings and structures and gross fixed capital formation may not always be clear. Gross fixed capital formation is undertaken by users of fixed assets so gross fixed capital formation cannot be recorded until the legal ownership of the assets is transferred from their producers to their users. This transfer does not usually occur until the process of production is completed. However, when a contract of sale has been concluded in advance, the transfer of legal ownership may be deemed to occur in stages as value is put in place. In such cases, stage payments made by the purchaser can often be used to approximate the value of the gross fixed capital formation although stage payments may sometimes be made in advance or in arrears of the completion of the stage, in which case short-term credits are also extended from the purchaser to the producer, or

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vice versa. In the absence of a contract of sale, the output produced must be treated as additions to the producer's inventories, that is, as work-in-progress, however large the partially completed structure may be. When the production process is terminated, the whole of the work-in-progress accumulated up to that point is effectively transformed into inventories of finished product ready for delivery or sale. When a sale takes place, the value of the sale must be cancelled by a withdrawal from inventories of equal value so that only the additions to work-in-progress recorded while production was taking place in the period in question remain as measures of output. In this way, the output is distributed over the entire period of production.

6.113 Additions to, and withdrawals from, work-in-progress are treated in the accounts in the same way as entries to, and withdrawals from, inventories of finished goods. They must be recorded at the times they take place and at the basic prices prevailing at those times. However, further explanation is needed of the valuation in view of the special characteristics of work-in-progress. This explanation appears in chapter 20.

Output for own final use

6.114 ***Output for own final use consists of products retained by the producer for his own use as final consumption or capital formation.*** The value of output for own final use is determined as the sum of the following:

a. The value of goods produced by an unincorporated enterprise and consumed by the same household;

b. The value of services provided to households by paid domestic staff;

c. The value of the imputed services of owner-occupied dwellings;

d. The value of the fixed assets produced by an establishment that are retained within the same enterprise for use in future production (own-account gross fixed capital formation);

e. The value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses;

f. In exceptional cases, as described later in this section, there may be output for own intermediate use.

Goods produced by households

6.115 All goods produced by households are within the production boundary and those that are not delivered to other units should be treated as either being consumed immediately or stored in inventories for later use.

Services of domestic staff

6.116 Paid domestic staff (child minders, cooks, gardeners, chauffeurs, etc.) are formally treated as employees of an unincorporated enterprise that is owned by the household. The services produced are consumed by the same unit that produces them and they constitute a form of own-account production. By convention, any intermediate costs in the production of the domestic services are treated not as intermediate consumption of the output of the domestic services but as final consumption expenditure of the household. Thus the value of the output produced is deemed to be equal to the compensation of employees paid, including any compensation in kind such as food or accommodation.

Services of owner-occupied dwellings

6.117 Households that own the dwellings they occupy are formally treated as owners of unincorporated enterprises that produce housing services consumed by those same households. When well-organized markets for rented housing exist, the output of own-account housing services can be valued using the prices of the same kinds of services sold on the market in line with the general valuation rules adopted for goods or services produced on own account. In other words, the output of the housing services produced by owner occupiers is valued at the estimated rental that a tenant would pay for the same accommodation, taking into account factors such as location, neighbourhood amenities, etc. as well as the size and quality of the dwelling itself. The same figure is recorded under household final consumption expenditures. In many instances, no well-organized markets exist and other means of estimating the value of housing services must be developed.

Own gross fixed capital formation

6.118 Goods or services used for own gross fixed capital formation can be produced by any kind of enterprise, whether corporate or unincorporated. They include, for example, the special machine tools produced for their own use by engineering enterprises, or dwellings, or extensions to dwellings, produced by households. A wide range of construction activities may be undertaken for the purpose of own gross fixed capital formation in rural areas in some countries, including communal construction activities undertaken by groups of households. In addition, intellectual property products such as R&D and software products may be produced on own account.

Changes in inventories

6.119 Additions to work-in-progress on structures intended for own use are treated as acquisitions of fixed assets by their producers. Goods or services produced for own final use may be placed in inventories of finished products for use later. They are valued at the basic prices of similar products sold on the market at the time they enter inventories or by their costs of production if no suitable basic prices are available.

Own intermediate consumption

6.120 It is unusual to record goods and services used as intermediate consumption within the same establishment but there are occasions where it may be desirable. If such recording is made, the goods and services in question add

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to both intermediate consumption and output so value added is unaffected by this practice.

6.121 If an activity such as delivery services is of particular interest and there is a diversity of practice about whether it is treated as secondary output (that is, is charged for) or as being for own use (not charged for) then it may be desirable to show all delivery services as if they were secondary products with the output shown as own intermediate consumption where appropriate.

6.122 As explained in paragraph 6.104 if a product is delivered by one establishment to another within the same enterprise, the delivery is recorded as output of the first establishment and intermediate consumption of the second only when the second establishment assumes the responsibility for making the decisions about the level of supply and prices at which the output is delivered to the market. When this is not the case, the output of the first establishment is shown as entering inventories while the second establishment delivers a processing service and charges for it. If a production account is being compiled for the enterprise, in the first case it may be preferable to show the product as both output and intermediate consumption of the enterprise rather than to consolidate it out. In the second case, the output of the enterprise will be the value of the product as produced by the first establishment plus the processing fee for the second.

6.123 In some cases, part of the current output may be placed in inventories for use as intermediate consumption in future. An example is agriculture where some of the current crop may be used for seed in future.

Valuation of output for own final use

6.124 Output for own final use should be valued at the basic prices at which the goods and services could be sold if offered for sale on the market. In order to value them in this way, goods or services of the same kind must actually be bought and sold in sufficient quantities on the market to enable reliable market prices to be calculated for use for valuation purposes. The expression “on the market” means the price that would prevail between a willing buyer and willing seller at the time and place that the goods and services are produced. In the case of agricultural produce, for example, this does not necessarily equate to the prices in the local market where transportation costs and possibly wholesale margins may be included. The nearest equivalent price is likely to be the so-called “farm-gate” price; that is, the price that the grower could receive by selling the produce to a purchaser who comes to the farm to collect the produce.

6.125 When reliable market prices cannot be obtained, a second best procedure must be used in which the value of the output of the goods or services produced for own final use is deemed to be equal to the sum of their costs of production: that is, as the sum of:

a. Intermediate consumption;

b. Compensation of employees;

c. Consumption of fixed capital;

d. A net return to fixed capital;

e. Other taxes (less subsidies) on production.

By convention, no net return to capital is included when own-account production is undertaken by non-market producers.

6.126 For unincorporated enterprises, it may not be possible to estimate compensation of employees, consumption of fixed capital and a return to capital separately in which case an estimate of mixed income, covering all these items, should be made.

6.127 It will usually be necessary to value the output of own-account construction on the basis of costs as it is likely to be difficult to make a direct valuation of an individual and specific construction project that is not offered for sale. When the construction is undertaken for itself by an enterprise, the requisite information on costs may be easily ascertained, but not in the case of the construction of dwellings by households or communal construction for the benefit of the community undertaken by informal associations or groups of households. Most of the inputs into communal construction projects, including labour inputs, are likely to be provided free so that even the valuation of the inputs may pose problems. As unpaid labour may account for a large part of the inputs, it is important to make some estimate of its value using wage rates paid for similar kinds of work on local labour markets. While it may be difficult to find an appropriate rate, it is likely to be less difficult than trying to make a direct valuation of a specific construction project itself. The fact that an imputation is made for the value of labour input is a means to approximate the market price for the construction. It does not imply that these labour costs should also be treated as compensation of employees. As explained in chapter 7, when labour is provided on a voluntary basis to a producer unit other than the labourer’s own household, no imputation for compensation of employees is made. If labour is provided for a nominal payment, only the nominal payment is recorded as compensation of employees. The other labour costs are treated as mixed income.

Non-market output

6.128 ***Non-market output consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole.*** Although this output is shown as being acquired by government and NPISHs in the use of income account, it should not be confused with production for own use. The expenditure is made by government and by NPISHs but the use of individual goods and services is by households, and the use of collective services by households or other resident institutional units. Thus non-market output should never be confused with output for own use where the producer unit not only has imputed expenditure on the output but also actually uses the output. Chapter 9 discusses the difference between expenditure and use in more detail.

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6.129 As explained above, government units or NPISHs may engage in non-market production because of market failure or as a matter of deliberate economic or social policy. Such output is recorded at the time it is produced, which is also the time of delivery in the case of non-market services. In general, however, it cannot be valued in the same way as goods or services produced for own final consumption or own capital formation that are also produced in large quantities for sale on the market. There are no markets for collective services such as public administration and defence, but even in the case of non-market education, health or other services provided to individual households, suitable prices may not be available. It is not uncommon for similar kinds of services to be produced on a market basis and sold alongside the non-market services but there are usually important differences between the types and quality of services provided. In most cases it is not possible to find enough market services that are sufficiently similar to the corresponding non-market services to enable their prices to be used to value the latter, especially when the non-market services are produced in very large quantities.

6.130 The value of the non-market output provided without charge to households is estimated as the sum of costs of production, as follows:

a. Intermediate consumption;

b. Compensation of employees;

c. Consumption of fixed capital;

d. Other taxes (less subsidies) on production.

6.131 If the output is made available at nominal cost, the prices are not economically significant prices and may reflect neither relative production costs nor relative consumer preferences. They therefore do not provide a suitable basis for valuing the outputs of the goods or services concerned. The non-market output of goods or services sold at these prices is valued in the same way as goods or services provided free, that is, by their costs of production. Part of this output is purchased by households, the remainder constituting final consumption expenditures by government units or NPISHs.

6.132 Government units and NPISHs may be engaged in both market and non-market production. Whenever possible, separate establishments should be distinguished for these two types of activities, but this may not always be feasible. Thus, a non-market establishment may have some receipts from sales of market output produced by a secondary activity: for example, sales of reproductions by a non-market museum. However, even though a non-market establishment may have sales receipts, its total output covering both its market and its non-market output is still valued by the production costs. The value of its market output is given by its receipts from sales of market products, the value of its non-market output being obtained residually as the difference between the values of its total output and its market output. The value of receipts from the sale of non-market goods or services at prices that are not economically significant remains as part of the value of its non-market output.

Market and non-market producers

6.133 ***Market producers are establishments, all or most of whose output is market production. Non-market producers consist of establishments owned by government units or NPISHs that supply goods or services free, or at prices that are not economically significant, to households or the community as a whole.*** These producers may also have some sales of secondary market output whose prices are intended to cover their costs or earn a surplus: for example, sales of reproductions by non-market museums. Though government and NPISHs may have establishments undertaking market production, including own account capital construction, most of their activity will be undertaken on a non-market basis.

6.134 When production for own final use is undertaken by a unit in the general government or NPISHs sector it is treated as being undertaken by a non-market producer. It may also be undertaken by market producers or by units outside general government and NPISHs who produce only for own final use.

F. The output of particular industries

1. Introduction

6.135 The rules governing the recording and valuation of output are not sufficient to determine the way in which the output of certain kinds of industries, mostly service industries, such as wholesale and retail trade and financial institutions, is measured. The following sections provide further information about the measurement of the output of a number of specific industries. For convenience, the industries concerned are given in the same order as they appear in the *ISIC*.

2. Agriculture, forestry and fishing

6.136 The growth and regeneration of crops, trees, livestock or fish which are controlled by, managed by and under the responsibility of institutional units constitute a process of production in an economic sense. Growth is not to be construed as a purely natural process that lies outside the production boundary. Many processes of production exploit natural forces for economic purposes, for example, hydroelectric plants exploit rivers and gravity to produce electricity.

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6.137 The measurement of the output of agriculture, forestry and fishing is complicated by the fact that the process of production may extend over many months, or even years. Many agricultural crops are annual with most costs incurred at the beginning of the season when the crop is sown and again at the end when it is harvested. However, immature crops have a value depending on their closeness to harvest. The value of the crop has to be spread over the year and treated as work-in-progress. Often the final value of the crop will differ from the estimate made of it and imputed to the growing crop before harvest. In such cases revisions to the early estimates will have to be made to reflect the actual outcome. When the crop is harvested, the cumulated value of work-in-progress is converted to inventories of finished goods that is then run down as it is used by the producer, sold or is lost to vermin.

6.138 Some plants and many animals take some years to reach maturity. In this case, the increase in their value is shown as output and treated as increases in fixed capital or inventories depending on whether the plant or animal yields repeat products or not. (There is more discussion of this distinction in chapter 10.) The value of the increase in the plants or animals should take account of the delay before the yield from them is realized as explained in chapter 20. Once the plant or animal has reached maturity, it will decline in value and this decline should be recorded as consumption of fixed capital.

3. Machinery, equipment and construction

6.139 The production of high value capital goods such as ships, heavy machinery, buildings and other structures may take several months or years to complete. The output from such production must usually be measured by work-in-progress and cannot be recorded simply at the moment in time when the process of production is completed. The way in which work-in-progress is to be recorded and valued is explained in chapter 20.

6.140 When a contract of sale is agreed in advance for the construction of buildings and structures, but not for other production spreading over several periods, the output produced each period is treated as being sold to the purchaser at the end of each period, that is, as a sale rather than work-in-progress. In effect, the output produced by the construction contractor is treated as being sold to the purchaser in stages as the latter takes legal possession of the output. It is recorded as gross fixed capital formation by the purchaser and not as work-in-progress by the producer. When the contract calls for stage payments, the value of the output may often be approximated by the value of stage payments made each period. In the absence of a contract of sale, however, the incomplete output produced each period must be recorded as work-in-progress of the producer. Dwellings built speculatively (that is, without a prior contract of sale) remain in the inventories of the construction company until sold, changing status within inventories from work-in-progress to finished products if they remain unsold on completion.

4. Transportation and storage

Transportation

6.141 The output of transportation is measured by the value of the amounts receivable for transporting goods or persons. In economics a good in one location is recognized as being a different quality from the same good in another location, so that transporting from one location to another is a process of production in which an economically significant change takes place even if the good remains otherwise unchanged. The volume of transport services may be measured by indicators such as tonne-kilometres or passenger-kilometres, which combine both the quantities of goods, or numbers of persons, and the distances over which they are transported. Factors such as speed, frequency or comfort also affect the quality of services provided.

Storage

6.142 Although the production of storage for the market may not be very extensive, the activity of storage is important in the economy as a whole as it is carried out in many enterprises. During storage the inventories of goods have to be physically stored somewhere. Many goods have to be stored in a properly controlled environment and the activity of storage can become an important process of production in its own right whereby goods are “transported” from one point of time to another. In economics, it is generally recognized that the same goods available at different times, or locations, may be qualitatively different from each other and command different prices for this reason. The increase in price of a product due to the fact that it has been in storage and storage costs have been incurred is a production process. However, it is important that the increase in price due to storage is clearly distinguished from holding gains and losses, which must be excluded from the value of production in the case of storage as in other activities.

6.143 When goods are first produced, they may be held in store for a time in the expectation that they may be sold, exchanged or used more advantageously in the future. If the increase in value simply reflects a rise in price with no change in quality resulting from being held in storage, then there is no further production during the period in addition to the costs of storage just described. However, there are three reasons why the increase in value can be construed as further production. The first is that the production process is sufficiently long that discounting factors should be applied to work put in place significantly long before delivery. The second reason is that the quality of the good may improve with the passage of time (such as wine). The third reason is that there may be seasonal factors affecting the supply or the demand for the good that lead to regular, predictable variations in its price over the year, even though its physical qualities may not have changed otherwise. In all these circumstances, storage can be regarded as an extension of the production process over time. The storage services become incorporated in the goods, thereby increasing their value while being held in store. Thus, in principle, the values of additions to inventories should include not only the values of the goods at the time they are stored but also the value of the additional output produced while the goods are held in store.

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6.144 However, most manufactured goods are produced and sold continuously throughout the year and are not subject to regular changes in supply or demand conditions. Nor do they "mature" while being stored. Changes in the prices of such goods while in inventories cannot be treated as additions to work-in-progress. In order to estimate the increase in the value of goods stored over and above the storage costs, use may be made of the expected increase in value over and above the general rate of inflation over a predetermined period. Any gain that occurs outside the predetermined period continues to be recorded as a holding gain or loss. Further explanation of the calculation of the value of storage and its separation from holding gains and losses is given in the annex to this chapter.

6.145 This inclusion of output due to storage applies only to goods that take a long time to complete, those that have an established annual seasonal pattern or those where maturing is part of the regular production process. It does not apply to holding financial assets, valuables or other non-financial assets including land and buildings. Even if anticipated increases in value result in these cases, the motive for holding the items is speculation. The increases in value are treated as holding gains and not as part of the production process.

5. Wholesale and retail distribution

6.146 Although wholesalers and retailers actually buy and sell goods, the goods purchased are not treated as part of their intermediate consumption when they are resold with only minimal processing such as grading, cleaning, packaging, etc. Wholesalers and retailers are treated as supplying services to their customers by storing and displaying a selection of goods in convenient locations and making them easily available for customers to buy. Their output is measured by the total value of the trade margins realized on the goods they purchase for resale. ***A trade margin is defined as the difference between the actual or imputed price realized on a good purchased for resale and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of.*** The margins realized on some goods may be negative if their prices have to be marked down. They must also be negative on goods that are never sold because they go to waste or are stolen.

6.147 The standard formula for measuring output has to be modified for wholesalers or retailers by deducting from the value of the goods sold or otherwise used the value of the goods that would need to be purchased to replace them. The latter includes the additional goods needed to make good recurrent losses due to normal wastage, theft or accidental damage. In practice, the output of a wholesaler or retailer is given by the following identity:

the value of output = the value of sales,

plus the value of goods purchased for resale and used for intermediate consumption, compensation of employees, etc.,

minus the value of goods purchased for resale,

plus the value of additions to inventories of goods for resale,

minus the value of goods withdrawn from inventories of goods for resale,

minus the value of recurrent losses due to normal rates of wastage, theft or accidental damage.

6.148 The following points should be noted:

a. Goods sold are valued at the prices at which they are actually sold, even if the trader has to mark their prices down to get rid of surpluses or avoid wastage. Allowance should also be made for the effect of reductions in price due to loyalty programmes or other schemes to offer reduced prices to certain customers in certain circumstances.

b. Goods provided to employees as remuneration in kind should be valued at the current purchasers' prices payable by the traders to replace them; that is, the realized margins are zero. Similarly, goods withdrawn by the owners of unincorporated enterprises for their own final consumption should be valued at the current purchasers' prices payable by the traders to replace them.

c. Goods purchased for resale should be valued excluding any transport charges invoiced separately by the suppliers or paid to third parties by wholesalers or retailers: these transport services form part of the intermediate consumption of the wholesalers or retailers.

d. Additions to inventories of goods for resale should be valued at the prices prevailing at the time of entry into inventories.

e. The value of goods withdrawn from inventories of goods for resale depends on whether the goods were acquired with the intention of making a real holding gain over a given period in storage. In the general case, when the goods being resold were not expected to realize a real holding gain while in storage, the value of the goods on withdrawal from inventories should be the cost to the wholesaler or retailer at the time of the withdrawal of acquiring exactly similar replacement goods for later sale. This valuation is necessary to exclude holding gains and losses from the measurement of output, as is the general rule in the SNA. However, when the goods have been stored for reasons of seasonal variation in prices or as part of the maturing process, the expected real holding gain over the anticipated period is deducted from the replacement value of goods withdrawn from inventories. This deduction is fixed in value at the time the goods enter storage and is not altered in the light of actual holding gains, real or nominal.

f. The value of recurrent losses due to wastage, theft or accidental damage; goods lost are valued in the same way as goods withdrawn from inventories. For this reason, the two terms are often combined.

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6.149 The costs of storage incurred by wholesalers and retailers are not added to the value of the goods when they are withdrawn from inventories but are treated as part of intermediate consumption.

6.150 The margins realized on goods purchased for resale thus vary according to their eventual use. The margins realized on goods sold at the full prices intended by the traders could be described as the normal margins. In fixing these margins, traders take account not only of their ordinary costs such as intermediate consumption and compensation of employees but also of the fact that some goods may ultimately have to be sold off at reduced prices while others may go to waste or be stolen. The margins realized on goods whose prices have to be marked down are obviously less than the normal margins and could be negative. The margins on goods used to pay employees as compensation in kind or withdrawn for final consumption by owners are zero because of the way these goods are valued. Finally, the margins on goods wasted or stolen are negative and equal to the current purchasers' prices of replacements for them. The average margin realized on goods purchased for resale may be expected to be less than the normal margin, possibly significantly less for certain types of goods such as fashion goods or perishable goods.

6. Output of the central bank

6.151 Before discussing financial services more generally, it is helpful to discuss the output of the central bank. There are three broad groups of central bank services. These are monetary policy services, financial intermediation and borderline cases. Monetary policy services are collective in nature, serving the community as a whole, and thus represent non-market output. Financial intermediation services are individual in nature and in the absence of policy intervention in the interest rates charged by the central banks, would be treated as market production. The borderline cases, such as supervisory services may be classified as market or non-market services depending on whether explicit fees are charged that are sufficient to cover the costs of providing the services.

6.152 In principle, a distinction should be made between market and non-market output but in practice the possible resource intensiveness of the exercise and the relative importance of making the distinction should be considered before implementing the conceptual recommendations. In cases where market output is not separated from non-market output, the whole of the output of the central bank should be treated as non-market and valued at the sum of costs.

Borderline cases such as supervisory services

6.153 Central banks frequently provide supervisory services overseeing the financial corporations. One could argue that this is for the benefit of society in general and the national accounts should record them as government final consumption. In support of this view, one could draw a parallel with government performing market regulation policies, which it also may entrust to a specialized agency, or to government providing for roads, dams and bridges. From this point of view, surveillance services are collective services and should be recorded as government consumption expenditure.

6.154 However, one could also argue that government's regulatory services are to the benefit of the financial intermediaries, because these services contribute to the functioning and financial performance of these institutions. From this perspective, they are comparable to regulatory services of government such as quality control on food and drugs, which the national accounts record as intermediate consumption of producers. The fact that financial intermediaries pay a fee for these services in some countries (for example in a number of countries in Latin America) supports this view. Following this reasoning, surveillance services are not collective services but should be recorded as intermediate consumption of financial intermediaries. However, even if the view is taken that supervisory services are market output because a fee is charged, if the fees are not sufficient to cover the supervisory costs incurred by the bank, then the services should be treated as non-market output and part of government consumption expenditure.

Provision of non-market output

6.155 As long as it can be identified as a separate institutional unit, the central bank is always included in the financial institutions sector and never in general government. The collective consumption represented by monetary policy services is recorded as expenditure by general government but government does not incur the costs incurred by the central bank. Therefore a current transfer of the value of the non-market output should be recorded as payable by the central bank and receivable by the general government to cover the purchase of the non-market output of the central bank by government. This is described in paragraph 8.130.

Provision of market output

6.156 If the financial intermediation services provided by the central bank are significant, and if it is possible and worthwhile to compile data for a separate establishment providing them, these services should be shown as payable by the units to whom they are delivered. Supervisory services treated as market output are recorded similarly.

7. Financial services other than those associated with insurance and pension funds

6.157 A comprehensive discussion of the contribution of financial assets and liabilities to the generation and distribution of income and changes in wealth in an accounting period is given in part 4 of chapter 17. What follows is a summary of the main aspects affecting the measurement of the output of financial services. There are three types of financial activities; financial intermediation, the services of financial auxiliaries and other financial services. Financial services include monitoring services, convenience services, liquidity provision, risk assumption, underwriting and trading services.

6.158 Financial intermediation involves financial risk management and liquidity transformation, activities in which an institutional unit incurs financial liabilities for the purpose of acquiring mainly financial assets. Corporations engaged in these activities obtain funds, not only by taking

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deposits but also by issuing bills, bonds or other securities. They use these funds as well as own funds to acquire mainly financial assets not only by making advances or loans to others but also by purchasing bills, bonds or other securities. Auxiliary financial activities facilitate risk management and liquidity transformation activities. Financial auxiliaries, which are the units primarily engaged in auxiliary financial activities, typically act on behalf of other units and do not put themselves at risk by incurring financial liabilities or by acquiring financial assets as part of an intermediation service.

6.159 Financial services are produced almost exclusively by financial institutions because of the usually stringent supervision of the provision of those services. Similarly, financial institutions rarely produce other services. If a retailer wishes to offer credit facilities to its customers, for example, the credit facilities are usually offered by a subsidiary of the retailer, the subsidiary being treated as a financial institution in its own right regardless of the classification of the parent. Financial institutions may also create subsidiaries dealing with only particular forms of financial services. For example, a credit card operation may be associated with a given bank but may be institutionally separate.

6.160 Financial services may be paid for explicitly or implicitly. Some transactions in financial assets may involve both explicit and implicit charges. Four main ways in which financial services are provided and charged for may be considered:

a. Financial services provided in return for explicit charges;

b. Financial services provided in association with interest charges on loans and deposits;

c. Financial services associated with the acquisition and disposal of financial assets and liabilities in financial markets;

d. Financial services associated with insurance and pension schemes.

The following sections look at each of these in turn. In chapter 17 there is an overview of the transactions and other flows associated with each type of financial instrument. The recording of investment income is described in chapter 7 and the acquisition and disposal of financial assets and liabilities in chapter 11. Changes in the value of financial assets and liabilities not arising from transactions are described in chapter 12.

Financial services provided in return for explicit charges

6.161 Many services come under this heading and may be provided by different categories of financial institutions. Deposit taking institutions, such as banks, may charge households to arrange a mortgage, manage an investment portfolio, give taxation advice, administer an estate, and so on. Specialized financial institutions may charge non-financial corporations to arrange a flotation of shares or to administer a restructuring of a group of corporations. However, the most pervasive and probably largest direct fee is likely to be that charged by credit card issuers to the units that accept credit cards as a means of payment for the goods and services they provide. The charge is usually calculated as a percentage of the sale; in the case of retailers the sale value corresponds to turnover and not output. Although the percentage is usually small in absolute terms, maybe one or two percent, the fact that it is applied to such large totals means that the total value of the charge is very large. The charge represents output of the credit card companies and intermediate consumption of the corporations that accept credit cards as means of payment. Ignoring the role of the credit card company does not affect the measurement of the expenditure (usually final consumption or exports) on the goods and services concerned but does underestimate the costs of the provider of goods and services and the output of the credit card company. This in turn leads to a misallocation of value added from the credit card company to the provider of the goods and services paid for by credit card.

6.162 The example of the credit card company is one that clearly demonstrates that a financial corporation may provide services that are paid for by different means by different customers or in different circumstances. The fee charged to the corporations accepting a credit card as means of payment has just been discussed. A card holder may also be charged an explicit fee, usually each year, for holding the card. In addition, if a card holder uses the credit facilities offered by the card, he will pay indirect charges associated with interest payable on the outstanding credit (which is treated as a loan in the SNA).

Financial services provided in association with interest charges on loans and deposits

6.163 One traditional way in which financial services are provided is by means of financial intermediation. This is understood to refer to the process whereby a financial institution such as a bank accepts deposits from units wishing to receive interest on funds for which the unit has no immediate use and lends them to other units whose funds are insufficient to meet their needs. The bank thus provides a mechanism to allow the first unit to lend to the second. Each of the two parties pays a fee to the bank for the service provided, the unit lending funds by accepting a rate of interest lower than that paid by the borrower, the difference being the combined fees implicitly charged by the bank to the depositor and to the borrower. From this basic idea the concept emerges of a “reference” rate of interest. The difference between the rate paid to banks by borrowers and the reference rate plus the difference between the reference rate and the rate actually paid to depositors represent charges for financial intermediation services indirectly measured (FISIM).

6.164 However, it is seldom the case that the amount of funds lent by a financial institution exactly matches the amount deposited with them. Some money may have been deposited but not yet loaned; some loans may be financed by the bank’s own funds and not from borrowed funds. However, the depositor of funds receives the same amount of interest and service whether or not his funds are then lent by the bank to another customer, and the borrower pays the

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same rate of interest and receives the same service whether his funds are provided by intermediated funds or the bank's own funds. For this reason an indirect service charge is to be imputed in respect of all loans and deposits offered by a financial institution irrespective of the source of the funds. The reference rate applies to both interest paid on loans and interest paid on deposits so that the amounts of interest recorded as such in the SNA are calculated as the reference rate times the level of loan or deposit in question. The difference between these amounts and the amounts actually paid to the financial institution are recorded as service charges paid by the borrower or depositor to the financial institution. For clarity the amounts based on the reference rate recorded in the SNA as interest are described as "SNA interest" and the total amounts actually paid to or by the financial institution are described as "bank interest". The implicit service charge is thus the sum of the bank interest on loans less the SNA interest on the same loans plus the SNA interest on deposits less the bank interest on the same deposits. The service charge is payable by or to the unit in receipt of the loan or owning the deposit as appropriate.

6.165 By convention within the SNA, these indirect charges in respect of interest apply only to loans and deposits and only when those loans and deposits are provided by, or deposited with, financial institutions. The financial institutions in question need not be resident; nor need the clients of the financial institution be resident. Thus imports and exports of this type of financial service are possible. Nor need the financial institution necessarily offer deposit-taking facilities as well as making loans. The financial subsidiaries of retailers are examples of financial institutions that make loans without accepting deposits. A money lender who has sufficiently detailed accounts to be treated as an actual or quasi-corporation may receive this sort of charge; indeed since money lenders usually charge especially high rates of interest, their service charges may exceed the SNA interest payments by significant amounts.

6.166 The reference rate to be used in the calculation of SNA interest is a rate between bank interest rates on deposits and loans. However, because there is no necessary equality between the level of loans and deposits, it cannot be calculated as a simple average of the rates on loans or deposits. The reference rate should contain no service element and reflect the risk and maturity structure of deposits and loans. The rate prevailing for inter-bank borrowing and lending may be a suitable choice as a reference rate. However, different reference rates may be needed for each currency in which loans and deposits are denominated, especially when a non-resident financial institution is involved. For banks within the same economy, there is often little if any service provided in association with banks lending to and borrowing from other banks.

6.167 Banks may offer loans that they describe as being fixed interest loans. This is to be interpreted as a situation where the level of bank interest is fixed but as the reference rate changes, the level of SNA interest and the service charge will vary.

6.168 When an enterprise acquires a fixed asset under the terms of a financial lease, a loan is imputed between the lessor and the lessee. Regular payments under the lease are treated as being payments of interest and repayment of capital. When the lessor is a financial institution, the interest payable under the terms of a financial lease corresponds to bank interest and should be separated into SNA interest and financial service charge as for any other loan.

6.169 Even when a loan is described as non-performing, interest and the associated service charge continue to be recorded in the SNA. There is discussion on the treatment of non-performing loans in chapter 13.

Financial services associated with the acquisition and disposal of financial assets and liabilities in financial markets

6.170 Debt securities such as bills and bonds are other forms of financial assets that give rise to interest payments, interest being payable to the owner of the security by the issuer. As described in chapter 17, some of these interest charges may themselves be imputed from changes in the value of securities as they approach maturity. When a financial institution offers a security for sale, a service charge is levied, the purchase price (or ask price) representing the estimated market value of the security plus a margin. Another charge is levied when a security is sold, the price offered to the seller (the bid price) representing the market value less a margin.

6.171 Prices of securities may change rapidly and to avoid including holding gains and losses in the calculation of the service margins, it is important to calculate the margins on sales and purchases in terms of mid-prices. The mid-price of a security is the average at a given point in time between the bid and ask price. Thus the margin on the purchase of a security is the difference between the ask price and mid-price at the time of the purchase and the margin on a sale is the difference between the mid-price and the bid price at the time of the sale.

6.172 It is important when measuring interest as the increase in value of a security between the date it is purchased and the date it matures (or is subsequently sold) to measure from one mid-point value to another and to treat the differences between mid-point price and bid or ask price at the time of purchase, sale or redemption as a service margin. Ignoring the margins understates the value of output of financial institutions and may understate interest payments also.

6.173 Equities and investment fund shares or units give rise to property income other than interest but, like debt securities, they are offered for sale and purchase at different prices. The difference between the buying price and mid-price and the mid-price and selling price should be treated as the provision of financial services as in the case of securities. The same principles as for securities apply for the same reason.

6.174 Although no property income flows are involved, margins between buying and selling prices also apply to purchases of foreign currencies (including transactions denominated in foreign currencies such as payments for imports and exports as well as the acquisition of physical notes and coins of a foreign currency). Again these margins should be treated as the provision of financial services in a manner similar to that described for securities.

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8. Financial services associated with insurance and pension schemes.

6.175 Five types of activities are covered under this heading:

Non-life insurance;

Life insurance and annuities;

Reinsurance;

Social insurance schemes;

Standardized guarantee schemes.

6.176 All these schemes lead to redistribution of funds, which are recorded in either the secondary distribution of income account or the financial account. For non-life insurance and standardized guarantee schemes, most of the redistribution takes place between different units in the same period. Many client units pay relatively small policy premiums or fees and a small number of them receive relatively large claims or payments. For life insurance, annuities and pension schemes, the redistribution is primarily, though not entirely, between different periods for a single client. In fulfilling their responsibilities as managers of these funds, insurance companies and pension funds are involved in both risk management and liquidity transformation, the prime functions of financial institutions.

6.177 Non-life insurance provides cover to the policyholder against loss or damage suffered as a result of an accident. A premium is paid to the insurance corporation and a claim is paid to the policyholder only if the event insured against occurs. If the event occurs then the maximum amount to be paid is specified in the policy so that the uncertainty concerns whether a payment will take place, not the amount of it.

6.178 Under a life insurance policy, many small payments are made over a period of time and either a single lump sum or a stream of payments is made at some pre-agreed time in the future. There is little conditionality involved in life insurance, usually the fact that a payment will be made is certain but the amount may be uncertain.

6.179 Annuities are offered by insurance corporations and are a means for an individual person to convert a lump sum into a stream of payments in the future.

6.180 Just as an individual may limit their exposure to risk by taking out an insurance policy, so may insurance corporations themselves. Insurance between one insurance corporation and another is called reinsurance. (Insurance other than reinsurance is called direct insurance.) Many reinsurance transactions are with specialized institutions in a few international financial centres. Reinsurers may also take out a further reinsurance policy. This practice is known as “retrocession”.

6.181 A social insurance scheme is one where a third party, usually an employer or the government, encourages or obliges individuals to participate in a scheme to provide benefits for a number of identified circumstances, including pensions in retirement. Social insurance schemes have much in common with direct insurance and may be run by insurance corporations. This is not necessarily the case, however, and there are special variations in how the payment of contributions (corresponding to premiums in the case of direct insurance) and benefits are recorded.

6.182 In some circumstances a unit, possibly but not necessarily within general government, may offer very many guarantees of very similar nature. One example is export guarantees and another is student loans. Because the guarantees are very similar and numerous, it is possible to make robust statistical estimates of the number of defaults the guarantor will have to cover and so these also are treated in a manner similar to direct non-life insurance.

6.183 The detailed recording for each of these activities, including the measurement of output, the recording of flows between the insurance corporations or pension funds on the one hand and policyholders or beneficiaries on the other, and the implications for changes in the balance sheets of both sets of institutions are described in part 3 of chapter 17. What follows is a summary of the key features of measuring output for the various activities listed above.

Non-life insurance

6.184 Under a non-life insurance policy, the insurance company accepts a premium from a client and holds it until a claim is made or the period of the insurance expires. In the meantime, the insurance company invests the premium and the property income is an extra source of funds from which to meet any claim due. The property income represents income foregone by the client and so is treated as an implicit supplement to the actual premium. The insurance company sets the level of the actual premiums to be such that the sum of the actual premiums plus the property income earned on them less the expected claim will leave a margin that the insurance company can retain; this margin represents the output of the insurance company. Within the SNA, the output of the insurance industry is determined in a manner intended to mimic the premium setting policies of the insurance corporations.

6.185 The basic method for measuring non-life insurance output is the following:

Total premiums earned,

plus premium supplements,

less adjusted claims incurred.

6.186 ***The actual premium is the amount payable to the direct insurer or reinsurer to secure insurance cover for a specific event over a stated time period.*** Cover is frequently provided for one year at a time with the premium due to be paid at the outset, though cover may be provided for shorter (or longer) periods and the premium may be payable in instalments, for example monthly.

6.187 ***The premium earned is the part of the actual premium that relates to cover provided in the accounting period.*** For example, if an annual policy with a premium of 120

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units comes into force on April 1 and accounts are being prepared for a calendar year, the premium earned in the calendar year is 90. ***The unearned premium is the amount of the actual premium received that relates to the period past the accounting point.*** In the example just given, at the end of the accounting period there will be an unearned premium of 30, intended to provide cover for the first three months of the next year. ***A claim (benefit) is the amount payable to the policyholder by the direct insurer or reinsurer in respect of an event covered by the policy occurring in the period for which the policy is valid.*** Claims normally become due when the event occurs, even if the payment is made some time later. (The exception to this time of recording is described in paragraph 8.121.) Claims that become due are described as claims incurred. In some contested cases the delay between the occurrence of the event giving rise to the claim and the settlement of the claim may be several years. ***Claims outstanding cover claims that have not been reported, have been reported but are not yet settled or have been both reported and settled but not yet paid.***

6.188 The insurance corporation has at its disposal reserves consisting of unearned premiums and claims outstanding. These reserves are called technical reserves and are used by the insurance company to generate investment income. Because the technical reserves are a liability of the insurance corporation to the policyholders, the investment income they generate is treated as being attributed to the policyholders. However, the amounts remain with the insurance corporation and are in effect a hidden supplement to the apparent premium. This income is therefore treated as a premium supplement paid by the policyholder to the insurance corporation.

6.189 In setting the level of premiums, which obviously the insurance corporation must do ex ante, it makes an estimate of the level of claims it expects to be faced with. Within the SNA there are two ways in which the appropriate level of claims (described as adjusted claims) can be determined. One is an ex ante method, described as the expectation method, and estimates the level of adjusted claims from a model based on the past pattern of claims payable by the corporation. The other means of deriving adjusted claims is to use accounting information. Within the accounts for the insurance corporations there is an item called “equalization provisions” that gives a guide to the funds the insurance corporation sets aside to meet unexpectedly large claims. Adjusted claims are derived ex post as actual claims incurred plus the change in equalization provisions. In circumstances where the equalization provisions are insufficient to bring adjusted claims back to a normal level, some contribution from own funds must be added also.

6.190 On occasion, the levels of technical reserves and of equalization provisions may be altered in response to financial regulation and not because of changes in the expected patterns of premiums and claims. Such changes should be recorded in the other changes in the volume of assets account and excluded from the formula to determine output.

6.191 In circumstances where information is not available for either approach to deriving adjusted claims, it may be necessary to estimate output instead by the sum of costs including an allowance for normal profits.

Life insurance

6.192 A life insurance policy is a sort of saving scheme. For a number of years, the policyholder pays premiums to the insurance corporation against a promise of benefits at some future date. These benefits may be expressed in terms of a formula related to the premiums paid or may be dependent on the level of success the insurance corporation has in investing the funds.

6.193 The insurance corporation cumulates premiums paid until the promised date when benefits become payable and in the meantime uses the reserves to produce investment income. Some of the investment income is added to the life insurance reserves belonging to the policyholders to meet benefits in future. This allocation is an asset of the policyholders but is retained by the insurance corporation which continues to invest the amounts until benefits become payable. The remainder of the investment income not allocated to the policyholders is retained by the insurance corporation as its fee for the service they provide.

6.194 The method of calculating output for life insurance follows the same general principles as for non-life insurance but because of the time interval between when premiums are received and when benefits are paid, special allowances must be made for changes in the technical reserves.

6.195 The output of life insurance is derived as:

Premiums earned,

plus premium supplements,

less benefits due,

less increases (*plus* decreases) in life insurance technical reserves.

6.196 Premiums are defined in exactly the same way for life insurance as for non-life insurance.

6.197 Premium supplements are more significant for life insurance than for non-life insurance. They consist of all the investment income earned on the reserves of the policyholders. The amount involved is earnings forgone by the policyholders by putting the funds at the disposal of the insurance corporation and are thus recorded as property income in the distribution of primary income account.

6.198 Benefits are recorded as they are awarded or paid. There is no need under life insurance to derive an adjusted figure since there is not the same unexpected volatility in the payment due under a life policy. It is possible for the insurance corporation to make robust estimates of the benefits due to be paid even years in advance.

6.199 Life insurance technical reserves increase each year because of new premiums paid, new investment income allocated to the policyholders (but not withdrawn by them) and decrease because of benefits paid. It is thus possible to express the level of output of life insurance as the difference between the total investment income earned on the life insurance technical reserves less the part of this

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investment income actually allocated to the policyholders and added to the insurance technical reserves.

Reinsurance

6.200 The method of calculating the output of reinsurance is exactly the same as for non-life insurance, whether it is life or non-life policies that are being reinsured.

Social insurance schemes

6.201 There are four different ways in which social insurance may be organized.

a. Some social insurance is provided by government under a social security scheme;

b. An employer may organize a social insurance scheme for his employees;

c. An employer may have an insurance corporation run the scheme for the employer in return for a fee;

d. An insurance corporation may offer to run a scheme for several employers in return for any property income and holding gains they may make in excess of what is owed to the participants in the scheme. The resulting arrangement is called a multiemployer scheme.

The output for each of these modes of running a social insurance scheme is calculated in a different manner.

6.202 Social security schemes are run as part of the operation of general government. If separate units are distinguished, their output is determined in the same way as all non-market output as the sum of costs. If separate units are not distinguished, the output of social security is included with the output of the level of government at which it operates.

6.203 When an employer operates his own social insurance scheme, the value of the output is also determined as the sum of costs including an estimate for a return to any fixed capital used in the operation of the scheme. Even if the employer establishes a segregated pension fund to manage the scheme, the value of output is still measured in the same way.

6.204 When an employer uses an insurance corporation to manage the scheme on his behalf, the value of the output is the fee charged by the insurance corporation.

6.205 For a multiemployer scheme, the value of output is measured as for life insurance policies; it is the excess of the investment income receivable by the schemes less the amount added to the reserves to meet present and future pension entitlements.

Standardized guarantee schemes

6.206 If a standardized guarantee scheme operates as a market producer, the value of output is calculated in the same way as non-life insurance. If the scheme operates as a non-market producer, the value of output is calculated as the sum of costs.

9. Research and development

6.207 Research and development is creative work undertaken on a systematic basis to increase the stock of knowledge, and use this stock of knowledge for the purpose of discovering or developing new products, including improved versions or qualities of existing products, or discovering or developing new or more efficient processes of production. Research and development is not an ancillary activity, and a separate establishment should be distinguished for it when possible. The research and development undertaken by market producers on their own behalf should, in principle, be valued on the basis of the estimated basic prices that would be paid if the research were subcontracted commercially, but in practice is likely to have to be valued on the basis of the total production costs including the costs of fixed assets used in production. Research and development undertaken by specialized commercial research laboratories or institutes is valued by receipts from sales, contracts, commissions, fees, etc. in the usual way. Research and development undertaken by government units, universities, non-profit research institutes, etc. is non-market production and is valued on the basis of the total costs incurred. The activity of research and development is different from teaching and is classified separately in *ISIC*. In principle, the two activities ought to be distinguished from each other when undertaken within a university or other institute of higher education, although there may be considerable practical difficulties when the same staff divide their time between both activities. There may also be interaction between teaching and research which makes it difficult to separate them, even conceptually, in some cases. The treatment of R&D as capital formation is discussed in chapter 10.

10. The production of originals and copies

6.208 The production of books, recordings, films, software, tapes, disks, etc. is a two-stage process of which the first stage is the production of the original and the second stage the production and use of copies of the original. The output of the first stage is the original itself over which legal or de facto ownership can be established by copyright, patent or secrecy. The value of the original depends on the actual or expected receipts from the sale or use of copies at the second stage, which have to cover the costs of the original as well as costs incurred at the second stage.

6.209 The output of the first stage is a fixed asset that belongs to the producer of the original (author, film company, program writer, etc.). It may be produced for sale or for own-account gross fixed capital formation by the original producer. As the asset may be sold to another institutional unit the owner of the asset at any given time need not be the original producer, although they are often one and the same unit. If the original is sold when it has been produced, the value of the output of the original producer is given by the price paid. If it is not sold, its value may be estimated on the basis of its production costs with a mark-up. However, the size of any mark-up must depend on the discounted value of the future receipts expected from using it in

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production, so that it is effectively this discounted value, however uncertain, that determines its value.

6.210 The owner of the asset may use it directly to produce copies in subsequent periods. The value of the copies made is also recorded as production separately from the production involved in the making of the original. Consumption of fixed capital is recorded in respect of the use of the asset in the making of the copies the same way as for any other fixed asset used in production.

6.211 The owner may also license other producers to make use of the original in production. The latter may produce and sell copies, or use copies in other ways, for example, for film or music performances. The copier undertakes production in making the copies. Part of the cost of making the copies is the fee paid by the licensee to the owner or licensor. This fee represents both intermediate consumption of the licensee and output of the owner that is recorded as a service sold to the licensee. The payments made for the licences may be described in various ways, such as fees, commissions or royalties, but however they are described they are treated as payments for services rendered by the owner.

6.212 In certain circumstances the licence to make copies may also be treated as an asset, distinct from the original. The conditions under which this applies and the consequences are discussed in greater detail in chapter 17.

G. Intermediate consumption

1. Coverage of intermediate consumption

6.213 ***Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital.*** The goods or services may be either transformed or used up by the production process. Some inputs re-emerge after having been transformed and incorporated into the outputs, for example, grain may be transformed into flour which in turn may be transformed into bread. Other inputs are completely consumed or used up, for example, electricity and most services.

6.214 Intermediate consumption does not include expenditures by enterprises on valuables consisting of works of art, precious metals and stones and articles of jewellery fashioned out of them. Valuables are assets acquired as stores of value: they are not used up in production and do not deteriorate physically over time. Expenditures on valuables are recorded in the capital account. Intermediate consumption also does not include costs incurred by the gradual using up of fixed assets owned by the enterprise: the decline in their value during the accounting period is recorded as consumption of fixed capital. However, intermediate consumption does include the rentals paid on the use of fixed assets, whether equipment or buildings, that are leased from other institutional units under an operating lease, and also fees, commissions, royalties, etc., payable under licensing arrangements, as explained above.

6.215 Where ancillary services are not shown as the output of a separate establishment, intermediate consumption includes the value of all the goods or services used as inputs into ancillary activities such as purchasing, sales, marketing, accounting, data processing, transportation, storage, maintenance, security, etc. In this case, the goods and services consumed by these ancillary activities are not distinguished from those consumed by the principal (or secondary) activities of a producing establishment. When a unit provides only ancillary services, it continues to be shown as a separate unit as long as the necessary information is available. There is more discussion of the treatment of ancillary activities in chapter 5.

2. The timing and valuation of intermediate consumption

6.216 The intermediate consumption of a good or service is recorded at the time when the good or service enters the process of production, as distinct from the time it was acquired by the producer. In practice, establishments do not usually record the actual use of goods in production directly. Instead, they keep records of purchases of materials and supplies intended to be used as inputs and also of any changes in the amounts of such goods held in inventories. An estimate of intermediate consumption during a given accounting period can then be derived by subtracting the value of changes in inventories of materials and supplies from the value of purchases made. Changes in inventories of materials and supplies are equal to entries less withdrawals and recurrent losses on goods held in inventories. Thus, by reducing the value of changes in inventories, recurrent losses increase intermediate consumption. Even if they are consistently large, as long as they occur regularly, losses are treated as increasing intermediate consumption. Goods entering and leaving inventories are valued at the purchasers' prices prevailing at the times the entries, withdrawals or recurrent losses take place. This is exactly the same method as that used to value changes in inventories of goods produced as outputs from the production process. Thus, the earlier discussion of the properties and behaviour of the PIM applies to inventories of inputs.

6.217 A good or service consumed as an intermediate input is normally valued at the purchaser's price prevailing at the time it enters the process of production; that is, at the price the producer would have to pay to replace it at the time it is used. As explained in more detail in section C, the purchaser's price can be regarded as being composed of three elements:

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a. The basic price received by the producer of the good or service;

b. Any transportation costs paid separately by the purchaser in taking delivery of a good at the required time and location plus the cumulative trade margin on a good that passes through the chain of wholesale or retail distribution;

c. Any non-deductible tax on the product payable on the good or service when it was produced or while in transit to the purchaser less any subsidy on the product.

For purposes of the input-output tables, it may be necessary to distinguish all three elements but this is not necessary in the accounts for institutional sectors or the central supply and use table.

6.218 Intermediate inputs treated as being acquired from other establishments belonging to the same enterprise should be valued at the same prices as were used to value them as outputs of those establishments plus any additional transport charges not included in the output values.

6.219 When goods or services produced within the same establishment are fed back as inputs into the production within the same establishment, they are only recorded as part of the intermediate consumption if they have been recorded as part of the output of that establishment. There is discussion on when this might be appropriate in section E. Deliveries of goods and services between different establishments belonging to the same enterprise are recorded as outputs by the producing establishments and intermediate inputs by the receiving establishments only when the receiving establishment effectively assumes all risks for completing the production process.

3. The boundary between intermediate consumption and compensation of employees

6.220 Certain goods and services used by enterprises do not enter directly into the process of production itself but are consumed by employees working on that process. In such cases it is necessary to decide whether the goods and services are intermediate consumption or, alternatively, remuneration in kind of employees. In general, when the goods or services are used by employees in their own time and at their own discretion for the direct satisfaction of their needs or wants, they constitute remuneration in kind. However, when employees are obliged to use the goods or services in order to enable them to carry out their work, they constitute intermediate consumption.

6.221 It is immaterial to the employer whether they are treated as intermediate consumption or compensation of employees because they are both costs from the employer's viewpoint and the net operating surplus is the same. However, reclassifying such goods and services from remuneration in kind to intermediate consumption, or vice versa, changes value added and balance of primary incomes, and hence GDP as a whole.

6.222 The following types of goods and services provided to employees must be treated as part of intermediate consumption:

a. Tools or equipment used exclusively, or mainly, at work;

b. Clothing or footwear of a kind that ordinary consumers do not choose to purchase or wear and which are worn exclusively, or mainly, at work; for example, protective clothing, overalls or uniforms;

c. Accommodation services at the place of work of a kind that cannot be used by the households to which the employees belong: barracks, cabins, dormitories, huts, etc.;

d. Special meals or drinks necessitated by exceptional working conditions, or meals or drinks provided to servicemen or others while on active duty;

e. Transportation and hotel services including allowances for meals provided while the employee is travelling on business;

f. Changing facilities, washrooms, showers, baths, etc. necessitated by the nature of the work;

g. First aid facilities, medical examinations or other health checks required because of the nature of the work.

Employees may sometimes be responsible for purchasing the kinds of goods or services listed above and be subsequently reimbursed in cash by the employer. Such cash reimbursements must be treated as intermediate expenditures by the employer and not as part of the employee's wages and salaries.

6.223 The provision of other kinds of goods and services, such as ordinary housing services, the services of vehicles or other durable consumer goods used extensively away from work, transportation to and from work, etc. should be treated as remuneration in kind, as explained more fully in chapter 7.

4. The boundary between intermediate consumption and gross fixed capital formation

6.224 Intermediate consumption measures the value of goods and services that are transformed or entirely used up in the course of production during the accounting period. It does not cover the costs of using fixed assets owned by the enterprise nor expenditures on the acquisition of fixed assets. The boundary between these kinds of expenditures and intermediate consumption is explained in more detail below.

Small tools

6.225 Expenditures on durable producer goods that are small, inexpensive and used to perform relatively simple operations may be treated as intermediate consumption when such expenditures are made regularly and are very

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small compared with expenditures on machinery and equipment. Examples of such goods are hand tools such as saws, spades, knives, axes, hammers, screwdrivers, and so on. However, in countries where such tools account for a significant part of the stock of producers' durable goods, they may be treated as fixed assets.

Maintenance and repairs

6.226 The distinction between maintenance and repairs and gross fixed capital formation is not clear-cut. The ordinary, regular maintenance and repair of a fixed asset used in production constitute intermediate consumption. Ordinary maintenance and repair, including the replacement of defective parts, are typical ancillary activities but such services may also be provided by a separate establishment within the same enterprise or purchased from other enterprises.

6.227 The practical problem is to distinguish ordinary maintenance and repairs from major renovations, reconstructions or enlargements that go considerably beyond what is required simply to keep the fixed assets in good working order. Major renovations, reconstructions, or enlargements of existing fixed assets may enhance their efficiency or capacity or prolong their expected working lives. They must be treated as gross fixed capital formation as they add to the stock of fixed assets in existence.

6.228 Ordinary maintenance and repairs are distinguished by two features:

a. They are activities that owners or users of fixed assets are obliged to undertake periodically in order to be able to utilize such assets over their expected service lives. They are current costs that cannot be avoided if the fixed assets are to continue to be used. The owner or user cannot afford to neglect maintenance and repairs as the expected service life may be drastically shortened otherwise;

b. Maintenance and repairs do not change the fixed asset or its performance, but simply maintain it in good working order or restore it to its previous condition in the event of a breakdown. Defective parts are replaced by new parts of the same kind without changing the basic nature of the fixed asset.

6.229 On the other hand, major renovations or enlargements to fixed assets are distinguished by the following features:

a. The decision to renovate, reconstruct or enlarge a fixed asset is a deliberate investment decision that may be undertaken at any time and is not dictated by the condition of the asset. Major renovations of ships, buildings or other structures are frequently undertaken well before the end of their normal service lives;

b. Major renovations or enlargements increase the performance or capacity of existing fixed assets or significantly extend their previously expected service lives. Enlarging or extending an existing building or structure obviously constitutes a major change in this sense, but a complete refitting or restructuring of the interior of a building, or ship, also qualifies.

Research and development

6.230 Research and development is treated as capital formation except in any cases where it is clear that the activity does not entail any economic benefit for its owner in which case it is treated as intermediate consumption.

Mineral exploration and evaluation

6.231 Expenditures on mineral exploration and evaluation are not treated as intermediate consumption. Whether successful or not, they are needed to acquire new reserves and so are all classified as gross fixed capital formation.

Military equipment

6.232 Expenditures on military equipment, including large military weapons systems, are treated as fixed capital formation. Expenditure on durable military goods such as bombs, torpedoes and spare parts are recorded as inventories until used when they are recorded as intermediate consumption and a withdrawal from inventories.

5. Services provided by government to producers

6.233 Government may provide services to producers. To the extent that a charge is made for these services, the charges form part of the intermediate consumption of the producer. However, when the charge does not represent an economically significant price, the value of the service to the producer is greater than the cost. However, no estimation of this benefit is made and the costs of the services not covered by the charges made are included in collective consumption of government.

6. Social transfers in kind

6.234 Expenditures by government or NPISHs on goods or services produced by market producers that are provided directly to households, individually or collectively, without any further processing constitute final consumption expenditures by government or NPISHs and not intermediate consumption. The goods and services in question are treated as social transfers in kind and enter into the actual consumption of households.

6.235 By convention, non-financial and financial corporations do not make social transfers in kind, nor engage in final consumption.

7. Services of business associations

6.236 Non-profit institutions in the form of business associations that exist to protect the interests of their members and are financed by them are market producers. The subscriptions paid by the businesses constitute payments for services rendered. These services are consumed as intermediate

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inputs by the members of the association and are valued by the amounts paid in subscriptions, contributions or dues.

8. Outsourcing

6.237 It is increasingly common for producers to change the way in which a production activity is completed. Different stages in the process or different support activities such as office cleaning or assembly of electronic components may be contracted out to another producer, in the same country or abroad. This changes the pattern of intermediate inputs even though the underlying technology may be the same. The impact of this on input-output tables is discussed in chapters 14 and 28.

9. Leasing fixed assets

6.238 The decision to rent buildings, machinery or equipment under an operating lease, rather than purchase them, can have a major impact on the ratio of intermediate consumption to value added and the distribution of value added between producers. Rentals paid on buildings or on machinery or equipment under an operating lease constitute purchases of services that are recorded as intermediate consumption. However, if an enterprise owns its buildings, machinery and equipment, most of the costs associated with their use are not recorded under intermediate consumption. The consumption of fixed capital on the assets forms part of gross value added while interest costs, both actual and implicit, have to be met out of the net operating surplus. Only the costs of the materials needed for maintenance and repairs appear under intermediate consumption. Decisions to rent rather than purchase may be influenced by factors quite unrelated to the technology of production, such as taxation, the availability of finance, or the consequences for the balance sheet.

6.239 There is a significant difference between rentals of fixed assets under an operating lease and the acquisition of an asset under a financial lease. Under an operating lease, the lessor has a productive activity that involves the equipment in question and is responsible for the production risks associated with the operational status of the asset. Payments by the lessee are treated as payments for a service. Under a financial lease, the lessee accepts all risks and rewards associated with the use of the asset in production. A financial lease is thus treated as a loan by the lessor to the lessee and purchase of the equipment by the lessee. Subsequent payments are treated as payments of interest and repayments of principal by the lessee to the lessor. Further details on the treatment of operating and financial leases are given in chapter 17.

H. Consumption of fixed capital

1. The coverage of consumption of fixed capital

6.240 ***Consumption of fixed capital is the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage.*** The term depreciation is often used in place of consumption of fixed capital but it is avoided in the SNA because in commercial accounting the term depreciation is often used in the context of writing off historic costs whereas in the SNA consumption of fixed capital is dependent on the current value of the asset.

6.241 Consumption of fixed capital is calculated for all fixed assets owned by producers, but not for valuables (precious metals, precious stones, etc.) that are acquired precisely because their value, in real terms, is not expected to decline over time. Fixed assets must have been produced as outputs from processes of production as defined in the SNA. Consumption of fixed capital does not, therefore, cover the depletion or degradation of natural assets such as land, mineral or other deposits, coal, oil, or natural gas, or contracts, leases and licences.

6.242 The value of assets may decline not merely because they deteriorate physically but because of a decrease in the demand for their services as a result of technical progress and the appearance of new substitutes for them. In practice, many structures, including roads and railway tracks, are scrapped or demolished because they have become obsolete. Even though the estimated service lives may be very long for some structures, such as roads, bridges, dams, etc., they cannot be assumed to be infinite. Thus, capital consumption needs to be calculated for all types of structures, including those owned and maintained by government units, as well as machinery and equipment.

6.243 Losses of fixed assets due to normal or expected levels of accidental damage are also included under consumption of fixed capital; that is, damage caused to assets used in production resulting from their exposure to the risk of fires, storms, accidents due to human error, etc. When these kinds of accidents occur with predictable regularity they are taken into account in calculating the average service lives of the goods in question. For an individual unit, or group of units, any difference between the average and the actual normal accidental damage within a given period is recorded in the other changes in the volume of assets account. However, at the level of the economy as a whole, the actual normal accidental damage within a given accounting period may be expected to be equal, or close, to the average.

6.244 On the other hand, losses due to war or to major natural disasters that occur very infrequently, such as major earthquakes, volcanic eruptions, tidal waves or exceptionally severe hurricanes, are not included under consumption of fixed capital. There is no reason for such losses to be charged in the production account as costs of production. The values of the assets lost in these ways are recorded in the other changes in the volume of assets account. Similarly, although consumption of fixed capital includes reductions in the value of fixed assets resulting

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from normal, expected rates of obsolescence, it should not include losses due to unexpected technological developments that may significantly shorten the service lives of a group of existing fixed assets. Such losses are treated in the same way as losses due to above average rates of normal accidental damage.

2. Consumption of fixed capital and rentals on fixed assets

6.245 It is possible to draw a comparison between consumption of fixed capital and rental of assets under an operating lease. ***The rental is the amount payable by the user of a fixed asset to its owner, under an operating lease or similar contract, for the right to use that asset in production for a specified period of time.*** The rental needs to be large enough to cover (i) any direct costs incurred by the owner including the costs of maintaining the asset, (ii) the reduction in the value of the asset over that period (the consumption of fixed capital) and (iii) the interest costs on the value of the asset at the start of the period. The interest costs may consist either of actual interest paid on borrowed funds or the loss of interest incurred as a result of investing own funds in the purchase of the fixed asset instead of a financial asset. Whether owned or rented, the full cost of using the fixed asset in production is measured by the actual or imputed rental on the asset and not by consumption of fixed capital alone. When the asset is actually rented under an operating lease or similar contract, the rental is recorded under intermediate consumption as the purchase of a service produced by the lessor. When the user and the owner are one and the same unit, the direct costs are recorded as intermediate consumption. The consumption of fixed capital represents the second element of the cost of using the asset. The third part of the cost, referred to above as the interest cost, is also known as the return to fixed capital. Like consumption of fixed capital, the return to capital is part of value added. The sum of the consumption of fixed capital and the value of the return to capital is known as the capital services rendered by the asset. Capital services are discussed in more detail in chapter 20.

6.246 The value of a fixed asset to its owner at any point of time is determined by the present value of the future capital services (that is, the sum of the values of the stream of future rentals less operating costs discounted to the present period) that can be expected over its remaining service life. Consumption of fixed capital is measured by the decrease, between the beginning and the end of the current accounting period, in the present value of the remaining sequence of expected future benefits. The extent of the decrease will be influenced not only by the amount by which the efficiency of the asset may have declined during the current period but also by the shortening of its service life and the rate at which its economic efficiency declines over its remaining service life. The decrease is expressed in the average prices of the current period for an asset of exactly the same quality and should exclude holding gains and losses. When the flow of future benefits that determines the present values used to derive consumption of fixed capital is expressed in terms of flows that include an element of inflation, then the discount factor should be nominal. When the flows are expressed in terms of current period prices, then a real discount rate should be used. Either procedure results in a present value expressed in current period prices.

6.247 Consumption of fixed capital is a forward-looking measure that is determined by future, and not past, events namely, the benefits that institutional units expect to derive in the future from using the asset in production over the remainder of its service life. Unlike depreciation as usually calculated in business accounts, consumption of fixed capital is not, at least in principle, a method of allocating the costs of past expenditures on fixed assets over subsequent accounting periods. The value of a fixed asset at a given moment in time depends only on the remaining benefits to be derived from its use and consumption of fixed capital must be based on values calculated in this way.

3. The calculation of consumption of fixed capital

6.248 Fixed assets may have been purchased in the past at times when both relative prices and the general price level were very different from prices in the current period. In order to be consistent with the other entries in the same production account, consumption of fixed capital must be valued with reference to the same overall set of current prices as that used to value output and intermediate consumption. Consumption of fixed capital should reflect underlying resource costs and relative demands at the time the production takes place. It should therefore be calculated using the actual or estimated prices and rentals of fixed assets prevailing at that time and not at the times the goods were originally acquired. The “historic costs” of fixed assets, that is, the prices originally paid for them, become quite irrelevant for the calculation of consumption of fixed capital as prices change over time.

6.249 For these reasons, depreciation as recorded in business accounts may not provide the right kind of information for the calculation of consumption of fixed capital. If data on depreciation are used, they must, at the very least, be adjusted from historic costs to current prices. However, depreciation allowances for tax purposes have often been grossly manipulated in quite arbitrary ways to try to influence rates of investment and are best ignored altogether in many cases. It is recommended that independent estimates of consumption of fixed capital should be compiled in conjunction with estimates of the capital stock. These can be built up from data on gross fixed capital formation in the past combined with estimates of the rates at which the efficiency of fixed assets decline over their service lives.

6.250 Whenever possible, the initial value of a new fixed asset should be that prevailing on the market when the asset is acquired. If assets of all ages and specifications were regularly traded on markets, these prices should be used to value every asset as it ages. However, there is scarce information on the prices of second-hand assets and faced with this lack, a more theoretical approach to determining the price of an asset as it ages must be adopted.

6.251 Conceptually, market forces should ensure that the purchaser’s price of a new fixed asset is equivalent to the present value of the future benefits that can be derived from

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it. Given the initial market price, therefore, and knowledge of the characteristics of the asset in question, it is possible to project the stream of future benefits and continually update the remaining present value of these. This method of building up estimates of the capital stock and changes in the capital stock over time is known as the perpetual inventory method, or PIM. Estimates of consumption of fixed capital are obtained as a by-product of the PIM.

4. The perpetual inventory method

6.252 A brief explanation of how consumption of fixed capital may be calculated as a by-product of the perpetual inventory method of calculating the capital stock is given in this section. An overview of the link between the calculation of consumption of fixed capital, the return to capital and the stock of assets is given in chapter 20. Much more guidance on the way to calculate capital stock estimates appears in the manual *Measuring Capital*. (OECD, 2009).

Calculation of the gross capital stock

6.253 The perpetual inventory method requires an estimate to be made of the stock of fixed assets in existence and in the hands of producers. The first step is to estimate how many of the fixed assets installed as a result of gross fixed capital formation undertaken in previous years have survived to the current period. Average service lives, or survival functions, based on observations or technical studies may be applied to past investments for this purpose. Fixed assets purchased at different prices in the past have then to be revalued at the prices of the current period by utilizing appropriate price indices for fixed assets. The construction of suitable price indices covering long periods of time raises difficult conceptual and practical problems, but these technical problems of price measurement must be faced in any case in developing balance sheet values of assets. The stock of fixed assets surviving from past investment and revalued at the purchasers' prices of the current period is described as the gross capital stock. The gross capital stock can also be measured at the prices of a given base year if it is desired to have annual time series for the gross capital stock in volume terms.

Relative efficiencies

6.254 The inputs into production obtained from the use of a given fixed asset tend to diminish over time. The rate at which the efficiency declines may vary from one type of asset to another. The simplest case to consider is one where the efficiency of the asset remains constant until it disintegrates, like a light bulb. Other simple cases include the case where the efficiency declines linearly or exponentially over its life. Other methods employ a hyperbolic rate of efficiency loss with relatively little decline in the initial years but increasingly steeper decline as time progresses. However, in practice calculations are not undertaken asset by asset individually but for cohorts of assets of similar ages and characteristics. Individual assets within the cohort will retire at different moments but the efficiency-retirement profile for the cohort as a whole is typically convex to the origin.

6.255 The efficiency profiles of fixed assets determine the profiles of the benefits they command over their service lives. Once the profiles of the benefits over the service lives of the fixed asset have been determined, it becomes possible to calculate the consumption of fixed capital, period by period.

Rates of consumption of fixed capital

6.256 Consumption of fixed capital is derived as the reduction in the present value of the remaining benefits, as explained earlier. This reduction, and the rate at which it takes place over time, must be clearly distinguished from the decline in the efficiency of the capital assets themselves. Although the efficiency, and hence the benefit, of an asset with the efficiency characteristics of a light bulb may remain constant from period to period until it disintegrates, the value of the asset declines over time. It also follows that the consumption of fixed capital is not constant. It can easily be shown in this case that the decline in the present value of the remaining benefits from period to period is considerably lower earlier in the life of the asset than when the asset is approaching the end of its life. Consumption of fixed capital tends to increase as the asset gets older even though the efficiency and benefits remain constant to the end.

Values of consumption of fixed capital

6.257 Consumption of fixed capital should not be estimated in isolation from the derivation of a set of capital stock data. Such data are needed for the balance sheet and, as shown in chapter 20, trying to identify consumption of fixed capital in isolation from the level of the stock of the asset and its patterns of price and efficiency decline is likely to be error prone.

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Annex to chapter 6: Separating output due to storage from holding gains and losses

A. Introduction

A6.1 Paragraphs 6.142 to 6.145 recommend that, in some cases, the increase in value of goods held in inventories may be regarded as output due to storage rather than to holding gains. This annex explores the topic further and gives examples of when it is appropriate to treat any of the increase in value of a product as due to production and how this may be separated from any remaining holding gains and losses.

1. Storage costs and holding gains and losses

A6.2 Holding products in inventories always involves costs whether they are being held by the original producer or a subsequent wholesaler or retailer. These costs include those associated with providing the physical storage capacity, maintaining information on levels and types of inventories, costs of supplying withdrawals to customers and costs associated with renewing the level of inventories by acquiring replacement goods (other than the cost of the goods themselves). These costs form part of the basic price charged by a manufacturer or are recovered in the margins charged by wholesalers and retailers. The costs incurred are included in intermediate consumption, compensation of employees and the cost of capital. It may also be the case that specialist storage producers provide a service to other producers and again their costs are included in intermediate consumption.

A6.3 For most products, called “type I” products, this is the only aspect of storage that is relevant. All the costs associated with storage are included in production costs. The value of the goods as they are withdrawn from inventories is valued at the costs of producing or acquiring replacement items at that time. As a consequence, output is measured excluding any change in the value of products held in inventories; this change in value is treated as a holding gain or loss, as illustrated in the following example.

A6.4 Suppose a wholesaler buys and sells 100 packets of washing powder every period and in order to allow for marginal variations in demand keeps an inventory of 10 packets. At the beginning of a period the price paid per packet is 2, so the value of his inventories is 20. During the period the acquisition cost per packet increases to 2.1. The value of the 10 packets in inventories rises to 21 but the increase in value of 1 reflects the fact only that if the 10 packets were withdrawn from inventories for sale and replaced by identical products, the new products would cost 21 to acquire. Because output is measured with all units, whether newly produced or withdrawn from inventories, valued at the new price of 2.1, the 1 increase in the value of inventories does not enter the measures of production but appears only in the revaluation account explaining how the value of a stock of 10 packets at the beginning of the period, valued at 20, is replaced by a similar stock of 10 packets at the end of the period now valued at 21.

B. Goods whose real value changes over time

A6.5 There are three specific cases where the treatment described above is unsatisfactory because other factors intervene in the time while the goods are held in storage. Goods where this is the case are described as “type II” products. The three specific circumstances are the following:

a. Goods that have a very long production process;

b. Goods that change their physical characteristics while in inventories;

c. Goods that have seasonal patterns of supply or demand but not both.

Each of these is discussed in turn below.

1. Goods with a long production period

A6.6 When a product is held in inventories for an extended period of time because of the length of the production process, in principle, discount factors should be used when calculating the value of work put in place each period before the delivery date. For example, if a construction project ultimately worth 200 is put in place steadily over four years, it is unrealistic to count 50 as the contribution to production in the first year. Any purchaser would take account of the fact that he would not be able to realize the value of this production for another three years and discount the value accordingly. As time passes, there is income arising to the unit holding the products as the discount factor unwinds. This case is described in chapter 20, with the full details of this numerical example.

A6.7 It is suggested that in practice it is necessary to make an allowance for the discount factor only for goods of a significantly high value and significantly long production

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process, where goods are recorded as work-in-progress or capital formation on own account for many periods before completion.

2. Goods whose physical characteristics change

A6.8 The second set of circumstances relates to goods whose physical characteristics change during storage because maturing is part of the production process. The goods concerned are those that in the absence of any general or relative change in prices still increase in value because they improve in quality over the time held in storage. Examples are fermentation affecting food products and the ageing of wine and spirits. When the product is withdrawn from storage, it is physically different from a new item entering the maturing phase and so it is not appropriate to use the acquisition cost of the new entry into inventories as the value of the product being withdrawn. The question is how to separate the increase in value due to maturing from the overall price increases of the goods concerned.

A6.9 Suppose a product takes three years to reach a sufficient maturity to be sold and there is final demand for the product until it reaches this state. If the good is traded, even in its immature state, then prices will exist for the immature, newly manufactured product, for the one year old product, the two year old product and the mature product. Supposing the product is well-established, at any point in time there will be a mix of newly manufactured items and those of maturities of one, two and three years. If prices exist for these different maturities, separating the value of storage is not difficult. In the first year the new product is transformed into a product of one year's maturity. If the price when the product is brand new is P_0 and when it is one year old is P_1, and t is the first year and t+1 the second, the change in value of a quantity Q of the product is $Q(P_{1,t+1} - P_{0,t})$. The increase in value is due to two factors, the increase in the price of the new product made last year to the price of a similar new product made this year ($Q(P_{0,t+1} - P_{0,t})$) and the difference between the price of a similar new product made this year and the price of the one year mature product this year ($Q(P_{1,t+1} - P_{0,t+1})$). By applying the price differences to the volumes involved, the first difference gives rise to a holding gain; the second to the value of output due to storage.

A6.10 The identity that:

the increase in value from period t to period t+1,

is equal to the change in value between products of the same maturity (or vintage) from period t to period t+1 (treated as a holding gain),

plus the change in value between products of successive maturities (or vintages) in period t+1 treated as the output due to storage,

is true for any two successive time periods. Thus, in the second year the increase in price between the one year mature product at the beginning of the year and the price of a one year mature product at the end of the year gives rise to a holding gain and the difference in price between a one year mature product at the end of the year and the two year mature product at the same time gives the value of output due to storage, and so on.

A6.11 The identity in paragraph A6.10 holds in current values, when each term contains (or consists of) nominal holding gains (or losses) or when each term is deflated by the general level of inflation so that each term contains or consists of real holding gains (or losses). In volume terms, as when there are no price increases, the increase in value is identified with the output due to storage.

A6.12 In practice it is very likely that robust time series of prices at different points in the maturing process do not exist. It is possible that some close equivalent might be available but even this is not very likely. How can storage be separated from holding gains in the absence of these prices?

A6.13 From long experience the producer may be able to make a reasonable prediction about the increase in value due to storage. Suppose in a particular case he expects the value in volume terms after three years to be two and a half times the cost of producing the new product. If the new product is worth 100, the three year old, mature, product is worth 250. This suggests that the volume of output due to storage is 50 in each of the next three years. (Like the long construction product discussed above, in principle, a discount factor should be applied to the initial 100 and the first two tranches of 50 because the product is not ready for sale until the end of the third year.) In the absence of information about the increase in the price of the product relative to the general increase in prices, it may be necessary to assume there are no real holding gains in the product and the actual increase in value must be taken as the value of the output due to storage in current values. Once the price of the fully mature product is known, some adjustment could be made or, pragmatically, the difference between the original prediction and the outturn, adjusted for general inflation, may be taken as a real holding gain or loss.

A6.14 It is not ideal that the output due to storage is assumed to be invariant to fluctuations in relative prices, but in circumstances where most of the price increase will be due to storage and better basic data are not available, this approach gives a pragmatic estimate of output due to storage that is superior to the assumption that the whole of the increase in value is simply a holding gain.

3. Goods with seasonal patterns of supply and demand

A6.15 The third case where there is a change in value that is not attributable solely to holding gains and losses is when goods are placed in storage to take advantage of changes in the pattern of supply and demand over a year. The most common case is storage of a staple crop, such as maize, where there is a relatively short harvest period but demand is fairly constant throughout the year. As a result, the price rises as inventories decrease until the next harvest when an increase in supply causes the price to fall again. It is possible to envisage the opposite case where demand is seasonal but it is cost effective for producers to produce the good for the whole, or most, of the year, even though for

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much of that time the production goes straight into inventories and stays there until demand peaks.

A6.16 The reason that this type of product is different from a type I product is that, as with the goods that change characteristics due to maturing, the price increases, relative to the general level of inflation, in a more or less predictable way because of the effect of transporting the goods through time, from a period of abundance to one of relative scarcity. This is a quite different motivation from holding items in store for purely speculative reasons when there is no pattern established for the probable increase in prices and no predetermined time over which the goods might be held.

A6.17 The ideal situation is one where there is a well-established and robust seasonal pattern for the expected price increases in the crop. In such a case, the seasonal pattern of the prices can be used to establish the output due to storage and the remaining increase in value represents holding gains and losses that can be separated into real and neutral elements as normal.

A6.18 However, given that the total level of a harvest can be quite different year on year and the actual time of harvest may vary slightly from year to year depending on climatic conditions, establishing a robust seasonal pattern of prices may not be easy. In such a case, the pragmatic suggestion is similar to that for maturing goods when there is imperfect information. The premise is that the increase in price will be attributable to two factors; the first is an increase matching the general increase in prices. The element of increase in the value of inventories corresponding to this should be treated as nominal holding gains and losses. The second factor leading to the increase in prices is a seasonal scarcity value and this element should be treated as giving rise to output due to storage. Assuming that all the increase other than that matching average price increases is due to storage implies that there are no real holding gains.

4. Who benefits from the increase in value of goods in storage?

A6.19 The fact that type II products give rise to production of storage depends only on the type of product, not on the producer. If a farmer produces a seasonal crop and then stores most of it to sell bit by bit throughout the year, he records the benefits of the increase in value due to storage in his output. However, if he sells all of his crop at harvest time to another unit (for example, a wholesaler) and that unit puts it in inventories and sells it continuously throughout the year, then that unit derives the benefits from holding the crop in storage and records in his output these benefits that would otherwise have been recorded by the farmer as output. However many times a type II good changes hands between its production and sale, the value of output due to storage will be the same. It is likely that every time it changes hands, the associated intermediate consumption will increase so that value added will decrease but the level of output will not be affected. Thus an increase in value accrues to the unit holding the goods, if they are type II goods and the holder is a wholesaler or retailer, he may have output just as the original producer may.

5. When is output due to storage recorded?

A6.20 Output due to storage is produced on a continuous basis. In order to have an articulated set of information on production and inventories, output from storage must be calculated period by period. If the goods that are changing value remain in inventories, the owner of the goods has output that is treated as an addition to inventories. Even though the quantity of the inventories may not change, the quality-adjusted measures do change to reflect the increase in price that is treated as a quality change and not as a holding gain.

1. Some examples

A6.21 These simple examples show how the approximate approach to calculating storage works under different assumptions.

Example 1

A6.22 Unit A purchases goods to the value of 100 and they rise in value to 110 by the middle of year 2 when he sells them. At the end of the year the value of the goods is 108. There is no general inflation in the period.

A6.23 In year 1, A records output of 8 and additions to inventories of 108 in total. In year 2, A records output of 2, additions to inventories of 2 and sales of the withdrawals from inventories of 110.

Example 2

A6.24 The goods bought in example 1 also increase in line with inflation so that they are worth 115 by the end of year 1 and 120 on disposal.

A6.25 The recordings in year 1 are complemented by holding gains of 7 in year 1. At the end of year 1, it is necessary to re-estimate the expected price level on disposal. If this is estimated to be 117, showing the same absolute increase as previously expected, for example, then a holding gain of 3 will be recorded in year 2.

Example 3

A6.26 The goods in example 1 are sold to unit B for 105 part way through the year. B then holds the goods until selling them at the same point in time in year 2 for 110.

A6.27 In year 1, A has output of 5 and acquisition of inventories of 105. A withdraws inventories of 105 and sells them to B. B has output in year 1 of 3, which is recorded as an addition to inventories. The value of B's total additions to inventories in year 1 is thus 108. In year 2, B has output of 2, additions to inventories of 2 and sales that represent withdrawals from inventories of 110.

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Chapter 7: The distribution of income accounts

A. Introduction

7.1 There are two accounts that record how income arising from involvement in processes of production or from ownership of assets needed for production are distributed among institutional units and the second of these is further subdivided in two also:

a. The generation of income account;

b. The allocation of primary income account;

· The entrepreneurial income account; and

· The allocation of other primary income account.

7.2 Basic to all these accounts is the concept of primary income. ***Primary incomes are incomes that accrue to institutional units as a consequence of their involvement in processes of production or ownership of assets that may be needed for purposes of production.*** A major item of primary income is compensation of employees that represents the income accruing to individuals in return for their labour input into production processes. Property income is that part of primary incomes that accrues by lending or renting financial or natural resources, including land, to other units for use in production. Receipts from taxes on production and imports (less subsidies on production and imports) are treated as primary incomes of governments even though not all of them may be recorded as payable out of the value added of enterprises. Primary incomes do not include the payments of social contributions to social insurance schemes and the receipt of benefits from them, current taxes on income, wealth, etc. and other current transfers, such current transfers being recorded in the secondary distribution of income account.

1. The generation of income account

7.3 The generation of income account (shown in table 7.1) represents a further extension or elaboration of the production account in which the primary incomes accruing to government units and to the units participating directly in production are recorded. Like the production account, it may be compiled for establishments and industries as well as for institutional units and sectors. The generation of income account shows the sectors, subsectors or industries in which the primary incomes originate, as distinct from the sectors or subsectors destined to receive such incomes. For example, the only compensation of employees recorded in the generation of income account for the household sector consists of the compensation of employees payable by unincorporated enterprises owned by households. This item is very different from the compensation of employees receivable by the household sector, which is recorded in the account below, the allocation of primary income account.

7.4 The resources, listed on the right-hand side of the generation of income account, consist of only a single item, value added, the balancing item carried forward from the production account. As stated in chapter 6, value added may be measured before the deduction of consumption of fixed capital (gross) or after the deduction of consumption of fixed capital (net). Provision must also be made throughout the remaining accounts of the SNA for the relevant balancing items to be measured gross or net of consumption of fixed capital. The concept and measurement of consumption of fixed capital have already been explained in detail in chapter 6. For simplicity, it will be assumed that value added is measured net, except when the context requires gross value added to be referred to explicitly.

7.5 The left-hand side of the generation of income account records the uses of value added. There are only two main types of charges that producers have to meet out of value added: compensation of employees payable to workers employed in the production process and any taxes, less subsidies, on production payable or receivable as a result of engaging in production. ***Compensation of employees is defined as the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period. Taxes less subsidies on production consist of taxes payable or subsidies receivable on goods or services produced as outputs and other taxes or subsidies on production, such as those payable on the labour, machinery, buildings or other assets used in production.*** Taxes on production do not include any income taxes payable by the recipients of incomes accruing from production, whether employers or employees.

7.6 The content of the item taxes less subsidies on production payable out of value added varies according to the way in which output is valued. Value added tax (VAT), or other similar deductible tax, invoiced on output is never treated as part of the price receivable by the producer from the purchaser. Invoiced VAT is always omitted from value of output, whether output is valued at producers' or basic prices. Hence, invoiced VAT is not a charge against value added and is not recorded as a payable in the producer's generation of income account. However, when output is valued at producers' prices, any other tax on products

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payable on the output is treated as an integral part of the price receivable by the producer from the purchaser. The tax is recorded as being payable by the producer out of value added at producers' prices in the generation of income account, that is, as a component of the item "taxes less subsidies on production". Similarly, any subsidy on products receivable on the output is recorded as being receivable by the producer from government in the generation of income account as a supplement to value added at producers' prices. By convention, it is not recorded under resources but as a component of "taxes less subsidies on production" as if it were a negative tax on output.

7.7 As explained in chapter 6, the basic price is obtained from the producer's price by deducting any tax on products payable on a unit of output (other than invoiced VAT already omitted from the producer's price) and adding any subsidy on products receivable on a unit of output. In consequence, no taxes on products or subsidies on products are to be recorded as payables or receivables in the producer's generation of income account when value added is measured at basic prices, the preferred valuation basis in the SNA. When basic prices are used to value output, the item "taxes less subsidies on production" refers only to other taxes or subsidies on production.

7.8 After deducting compensation of employees and taxes, less subsidies, on production from value added, the balancing item of the generation of income account is obtained. The balancing item is shown on the left-hand side of the account under uses. It measures the surplus or deficit accruing from production before taking account of any interest, rent or similar charges payable on financial assets or natural resources borrowed or rented by the enterprise, or any interest, rent or similar receipts receivable on financial assets or natural resources owned by the enterprise.

Operating surplus and mixed income

7.9 The balancing item is described as operating surplus except for unincorporated enterprises owned by households in which the owner(s) or members of the same household may contribute unpaid labour inputs of a similar kind to those that could be provided by paid employees. In the latter case, the balancing item is described as mixed income because it implicitly contains an element of remuneration for work done by the owner, or other members of the household, that cannot be separately identified from the return to the owner as entrepreneur. In many cases, though, the element of remuneration may dominate the value of mixed income. In practice, all unincorporated enterprises owned by households that are not quasi-corporations are deemed to have mixed income as their balancing item, except owner-occupiers in their capacity as producers of housing services for own final consumption, households leasing dwellings and households employing paid domestic staff. For owner-occupiers and those leasing dwellings, all value added is operating surplus. For domestic staff all value added is compensation of employees (unless any taxes or subsidies on production are payable or receivable on the output).

7.10 As noted in chapter 6, gross domestic product (GDP) at market prices is equal to the sum of the gross value added of all resident enterprises plus those taxes, less subsidies, on products that are not payable on the values of the outputs of those enterprises, that is, taxes or subsidies on imports plus non-deductible VAT when output is valued at producers' prices, and all taxes or subsidies on products when output is valued at basic prices. For this reason, taxes and subsidies on imports and VAT must also be recorded under uses of GDP in the generation of income account for the total economy, even though they do not appear in the generation of income account for individual institutional units or sectors.

7.11 As already noted, the preferred measure of value added is after deducting consumption of fixed capital, that is, net value added. However, provision is made in the accounts of the SNA for value added, and all subsequent balancing items that depend on value added, to be measured gross or net of consumption of fixed capital. Operating surplus and mixed income may therefore both be expressed as gross or net.

7.12 Operating surplus or mixed income is a measure of the surplus accruing from processes of production before deducting any explicit or implicit interest charges, rent or other property incomes payable on the financial assets, land

Table 7.1:The generation of income account - concise form - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Compensation of employees	986	44	98	11	11	1 150			1 150
Taxes on production and imports						235			235
Subsidies						- 44			- 44
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Consumption of fixed capital on gross operating surplus	157	12	27	15	3	214			
Consumption of fixed capital on gross mixed income				8		8			
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53

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or other natural resources required to carry on the production. It is, therefore, invariant as to whether:

a. The land or other natural resources used in production are owned or rented by the enterprise; and

b. The inventories, fixed assets, land or other natural resources owned by the enterprise and used in production are financed out of own funds (or equity capital) or out of borrowed funds (or loan capital).

7.13 Although operating surplus or mixed income is invariant to the extent to which land is owned or assets in general are financed, it needs to be sufficient to cover both any explicit, or implicit, rent on land and the explicit, or implicit, interest charges on the value of all the assets owned by the enterprise in order to justify their continued use in production. The implicit interest costs of using the enterprise's own funds to purchase inventories, fixed assets or other assets are the opportunity costs of using the funds in this way rather than to acquire financial assets on which interest could be earned. These costs are captured in estimates of capital services. The amounts of rent and interest actually payable on rented land and borrowed funds are recorded in the allocation of primary income account and the entrepreneurial income account.

7.14 The operating surplus or mixed income of an individual producer unit is not invariant, however, to the extent to which the fixed assets used in production are owned or rented. When buildings, other structures, machinery or equipment are rented by an enterprise, the payments of rentals under an operating lease are recorded as purchases of services. These services form part of intermediate consumption. Thus, as explained in chapter 17, the payment of the rental on a fixed asset tends to reduce gross value added below what it would be if the producer owned the asset. The impact on net value added is mitigated by the fact that a tenant, or lessee, incurs no consumption of fixed capital. However, even net value added will tend to be lower when a fixed asset is rented as the rental has to cover the lessor's operating and interest costs. At the level of the total economy, the lower surpluses accruing to tenants or lessees will tend to be counterbalanced by the operating surpluses earned by the lessors.

2. The allocation of primary income account

7.15 Whereas the generation of income account focuses on resident institutional units or sectors in their capacity as producers whose activities generate primary incomes, the allocation of primary income account (shown in table 7.2) focuses on resident institutional units or sectors in their capacity as recipients of primary incomes. The allocation of primary income account shows where the items payable in the generation of income account are receivable and also includes the amounts of property incomes receivable and payable by institutional units or sectors. As already noted, the generation of income account, being related to production activities, can be compiled for establishments and industries as well as for institutional units and sectors. However, the allocation of primary income account has no such direct link with production and can only be compiled for institutional units and sectors.

7.16 Enterprises may invest surplus funds in financial assets or even land, especially in times of uncertainty and high interest rates. Considerable property income may be received from such investments. The property income paid out by a corporation will be influenced by the amount of property income received as well as by its operating surplus. Thus, it is not appropriate to record all the property income paid out by an enterprise as if it were chargeable against operating surplus. Some interest costs, especially implicit costs, may be attributable to assets other than those used in production. For this reason, the explicit and implicit interest costs payable by an enterprise ought not to be recorded in the generation of income account in which the resources consist only of value added accruing from production. They are recorded in the allocation of primary income account along with any property income receivable as well as the operating surplus.

7.17 There are two kinds of income listed under resources on the right-hand side of the allocation of primary income account. The first shows where primary incomes already recorded in the generation of income account are receivable, as follows:

a. Compensation of employees receivable by households or non-resident households;

Table 7.1 (cont):The generation of income account - concise form - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Value added, gross / Gross domestic product	1 331	94	126	155	15	1 854			1 854
Value added, net / Net domestic product	1 174	82	99	132	12	1 632			1 632
Compensation of employees									
Taxes on production and imports									
Subsidies									

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b. Taxes (less subsidies) on production or imports receivable (or payable) by government units or a foreign government;

c. Operating surplus, or mixed income, of enterprises carried forward from the generation of income account.

The second kind of income consists of property incomes receivable from the ownership of financial assets or natural resources:

d. Investment income receivable by the owners of financial assets from either resident or non-resident units;

e. Rent receivable by owners of natural resources leased to other units.

The balancing items and national income

7.18 The uses, listed on the left-hand side of the allocation of primary income account, consist only of the property incomes payable by institutional units or sectors to creditors, shareholders, landowners, etc. Except for rent on natural resources, these may be payable to non-residents as well as residents. The remaining item recorded under uses is the balancing item, ***the balance of primary incomes, defined as the total value of the primary incomes receivable by an institutional unit or sector less the total of the primary incomes payable.*** At the level of the total economy it is described as national income.

7.19 The composition of the balance of primary incomes varies considerably from one sector to another as certain types of primary incomes are receivable by certain sectors only or by non-residents. In particular, taxes are received only by the general government sector and non-residents while compensation of employees is received only by the household sector and non-residents. These balances are described below.

a. The balance of primary incomes of the non-financial and financial corporate sectors consists only of operating surplus plus property income receivable less property income payable.

b. The balance of primary incomes of the general government sector consists of taxes on production and on imports receivable less subsidies on production payable, plus property income receivable less property income payable. It may also include a small amount of operating surplus from units within general government undertaking market production.

c. The balance of primary incomes of the household sector consists of compensation of employees and mixed incomes accruing to households, plus property income receivable less property income payable. It also includes the operating surplus from housing services produced for own consumption by owner-occupiers.

d. The balance of primary incomes of the non-profit institutions serving households (NPISHs) sector consists almost entirely of property income receivable less property income payable.

Net national income and gross national income

7.20 ***Net national income (NNI) is the aggregate value of the net balances of primary incomes summed over all sectors***. Similarly***, gross national income (GNI) is the aggregate value of the gross balances of primary incomes for all sectors.***

7.21 Gross value added is strictly a production measure defined only in terms of output and intermediate consumption. It follows that GDP is also a production measure as it is obtained by summing the gross value added of all resident institutional units, in their capacities as producers, and adding the values of any taxes, less subsidies, on production or imports not already included in the values of the outputs, and value added, of resident producers. GNI is obtained by summing the balance of primary incomes of the same resident institutional units. It follows that the difference between the numerical values of GNI and GDP is equal to the difference between the total primary incomes receivable by residents from non-residents and the total primary incomes payable by residents to non-residents (that is, net income from abroad). However, as both GDP and GNI are obtained by summing over the same set of resident institutional units, there is no justification for labelling one

Table 7.2:The allocation of primary income account - concise form - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Compensation of employees							6		6
Taxes on production and imports									0
Subsidies									0
Property income	134	168	42	41	6	391	44		435
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642

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as "domestic" and the other as "national". Both aggregates refer to the total economy defined as the complete set of resident institutional units or sectors. The difference between them is not one of coverage but the fact that one measures production while the other measures income. Both have an equal claim to be described as domestic or as national. However, as the terms "gross *domestic* product" and "gross *national* income" are deeply embedded in economic usage, it is not proposed to change them. Emphasis should be given, however, to the third rather than second letter of the acronym to emphasize the fact that GDP refers to production (output) and GNI to income.

3. The entrepreneurial income account

7.22 The allocation of primary income account may be partitioned into two sub-accounts: the entrepreneurial income account and the allocation of other primary income account. The purpose is to identify an additional balancing item, entrepreneurial income, that may be useful for market producers. Like operating surplus and mixed income, it is a balancing item that is relevant only to producers, but one that can be calculated only for institutional units and sectors and not for establishments and industries.

7.23 Entrepreneurial income is calculated by deducting from operating surplus any interest, investment income disbursements and rent payable and adding property incomes receivable. For the non-financial and financial corporations sectors, the only difference between entrepreneurial income and the balance of primary incomes is that entrepreneurial income is measured before the payment of dividends, the withdrawals of income from quasi-corporations and reinvested earnings. Entrepreneurial income is not calculated for other sectors. Although government and households may contain unincorporated enterprises undertaking market production, the fact that the assets attributed to this activity cannot be distinguished from the entirety of assets of the institution means that identification of property income relating to the activity is also difficult. (If the assets and property income could be identified, it is probable that the unincorporated enterprise could be treated as a quasi-corporation and included in one of the corporate sectors.)

7.24 Entrepreneurial income is an income concept that is close to the concept of profit or loss as understood in business accounting (at least when there is no inflation). On the other hand, it should be remembered that when profits are calculated at historic costs in business accounts, they also include nominal holding gains on the inventories and other assets owned by the enterprise; these holding gains and losses may be quite substantial during inflationary conditions.

4. The allocation of other primary income account

7.25 When the entrepreneurial income account is compiled for an institutional unit or sector, it is followed by the allocation of other primary income account in order to arrive at the balance of primary incomes. In the allocation of other primary income account, the first item listed under resources is entrepreneurial income, the balancing item carried forward from the entrepreneurial income account instead of operating surplus or mixed income, which are the balancing items carried forward from the generation of income account. The only item in the account, for non-financial and financial corporations, apart from the balancing items, is the entry for the distributed income of corporations.

7.26 For general government, households and NPISHs, the allocation of other primary income account matches the allocation of primary income account.

7.27 The entrepreneurial income account and the account for other primary income are shown in table 7.3.

Table 7.2 (cont):The allocation of primary income account - concise form - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Compensation of employees				1 154		1 154	2		1 156
Taxes on production and imports			235			235			235
Subsidies			- 44			- 44			- 44
Property income	96	149	22	123	7	397	38		435

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B. Compensation of employees

1. Identifying employees

7.28 It is not always self-evident whether a person is an employee or self-employed, for example, some workers paid by results may be employees while others may be self-employed. The boundary also affects the subsectoring of the household sector. The definitions in the SNA are consistent with resolutions of the International Conference of Labour Statisticians (ICLS) concerning the definitions of the economically active population. For the SNA, though, the main objective is to clarify the nature of the employment relationship in order to fix the boundary between compensation of employees and other kinds of receipts. Some persons who in labour statistics may be included with the self-employed, in particular some owners of quasi-corporations and owner-managers of corporations, are treated in the SNA as employees. Further discussion on the measurement of the labour force and definitions of the related terms appear in chapter 19.

The employment relationship

7.29 In order to be classified as employed, that is, either as an employee or self-employed, the person must be engaged in an activity that falls within the production boundary of the SNA. The relationship of employer to employee exists when there is a written or oral agreement, which may be formal or informal, between an enterprise and a person, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind. The remuneration is normally based on either the time spent at work or some other objective indicator of the amount of work done.

7.30 The self-employed are persons who work for themselves, when the enterprises they own are distinguished neither as separate legal entities nor as separate institutional units in the SNA. They may be persons who are the sole owners, or joint owners, of the unincorporated enterprises in which they work; members of a producers' cooperative or contributing family workers (that is, family members who work in an unincorporated enterprise without pay).

Table 7.3:The entrepreneurial income and allocation of other primary income accounts - uses

Entrepreneurial account
Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Property income	87	153				240			240
Interest	56	106				162			162
Distributed income of corporations									
Reinvested earnings on foreign direct investment									
Investment income disbursements		47				47			47
Rent	31	0				31			31
Entrepreneurial income, gross	301	42				343			343
Entrepreneurial income, net	144	30				174			174

Allocation of other primary income account
Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Compensation of employees							6		6
Taxes on production and imports									
Subsidies									
Property income	47	15	42	41	6	151	63		214
Interest			35	14	6	55	13		68
Reinvested earnings on foreign direct investment						0	14		14
Rent			7	27	0	34			34
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642

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a. Workers engaged in production undertaken entirely for their own final consumption or own capital formation, either individually or collectively, are self-employed. Although a value may be imputed for the output of own-account production based on costs, including estimated labour costs, no imputation is made for the wages of workers engaged in such production, even in the case of collective, or communal, projects undertaken by groups of persons working together. The surplus of the imputed value of the output over any monetary costs or taxes on production explicitly incurred is treated as gross mixed income.

b. Contributing family workers, including those working without pay in unincorporated enterprises engaged wholly or partly in market production, are also treated as self-employed.

c. The whole of the equity of a corporation may be owned by a single shareholder or small group of shareholders. When those shareholders also work for the corporation and receive paid remuneration other than dividends, the shareholders are treated as employees. The owners of quasi-corporations who work in those quasi-corporations and receive paid remuneration other than withdrawal of earnings from the quasi-corporation are also treated as employees.

d. Outworkers may be either employees or self-employed depending on their exact status and circumstances. The treatment of outworkers is specified in more detail below.

7.31 The remuneration of the self-employed is treated as mixed income.

7.32 Students in their capacity as consumers of educational or training services are not employees. However, if students also have a formal commitment whereby they contribute some of their own labour as an input into an enterprise's process of production, for example, as apprentices or similar kinds of worker trainees, articled clerks, student nurses, research or teaching assistants, hospital interns, etc., they are treated as employees, whether or not they receive any remuneration in cash for the work that they do in addition to training received as in-kind payment.

Table 7.3 (cont):The entrepreneurial income and allocation of other primary income accounts - resources

Entrepreneurial account

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Property income	96	149				245			245
Interest	33	106				139			139
Distributed income of corporations	10	25				35			35
Reinvested earnings on foreign direct investment	4	7				11			11
Investment income disbursements	8	8				16			16
Rent	41	3				44			44

Allocation of other primary income account

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Entrepreneurial income, gross	301	42				343			343
Entrepreneurial income, net	144	30				174			174
Compensation of employees				1 154		1 154	2		1 156
Taxes on production and imports			235			235			235
Subsidies			- 44			- 44			- 44
Property income			22	123	7	152	38		190
Interest			14	49	7	70	21		91
Reinvested earnings on foreign direct investment			0	3	0	3	0		3
Rent			0	21	0	21			21

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Employers and own-account workers

7.33 Self-employed persons may be divided into two groups: those who do and those who do not engage paid employees on a continuous basis. Those who do engage employees on a continuous basis are described as employers and those without paid employees are described as own-account workers. The distinction is used for purposes of subsectoring the household sector. Own-account workers may be further subdivided into outworkers who are under some kind of formal or informal contract to supply goods or services to a particular enterprise, and ordinary own-account workers who may be engaged in either market production or production for own final consumption or own capital formation.

Outworkers

7.34 An outworker is a person who agrees to work for a particular enterprise or to supply a certain quantity of goods or services to a particular enterprise, by prior arrangement or contract with that enterprise, but whose place of work is not within any of the establishments that make up that enterprise. The enterprise does not control the time spent at work by an outworker and does not assume responsibility for the conditions in which that work is carried out, although it may carry out checks on the quality of work. Most outworkers work at home but may use other premises of their own choice. Some outworkers are provided with the equipment or materials, or both, on which they work, by an enterprise but other outworkers may purchase their own equipment or materials, or both. In any case, outworkers have to meet some production costs themselves: for example, the actual or imputed rentals on the buildings in which they work; heating, lighting and power; storage or transportation; etc.

7.35 Outworkers have some of the characteristics of employees and some of the characteristics of self-employed workers. The way in which they are to be classified is determined primarily by the basis on which they are remunerated. A distinction can be drawn between two cases that, in principle, are quite different from one another:

a. The person is remunerated directly, or indirectly, on the basis of the amount of work done, that is, by the amount of labour that is contributed as an input into some process of production, irrespective of the value of the output produced or the profitability of the production process. This kind of remuneration implies that the worker is an employee.

b. The income received by the person is a function of the value of the outputs from some process of production for which that person is responsible, however much or little work was put in. This kind of remuneration implies that the worker is self-employed.

7.36 In practice it may not always be easy to distinguish between employees and self-employed on the basis of these criteria. Outworkers who employ and pay others to work for them must be treated as the self-employed owners of unincorporated enterprises, that is as employers. The issue, therefore, is to distinguish own-account workers from employees.

7.37 An outworker is considered an employee when an employment relationship exists between the enterprise and the outworker. This implies the existence of an implicit or explicit employment contract or agreement whereby it is agreed that the outworker is remunerated on the basis of the work done. Conversely, an outworker is considered to be an own-account worker when there is no such implicit or explicit employment contract or agreement and the income earned by the outworker depends on the value of the goods

Table 7.4:The generation of income account - compensation of employees - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Compensation of employees	986	44	98	11	11	1 150			1 150
Wages and salaries	841	29	63	11	6	950			950
Employers' social contributions	145	15	35	0	5	200			200
Employers' actual social contributions	132	14	31	0	4	181			181
Employers' actual pension contributions	122	14	28	0	4	168			168
Employers' actual non-pension contributions	10	0	3	0	0	13			13
Employers' imputed social contributions	13	1	4	0	1	19			19
Employers' imputed pension contributions	12	1	4	0	1	18			18
Employers' imputed non-pension contributions	1	0	0	0	0	1			1
Taxes on production and imports						235			235
Subsidies						- 44			- 44
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Consumption of fixed capital on gross operating surplus	157	12	27	15	3	214			
Consumption of fixed capital on gross mixed income				8		8			
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53

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or services supplied to the enterprise. This suggests that decisions on markets, scale of operations and finance are likely to be in the hands of self-employed outworkers who are also likely to own, or rent, the machinery or equipment on which they work.

7.38 The status of an outworker has important implications for the accounts. When the outworker is an own-account worker, the payment from the enterprise to the outworker constitutes a purchase of intermediate goods or services. For the outworker, the payment from the enterprise represents the value of output and the excess over direct costs to the outworker (treated as intermediate consumption) is gross mixed income. When the outworker is an employee, the payment constitutes compensation of employees and so is paid out of the value added of the enterprise. Thus, the outworker's status affects the distribution of value added between enterprises as well as the distribution of incomes between compensation of employees of the employing enterprise and net mixed income of the household of the outworker.

2. The components of compensation of employees

7.39 Compensation of employees is recorded under uses in the generation of income account and under resources in the allocation of primary income account. The uses side of the generation of income account showing the detailed entries for compensation of employees is given in table 7.4 and the corresponding resources part of the allocation of primary income account in table 7.5. The only item, apart from the balancing items, relevant to these accounts that is not shown is the entry for compensation of employees payable by the rest of the world, which appears in the uses part of the allocation of primary income account.

7.40 As noted above, compensation of employees is defined as the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period.

7.41 Compensation of employees is recorded on an accrual basis; that is, it is measured by the value of the remuneration in cash or in kind that an employee becomes entitled to receive from an employer in respect of work done during the relevant period, whether paid in advance, simultaneously or in arrears of the work itself. No compensation of employees is payable in respect of unpaid work undertaken voluntarily, including the work done by members of a household within an unincorporated enterprise owned by the same household. Compensation of employees does not include any taxes payable by the employer on the wage and salary bill, for example, a payroll tax; such taxes are treated as taxes on production in the same way as taxes on buildings, land or other assets used in production.

7.42 Compensation of employees has two main components:

a. Wages and salaries payable in cash or in kind;

b. Social insurance contributions payable by employers, which include contributions to social security schemes; actual social contributions to other employment-related social insurance schemes and imputed social contributions to other employment-related social insurance schemes.

Social insurance schemes and the nature of benefits they provide are discussed in section D of chapter 8.

Table 7.5:The allocation of primary income account - compensation of employees - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Compensation of employees				1 154		1 154	2		1 156
Wages and salaries				954		954	2		956
Employers' social contributions				200		200	0		200
Employers' actual social contributions				181		181	0		181
Employers' actual pension contributions				168		168	0		168
Employers' actual non-pension contributions				13		13	0		13
Employers' imputed social contributions				19		19	0		19
Employers' imputed pension contributions				18		18	0		18
Employers' imputed non-pension contributions				1		1	0		1
Taxes on production and imports			235			235			235
Subsidies			- 44			- 44			- 44
Property income	96	149	22	123	7	397	38		435

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Wages and salaries

7.43 Wages and salaries include the values of any social contributions, income taxes, etc., payable by the employee even if they are actually withheld by the employer for administrative convenience or other reasons and paid directly to social insurance schemes, tax authorities, etc., on behalf of the employee. Wages and salaries may be paid in various ways, including goods or services provided to employees as remuneration in kind instead of, or in addition to, remuneration in cash.

Wages and salaries in cash

7.44 Wages and salaries in cash include the following kinds of remuneration:

a. Wages or salaries payable at regular weekly, monthly or other intervals, including payments by results and piecework payments; enhanced payments or special allowances for working overtime, at nights, at weekends or other unsocial hours; allowances for working away from home or in disagreeable or hazardous circumstances; expatriation allowances for working abroad; etc.;

b. Supplementary allowances payable regularly, such as housing allowances or allowances to cover the costs of travel to and from work, but excluding social benefits (see below);

c. Wages or salaries payable to employees away from work for short periods, for example, on holiday or as a result of a temporary halt to production, except during absences due to sickness, injury, etc. (see below);

d. Ad hoc bonuses or other exceptional payments linked to the overall performance of the enterprise made under incentive schemes;

e. Commissions, gratuities and tips received by employees: these should be treated as payments for services rendered by the enterprise employing the worker, and so should also be included in the output and gross value added of the employing enterprise when they are paid directly to the employee by a third party.

7.45 Wages and salaries in cash do not include the reimbursement by employers of expenditures made by employees in order to enable them to take up their jobs or to carry out their work. For example:

a. The reimbursement of travel, removal or related expenses made by employees when they take up new jobs or are required by their employers to move their homes to different parts of the country or to another country;

b. The reimbursement of expenditures by employees on tools, equipment, special clothing or other items that are needed exclusively, or primarily, to enable them to carry out their work.

The amounts reimbursed are treated as intermediate consumption by employers. To the extent that employees who are required by their contract of employment to purchase tools, equipment, special clothing, etc., are not fully reimbursed, the remaining expenses they incur should be deducted from the amounts they receive in wages and salaries and the employers' intermediate consumption increased accordingly. Expenditures on items needed exclusively, or primarily, for work do not form part of household final consumption expenditures, whether reimbursed or not.

7.46 Wages and salaries in cash also do not include social insurance benefits paid by employers in the form of:

a. Children's, spouse's, family, education or other allowances in respect of dependants;

b. Payments made at full, or reduced, wage or salary rates to workers absent from work because of illness, accidental injury, maternity leave, etc.;

c. Severance payments to workers or their survivors who lose their jobs because of redundancy, incapacity, accidental death, etc.

In practice, it may be difficult to separate payments of wages or salaries during short periods of absence due to sickness, accidents, etc., from other payments of wages and salaries, in which case they have to be grouped with the latter.

7.47 In some instances a benefit such as a car or extra pension contributions may not be provided free but be "purchased" from the employer by foregoing some salary. The attraction of such schemes lies in the tax advantages of doing so. A car bought by the employer and sold to the employee may be taxed at a lower rate than a car purchased by an individual; pension contributions may be taxed differently from other income if deducted at source. In these cases, the full salary should be recorded as payable in cash with the cost to the employee shown as consumption expenditure or pension contribution etc. as appropriate.

Wages and salaries in kind

7.48 Employers may remunerate their employees in kind for various reasons. For example:

a. There may be tax advantages for the employer, the employee, or both by avoiding payments in cash;

b. The employer may wish to dispose of outputs that are periodically in excess supply.

7.49 Income in kind may bring less satisfaction than income in cash because employees are not free to choose how to spend it. Some of the goods or services provided to employees may be of a type or quality that the employee would not normally buy. Nevertheless, they must be valued consistently with other goods and services. When the goods or services have been purchased by the employer, they should be valued at purchasers' prices. When produced by the employer, they should be valued at producers' prices.

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When provided free, the value of the wages and salaries in kind is given by the full value of the goods and services in question. When provided at reduced prices, the value of the wages and salaries in kind is given by the difference between the full value of the goods and services and the amount paid by the employees.

7.50 Goods or services that employers are obliged to provide to their employees in order for them to be able to carry out their work are treated as intermediate consumption by the employer: for example, special protective clothing. A list of such items is given in paragraph 6.222. Remuneration in kind, on the other hand, consists of goods and services that are not necessary for work and can be used by employees in their own time, and at their own discretion, for the satisfaction of their own needs or wants or those of other members of their households.

7.51 5Almost any kind of consumption good or service may be provided as remuneration in kind. The following includes some of the most common types of goods and services provided without charge, or at reduced prices, by employers to their employees:

a. meals and drinks provided on a regular basis including any subsidy element of an office canteen (for practical reasons, it is unnecessary to make estimates for meals and drinks consumed as part of official entertainment or during business travel);

b. housing services or accommodation of a type that can be used by all members of the household to which the employee belongs;

c. the services of vehicles or other durables provided for the personal use of employees;

d. goods and services produced as outputs from the employer's own processes of production, such as free travel for the employees of railways or airlines, or free coal for miners;

e. sports, recreation or holiday facilities for employees and their families;

f. transportation to and from work, free or subsidized car parking, when it would otherwise have to be paid for;

g. childcare for the children of employees.

7.52 Some of the services provided by employers, such as transportation to and from work, car parking and childcare have some of the characteristics of intermediate consumption. However, employers are obliged to provide these facilities to attract and retain labour, and not because of the nature of the production process or the physical conditions under which employees have to work. On balance, they are more like other forms of compensation of employees than intermediate consumption. Many workers have to pay for transportation to and from work, car parking and childcare out of their own incomes, the relevant expenditures being recorded as final consumption expenditures.

7.53 A frequent item provided as income in kind is a car. The car may be provided free to the employee but for tax purposes an imputed cash amount is attached to the benefit. In a country where many cars are provided as a fringe benefit to employees, the purchasing power of the employer may be such as to obtain a significant discount on the purchase price of the car. Thus the employee receives a higher quality car than the cash equivalent would buy for an individual. The value of the car to the employee should be estimated at the actual cost to the employer.

7.54 Remuneration in kind may also include the value of the interest foregone by employers when they provide loans to employees at reduced, or even zero rates of interest for purposes of buying houses, furniture or other goods or services. Its value may be estimated as the amount the employee would have to pay if average mortgage, or consumer loan, interest rates were charged less the amount of interest actually paid. The sums involved could be large when nominal interest rates are very high because of inflation but otherwise they may be too small and too uncertain to be worth estimating.

Stock options

7.55 Another form of income in kind results from the practice of an employer giving an employee the option to buy stocks (shares) at some future date. The details of valuing and recording of stock options are described in part 6 of chapter 17.

Employers' social contributions

7.56 ***Employers' social contributions are social contributions payable by employers to social security funds or other employment-related social insurance schemes to secure social benefits for their employees.*** Social security schemes are operated by general government; other employer-related social insurance schemes may be operated by the employers themselves, by an insurance corporation or may be an autonomous pension scheme.

7.57 As employers' social contributions are made for the benefit of their employees, their value is recorded as one of the components of compensation of employees together with wages and salaries in cash and in kind. The social contributions are then recorded as being paid by the employees as current transfers to the social security schemes or other employment-related social insurance schemes. Although it is administratively more efficient for employers to pay the contributions on behalf of their employees, this must not be allowed to obscure the underlying economic reality. The payment made by the employer to the social security scheme or other employment-related social insurance schemes is not, in fact, a current transfer to the fund on the part of the employer. The transfer takes place between the employee and the social security scheme or other employment-related social insurance schemes out of remuneration provided by the employer. The situation is parallel to one in which income taxes payable by employees are deducted by employers from the wages or salaries and paid directly to the tax authorities. In this case, it is evident that the taxes are not current transfers payable by the employers. It is customary to describe the employers' social contributions

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as being re-routed in the accounts via the employees' primary and secondary distribution of income accounts. However, the accounts depict the various payables and receivables correctly. The direct payment of social contributions, or income taxes, by employers to social security schemes, other employment-related social insurance schemes or tax authorities is merely a short cut taken on grounds of administrative convenience and efficiency.

7.58 An amount equal in value to employers' social contributions is first recorded in the generation of income account as one of the components of compensation of employees and then recorded either in the secondary distribution of income account as being transferred by households to social security funds or other employment-related social insurance schemes as the case may be, or is recorded in the use of income account as the payment by households for the financial services associated with running the schemes. The transactions are recorded simultaneously in all three accounts at the times when the work that gives rise to the requirement to pay the contributions is carried out. The contributions paid to social security schemes may be fixed amounts per employee or may vary with the levels of wages or salaries paid. The amounts paid under other employment-related social insurance schemes depend on the arrangements agreed between employers and employees.

7.59 Social insurance schemes in respect of pensions are of two types, described as defined contribution schemes or defined benefit schemes. A defined contribution scheme is one where the benefits are determined by the contributions actually made to the scheme. Under a defined benefit scheme, the ultimate benefit is calculated by means of a formula embodied in the terms of the social insurance scheme. Similarly, the increase in the employee's entitlement due to the period of employment in the current accounting period can also be determined by the formula.

7.60 The contributions made by employers to social insurance schemes are divided into actual and imputed contributions.

7.61 For both actual and imputed contributions, the components relating to pensions and other benefits are shown separately.

Employers' actual contributions to social insurance schemes

7.62 The actual contributions by employers to social insurance schemes consist of actual contributions made to both social security and other employment-related schemes. The contributions relating to pensions and other benefits are shown separately.

Employers' imputed contribution to social insurance schemes

Employers' imputed pension contributions

7.63 There are no imputed contributions to social security schemes.

7.64 For a defined contribution pension scheme, there are no imputed contributions unless the employer operates the scheme himself. In that case, the value of the costs of operating the scheme is treated as an imputed contribution payable to the employee as part of compensation of employees. This amount is also recorded as final consumption expenditure by households on financial services.

7.65 For a defined benefit pension scheme, there is an imputed contribution by the employer calculated as a residual. It must be such that the sum of the employer's actual contribution plus the sum of any contribution by the employee plus the imputed contribution by the employer is equal to the increase in benefit due to current period employment plus the costs of operating the scheme.

7.66 Some defined benefit pension schemes may be so well run that the funds available to the scheme exceed the liabilities of the scheme to present and past employees. It is possible that in this case the employer may take a "contribution holiday" and not make actual contributions for one or more periods. Nonetheless, an imputed contribution by the employer should be calculated and recorded as described here.

7.67 Some schemes may be expressed as non-contributory because no actual contributions are ever made by the employee. Nevertheless, an imputed contribution by the employer is calculated and imputed as just described.

Employers' imputed non-pension contributions

7.68 Some employers provide non-pension benefits themselves directly to their employees, former employees or dependants without involving an insurance enterprise or autonomous pension fund, and without creating a special fund or segregated reserve for the purpose. In this situation, existing employees may be considered as being protected against various specified needs or circumstances, even though no reserves are built up to provide future entitlement. Remuneration should therefore be imputed for such employees equal in value to the amount of social contributions that would be needed to secure the de facto entitlements to the social benefits they accumulate. These amounts take into account any actual contributions made by the employer or employee and depend not only on the levels of the benefits currently payable but also on the ways in which employers' liabilities under such schemes are likely to evolve in the future as a result of factors such as expected changes in the numbers, age distribution and life expectancies of their present and previous employees. Thus, the values that should be imputed for the contributions ought, in principle, to be based on the same kind of actuarial considerations that determine the levels of premiums charged by insurance enterprises.

7.69 In practice, however, it may be difficult to decide how large such imputed contributions should be. The enterprise may make estimates itself, perhaps on the basis of the contributions paid into similar funded schemes, in order to calculate its likely liabilities in the future, and such estimates may be used when available. Otherwise, the only practical alternative may be to use the unfunded non-pension benefits payable by the enterprise during the same

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accounting period as an estimate of the imputed remuneration that would be needed to cover the imputed contributions. While there are obviously many reasons why the value of the imputed contributions that would be needed may diverge from the unfunded non-pension benefits actually paid in the same period, such as the changing composition and age structure of the enterprise's labour force, the benefits actually paid in the current period may nevertheless provide the best available estimates of the contributions and associated imputed remuneration.

7.70 The fact that, failing other information, the value of contributions for a non-contributory scheme may be set equal to the value of benefits does not mean that the benefits themselves are treated as part of compensation of employees.

C. Taxes on production and on imports

1. Recording of taxes on production and on imports

7.71 ***Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units***. They are described as unrequited because the government provides nothing in return to the individual unit making the payment, although governments may use the funds raised in taxes to provide goods or services to other units, either individually or collectively, or to the community as a whole.

7.72 The full classification of taxes on production and on imports consists of:

Taxes on products,
- Value added type taxes (VAT),
- Taxes and duties on imports excluding VAT,
  - Import duties,
  - Taxes on imports excluding VAT and duties,
- Export taxes,
- Taxes on products, excluding VAT, import and export taxes,

Other taxes on production.

7.73 At the highest level of the classification, taxes on production and on imports consist of taxes on products and other taxes on production. Taxes on products consist of taxes on goods and services that become payable as a result of the production, sale, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation. The way in which taxes on products are recorded in the SNA depends on the valuation used for the recording of output as described below. Other taxes on production consist mainly of taxes on the ownership or use of land, buildings or other assets used in production or on the labour employed, or compensation of employees paid. Whatever the valuation of output used, other taxes on production are always recorded as a charge on value added in the generation of income account.

7.74 A full explanation of the content of each of the categories of taxes on production and on imports is given below after a discussion of the rules of recording taxes. This explanation provides links to the main publications of data on tax yields, the *GFSM2001* and *Revenue Statistics* (Organisation for Economic Co-operation and Development (OECD), annual publication).

7.75 In business accounting, taxes on production, except invoiced VAT, are usually regarded as costs of production that may be charged against sales or other receipts when calculating profits for tax or other purposes. They correspond to "indirect taxes" as traditionally understood, indirect taxes being taxes that supposedly can be passed on, in whole or in part, to other institutional units by increasing the prices of the goods or services sold. However, it is extremely difficult, if not impossible, to determine the real incidence of different kinds of taxes, and the use of the terms "direct" and "indirect" taxes has fallen out of favour in economics and is not used in the SNA.

The recording of taxes on production and on imports in the accounts

7.76 Taxes on production and imports are recorded under uses in the generation of income account and under resources in the allocation of primary income account.

7.77 In the generation of income account, taxes on imports are recorded only at the level of the total economy as they are not payable out of the value added of domestic producers. Moreover, at the level of an individual institutional unit or sector, only those taxes on products that have not been deducted from the value of the output of that unit or sector need to be recorded under uses in its generation of income account. These vary depending upon the way in which output is valued. When output is valued at basic prices, all taxes (subsidies) on products payable (receivable) on the goods or services produced as outputs are deducted from (added to) the value of that output at producers' prices. Therefore they do not have to be recorded under uses in the generation of income account of the units or sectors concerned, being recorded only at the level of the total economy, in the same way as taxes on imports. When output is valued at producers' prices, all taxes or subsidies on products payable or receivable on outputs have to be recorded under uses in the generation of income accounts of the units or sectors concerned, except invoiced VAT or similar deductible taxes as invoiced VAT is never included in the value of output. Non-deductible VAT and similar taxes are recorded under uses only at the level of the total economy, like taxes on imports.

7.78 Other taxes or subsidies on production, that is, taxes payable on the land, assets, labour, etc., employed in production are not taxes payable per unit of output and cannot be deducted from the producer's price. They are

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recorded as being payable out of the value added of the individual producers or sectors concerned.

7.79 In the allocation of primary income account, taxes on production and imports appear under resources only for the general government sector and the total economy, apart from any such taxes payable to foreign governments.

Taxes versus fees

7.80 One of the regulatory functions of governments is to forbid the ownership or use of certain goods or the pursuit of certain activities, unless specific permission is granted by issuing a licence or other certificate for which a fee is demanded. If the issue of such licences involves little or no work on the part of government, the licences being granted automatically on payment of the amounts due, it is likely that they are simply a device to raise revenue, even though the government may provide some kind of certificate, or authorization, in return. However, if the government uses the issue of licences to exercise some proper regulatory function, for example, checking the competence, or qualifications, of the person concerned, checking the efficient and safe functioning of the equipment in question, or carrying out some other form of control that it would otherwise not be obliged to do, the payments made should be treated as purchases of services from government rather than payments of taxes, unless the payments are clearly out of all proportion to the costs of providing the services. The borderline between taxes and payments of fees for services rendered is not always clear-cut in practice (see paragraph 8.64(c) below for a further explanation of this matter in the case of households). The general case of government issued permits is discussed in part 5 of chapter 17.

Links with the IMF and OECD tax classifications

7.81 The coverage of taxes in the SNA coincides with that of "tax revenue" as defined in the *GFSM2001* except for implicit taxes resulting from the central bank imposing a higher rate of interest than the market rate. In contrast to "taxes" as defined in *Revenue Statistics*, the SNA includes imputed taxes or subsidies resulting from the operation of official multiple exchange rates, imputed taxes and subsidies resulting from a central bank imposing interest rates above or below the market rate but does not classify social security contributions under the heading of taxes. Chapter 5 of the *GFSM2001* contains a detailed listing and classification of taxes according to the nature of the tax. Annex A of *Revenue Statistics* contains a closely related classification.

7.82 The categories of taxes distinguished in the SNA depend on the interaction of the following three factors, of which the nature of tax is only one:

a. The nature of the tax, as specified in the *GFSM2001*/ OECD classification;

b. The type of institutional unit paying the tax;

c. The circumstances in which the tax is payable.

Table 7.6:The generation of income account - taxes and subsidies on production - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Compensation of employees	986	44	98	11	11	1 150			1 150
Taxes on production and imports						235			235
Taxes on products						141			141
Value added type taxes (VAT)						121			121
Taxes and duties on imports excluding VAT						17			17
Import duties						17			17
Taxes on imports excluding VAT and duties						0			0
Export taxes						1			1
Taxes on products except VAT, import and export taxes						2			2
Other taxes on production	88	4	1	0	1	94			94
Subsidies						- 44			- 44
Subsidies on products						- 8			- 8
Import subsidies						0			0
Export subsidies						0			0
Other subsidies on products						- 8			- 8
Other subsidies on production	- 35	0	0	- 1	0	- 36			- 36
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Consumption of fixed capital on gross operating surplus	157	12	27	15	3	214			
Consumption of fixed capital on gross mixed income				8		8			
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53

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7.83 Thus, payments of exactly the same tax may be recorded under two different headings in the SNA. For example, payment of an excise duty may appear under "taxes on imports, except value added taxes (VAT) and duties" or under "taxes on products, except VAT, import and export taxes" depending upon whether the excise duty is paid on an imported or domestically produced good. Similarly, payments of an annual tax on automobiles may be recorded under "other taxes on production" or under "current taxes on income, wealth, etc." depending upon whether the tax is paid by an enterprise or by a household. For this reason, it is not possible to arrive at the SNA categories simply by regrouping the *GFSM2001*/OECD classifications. However, in order to take advantage of the existence of these detailed classifications, each category of tax listed below contains a cross-reference to the corresponding *GFSM2001* and OECD classifications. It should be noted, though, that the SNA categories are included within the *GFSM2001* and OECD categories but may not be identical with them.

The accrual basis of recording

7.84 All taxes should be recorded on an accrual basis in the SNA, that is, when the activities, transactions or other events occur that create the liabilities to pay taxes. However, some economic activities, transactions or events, which under tax legislation ought to impose on the units concerned the obligation to pay taxes, permanently escape the attention of the tax authorities. It would be unrealistic to assume that such activities, transactions or events give rise to financial assets or liabilities in the form of payables and receivables. For this reason the amounts of taxes to be recorded in the SNA are determined by the amounts due for payment only when evidenced by tax assessments, declarations or other instruments, such as sales invoices or customs declarations, that create liabilities in the form of clear obligations to pay on the part of taxpayers. (In determining the amount of tax accruing, care must be taken not to include tax unlikely ever to be collected.) Nevertheless, in accordance with the accrual principle, the times at which the taxes should be recorded are the times at which the tax liabilities arise. For example, a tax on the sale, transfer or use of output should be recorded when that sale, transfer or use took place, which is not necessarily the same time as when the tax authorities were notified, when a tax demand was issued, when the tax was due to be paid or when the payment was actually made. Some flexibility is permitted, however, as regards the time of recording of income taxes deducted at source.

7.85 In some countries, and for some taxes, the amounts of taxes eventually paid may diverge substantially and systematically from the amounts due to be paid to the extent that not all of the latter can be effectively construed as constituting financial liabilities as these are understood within the SNA. In such cases, it may be preferable for analytic and policy purposes to ignore unpaid tax liabilities and confine the measurement of taxes within the SNA to those actually paid. Nevertheless, the taxes actually paid should still be recorded on an accrual basis at the times at which the events took place that gave rise to the liabilities.

Interest, fines or other penalties

7.86 In principle, interest charged on overdue taxes or fines, or penalties imposed for the attempted evasion of taxes, should be recorded separately and not as taxes. However, it

Table 7.7:The allocation of primary income account - taxes and subsidies on production - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Compensation of employees				1 154		1 154	2		1 156
Taxes on production and imports			235			235			235
Taxes on products			141			141			141
Value added type taxes (VAT)			121			121			121
Taxes and duties on imports excluding VAT			17			17			17
Import duties			17			17			17
Taxes on imports excluding VAT and duties			0			0			0
Export taxes			1			1			1
Taxes on products except VAT, import and export taxes			2			2			2
Other taxes on production			94			94			94
Subsidies			- 44			- 44			- 44
Subsidies on products			- 8			- 8			- 8
Import subsidies			0			0			0
Export subsidies			0			0			0
Other subsidies on products			- 8			- 8			- 8
Other subsidies on production			- 36			- 36			- 36
Property income	96	149	22	123	7	397	38		435

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may not be possible to separate payments of interest, fines or other penalties from the taxes to which they relate, so that in practice they are usually grouped with taxes.

Taxes and subsidies within the primary distribution of income accounts

7.87 Table 7.6 shows the details of taxes and subsidies as uses in the generation of income account; table 7.7 shows them as resources in the allocation of primary income account. Because of the way that taxes on products and subsidies on products are recorded in the SNA, no details of payables by sector appear in table 7.6, only the totals. This is consistent with the presentation in table 6.1. Taxes and subsidies on products payable by the rest of the world appear in the resources part of the allocation of primary income account, not shown here.

2. Taxes on products

7.88 ***A tax on a product is a tax that is payable per unit of some good or service.*** The tax may be a specific amount of money per unit of quantity of a good or service (the quantity units being measured either in terms of discrete units or continuous physical variables such as volume, weight, strength, distance, time, etc.), or it may be calculated ad valorem as a specified percentage of the price per unit or value of the goods or services transacted. A tax on a product usually becomes payable when it is produced, sold or imported, but it may also become payable in other circumstances, such as when a good is exported, leased, transferred, delivered, or used for own consumption or own capital formation. An enterprise may or may not itemize the amount of a tax on a product separately on the invoice or bill that it charges its customers.

Value added type taxes

7.89 ***A value added type tax (VAT) is a tax on goods or services collected in stages by enterprises but that is ultimately charged in full to the final purchasers.*** Such taxes have already been described in paragraphs 6.55 to 6.62. They are described as a "deductible" tax because producers are not usually required to pay to the government the full amount of the tax they invoice to their customers, being permitted to deduct the amount of tax they have been invoiced on their own purchases of goods or services intended for intermediate consumption or fixed capital formation. VAT is usually calculated on the price of the good or service including any other tax on the product. VAT is also payable on imports of goods or services in addition to any import duties or other taxes on the imports (*GFSM2001* 11411; OECD, 5111).

Taxes and duties on imports, excluding VAT

7.90 ***Taxes and duties on imports consist of taxes on goods and services that become payable at the moment when those goods cross the national or customs frontiers of the economic territory or when those services are delivered by non-resident producers to resident institutional units***.

7.91 Imported goods on which all the required taxes on imports have been paid when they enter the economic territory may subsequently become subject to a further tax, or taxes, as they circulate within the economy. For example, excise duties or sales taxes may become due on goods as they pass through the chain of wholesale or retail distribution, such taxes being levied on all goods at the same point, whether those goods have been produced by resident enterprises or imported. Taxes payable subsequently on goods that have been already imported are not recorded as taxes on imports but as taxes on products, excluding VAT, import and export taxes.

7.92 Exceptionally, some taxes and duties may be payable on goods that physically enter the country but where there is no change of ownership so they are not treated as imports. Nevertheless, any such taxes and duties are still included in the heading of taxes and duties on imports.

Import duties

7.93 ***Import duties consist of customs duties, or other import charges, that are payable on goods of a particular type when they enter the economic territory.*** The duties are specified under customs tariff schedules. They may be intended as a means of raising revenue or discouraging imports in order to protect resident goods producers (*GFSM2001*, 1151; OECD, 5123).

Taxes on imports, excluding VAT and duties

7.94 ***Taxes on imports, excluding VAT and duties consist of all taxes (except VAT and import duties) as defined in the GFSM/OECD classifications that become payable when goods enter the economic territory or services are delivered by non-residents to residents.*** They include the following:

a. *General sales taxes*: these consist of general sales taxes (excluding VAT) that are payable on imports of goods and services when the goods enter the economic territory or the services are delivered to residents (*GFSM2001*, 11412; OECD, 5110-5113);

b. *Excise duties*: excise duties are taxes levied on specific kinds of goods, typically alcoholic beverages, tobacco and fuels; they may be payable in addition to import duties when the goods enter the economic territory (*GFSM2001*, 1142; OECD, 5121);

c. *Taxes on specific services*: these may be payable when non-resident enterprises provide services to resident units within the economic territory (*GFSM2001*, 1156; OECD, 5126);

d. *Profits of import monopolies*: these consist of the profits transferred to governments of import marketing boards, or other public enterprises exercising a monopoly over the imports of some good or service. The justification for treating these profits as implicit taxes on products is the same as that shown in paragraph 7.96 (e) for fiscal monopolies (*GFSM2001*, 1153; OECD, 5127);

e. *Taxes resulting from multiple exchange rates:* these consist of implicit taxes resulting from the operation of

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multiple exchange rates by the central bank or other official agency (*GFSM2001*, 1154).

Export taxes

7.95 ***Export taxes consist of taxes on goods or services that become payable by government when the goods leave the economic territory or when the services are delivered to non-residents.*** They include the following:

a. *Export duties*: general or specific taxes or duties on exports (*GFSM2001*, 1152; OECD, 5124);

b. *Profits of export monopolies:* these consist of the profits transferred to governments of export marketing boards, or other public enterprises exercising a monopoly over the exports of some good or service. The justification for treating these profits as implicit taxes on products is the same as that shown in paragraph 7.96 (e) for fiscal monopolies (*GFSM2001*, 1153; OECD, 5124);

c. *Taxes resulting from multiple exchange rates*: these consist of implicit taxes on exports resulting from the operation of an official system of multiple exchange rates. (*GFSM2001*, 1154).

Taxes on products, excluding VAT, import and export taxes

7.96 ***Taxes on products, excluding VAT, import and export taxes, consist of taxes on goods and services that become payable as a result of the production, sale, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation***. They include the following commonly occurring taxes:

a. *General sales or turnover taxes*: these include manufacturers', wholesale and retail sales taxes, purchase taxes, turnover taxes, and so on, but exclude VAT and other systems of deductible taxes (*GFSM2001*, 11412-11413; OECD, 5110-5113).

b. *Excise duties:* these consist of taxes levied on specific kinds of goods, typically alcoholic beverages, tobacco and fuels (*GFSM2001*, 1142; OECD, 5121).

c. *Taxes on specific services*: these include taxes on transportation, communications, insurance, advertising, hotels or lodging, restaurants, entertainments, gambling and lotteries, sporting events, etc. (*GFSM2001*, 1144; OECD, 5126).

d. *Taxes on financial and capital transactions*: these consist of taxes payable on the purchase or sale of non-financial and financial assets including foreign exchange. They become payable when the ownership of land or other assets changes, except as a result of capital transfers (mainly inheritances and gifts) (*GFSM2001*, 1134; OECD, 4400). They are treated as taxes on the services of the unit selling the asset.

e. *Profits of fiscal monopolies*: these consist of the profits of fiscal monopolies that are transferred to government. Fiscal monopolies are public corporations, public quasi-corporations, or government-owned unincorporated enterprises that have been granted a legal monopoly over the production or distribution of a particular kind of good or service in order to raise revenue and not in order to further the interests of public economic or social policy. Such monopolies are typically engaged in the production of goods or services that may be heavily taxed in other countries, for example, alcoholic beverages, tobacco, matches, petroleum products, salt, playing cards, etc. The exercise of monopoly powers is simply an alternative way for the government to raise revenue instead of the more overt procedure of taxing the private production of such products. In such cases the sales prices of the monopolies are deemed to include implicit taxes on the products sold. While in principle only the excess of the monopoly profits over some notional "normal" profits should be treated as taxes, it is difficult to estimate this amount and, in practice, the value of the taxes should be taken as equal to the amount of the profits actually transferred from fiscal monopolies to government (*GFSM2001*, 1143; OECD, 5122). When a public enterprise is granted monopoly powers as a matter of deliberate economic or social policy because of the special nature of the good or service or the technology of production (for example, public utilities, post offices and telecommunications, railways, etc.) it should not be treated as a fiscal monopoly. As a general rule, fiscal monopolies tend to be confined to the production of consumer goods or fuels. As the profits of a fiscal monopoly are calculated for the enterprise as a whole, it is not possible to estimate the average amount of the tax per unit of good or service sold when the enterprise has more than one good or service as output without introducing an assumption about the rates of tax on the different products. Unless there is good reason otherwise, it should be assumed that the same ad valorem rate of tax is applied to all products, this rate being given by the ratio of the total value of the implicit taxes to the value of total sales less the total value of the implicit taxes. It is necessary to establish this rate in order to be able to calculate the basic prices of the products concerned.

f. *Taxes resulting from the central bank imposing a higher rate of interest than the market rate*: These taxes are described in paragraphs 7.122 to 7.126. (These taxes are not mentioned in *GFSM2001*.)

3. Other taxes on production

7.97 ***Other taxes on production consist of all taxes except taxes on products that enterprises incur as a result of engaging in production.*** Such taxes do not include any taxes on the profits or other income received by the enterprise and are payable regardless of the profitability of the production. They may be payable on the land, fixed assets or labour employed in the production process or on certain activities or transactions. Other taxes on production include the following:

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a. *Taxes on payroll or work force*: these consist of taxes payable by enterprises assessed either as a proportion of the wages and salaries paid or as a fixed amount per person employed. They do not include compulsory social security contributions paid by employers or any taxes paid by the employees themselves out of their wages or salaries (*GFSM2001*, 112; OECD, 3000);

b. *Recurrent taxes on land, buildings or other structures*: these consist of taxes payable regularly, usually each year, in respect of the use or ownership of land, buildings or other structures utilized by enterprises in production, whether the enterprises own or rent such assets (*GFSM2001*, 1131; OECD, 4100);

c. *Business and professional licences*: these consist of taxes paid by enterprises in order to obtain a licence to carry on a particular kind of business or profession. Licences such as taxi and casino licences are included. In certain circumstances, licences to use a natural resource, however, are treated not as a tax but as the sale of an asset. These circumstances are described in part 5 of chapter 17. However, if the government carries out checks on the suitability, or safety of the business premises, on the reliability, or safety, of the equipment employed, on the professional competence of the staff employed, or on the quality or standard of goods or services produced as a condition for granting such a licence, the payments are not unrequited and should be treated as payments for services rendered, unless the amounts charged for the licences are out of all proportion to the costs of the checks carried out by governments (*GFSM2001*, 11452; OECD, 5210). (See also paragraph 8.64 (c) for the treatment of licences obtained by households for their own personal use.);

d. *Taxes on the use of fixed assets or other activities*: these include taxes levied periodically on the use of vehicles, ships, aircraft or other machinery or equipment used by enterprises for purposes of production, whether such assets are owned or rented. These taxes are often described as licences, and are usually fixed amounts that do not depend on the actual rate of usage (*GFSM2001*, 11451-11452 and 5.5.3; OECD, 5200);

e. *Stamp taxes*: these consist of stamp taxes that do not fall on particular classes of transactions already identified, for example, stamps on legal documents or cheques. These are treated as taxes on the production of business or financial services. However, stamp taxes on the sale of specific products, such as alcoholic beverages or tobacco, are treated as taxes on products (*GFSM2001*, 1161; OECD, 6200);

f. *Taxes on pollution*: these consist of taxes levied on the emission or discharge into the environment of noxious gases, liquids or other harmful substances. They do not include payments made for the collection and disposal of waste or noxious substances by public authorities, which constitute intermediate consumption of enterprises (*GFSM2001*, 11452; OECD, 5200);

g. *Taxes on international transactions*: these consist of taxes on travel abroad, foreign remittances or similar transactions with non-residents (*GFSM2001*, 1156; OECD, 5127).

D. Subsidies

7.98 ***Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services that they produce, sell or import***. They are receivable by resident producers or importers. In the case of resident producers they may be designed to influence their levels of production, the prices at which their outputs are sold or the remuneration of the institutional units engaged in production. Subsidies have the same impact as negative taxes on production in so far as their impact on the operating surplus is in the opposite direction to that of taxes on production.

7.99 Subsidies are not payable to final consumers; current transfers that governments make directly to households as consumers are treated as social benefits. Subsidies also do not include grants that governments may make to enterprises in order to finance their capital formation, or compensate them for damage to their capital assets, such grants being treated as capital transfers.

1. Subsidies on products

7.100 ***A subsidy on a product is a subsidy payable per unit of a good or service.*** The subsidy may be a specific amount of money per unit of quantity of a good or service, or it may be calculated ad valorem as a specified percentage of the price per unit. A subsidy may also be calculated as the difference between a specified target price and the market price actually paid by a buyer. A subsidy on a product usually becomes payable when the good or service is produced, sold or imported, but it may also be payable in other circumstances such as when a good is transferred, leased, delivered or used for own consumption or own capital formation.

Import subsidies

7.101 ***Import subsidies consist of subsidies on goods and services that become payable when the goods cross the frontier of the economic territory or when the services are delivered to resident institutional units.*** They include implicit subsidies resulting from the operation of a system of official multiple exchange rates. They may also include losses incurred as a matter of deliberate government policy

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by government trading organizations whose function is to purchase products from non-residents and then sell them at lower prices to residents (see also export subsidies in paragraph 7.103).

7.102 As in the case of taxes on products, subsidies on imported goods do not include any subsidies that may become payable on such goods after they have crossed the frontier and entered into free circulation within the economic territory of the country.

Export subsidies

7.103 ***Export subsidies consist of all subsidies on goods and services that become payable by government when the goods leave the economic territory or when the services are delivered to non-resident units.*** They include the following:

a. *Direct subsidies* on exports payable directly to resident producers when the goods leave the economic territory or the services are delivered to non-residents;

b. *Losses of government trading organizations*: these consist of losses incurred as a matter of deliberate government policy by government trading organizations whose function is to buy the products of resident enterprises and then sell them at lower prices to non-residents. The difference between the buying and selling prices is an export subsidy (see also paragraph 7.105(b));

c. *Subsidies resulting from multiple exchange rates*: these consist of implicit subsidies resulting from the operation of an official system of multiple exchange rates.

Exclusions from export subsidies

7.104 Export subsidies do not include the repayment at the customs frontier of taxes on products previously paid on goods or services while they were inside the economic territory. They also exclude the waiving of the taxes that would be due if the goods were to be sold or used inside the economic territory instead of being exported. General taxes on products such as sales or purchase taxes, VAT, excise taxes or other taxes on products are usually not payable on exports.

Other subsidies on products

7.105 ***Other subsidies on products consist of subsidies on goods or services produced as the outputs of resident enterprises, or on imports, that become payable as a result of the production, sale, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation.*** The most common types are the following:

a. *Subsidies on products used domestically*: these consist of subsidies payable to resident enterprises in respect of their outputs that are used or consumed within the economic territory;

b. *Losses of government trading organizations*: these consist of the losses incurred by government trading organizations whose function is to buy and sell the products of resident enterprises. When such organizations incur losses as a matter of deliberate government economic or social policy by selling at lower prices than those at which they purchased the goods, the difference between the purchase and the selling prices should be treated as a subsidy. Entries to the inventories of goods held by such organizations are valued at the purchasers' prices paid by the trading organizations and the subsidies are recorded at the time the goods are sold;

c. *Subsidies to public corporations and quasi-corporations*: these consist of regular transfers paid to public corporations and quasi-corporations that are intended to compensate for persistent losses (that is, negative operating surpluses) incurred on their productive activities as a result of charging prices that are lower than their average costs of production as a matter of deliberate government economic and social policy. In order to calculate the basic prices of the outputs of such enterprises, it will usually be necessary to assume a uniform ad valorem implicit rate of subsidy on those outputs determined by the size of the subsidy as a percentage of the value of sales plus subsidy.

d. *Subsidies resulting from the central bank accepting a lower rate of interest than the market rate*: These subsidies are described in paragraphs 7.122 to 7.126. (These subsidies are not mentioned in *GFSM2001*.)

2. Other subsidies on production

7.106 ***Other subsidies on production consist of subsidies except subsidies on products that resident enterprises may receive as a consequence of engaging in production.*** Examples of such subsidies are the following:

a. *Subsidies on payroll or workforce*: these consist of subsidies payable on the total wage or salary bill, or total work force, or on the employment of particular types of persons such as physically handicapped persons or persons who have been unemployed for long periods. The subsidies may also be intended to cover some or all of the costs of training schemes organized or financed by enterprises;

b. *Subsidies to reduce pollution*: these consist of subsidies intended to cover some or all of the costs of additional processing undertaken to reduce or eliminate the discharge of pollutants into the environment.

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E. Property incomes

1. Defining property income

7.107 Property income accrues when the owners of financial assets and natural resources put them at the disposal of other institutional units. The income payable for the use of financial assets is called investment income while that payable for the use of a natural resource is called rent. ***Property income is the sum of investment income and rent.***

7.108 ***Investment income is the income receivable by the owner of a financial asset in return for providing funds to another institutional unit.*** The terms governing the payment of investment income are usually specified in the financial instrument created when the funds are transferred from the creditor to the debtor. Such arrangements are typically made only for a limited period of time, after which the funds must be returned. The period of time may be several months or several years, though the arrangements may be renewed.

7.109 ***Rent is the income receivable by the owner of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production.*** The terms under which rent on a natural resource is payable are expressed in a resource lease. ***A resource lease is an agreement whereby the legal owner of a natural resource that the SNA treats as having an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent.*** A resource lease may apply to any natural resource recognized as an asset in the SNA. For resources such as land it is assumed that, at the end of the resource lease, the land is returned to the legal owner in the same state as when the lease started. For resources such as subsoil assets, though the resources potentially have an infinite life, they are not all returned to the legal owner at the end of the lease since the purpose of the lease is to permit extraction and disposal of the resource. Although the resource may suffer depletion in excess of any new discoveries or re-evaluations (or natural replenishments for renewable resources) the fact that rent is shown without deduction for any consumption of natural resources means that, in the SNA, the resource is effectively treated as having an infinite life as far as income generation is concerned.

7.110 The regular payments made by the lessees of natural resources such as subsoil assets are often described as royalties, but they are treated as rent in the SNA. The term "rent" is reserved in this manual for rent on natural resources, payments under operating leases being described as "rentals".

7.111 Property incomes are classified in the following way in the SNA:

Investment income
- Interest
- Distributed income of corporations
  - Dividends
  - Withdrawals from income of quasi-corporations
  - Reinvested earnings on foreign direct investment
- Other investment income
  - Investment income attributable to insurance policyholders

Table 7.8:The allocation of primary income account - property income - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Compensation of employees							6		6
Taxes on production and imports									0
Subsidies									0
Property income	134	168	42	41	6	391	44		435
Interest	56	106	35	14	6	217	13		230
Distributed income of corporations	47	15				62	17		79
Dividends	39	15				54	13		67
Withdrawals from income of quasi-corporations	8	0				8	4		12
Reinvested earnings on foreign direct investment	0	0				0	14		14
Investment income disbursements		47				47	0		47
Investment income attributable to insurance policy holders		25				25	0		25
Investment income payable on pension entitlements		8				8	0		8
Investment income attributable to collective investment funds share holders		14				14	0		14
Rent	31	0	7	27	0	65			65
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642

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Investment income payable on pension entitlements

Investment income attributable to collective investment fund shareholders

Rent

Each of these items is described in more detail below.

7.112 Table 7.8 shows an expansion of table 7.2 to include the details of property income payable and receivable.

2. Interest

7.113 ***Interest is a form of income that is receivable by the owners of certain kinds of financial assets, namely: deposits, debt securities, loans and (possibly) other accounts receivable for putting the financial asset at the disposal of another institutional unit.*** Income on SDR holdings and allocations is also treated as interest. The financial assets giving rise to interest are all claims of creditors over debtors. Creditors lend funds to debtors that lead to the creation of one or other of the financial instruments listed above. The amount the debtor owes the creditor is known as the principal. Over time, the amount due to the creditor declines as the debt is repaid and increases as interest accrues. The balance at any time is referred to as the principal outstanding.

7.114 Interest may be a predetermined sum of money or a fixed or variable percentage of the principal outstanding. If some or all of the interest accruing to the creditor is not paid during the period in question, it may be added to the amount of the principal outstanding or it may constitute an additional, separate liability incurred by the debtor. However, the interest may not necessarily be due for payment until a later date and sometimes not until the loan, or other financial instrument matures.

The accrual basis of recording

7.115 Interest is recorded on an accrual basis, that is, interest is recorded as accruing continuously over time to the creditor on the amount of principal outstanding. The interest accruing is the amount receivable by the creditor and payable by the debtor. It may differ not only from the amount of interest actually paid during a given period but also the amount due to be paid within the period. Some financial instruments are drawn up in such a way that the debtor is obliged to make regular interest payments, period by period, as the interest accrues but in other cases there may be no such requirement. As explained in part 4 of chapter 17, there are many different kinds of financial instruments and new instruments are continually being developed. Interest may therefore be paid in various different ways, not always explicitly described as interest. However, streams of net settlement payments under a swap or forward rate agreement contract (possibly described as "interest" in the contract) are not considered as property income but are to be recorded as transactions in financial derivatives in the financial account (see paragraphs 11.111 to 11.115).

Interest payable and receivable on loans and deposits

7.116 As explained in chapter 6, the amounts of interest on loans and deposits payable to and receivable from financial corporations include a margin that represents an implicit payment for the services provided by the financial corporations in providing loans and accepting deposits. The actual payments or receipts to or from financial

Table 7.8 (cont):The allocation of primary income account - property income - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Compensation of employees				1 154		1 154	2		1 156
Taxes on production and imports			235			235			235
Subsidies			- 44			- 44			- 44
Property income	96	149	22	123	7	397	38		435
Interest	33	106	14	49	7	209	21		230
Distributed income of corporations	10	25	7	20	0	62	17		79
Dividends	10	25	5	13	0	53	14		67
Withdrawals from income of quasi-corporations			2	7		9	3		12
Reinvested earnings on foreign direct investment	4	7	0	3	0	14	0		14
Investment income disbursements	8	8	1	30	0	47	0		47
Investment income attributable to insurance policy holders	5	0	0	20	0	25	0		25
Investment income payable on pension entitlements				8		8	0		8
Investment income attributable to collective investment funds share holders	3	8	1	2	0	14	0		14
Rent	41	3	0	21	0	65			65

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corporations, described as bank interest, need to be partitioned so that SNA interest and the service charges may be recorded separately. The amounts of SNA interest paid by borrowers to financial corporations are less than bank interest by the estimated values of the charges payable, while the amounts of SNA interest receivable by depositors is higher than bank interest by the amount of the service charge payable. The values of the charges are recorded as sales of services in the production accounts of financial corporations and as uses in the accounts of their customers.

7.117 If bank interest is unpaid, it must be the case that both SNA interest and the service charge are unpaid. In other words, the amount of principal outstanding increases by both the amount of SNA interest unpaid plus the unpaid service charge.

Interest payable on debt securities

7.118 Certain financial instruments, for example, bills and zero coupon bonds, are such that the debtor is under no obligation to make any payments to the creditor until the asset matures. In effect, no interest becomes due for payment until the end of the asset's life at which point the debtor's liability is discharged by a single payment covering both the amount of the funds originally provided by the creditor and the interest accumulated over the entire life of the asset. In such cases the amount of interest payable over the life of the security is derived as the difference between the value at which the instrument is acquired and its value when it matures.

Further elaboration

7.119 Chapter 17 contains in part 4 a section detailing how all the transactions and other flows associated with financial instruments are to be recorded in the accounts. It contains, in particular, specific recommendations on how interest on each of the relevant financial instruments is to be calculated.

Nominal and real interest

7.120 When a debtor discharges the principal by making payments equal in money value to the funds borrowed plus the interest accruing at the agreed rate over the time the debt exists, the associated interest payments are described as "nominal". Such interest payments do not represent the "real" return to the creditor when, as a result of inflation, the purchasing power of the funds repaid is less than that of the funds borrowed. In situations of chronic inflation the nominal interest payments demanded by creditors typically rise in order to compensate them for the losses of purchasing power that they expect when their funds are eventually repaid.

7.121 In practice, the interest recorded in the allocation of primary income account is not partitioned in this way. The interest recorded is always the amount of nominal interest receivable or payable (plus or minus the charges for services of financial intermediaries for which no explicit charges are made, when relevant). However, the information needed to calculate real interest is provided within the SNA as a whole since the real holding losses incurred by creditors are recorded in the revaluation account.

The special case of interest rates set by the central bank

7.122 The central bank's main responsibility is to formulate and carry out part of economic policy. It therefore often acts differently than other financial corporations and generally has received the authority from government to enforce its views. In cases where the central bank uses its special powers to oblige market participants to pay transfers without a direct *quid pro quo*, it is appropriate to record the proceeds as implicit taxes. Conversely, in cases when the central bank makes payments that are clearly for policy rather than commercial purposes, it may be argued that implicit subsidies are paid. Three cases are considered:

a. The central bank is able to dictate below market rates for reserve deposits;

b. The central bank pays above market rates in a situation where the external value of the currency is under pressure;

c. The central bank acts as a development bank offering loans at below market rates to priority industries.

7.123 If central bank interest rates are out of line with those of commercial banks, then the difference between flows calculated using the reference rate and the actual rate set by the central bank should be recorded not as market output, specifically FISIM, but as implicit taxes and subsidies as described immediately below. This procedure is analogous to and consistent with the practice of treating the difference between the market exchange rate and an alternative exchange rate imposed by the central bank as an implicit tax or subsidy.

Below market rates on reserve deposits

7.124 Suppose the central bank pays only three per cent to a commercial bank on reserve deposits when the market rate is five per cent. The following recording is made in the SNA:

a. Although the commercial bank actually receives only three per cent as "interest", it is recorded as receiving five per cent as interest and paying two per cent to government as a tax on production;

b. Government is recorded as receiving two per cent from the commercial bank as a tax on production and as making a payment of a current transfer of two per cent to the central bank (both these flows are notional); and

c. The central bank actually pays three per cent to the commercial bank but is recorded as paying five per cent to the commercial bank and receiving two per cent from government in the form of a current transfer.

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No financial account transactions are involved with this re-routing.

Above market rates for currency support

7.125 Suppose the central bank pays seven per cent to a commercial bank for a limited period when the currency is under pressure at a time when the market rate is five per cent. The following recording is made in the SNA:

a. Although the commercial bank actually receives seven per cent as "interest", it is recorded as receiving five per cent as interest and receiving another two per cent from government as a subsidy on production;

b. Government is recorded as paying two per cent to the commercial bank as a subsidy on production and as receiving a current transfer of two per cent from the central bank (both these flows are notional); and

c. The central bank actually pays seven per cent to the commercial bank but is recorded as paying five per cent to the commercial bank and paying two per cent to government in the form of a current transfer.

No financial account transactions are involved with this re-routing.

Below market rates to priority industries

7.126 Suppose the central bank charges only three per cent to a priority industry when the market rate is five per cent. The following recording is made in the SNA:

a. Although the priority industry actually pays only three per cent as "interest", it is recorded as paying five per cent as interest but receiving two per cent from government as a subsidy on production;

b. Government is recorded as paying two per cent to the priority industry as a subsidy on production and as receiving a current transfer of two per cent from the central bank (both these flows are notional); and

c. The central bank actually receives three per cent from the priority industry but is recorded as receiving five per cent from the priority industry and paying two per cent to government in the form of a current transfer.

No financial account transactions are involved with this re-routing.

3. Distributed income of corporations

Dividends

7.127 Corporations obtain funds by issuing shares in their equity that entitle the holders to a proportion of both distributed profits and the residual value of the assets of the corporation in the event of its liquidation. Shareholders are the collective owners of a corporation.

7.128 ***Dividends are a form of investment income to which shareholders become entitled as a result of placing funds at the disposal of corporations***. Raising equity capital through the issue of shares is an alternative to borrowing as a way of raising funds. In contrast to loan capital, however, equity capital does not give rise to a liability that is fixed in monetary terms and it does not entitle the holders of shares of a corporation to a fixed or predetermined income.

7.129 Just as corporations are understood in the SNA to cover a set of institutional units engaged in production that may be described by different names such as private or public corporations, private or public companies, cooperatives and limited liability partnerships, so dividends must also be understood to cover all distributions of profits by corporations to their shareholders or owners, by whatever name they are called. Dividends may occasionally take the form of an issue of shares, but this excludes issues of bonus shares that simply represent a reclassification between own funds, reserves and undistributed profits.

Time of recording

7.130 Although dividends represent a part of income that has been generated over a substantial period, often six or twelve months, dividends are not recorded in the SNA on a strict accrual basis. For a short period after a dividend is declared but before it is actually payable, shares may be sold "ex dividend" meaning that the dividend is still payable to the owner at the date the dividend was declared and not to the owner on the date payable. A share sold "ex dividend" is therefore worth less than one sold without this constraint. The time of recording of dividends in the SNA is the point at which the share price starts to be quoted on an ex dividend basis rather than at a price that includes the dividend.

Super-dividends

7.131 Although dividends are notionally paid out of the current period's operating surplus, corporations often smooth the payments of dividends, often paying out rather less than operating surplus but sometimes paying out a little more, especially when the operating surplus itself is very low. For practical reasons, no attempt is made in the SNA to align dividend payments with earnings except in one circumstance. The exception occurs when the dividends are disproportionately large relative to the recent level of dividends and earnings. In order to determine whether the dividends are disproportionately large, it is helpful to introduce the concept of distributable income. ***Distributable income of a corporation is equal to entrepreneurial income, plus all current transfers receivable, less all current transfers payable and less the adjustment for the change in pension entitlements relating to the pension scheme of that corporation.*** From this it is possible to look at the ratio of dividends to distributable income over the recent past and assess the plausibility that the current level of dividends declared is in line with past practice, accepting some degree of smoothing from year to year. If the level of dividends declared is greatly in excess of this, the excess should be treated as a financial transaction, specifically the withdrawal of owners' equity from the corporation.

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7.132 This treatment applies to all corporations, whether incorporated or quasi-corporate and whether subject to public, foreign or domestic private control. There is more discussion on the case of publicly controlled corporations in chapter 22.

Withdrawals of income from quasi-corporations

7.133 ***Withdrawal of income from a quasi-corporation consists of that part of distributable income that the owner withdraws from the quasi-corporation***. The income that the owners of quasi-corporations withdraw from them is analogous to the income withdrawn from corporations by paying out dividends to their shareholders. It is therefore treated as property income accruing to the owners of quasi-corporations. The withdrawal of income by the owners of quasi-corporations needs to be identified in order to be able to establish a full set of accounts for the entity and to treat it as an institutional unit separate from that of its owner.

7.134 Withdrawals of income from a quasi-corporation do not include withdrawals of funds realized by the sale or disposal of the quasi-corporation's assets: for example, the sale of inventories, fixed assets, land or other non-produced assets. Such sales would be recorded as disposals in the capital account of the quasi-corporation and the transfer of the resulting funds would be recorded as a withdrawal from the equity of quasi-corporations in the financial account of the quasi-corporation and as a receivable by its owner(s). Similarly, funds withdrawn by liquidating large amounts of accumulated retained savings or other reserves of the quasi-corporation, including those built up out of provisions for consumption of fixed capital, are treated as withdrawals from equity. This situation corresponds to the treatment of superdividends payable by listed enterprises described immediately above.

7.135 Conversely, any funds provided by the owner(s) of a quasi-corporation for the purpose of acquiring assets or reducing its liabilities should be treated as additions to its equity. Just as there cannot be a negative distribution from the distributable income of corporations in the form of negative dividends, it is not possible to have a negative distribution from the distributable income of quasi-corporations in the form of negative withdrawals. However, if the quasi-corporation is owned by government, and if it runs a persistent operating deficit as a matter of deliberate government economic and social policy, any regular transfers of funds into the enterprise made by government to cover its losses should be treated as subsidies, as explained in paragraph 7.105 (c) above.

Reinvested earnings on foreign direct investment

7.136 As explained in chapter 26, a foreign direct investment enterprise is a corporate or unincorporated enterprise in which a foreign investor has made a foreign direct investment. A foreign direct investment enterprise may be either:

a. The (unincorporated) branch of a non-resident corporate or unincorporated enterprise: this is treated as a quasi-corporation; or

b. A corporation in which at least one foreign investor (which may, or may not, be another corporation) owns sufficient shares to have an effective voice in its management.

7.137 Actual distributions may be made out of the distributable income of foreign direct investment enterprises in the form of dividends or withdrawals of income from quasi-corporations. The payments made in these ways to foreign direct investors are recorded in the accounts of the SNA and in the balance of payments as international flows of investment income. However, both systems also require the retained earnings of a foreign direct investment enterprise to be treated as if they were distributed and remitted to foreign direct investors in proportion to their ownership of the equity of the enterprise and then reinvested by them by means of additions to equity in the financial account. The imputed remittance of these retained earnings is classified in the SNA as a form of distributed income that is separate from, and additional to, any actual payments of dividends or withdrawals of income from quasi-corporations.

7.138 The rationale behind this treatment is that since a foreign direct investment enterprise is, by definition, subject to control, or influence, by a foreign direct investor or investors, the decision to retain some of its earnings within the enterprise must represent a deliberate investment decision on the part of the foreign direct investor(s). In practice, the great majority of direct investment enterprises are subsidiaries of foreign corporations or the unincorporated branches of foreign enterprises, which are completely controlled by their parent corporations or owners.

7.139 ***Retained earnings of a corporation or quasi-corporation are equal to the distributable income less the dividends payable or withdrawal of income from the corporation or quasi-corporation respectively***. If the foreign direct investment enterprise is wholly owned by a single foreign direct investor (for example, a branch of a foreign enterprise), the whole of the retained earnings is deemed to be remitted to that investor and then reinvested, in which case the saving of the enterprise must be zero. When a foreign direct investor owns only part of the equity of the direct investment enterprise, the amount that is deemed to be remitted to, and reinvested by, the foreign investor is proportional to the share of the equity owned.

Retained earnings of domestic enterprises

7.140 A suggestion has been made to extend the treatment of distributing retained earnings to the owners of other corporations, in particular of public corporations. Investigation of this suggestion is part of the research agenda.

4. Investment income disbursements

Investment income attributed to insurance policyholders

7.141 Investment income attributable to insurance policyholders should be divided between holders of non-life and life policies.

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7.142 For non-life policies, the insurance corporation has a liability towards the policyholder of the amount of the premium deposited with the corporation but not yet earned, the value of any claims due but not yet paid and a reserve for claims not yet notified or notified but not yet settled. Set against this liability, the insurance corporation holds technical reserves. The investment income on these reserves is treated as income attributable to the policyholders, then distributed to the policyholders in the allocation of primary income account and paid back to the insurance corporation as a premium supplement in the secondary distribution of income account. The reserves concerned are those where the insurance corporation recognizes a corresponding liability to the policyholders.

7.143 For an institutional unit operating a standardized guarantee scheme against fees, there may also be investment income earned on the reserves of the scheme and this should also be shown as being distributed to the units paying the fees (who may not be the same units which stand to benefit from the guarantees) and treated as supplementary fees in the secondary distribution of income account.

7.144 For life insurance policies and annuities, the insurance corporations have liabilities towards the policyholders and annuitants equal to the present value of expected claims. Set against these liabilities, the insurance corporations have funds belonging to the policyholders consisting of bonuses declared for with-profits policies as well as provisions for both policyholders and annuitants of the payment of future bonuses and other claims. These funds are invested in a range of financial assets and possibly non-financial assets such as property and land. The insurance enterprises receive investment income from the financial assets and land, and earn net operating surpluses from the renting or leasing of residential and other buildings. In addition they make holding gains or losses on the financial assets held. The bonuses declared to holders of life policies should be recorded as investment income receivable by the policyholders (resident and possibly non-resident households) and are treated as premium supplements paid by the policyholders to the insurance corporations. As with interest and dividends, the source of the investment income payable may not be investment income itself, but for the SNA, the decisive criterion for recording this as investment income is that of the recipient who regards these payments as the rewards for putting financial assets at the disposal of the insurance corporation.

7.145 The investment income attributed to life insurance policyholders is recorded as payable by the insurance company and receivable by households in the allocation of primary income account. This amount carries through automatically to saving without the need of an adjustment item as is the case for changes in pension entitlements. The investment income is treated as premium supplements and so forms part of the net premiums, less claims, recorded in the financial account as payable by households and receivable by insurance corporations as changes in life insurance and annuities entitlements.

7.146 Unlike the case of non-life insurance or pensions, the amount carries through to saving and is then recorded as a financial transaction, specifically an increase in the liabilities of life insurance corporations, in addition to new premiums less the service charge offset by claims payable.

Investment income payable on pension entitlements

7.147 As explained in part 2 of chapter 17, pension entitlements arise from one of two different types of pension schemes. These are defined contribution schemes (sometimes described as money purchase schemes) and defined benefit schemes.

7.148 A defined contribution scheme is one where contributions by both employers and employees are invested on behalf of the employees as future pensioners. No other source of funding of pensions is available and no other use is made of the funds. The investment income payable on defined contribution entitlements is equal to the investment income on the funds plus any net operating surplus earned by renting land or buildings owned by the fund.

7.149 A defined benefit scheme is one where the benefits payable are defined in terms of a formula. The formula often takes the form of a link to final salary (hence the alternative terminology final salary schemes) or average salary over some defined period. The formula may be expressed in many ways including, for example, a variation on a defined contribution scheme such as the growth in earnings of the funds or a minimum percentage growth.

7.150 Because the benefits are calculated according to a formula, it is possible to determine the level of entitlements necessary at any point in time to meet future obligations. The value of the entitlements is the present value of all future payments, calculated using actuarial assumptions about life lengths and economic assumptions about the interest or discount rate. The present value of the entitlements existing at the start of the year increases because the date when the entitlements become payable has become one year nearer. The amount of the increase is not affected by whether the pension scheme actually has sufficient funds to meet all the obligations nor by the type of increase in the funds, whether it is investment income or holding gains, for example.

Investment income attributed to investment fund shareholders

7.151 Investment income attributed to holders of shares or units in investment funds (including mutual funds and unit trusts) is shown as two separate items. The first of these is the dividends distributed to investment fund shareholders. The second is retained earnings attributed to investment fund shareholders.

7.152 The dividend component is recorded in exactly the same manner as dividends for individual corporations, as described above. The retained earnings component is recorded using the same principles as those described for foreign direct investment enterprises but is calculated excluding any reinvested earnings on foreign direct investment. That is to say, the remaining retained earnings are distributed to the shareholders (leaving the investment fund with no saving) and are reinjected into the fund by the shareholders in a transaction recorded in the financial account.

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5. Rent

Rent distinguished from rentals

7.153 The distinction between rent and the rentals receivable and payable under operating leases is basic to the SNA as rent is a form of property income and rentals are treated as sales or purchases of services. Rentals are payments made under an operating lease to use a fixed asset belonging to another unit where that owner has a productive activity in which the fixed assets are maintained, replaced as necessary and made available on demand to lessees. Rent is a payment made under a resource lease for the use of a natural resource. Not only is the type of asset leased different as between rent and rentals, so is the nature of the lease. The distinction between different types of leases is explained in part 5 of chapter 17.

Rent on natural resources

7.154 ***Rent is the income receivable by the owner of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production.*** Two particular cases of resource rent are considered, rent on land and rent on subsoil resources. Resource rent on other natural resources follows the pattern laid out by these two instances.

Rent on land

7.155 Rent on land is recorded as accruing continuously to the landowner throughout the period of the contract agreed between the landowner and the tenant. The rent recorded for a particular accounting period is equal to the value of the accumulated rent payable over that period of time, as distinct from the amount of rent due to be paid during that period or the rent actually paid.

7.156 Rent may be paid in cash or in kind. Under share-cropping or similar schemes, the value of the rent payable is not fixed in advance in monetary terms and is measured by the value at basic prices of the crops that the tenants are obliged to provide to the landowner under the contract between them. Rent on land also includes the rent payable to the owners of inland waters and rivers for the right to exploit such waters for recreational or other purposes, including fishing.

7.157 A landowner may be liable to pay land taxes or incur certain maintenance expenses solely as a consequence of owning the land. By convention, such taxes or expenses are treated as payable by the tenant who is deemed to deduct them from the rent that he would otherwise be obliged to pay to the landowner. Rent reduced in this way by taxes or other expenses for which the landowner is liable is described as “after-tax rent”. By adopting the convention that the tenant pays only the after-tax rent, the taxes or expenses are recorded in the production or generation of income accounts of the tenant. This treatment does not change the income of the tenant. The convention avoids the necessity to create a notional enterprise for the landowner as the lessor.

7.158 Rentals payable on buildings or other structures are treated as purchases of services. In practice, however, a single payment may cover both rent and rentals when an institutional unit rents land that consists of land improvements and land in its natural state and may include any buildings situated on it in a single contract, or lease, in which the two kinds of payments are not differentiated from each other. For example, a farmer may rent a farmhouse, farm buildings, cultivated and grazing farmland in a contract in which only a single payment is required to cover all four. If there is no objective basis on which to split the payment between rent on land and rental on the buildings, it is recommended to treat the whole amount as rent when the value of the grazing land is believed to exceed the value of the buildings and cultivated land, and as a rental otherwise.

Rent on subsoil assets

7.159 The ownership of subsoil assets in the form of deposits of minerals or fossil fuels (coal, oil or natural gas) depends upon the way in which property rights are defined by law and also on international agreements in the case of deposits below international waters. In some cases the assets may belong to the owner of the ground below which the deposits are located but in other cases they may belong to a local or central government unit.

7.160 The owners of the assets, whether private or government units, may grant leases to other institutional units permitting them to extract such deposits over a specified period of time in return for the payment of rent. These payments are often described as royalties, but they are essentially rent that accrues to owners of the assets in return for putting them at the disposal of other institutional units for specified periods of time and are treated as such in the SNA. The rent may take the form of periodic payments of fixed amounts, irrespective of the rate of extraction or, more commonly, they may be a function of the quantity or volume of the asset extracted. Enterprises engaged in exploration may make payments to the owners of surface land in exchange for the right to make test drillings or investigate by other means the existence and location of subsoil resources. Such payments are also to be treated as rent even though no extraction is taking place.

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Chapter 8: The redistribution of income accounts

A. Introduction

8.1 This chapter describes two accounts that show how income is redistributed between institutional units by means of the payments and receipts of current transfers. This redistribution represents the second stage in the process of income distribution as shown in the accounts of the SNA. The two accounts are the secondary distribution of income account and the redistribution of income in kind account.

8.2 The secondary distribution of income account shows how the balance of primary incomes of an institutional unit or sector is transformed into its disposable income by the receipt and payment of current transfers excluding social transfers in kind.

8.3 The redistribution of income in kind account takes the process of income redistribution one stage further. It shows how the disposable incomes of households, non-profit institutions serving households (NPISHs) and government units are transformed into their adjusted disposable incomes by the receipt and payment of social transfers in kind. Non-financial and financial corporations are not involved in this process.

8.4 Much of this chapter is concerned with the detailed definition, description and classification of the various types of current transfers recorded in the secondary distribution of income and redistribution of income in kind accounts. As part of this description, there is discussion of the composition of social insurance schemes and their role as the recipients of social contributions and dispensers of social benefits.

8.5 Understanding the difference between four related concepts is crucial to an appreciation of the two accounts described in this chapter. These terms are social insurance, social security, social assistance and social transfers in kind. These are explained very briefly below and in greater detail in later parts of the chapter.

8.6 Social insurance schemes are schemes in which social contributions are paid by employees or others, or by employers on behalf of their employees, in order to secure entitlement to social insurance benefits, in the current or subsequent periods, for the employees or other contributors, their dependants or survivors. The social benefits payable by social insurance schemes are of two kinds, pensions and other benefits such as medical, education, housing or unemployment benefits. Pensions are always paid in cash; non-pension benefits may be payable in cash or in kind.

8.7 Two main types of social insurance schemes may be distinguished:

a. The first consists of social security schemes covering the entire community, or large sections of the community, that are imposed, controlled and financed by government units. Pensions payable under these schemes may or may not be related to levels of salary of the beneficiary or history of employment. Non-pension benefits are less frequently linked to salary levels.

b. The second type consists of other employment-related schemes. These schemes derive from an employer-employee relationship in the provision of pension entitlement that is part of the conditions of employment and where responsibility for the provision of benefits does not devolve to general government under social security provisions.

8.8 Social assistance benefits in cash are current transfers payable to households by government units or NPISHs to meet the same needs as social insurance benefits but which are not made under a social insurance scheme requiring participation usually by means of social contributions.

8.9 Social transfers in kind consist of social security benefits payable in kind and social assistance benefits payable in kind.

1. The secondary distribution of income account

8.10 Apart from the balance of primary incomes, the balancing item carried forward from the primary distribution of income accounts, and disposable income, the balancing item on the secondary distribution of income account, all the entries in the secondary distribution of income account consist of current transfers. ***A transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset in return as a direct counterpart.*** Transfers are separated into current transfers and capital transfers. ***Capital transfers are unrequited transfers where either the party making the transfer realizes the funds involved by disposing of an asset (other than cash or inventories), relinquishing a financial claim (other than accounts receivable) or the party receiving the transfer is obliged to acquire an asset (other than cash) or both conditions are met.*** Capital transfers are often large and

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irregular but neither of these are necessary conditions for a transfer to be considered a capital rather than a current transfer. Other transfers are described as current. ***A current transfer is a transaction in which one institutional unit provides a good or service to another unit without receiving from the latter any good or service directly in return as counterpart and does not oblige one or both parties to acquire, or dispose of, an asset.*** The concept of a transfer is explained in more detail in section B below.

8.11 Table 8.1 shows the concise form of the secondary distribution of income account identifying the main kinds of transfers. Current transfers may take place between resident and non-resident units as well as between resident institutional units.

8.12 The transfers payable by an institutional unit or sector are recorded on the left-hand side of the account under uses. For example, in table 8.1, taxes on income, wealth etc. payable by the household sector are recorded at the intersection of the row for this item and the uses column for the household sector. The transfers receivable by an institutional unit or sector are recorded on the right-hand side of the account under resources. For example, social benefits other than social transfers in kind receivable by the household sector are recorded at the intersection of the row for this item and the resources column for the household sector.

8.13 In accordance with the general accounting rules of the SNA, the entries in the account, apart from the balancing items, refer to amounts payable and receivable. These may not necessarily coincide with the amounts actually paid or received in the same accounting period. Any amounts payable and not paid or receivable and not received are recorded in the financial account, under accounts receivable or payable.

8.14 Three main kinds of current transfers are distinguished in the secondary distribution of income account:

a. Current taxes on income, wealth, etc.;

b. Social contributions and benefits;

c. Other current transfers.

Their general nature and the purposes they serve are summarized in the following paragraphs.

Current taxes on income, wealth, etc.

8.15 ***Current taxes on income, wealth, etc. consist mainly of taxes on the incomes of households or profits of corporations and of taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently).*** In table 8.1, current taxes on income, wealth, etc. receivable appear under resources for the general government sector and possibly the rest of the world, while taxes payable appear under uses for the household and non-financial and financial corporation sectors, and possibly for the non-profit institutions serving households (NPISHs) sector and the rest of the world.

Social contributions and benefits

8.16 ***Social contributions are actual or imputed payments to social insurance schemes to make provision for social insurance benefits to be paid.*** Social contributions may be made by employers on behalf of their employees. As such they form part of compensation of employees and are included in the balance of primary income of households. In the secondary distribution of income account, these contributions together with payments made by households themselves in their capacity as employed, self-employed or unemployed persons, are recorded as payable by households and receivable by the units responsible for the social insurance schemes. Social contributions may be receivable by a unit in any sector in their capacity as providing a social insurance scheme to their employees (even exceptionally households if in their capacity as unincorporated enterprises they run a social insurance scheme for their employees) or by a third-party unit designated as the institution responsible for administering the scheme. Most contributions, however, are likely to be recorded under resources for the general government sector, including social security funds, and insurance corporations and pension funds in the financial corporations sector. Social contributions are recorded under uses only for households, either resident or non-resident.

8.17 ***Social benefits are current transfers received by households intended to provide for the needs that arise from certain events or circumstances, for example,***

Table 8.1:The secondary distribution of income account - concise form - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Current transfers	98	277	248	582	7	1 212	17		1 229
Current taxes on income, wealth, etc.	24	10	0	178	0	212	1		213
Net social contributions				333		333	0		333
Social benefits other than social transfers in kind	62	205	112	0	5	384	0		384
Other current transfers	12	62	136	71	2	283	16		299
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604

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sickness, unemployment, retirement, housing, education or family circumstances. Social benefits may be provided under social insurance schemes or by social assistance.

8.18 Social insurance benefits in kind provided by employers are treated as if they were paid in cash and included in the secondary distribution of income account. If this were not so, the purchase of the goods and services concerned would have to be shown as incurred by employers but these products are not intermediate consumption and enterprises cannot have final consumption. However, social insurance benefits in kind provided under general social security schemes and all social assistance benefits in kind constitute social transfers in kind and are therefore included only in the redistribution of income in kind account. In table 8.1 social benefits, except social transfers in kind, are recorded under resources for the household sector and may, in principle, be recorded under uses for any sector operating a social insurance scheme in its capacity as an employer.

Other current transfers

8.19 ***Other current transfers consist of all current transfers between resident institutional units, or between resident and non-resident units, other than current taxes on income, wealth, etc., social contributions and benefits, and social benefits in kind***. The group includes net premiums and claims under non-life insurance policies, current transfers between different kinds of government units, usually at different levels of government, and also between general government and foreign governments, as well as current transfers to and from NPISHs and between resident and non-resident households.

2. Disposable income

8.20 ***Disposable income is the balancing item in the secondary distribution of income account. It is derived from the balance of primary incomes of an institutional unit or sector by:***

a. Adding all current transfers, except social transfers in kind, receivable by that unit or sector; and

b. Subtracting all current transfers, except social transfers in kind, payable by that unit or sector.

8.21 Disposable income, like the balance of primary incomes, may be recorded gross or net of consumption of fixed capital. As elsewhere, the net measure is conceptually preferable but it may be necessary to record the balancing items gross because of the difficulty of measuring consumption of fixed capital even though consumption of fixed capital is a cost of production and not a component of income. The following discussion refers to the net concept of disposable income.

8.22 Disposable income is not all available in cash. The inclusion in the accounts of non-monetary transactions associated with production for own consumption or barter, or with remuneration in kind, means that households have no choice but to consume certain kinds of goods and services for which the values of the corresponding expenditures out of disposable income are imputed. Although social transfers in kind from government units or NPISHs to households are recorded separately in the redistribution of income in kind account, other transfers in kind are recorded in the secondary distribution of income account together with transfers in cash. They may include international transfers of food, clothing, medicines, etc. to relieve the effects of famine or other hardships caused by natural disasters or wars. The recipients of transfers in kind, other than social transfers in kind, are, by convention, recorded as making imputed consumption expenditures on the goods or services in question as if the transfers were received in cash.

8.23 Households also receive several kinds of imputed property income flows that are not available to the household to spend as they wish. These include investment income on insurance, annuity and pension entitlements as well as income from investment fund shares or units. Income flows related to investment funds and to life insurance and annuities that are not treated as social insurance do carry through to disposable income even though they automatically go to increase the assets held by households in the financial institutions managing these funds and policies and the household therefore has no discretion about spending these amounts. Income flows that are related to non-life insurance and social insurance schemes are recorded in the secondary distribution of income account as if repaid to the non-life insurance corporation or social insurance schemes and are not included in disposable income except for the part already committed to meet the

Table 8.1 (cont):The secondary distribution of income account - concise form - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642
Current transfers	72	275	367	420	40	1 174	55		1 229
Current taxes on income, wealth, etc.			213			213	0		213
Net social contributions	66	213	50	0	4	333	0		333
Social benefits other than social transfers in kind				384		384	0		384
Other current transfers	6	62	104	36	36	244	55		299

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service charge associated with the insurance policy or social insurance scheme.

8.24 For households, disposable income includes the excess of SNA interest over bank interest on deposits by households and the excess of bank interest over SNA interest on loans to households. These differences are also precommitted to meeting the indirect service charges levied by financial institutions on loans and deposits (FISIM). (For other institutional sectors excluding financial intermediaries, FISIM is treated as part of intermediate consumption so is excluded from income measures.)

Links with economic theoretical concepts of income

8.25 Disposable income as measured in the SNA can be compared with the concept of income as it is generally understood in economics. From a theoretical point of view, income is often defined as the maximum amount that a household, or other unit, can consume without reducing its real net worth. However, the real net worth of a unit may be changed as a result of the receipt or payment of capital transfers and as a result of real holding gains or losses that accrue on its assets or liabilities. It may also be changed by events such as natural disasters that change the volume of assets. Capital transfers, real holding gains or losses and other changes in the volume of assets due to the effect of events such as natural disasters are specifically excluded from disposable income as measured here. (Capital transfers are recorded in the capital account of the SNA, while other changes in the volume of assets and real holding gains or losses are recorded in the other changes in assets accounts.) Disposable income can be interpreted in a narrow sense as the maximum amount that a household or other unit can afford to spend on consumption goods or services during the accounting period without having to finance its expenditures by reducing its cash, by disposing of other financial or non-financial assets or by increasing its liabilities. This concept is equivalent to the economic theoretical concept only when the net worth at the beginning of the period is not changed by capital transfers, other changes in the volume of assets or real holding gains or losses recorded during the period.

National disposable income

8.26 Most current transfers, whether in cash or in kind, can take place between resident and non-resident institutional units as well as between resident units. ***Gross or net national disposable income may be derived from gross or net national income by:***

a. Adding all current transfers in cash or in kind receivable by resident institutional units from non-resident units; and

b. Subtracting all current transfers in cash or in kind payable by resident institutional units to non-resident units.

8.27 Among the more important current transfers taking place between residents and non-residents are the following:

a. Social contributions or benefits;

b. Current taxes on income or wealth;

c. Non-life insurance premiums and claims;

d. Current international cooperation; that is, current transfers between different governments, such as transfers under aid programmes intended to sustain the consumption levels of populations affected by war or natural disasters such as droughts, floods or earthquakes;

e. Remittances between resident and non-resident households.

8.28 The net disposable income of a country is a better measure than its net national income (NNI) for purposes of analysing its consumption possibilities.

3. The redistribution of income in kind account

8.29 Apart from the balancing items, disposable income and adjusted disposable income, all the entries in the redistribution of income in kind account consist of social transfers in kind. Social transfers in kind consist only of social benefits in kind and transfers of individual non-market goods and services provided to resident households

Table 8.2:The redistribution of income account - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Social transfers in kind			184		31	215			215
Social transfers in kind - non-market production			180		31	211			211
Social transfers in kind - purchased market production			4			4			4
Adjusted disposable income, gross	228	25	133	1 434	6	1 826			1 826
Adjusted disposable income, net	71	13	106	1 411	3	1 604			1 604

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by government units, including social security funds, and NPISHs.

8.30 As social transfers in kind only take place between government units, NPISHs and households, the redistribution of income in kind account is not needed for the non-financial and financial corporate sectors.

8.31 The social transfers in kind payable by government units or NPISHs are recorded on the left-hand side of their redistribution of income in kind accounts under uses. For example, in table 8.2, the value of individual non-market goods or services provided free, or at prices that are not economically significant, by government units is recorded at the intersection of the row for this item and the uses column for the general government sector. Social transfers receivable by the household sector are recorded on the right-hand side of their account under resources. As only the household sector receives social transfers in kind, the resources columns for the other four sectors are empty.

4. Adjusted disposable income

8.32 ***Adjusted disposable income is the balancing item in the redistribution of income in kind account. It is derived from the disposable income of an institutional unit or sector by:***

a. Adding the value of the social transfers in kind receivable by that unit or sector; and

b. Subtracting the value of the social transfers in kind payable by that unit or sector.

Adjusted disposable income, like disposable income, may be recorded gross or net of consumption of fixed capital. Because social transfers in kind are payable only by government units and NPISHs and only receivable by households, it follows that the adjusted disposable incomes of the general government and NPISHs sectors are lower than their disposable incomes, while the adjusted disposable income of the household sector exceeds its disposable income. In both cases, the value of the difference is equal to the total value of social transfers in kind so adjusted disposable income for the total economy is the same as its disposable income.

8.33 The adjusted disposable income of a household can be interpreted as measuring the maximum value of the final consumption goods or services that it can afford to consume in the current period without having to reduce its cash, dispose of other assets or increase its liabilities for the purpose. Its consumption possibilities are determined not only by the maximum amount it can afford to spend on consumption goods and services (its disposable income), but also by the value of the consumption goods and services it receives from government units or NPISHs as social transfers in kind. Conversely, the adjusted disposable income of general government can be interpreted as measuring the maximum value of the collective services that it can afford to provide to the community without having to dispose of assets or increase its liabilities.

B. Current transfers

8.34 As defined above, ***a transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset in return as a direct counterpart***. A unit making a transfer receives no specific quantifiable benefit in return that can be recorded as part of the same transaction. Nevertheless, the payment of a social insurance contribution or non-life insurance premium may entitle the unit making the payment to some contingent future benefits. For example, a household may be entitled to receive some social benefits should certain events occur or certain conditions prevail. In addition, all resident households benefit from services provided by government units. However, the fact that a transfer has been made does not automatically mean a benefit will be received by the unit making the transfer nor, if it does, that the amount of the benefit is commensurate with the amount of the transfer. It is for this reason that the SNA holds there is no direct counterpart to the transfer.

8.35 The process of government collecting taxes and using the revenue generated to pay for the provision of government

Table 8.2 (cont):The redistribution of income account - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604
Social transfers in kind				215		215			215
Social transfers in kind - non-market production				211		211			211
Social transfers in kind - purchased market production				4		4			4

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services and the process by which an insurance corporation accepts premiums for non-life insurance in a year from many policyholders and pays claims to a relatively small number of them are essentially distributive in nature. Within a single accounting period, an institutional unit (the government or the insurance corporation) receives and disburses funds according to a given set of procedures but the events giving rise to payments to and disbursements by these units are not directly related.

8.36 In contrast, payments of premiums on individual life insurance policies taken out by members of households on their own initiative outside any social insurance scheme, and the corresponding benefits, are not transfers. For life insurance, the insurance corporation manages funds on behalf of named households. There is relatively little redistribution among the various households holding similar policies and each household is able to predict with a reasonable degree of certainty what they will receive and when. Such policies therefore constitute the acquisition and disposal of financial assets and are recorded as such in the financial accounts of the SNA as components of the change in the life insurance and annuities entitlements.

8.37 It could be argued that pension schemes function in a manner similar to life insurance schemes and that they should be treated as savings schemes of individual households. There are three reasons in the SNA why the designation of social insurance scheme is used to cover employment-related pensions, a designation that brings with it the recording of contributions and benefits as transfers. The first is that social security is essentially a process of redistribution across a wide section of the population with many individuals contributing so that those in need may benefit. A second reason is that pensions provide a regular and stable source of funding post-retirement. In other economic applications, such as surveys of income and expenditure, pensions are regarded as income rather than dis-saving. The third reason for treating pensions as income rather than dis-saving is that they frequently cease when the pensioner (or survivor) dies. In this respect, pension entitlements are distinct from other financial assets that are unaffected by the death of the owner.

1. The distinction between current and capital transfers

8.38 Transfers may be either current or capital. In order to distinguish one from the other, it is preferable to focus on the special characteristics of capital transfers. As noted above, a capital transfer is one that is linked to the acquisition or disposal of an asset, either financial or non-financial. Institutional units must be capable of distinguishing capital from current transfers and must be presumed to treat capital transferred during the course of the accounting period in the same way as capital held throughout the period. For example, a prudent household will not treat a capital transfer that happens to be received during a particular period as being wholly available for final consumption within the same accounting period. Conversely, a household making a capital transfer (for example, the payment of an inheritance tax) will not plan to reduce its final consumption by the whole amount of the transfer. Unless institutional units are capable of distinguishing capital from current transfers and react differently to them, it becomes impossible to measure income, both in theory and in practice.

8.39 Current transfers consist of all transfers that are not transfers of capital. They directly affect the level of disposable income and should influence the consumption of goods or services. In practice, capital transfers tend to be large, infrequent and irregular, whereas current transfers tend to be comparatively small and are often made frequently and regularly. However, while size, frequency and regularity help to distinguish current from capital transfers they do not provide satisfactory criteria for defining the two types of transfer. For example, social security benefits in the form of maternity or death benefits are essentially current grants designed to cover the increased consumption expenditures occasioned by births or deaths, even though the events themselves are obviously infrequent.

8.40 It is possible that some cash transfers may be regarded as capital by one party to the transaction and as current by the other. For example, the payment of an inheritance tax may be regarded as a capital transfer by the household but as a current transfer by government. Similarly, a large country that regularly makes investment grants to a number of smaller countries may regard the outlays as current, even though they may be specifically intended to finance the acquisition of assets. In an integrated system of accounts such as the SNA, however, it is not feasible to have the same transaction classified differently by the two parties. Accordingly, a transfer should be classified as capital for both parties if it clearly involves a transfer of an asset for one of the parties.

2. The recording of transfers

8.41 Although no good, service or asset is received in return as a direct counterpart to a transfer, the recording of a transfer nevertheless must give rise to four entries in the accounts. The ways in which transfers (whether in cash or in kind) and social transfers in kind are recorded are shown below in the following examples.

Transfers in cash

8.42 The first example is of a current transfer in cash, such as the payment of a social security benefit in cash. The transfer is recorded as payable by the social security fund and receivable by the household in the secondary distribution of income account. (If the transfer were a capital transfer, it would be recorded in the capital account instead of the secondary distribution of income account.) The consequence of the transfer is a reduction in the financial assets (or increase in the financial liabilities) of the social security scheme and an increase in the financial assets of the household. The eventual use of the cash by the household is recorded subsequently as a separate transaction.

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	Household		Social security fund	
	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth
Secondary Distribution of income account		Transfer receivable	Transfer Payable	
Financial account		Increase in financial asset	Decrease in financial asset	

Provisions of goods and services by enterprises

8.43 The next example is of an enterprise producing medicines that donates some of its output free of charge to a charity (NPISH). As mentioned above, two transactions should be recorded, each with four entries. In this example, the first is the provision of a transfer by the enterprise to the NPISH, the second is the purchase of the medicine by the NPISH using the funds made available by the transfer. Both transactions imply two entries in the financial account and, if both transactions are completed in the same accounting period, these changes in financial assets will cancel each other for both units involved, leaving only four entries apparent in the accounts. However, if there is a difference in the timing between when the transfer is recorded and when the delivery of the medicine takes place, it will be necessary to include the entries in the financial accounts, specifically under other accounts receivable or payable.

	NPISH		Enterprise	
	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth
Secondary Distribution of income account		Transfer receivable	Transfer Payable	
Financial account		Increase in financial asset	Decrease in financial asset	
Production account				Output/sale of medicine
Use of income account	Expenditure on medicine			
Financial account	Decrease in financial asset			Increase in financial asset

8.44 A more complex variant occurs if enterprise A purchases the medicine from enterprise B and then gives it to an NPISH. Although A actually purchases the goods from B, they do not form part of A's intermediate consumption or capital formation. Nor can they be recorded as final consumption by A, since it is an enterprise. As before, a cash transfer is imputed from enterprise A to the NPISH and an imputed purchase by the NPISH. If both transactions occur in the same accounting period, the two entries of the financial account for the NPISH will cancel, leaving only six of the eight entries apparent in the accounts.

	NPISH		Enterprise A		Enterprise B	
	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth
Secondary Distribution of income account		Transfer receivable	Transfer Payable			
Financial account		Increase in financial asset	Decrease in financial asset			
Production account						Output/sale of medicine
Use of income account	Expenditure on medicine					
Financial account	Decrease in financial asset					Increase in financial asset

Social transfers in kind

8.45 In the SNA, final consumption expenditure is incurred only by general government, NPISHs and households. All consumption expenditure by households is incurred on their own behalf. Consumption expenditure by general government, on the other hand, is either for the benefit of the community at large (collective consumption) or for the benefit of individual households. This distinction between collective and individual consumption expenditure is of considerable importance in the SNA and is discussed in detail in chapter 9. Consumption expenditures by general government and NPISHs on behalf of households (their individual consumption expenditures) are undertaken for the purpose of making social transfers in kind. They cover the non-market output of both general government and NPISHs delivered to households free, or at prices that are not economically significant, as well as goods and services bought from market producers and provided to households free or at prices that are not economically significant.

	General government	
	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth
Production account		Output of education services
Use of income account	Consumption expenditure of education services	

8.46 The next example is of an education service provided to a household by a non-market producer owned by a government unit. The provision of the service is actually recorded twice in the accounts of the SNA. First, it is recorded in the traditional way in national accounting as output by government in the production account and final consumption expenditure of government in the use of income account. As this transaction is recorded as an internal transaction within government, it leads to only two, not four entries, in the accounts, both being recorded under general government.

8.47 This method of recording does not portray the fact that in reality the education service is actually provided to a household as a social transfer in kind paid for by government.

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	Household		General government	
	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth
Production account				Output of education services
Redistribution of income in kind account		Social transfers in kind receivable	Social transfer in kind payable	
Use of adjusted disposable income account	Actual consumption of education services			

8.48 For a social transfer in kind, the consumption of the education service is recorded as actual consumption by households in the use of adjusted disposable income account. The resources for this are provided via social transfers in kind from government to households in the redistribution of income in kind account. (The distinction between actual consumption and consumption expenditure for households, general government and NPISHs is further elaborated in chapter 9.)

8.49 The final example is a more complex case involving two interrelated transactions in which a government unit, or NPISH, purchases a good or service, such as a medicine, from a market producer and then provides it free to a household.

8.50 Under the normal recording in the SNA, four entries would be required showing the sale of the medicine by the enterprise and the purchase as final consumption expenditure of government with consequences for the financial accounts for both units. The purchase would be recorded as consumption expenditure by government. When explicitly recording social transfers in kind, the entry for the consumption expenditure by government is replaced by two entries for the social transfers in kind and one for actual consumption by households. The entries for the financial account remain as under the normal recording of government purchases.

	Household		General government		Enterprise	
	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth	Uses/ Changes in assets	Resources/ Changes in liabilities and net worth
Production account						Output/sale of medicine
Redistribution of income in kind account		Social transfers in kind receivable	Social transfer in kind payable			
Use of adjusted disposable income account	Actual consumption of medicine					
Financial account			Decrease in financial asset			Increase in financial asset

8.51 This example also covers the case in which the household purchases the medicine directly from a pharmacist and is then reimbursed by the social security fund, other government unit or NPISH that ultimately bears the cost. In this case, the household is not recorded as actually incurring any expenditure, the expenditure being attributed to the social security fund or other unit that ultimately bears the cost. Any difference between the time when the household incurs the expense and the time when it is reimbursed is shown as an other account receivable (by households) and payable (by the unit ultimately bearing the cost).

C. Current taxes on income, wealth, etc.

1. Taxes in general

8.52 ***Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units.*** They are transfers because the government provides nothing directly in return to the individual unit paying the tax, although governments do provide goods and services to the community as a whole or to individual units, or groups of units, depending on their general economic and social policy. Current taxes on income, wealth, etc. consist mainly of taxes levied on the incomes of households and corporations. They constitute charges against income and are recorded under uses for the households and corporations sectors in the secondary distribution of income account. The taxes may also be payable by non-residents or possibly by government units or NPISHs. Current taxes on income, wealth, etc. were described as “direct taxes” in the past, but the terms “direct” and “indirect” are no longer used in the SNA, as explained in chapter 7. The taxes cannot be described simply as “current taxes on income and wealth” because they include some periodic taxes on households that are assessed neither on the income nor the wealth of the household or its members, for example, poll taxes.

8.53 The general nature of taxes and the accounting rules governing their recording in the SNA were described in paragraphs 7.80 to 7.86. For convenience, these paragraphs are repeated below.

Taxes versus fees

8.54 One of the regulatory functions of governments is to forbid the ownership or use of certain goods or the pursuit of certain activities, unless specific permission is granted by issuing a licence or other certificate for which a fee is demanded. If the issue of such licences involves little or no work on the part of government, the licences being granted automatically on payment of the amounts due, it is likely that they are simply a device to raise revenue, even though the government may provide some kind of certificate, or authorization, in return. However, if the government uses the issue of licences to exercise some proper regulatory function, for example, checking the competence, or

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qualifications, of the person concerned, checking the efficient and safe functioning of the equipment in question, or carrying out some other form of control that it would otherwise not be obliged to do, the payments made should be treated as purchases of services from government rather than payments of taxes, unless the payments are clearly out of all proportion to the costs of providing the services. The borderline between taxes and payments of fees for services rendered is not always clear-cut in practice (see paragraph 8.64 (c) for a further explanation of this matter in the case of households).

Links with the IMF and OECD tax classifications

8.55 The coverage of taxes in the SNA coincides with that of "tax revenue" as defined in the *GFSM2001*, and also with "taxes" as defined in *Revenue Statistics.* In contrast to the latter, the SNA includes imputed taxes or subsidies resulting from the operation of official multiple exchange rates, imputed taxes and subsidies resulting from a central bank imposing interest rates above or below the market rate and does not classify social security contributions under the heading of taxes. Chapter 5 of the *GFSM2001* contains a detailed listing and classification of taxes according to the nature of the tax. Annex A of *Revenue Statistics* contains a closely related classification.

8.56 The categories of tax distinguished in the SNA depend on the interaction of the following three factors, of which the nature of tax is only one:

a. The nature of the tax, as specified in the *GFSM2001*/ OECD classification;

b. The type of institutional unit paying the tax;

c. The circumstances in which the tax is payable.

8.57 Thus, payments of exactly the same tax may be recorded under two different headings in the SNA. For example, payment of an excise duty may appear under "taxes on imports, except value added taxes (VAT) and duties" or under "taxes on products, except VAT, import and export taxes" depending upon whether the excise duty is paid on an imported or domestically produced good. Similarly, payments of an annual tax on automobiles may be recorded under "other taxes on production" or under "current taxes on income, wealth, etc." depending upon whether the tax is paid by an enterprise or by a household. For this reason, it is not possible to arrive at the SNA categories simply by regrouping the *GFSM2001*/OECD classifications. However, in order to take advantage of the existence of these detailed classifications, each category of tax listed below contains a cross-reference to the corresponding *GFSM2001* and OECD classifications. It should be noted, though, that the SNA categories are included within the *GFSM2001* and OECD categories but may not be identical with them.

The accrual basis of recording

8.58 All taxes should be recorded on an accrual basis in the SNA, that is, when the activities, transactions or other events occur that create the liabilities to pay taxes. However, some economic activities, transactions or events, which under tax legislation ought to impose on the units concerned the obligation to pay taxes, permanently escape the attention of the tax authorities. It would be unrealistic to assume that such activities, transactions or events give rise to financial assets or liabilities in the form of payables and receivables. For this reason the amounts of taxes to be recorded in the SNA are determined by the amounts due for payment only when evidenced by tax assessments, declarations or other instruments, such as sales invoices or customs declarations, that create liabilities in the form of clear obligations to pay on the part of taxpayers. (In determining the amount of tax accruing, care must be taken not to include tax unlikely ever to be collected.) Nevertheless, in accordance with the accrual principle, the times at which the taxes should be recorded are the times at which the tax liabilities arise. For example, a tax on the sale, transfer or use of output should be recorded when that sale, transfer or use took place, which is not necessarily the same time as that at which the tax authorities were notified, at which a tax demand was issued, at which the tax was due to be paid or the payment was actually made. Some flexibility is permitted, however, as regards the time of recording of income taxes deducted at source (see paragraph 8.61).

8.59 In some countries, and for some taxes, the amounts of taxes eventually paid may diverge substantially and systematically from the amounts due to be paid to the extent that not all of the latter can be effectively construed as constituting financial liabilities as these are understood within the SNA. In such cases, it may be preferable for analytic and policy purposes to ignore unpaid tax liabilities and confine the measurement of taxes within the SNA to those actually paid. Nevertheless, the taxes actually paid should still be recorded on an accrual basis at the times at which the events took place that gave rise to the liabilities.

Interest, fines or other penalties

8.60 In principle, interest charged on overdue taxes or fines, or penalties imposed for the attempted evasion of taxes, should be recorded separately and not as taxes. However, it may not be possible to separate payments of interest, fines or other penalties from the taxes to which they relate, so that in practice they are usually grouped with taxes.

2. Taxes on income

8.61 ***Taxes on income consist of taxes on incomes, profits and capital gains***. They are assessed on the actual or presumed incomes of individuals, households, NPISHs or corporations. They include taxes assessed on holdings of property, land or real estate when these holdings are used as a basis for estimating the income of their owners. In some cases the liability to pay income taxes can only be determined in a later accounting period than that in which the income accrues. Some flexibility is therefore needed in the time at which such taxes are recorded. Income taxes deducted at source, such as pay-as-you-earn taxes and regular prepayments of income taxes, may be recorded in the periods in which they are paid and any final tax liability on income can be recorded in the period in which the liability is determined. Taxes on income include the following types of taxes:

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a. *Taxes on individual or household income*: These consist of personal income taxes, including those deducted by employers (pay-as-you-earn taxes), and surtaxes. Such taxes are usually levied on the total declared or presumed income from all sources of the person concerned: compensation of employees, property income, pensions, etc., after deducting certain agreed allowances. Taxes on the income of owners of unincorporated enterprises are included here (*GFSM2001*, 1111; OECD, 1110);

b. *Taxes on the income of corporations:* These consist of corporate income taxes, corporate profits taxes, corporate surtaxes, etc. Such taxes are usually assessed on the total incomes of corporations from all sources and not simply profits generated by production (*GFSM2001*, 1112; OECD, 1210);

c. *Taxes on capital gains:* These consist of taxes on the capital gains (described as holding gains in the SNA) of persons or corporations that become due for payment during the current accounting period, irrespective of the periods over which the gains have accrued. They are usually payable on nominal, rather than real, capital gains and on realized, rather than unrealized, capital gains (*GFSM2001*, 1111-1113; OECD, 1120, 1220);

d. *Taxes on winnings from lotteries or gambling*: These are taxes payable on the amounts received by winners as distinct from taxes on the turnover of producers that organize gambling or lotteries, which are treated as taxes on products (*GFSM2001*, 1111-113; OECD, 1120).

8.62 The calculation of taxes due on income frequently exempts some part of income from taxes; such exemptions being described as tax allowances. In addition, or as an alternative, a government may determine an amount that is treated as if it is tax already paid; such an amount is called a tax credit. In some cases, if the tax due is less than the tax credit, the balance may be payable to the beneficiary; this is called a payable tax credit. There is more discussion on tax credits in chapter 22.

3. Other current taxes

Current taxes on capital

8.63 ***Current taxes on capital consist of taxes that are payable periodically, usually annually, on the property or net wealth of institutional units, excluding taxes on land or other assets owned or rented by enterprises and used by them for production, such taxes being treated as other taxes on production.*** They also exclude taxes on property or wealth levied infrequently and at irregular intervals, or in exceptional circumstances (for example, death duties), such taxes being treated as capital taxes. They also exclude income taxes assessed on the basis of the value of the property owned by institutional units when their incomes cannot be estimated satisfactorily, such taxes being recorded under the previous heading, taxes on income. Current taxes on capital include the following:

a. *Current taxes on land and buildings:* These consist of taxes payable periodically, in most cases annually, on the ownership of land or buildings excluding taxes on land or buildings rented or owned by enterprises and used by them in production including use for owner-occupied dwelling services (*GFSM2001*, 1131; OECD, 4100);

b. *Current taxes on net wealth:* These consist of taxes payable periodically, in most cases annually, on the value of land or fixed assets less any debt incurred on those assets, excluding taxes on assets owned by enterprises and used by them in production (*GFSM2001*, 1132; OECD, 4200);

c. *Current taxes on other assets:* These include taxes payable periodically, usually annually, on assets such as jewellery or other external signs of wealth (*GFSM2001*, 1136; OECD, 4600).

Miscellaneous current taxes

8.64 Miscellaneous current taxes consist of various different kinds of taxes payable periodically, usually annually, of which the most common are the following:

a. *Poll taxes:* These are taxes levied as specific amounts of money per adult person, or per household, independently of actual or presumed income or wealth. The amounts levied may vary, however, according to the circumstances of the person or household (*GFSM2001*, 1162; OECD, 6000);

b. *Expenditure taxes*: These are taxes payable on the total expenditures of persons or households instead of on their incomes. Expenditure taxes are alternatives to income taxes and may be levied at progressively higher rates in the same way as personal income taxes, depending upon the total level of expenditure. They are uncommon in practice (*GFSM2001*, 1162; OECD, 6000);

c. *Payments by households to obtain certain licences:* Payments by persons or households for licences to own or use vehicles, boats or aircraft and for licences for recreational hunting, shooting or fishing are treated as current taxes. Payments for all other kinds of licences (for example, driving or pilot's licences, television or radio licences, firearm licences, etc.) or fees to government (for example, payments for passports, airport fees, court fees, etc.) are treated as purchases of services rendered by governments. The boundary between taxes and purchases of services is based on the practices actually followed in the majority of countries in their own accounts (*GFSM2001*, 11451 and 11452; OECD, 5200);

d. *Taxes on international transactions:* These consist of taxes on travel abroad, foreign remittances, foreign investments, etc. except those payable by producers (*GFSM2001*, 1155 and 1156; OECD, 5127).

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D. Social insurance schemes

8.65 ***A social insurance scheme is an insurance scheme where the following two conditions are satisfied:***

a. the benefits received are conditional on participation in the scheme and constitute social benefits as this term is used in the SNA; and

b. at least one of the three conditions following is met:

- ***Participation in the scheme is obligatory either by law or under the terms and conditions of employment of an employee, or group of employees;***
- ***The scheme is a collective one operated for the benefit of a designated group of workers, whether employed or non-employed, participation being restricted to members of that group;***
- ***An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, whether or not the employee also makes a contribution.***

Social insurance schemes may be organized privately or by government units. Social insurance benefits may be provided in cash or in kind. They become payable when certain events occur, or certain circumstances exist, that may adversely affect the welfare of the households concerned either by imposing additional demands on their resources or reducing their incomes. The contingencies covered are liable to vary from scheme to scheme. However, the identification of certain receivables as social insurance benefits depends not just on the contingencies covered but also the way in which coverage is provided.

1. The extent of social benefits

8.66 Social benefits may be payable under social insurance schemes or social assistance but similar circumstances may be covered under both.

8.67 Social benefits may be divided into two main classes; pensions and all other social benefits, described in the SNA as non-pension benefits. The most important type of pension is one paid to an individual when they cease employment on retirement. Pensions may also be payable to other individuals, for example a bereaved spouse or someone suffering from a permanent disability. Payments made while a person is temporarily unemployed or suffering a medical condition that prevents them from working for a period are treated as non-pension benefits.

8.68 Six kinds of circumstances illustrate when non-pension social benefits may be payable as follows:

a. The beneficiaries, or their dependants, require medical, dental or other treatments, or hospital, convalescent or long-term care, as a result of sickness, injuries, maternity needs, chronic invalidity, old age, etc. The social insurance benefits are usually provided in kind in the form of treatment or care provided free or at prices that are not economically significant, or by reimbursing expenditures made by households. Social insurance benefits in cash may also be payable to beneficiaries needing health care;

b. The beneficiaries have to support dependants of various kinds: spouses, children, elderly relatives, invalids, etc. The social insurance benefits are usually paid in cash in the form of regular dependants' or family allowances;

c. The beneficiaries suffer a reduction in income as a result of not being able to work full-time. The social insurance benefits are usually paid regularly in cash for the duration of the condition. In some instances a lump sum may be provided additionally or instead of the regular payment. People may be prevented from working for various different reasons, including involuntary unemployment, including temporary lay-offs and short-time working, and sickness, accidental injury, the birth of a child, etc. that prevents a person from working, or from working full-time;

d. The beneficiaries suffer a reduction in income because of the death of the main income earner. The social insurance benefits are usually paid in cash in the form of regular allowances or, in some instances, a lump sum;

e. The beneficiaries are provided with housing either free or at prices that are not economically significant or by reimbursing expenditure made by households;

f. The beneficiaries are provided with allowances to cover education expenses incurred on behalf of themselves or their dependants; education services may occasionally be provided in kind.

8.69 The above are typical circumstances in which social benefits are payable. However, the list is illustrative rather than exhaustive. It is possible, for example, that under some schemes other benefits may be payable. Conversely, by no means do all schemes provide benefits in all the circumstances listed above. In practice, the scope of social benefits is liable to vary significantly from country to country, or from scheme to scheme within the same country.

8.70 In cases where no qualifying contribution has to have been paid in order to receive benefits, these are treated as part of social assistance. Typically social assistance is provided by government to all persons who are in need without any formal requirement to participate as evidenced by the payment of contributions, for example. The extent of social assistance varies very considerably from country to country. In many countries, benefits are only payable to people on low incomes. This is often described as saying the benefits are "means-tested", where the term "means" is used in the sense of indicating a maximum qualifying level of income.

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2. The organization of social insurance schemes

8.71 Social insurance schemes are intended to cover beneficiaries and their dependants during their working lives and usually also into retirement, whether they are employees, employers, own-account workers, or persons temporarily without employment. Eligibility for social insurance benefits requires social contributions to have been paid by, or on behalf of, the beneficiaries or their dependants in the current or previous accounting periods. As already noted, the social contributions may be payable not only by the participants themselves but also by employers on behalf of their employees.

8.72 Social insurance schemes must be organized collectively for groups of workers or be available by law to all workers or designated categories of workers, possibly including non-employed persons as well as employees. They may range from private schemes arranged for selected groups of workers employed by a single employer to social security schemes covering the entire labour force of a country. Participation in such schemes may be voluntary for the workers concerned, but it is more common for it to be obligatory. For example, participation in schemes organized by individual employers may be required by the terms and conditions of employment collectively agreed between employers and their employees. Participation in nationwide social security schemes organized by government units may be compulsory by law for the entire labour force, except perhaps for persons who are already covered by private schemes.

8.73 Many social insurance schemes are organized collectively for groups of workers so that those participating do not have to take out individual insurance policies in their own names. In such cases, there is no difficulty about distinguishing social insurance from insurance taken out on a personal basis. However, some social insurance schemes may permit, or even require, participants to take out policies in their own names. In order for an individual policy to be treated as part of a social insurance scheme the eventualities or circumstances against which the participants are insured must be of the kind listed in paragraph 8.65, and in addition, one or more of the following conditions must be satisfied:

a. Participation in the scheme is obligatory either by law for a specified category of worker, whether employer or non-employed, or under the terms and conditions of employment of an employee, or group of employees;

b. The scheme is a collective one operated for the benefit of a designated group of workers, whether employees or non-employed, participation being restricted to members of that group;

c. An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, whether or not the employee also makes a contribution.

The premiums payable, and claims receivable, under individual policies taken out under a social insurance scheme are recorded as social contributions and social insurance benefits.

Table 8.3:The secondary distribution of income account - with details for taxes and social contributions - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Current transfers	98	277	248	582	7	1 212	17		1 229
Current taxes on income, wealth, etc.	24	10	0	178	0	212	1		213
Taxes on income	20	7	0	176	0	203	1		204
Other current taxes	4	3	0	2	0	9			9
Net social contributions				333		333	0		333
Employers' actual social contributions				181		181	0		181
Employers' actual pension contributions				168		168	0		168
Employers' actual non-pension contributions				13		13	0		13
Employers' imputed social contributions				19		19	0		19
Employers' imputed pension contributions				18		18	0		18
Employers' imputed non-pension contributions				1		1	0		1
Households' actual social contributions				129		129	0		129
Households' actual pension contributions				115		115	0		115
Households' actual non-pension contributions				14		14	0		14
Households' social contributions supplements				10		10	0		10
Households' pension contribution supplements				8		8	0		8
Households' non-pension contribution supplements				2		2	0		2
Social insurance scheme service charges				6		6	0		6
Social benefits other than social transfers in kind	62	205	112	0	5	384	0		384
Other current transfers	12	62	136	71	2	283	16		299
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604

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8.74 Social insurance schemes are essentially schemes in which workers are obliged, or encouraged, by their employers or by general government to take out insurance against certain eventualities or circumstances that may adversely affect their welfare or that of their dependants. When individuals take out insurance policies in their own names, on their own initiative and independently of their employers or government, the premiums payable and claims receivable are not treated as social contributions and social insurance benefits, even though the policies may be taken out against the same kinds of eventualities or situations as are covered by social insurance schemes such as accident, ill health, retirement, etc. The premiums payable and claims receivable under such individual insurance policies are recorded as current transfers in the secondary distribution of income account in the case of non-life insurance, while the premiums payable and claims receivable under individual life insurance policies are recorded as acquisitions and disposals of financial assets in the financial account.

8.75 As can be seen from the consideration of individual insurance policies, the nature of the benefit is by no means sufficient to identify the social nature of the transactions. For example, the receipt of free medical services does not always constitute a social benefit. If the medical services received by one household are paid for by another, they are not social benefits but transfers between households. First aid rendered to employees at work is not a social benefit, the costs involved being recorded as intermediate consumption of the employer. In general, social benefits cannot be provided by one household to another except in the relatively rare case in which an unincorporated enterprise owned by a household operates a social insurance scheme for the benefit of its employees.

8.76 All social insurance schemes are founded on an employment relationship even if the participants are self-employed or currently unemployed. Two main types of social insurance schemes may be distinguished:

a. The first consists of social security schemes covering the entire community, or large sections of the community, that are imposed, controlled and financed by government units. Pensions payable under these schemes may or may not be related to levels of salary of the beneficiary or history of employment. Non-pension benefits are less frequently linked to salary levels.

b. The second type consists of other employment-related schemes. These schemes derive from an employer-employee relationship in the provision of pension and possibly other entitlements that are part of the conditions of employment and where responsibility for the provision of benefits does not devolve to general government under social security provisions.

Making this distinction is difficult in some countries where the ultimate responsibility for administering the scheme and paying benefits is undertaken by government on behalf of many employers not working for general government. In countries where there is no such arrangement, social insurance schemes organized by government units for their own employees, as opposed to the working population at

Table 8.3 (cont):The secondary distribution of income account - with details for taxes and social contributions - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642
Current transfers	72	275	367	420	40	1 174	55		1 229
Current taxes on income, wealth, etc.			213			213	0		213
Taxes on income			204			204	0		204
Other current taxes			9			9			9
Net social contributions	66	213	50	0	4	333	0		333
Employers' actual social contributions	31	110	38	0	2	181	0		181
Employers' actual pension contributions	27	104	35	0	2	168	0		168
Employers' actual non-pension contributions	4	6	3	0	0	13	0		13
Employers' imputed social contributions	12	2	4	0	1	19	0		19
Employers' imputed pension contributions	12	1	4	0	1	18	0		18
Employers' imputed non-pension contributions	0	1	0	0	0	1	0		1
Households' actual social contributions	25	94	9	0	1	129	0		129
Households' actual pension contributions	19	90	6	0	0	115	0		115
Households' actual non-pension contributions	6	4	3	0	1	14	0		14
Households' social contributions supplements		10				10	0		10
Households' pension contribution supplements		8				8	0		8
Households' non-pension contribution supplements		2				2	0		2
Social insurance scheme service charges	2	3	1			6	0		6
Social benefits other than social transfers in kind				384		384	0		384
Other current transfers	6	62	104	36	36	244	55		299

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large, should, if possible, be included in the group of other employment-related schemes and not remain within social security schemes.

Social security schemes

8.77 In many countries, social security schemes are by far the most important category of social insurance schemes and it is worth summarizing their main characteristics. Social security schemes are schemes imposed, controlled and financed by government units for the purpose of providing social benefits to members of the community as a whole, or of particular sections of the community. When social security funds are established for this purpose and are organized and managed separately from other government funds, they are treated as separate institutional units. Their receipts consist mainly of contributions paid by individuals and by employers on behalf of their employees, but they may also include transfers from other government funds. The payment of social security contributions by, or on behalf of, certain specified individuals, such as employees, is generally compulsory by law, but some other individuals may choose to pay voluntarily in order to qualify for the receipt of social security benefits.

Other employment-related social insurance schemes

8.78 The terms of employment-related social insurance schemes are determined by employers, possibly in conjunction with their employees and may be administered by the employers themselves. Very often, though, the funds may form a separate institutional unit (an autonomous pension fund) or may be managed by an insurance corporation on behalf of the employer.

8.79 Not all employment-related social insurance schemes are adequately funded. In the secondary distribution of income account, transactions are recorded as if the schemes are adequately funded and any discrepancies are recorded in the financial account under other accounts receivable or payable. A complete overview of the recording of pension schemes is given in part 2 of chapter 17.

E. Net social contributions

8.80 In the SNA, all contributions to social insurance schemes are shown as made by households. There are, however, several elements to the amounts paid. The first is the amount of contributions made by the employer on behalf of the employee. This amount is part of compensation of employees and is received by households in the generation of income account and thus forms part of the balance of primary income of households. The second element consists of actual payments made by households in the current period to cover their share of the pension and other provisions relating to the current period. These payments may be made by employees, self-employed persons or non-employed persons. A third element consists of contribution supplements, or imputed payments by households, which represent the return to the pension fund of the property income earned on the start of year pension entitlement and on any reserves established for non-pension benefits. These are attributed to households in the allocation of primary income account and, like the employers' contributions, are included in the balance of primary incomes for households. Set against these is the service fee charged by the unit administering the pension scheme. This may be an explicit charge made by a unit separate from the employer or may be the sum of costs incurred by the employer in

Table 8.4:The secondary distribution of income account - with details of social benefits - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Current transfers	98	277	248	582	7	1 212	17		1 229
Current taxes on income, wealth, etc.	24	10	0	178	0	212	1		213
Net social contributions				333		333	0		333
Social benefits other than social transfers in kind	62	205	112	0	5	384	0		384
Social security benefits in cash			53			53	0		53
Social security pension benefits			45			45	0		45
Social security non-pension benefits in cash			8			8	0		8
Other social insurance benefits	62	205	7	0	5	279	0		279
Other social insurance pension benefits	49	193	5	0	3	250	0		250
Other social insurance non-pension benefits	13	12	2	0	2	29	0		29
Social assistance benefits in cash			52			52			52
Other current transfers	12	62	136	71	2	283	16		299
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604

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administering the scheme if it is not a separate unit. Depending on the nature of the scheme, either the contribution by the employer or the property income includes the value of the service charge.

8.81 Table 8.3 shows table 8.1 with social contributions disaggregated according to these criteria. For practical reasons, the tables show the employers' contributions and property income at the same value as recorded in the distribution of primary income account with the service charge shown separately. This charge, though, is not a redistributive transaction but part of output and consumption expenditure. It is included in the table to clarify the way in which social insurance is funded. Each heading is discussed briefly in turn below. A more extensive discussion of the transactions to be recorded for pension schemes is given in part 2 of chapter 17.

1. Components of social contributions

8.82 ***Net social contributions are the actual or imputed contributions made by households to social insurance schemes to make provision for social benefits to be paid. Fees charged by the administrators of the schemes are excluded from contributions payable.*** These fees are treated as consumption expenditure by households in the use of income account.

2. Employers' actual social contributions

8.83 This item is exactly the same as that recorded in the allocation of primary income account and described in paragraph 7.62.

3. Employers' imputed social contributions

8.84 This item is exactly the same as that recorded in the allocation of primary income account and described in paragraphs 7.63 to 7.69.

4. Households' actual social contributions

8.85 ***Households' actual social contributions are social contributions payable on their own behalf by employees, self-employed or non-employed persons to social insurance schemes.*** They are recorded on an accrual basis. For those in work, this is at the times when the work that gives rise to the liability to pay the contributions is carried out.

5. Households' social contribution supplements

8.86 ***Households' social contribution supplements consist of the property income earned during the accounting period on the stock of pension and non-pension entitlements.*** This amount is included in property income payable by the administrators of pension funds to households in the allocation of primary income account.

Table 8.4 (cont):The secondary distribution of income account - with details of social benefits - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642
Current transfers	72	275	367	420	40	1 174	55		1 229
Current taxes on income, wealth, etc.			213			213	0		213
Net social contributions	66	213	50	0	4	333	0		333
Social benefits other than social transfers in kind				384		384	0		384
Social security benefits in cash				53		53	0		53
Social security pension benefits				45		45	0		45
Social security non-pension benefits in cash				8		8	0		8
Other social insurance benefits				279		279	0		279
Other social insurance pension benefits				250		250	0		250
Other social insurance non-pension benefits				29		29	0		29
Social assistance benefits in cash				52		52			52
Other current transfers	6	62	104	36	36	244	55		299

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F. Social benefits other than social transfers in kind

8.87 Social benefits are current transfers received by households intended to provide for the needs that arise from certain events or circumstances. Benefits are divided into two groups, the first consists of pensions and the second of all other benefits, described as non-pension benefits. These cover, for example, payments due in respect of sickness, unemployment, housing, education or family circumstances.

8.88 The way in which the receipt of social benefits is recorded in the accounts depends on a number of intersecting factors. As well as the type of social benefit, pension or non-pension, it is necessary to specify whether the benefits are payable under a social insurance scheme or not, whether they are paid by government or not and whether they are paid in cash or not. The following sections discuss the different institutional arrangements for paying benefits, then the different types of benefits before summarizing how these appear in the accounts.

1. Institutional arrangements

Social insurance schemes or social assistance

8.89 Social benefits may be payable as part of a social insurance scheme or by government as social assistance. Unlike social assistance, all social insurance schemes require formal participation by the beneficiaries. This participation is linked to employment and is usually evidenced by the payment of contributions to the scheme either by the participants, an employer or both. Social security is an important kind of social insurance and like social assistance, is provided by government. It is therefore necessary to determine when a social benefit provided by government is made as part of social security and when it is part of social assistance.

Social security and social assistance

8.90 There is a fundamental difference between government provision of benefits under social security and under social assistance although the proportion of benefits allocated to one or the other heading varies considerably from country to country depending on national institutional arrangements.

8.91 Social security is one form of a social insurance scheme. The beneficiary is enrolled in the scheme or participates usually by paying a contribution to the scheme or having one paid to the scheme on his behalf. The payment may be made by the employer or a family member or even in some cases by government itself (perhaps for the duration of unemployment, for instance). Because it is a contributory scheme, there is some sort of contract between the government and the beneficiaries. In some countries this contract has a strict legal form and cannot be altered retrospectively; in others the contract is much looser and retroactive adjustments are possible. For all social security schemes, the difference between the contributions receivable and the benefits payable is monitored in the context of the government budget since persistent deficits cannot be sustained for ever without intervention to raise contributions, lower benefits or both.

8.92 Social assistance is distinguished from social security in that eligibility to receive social assistance benefits is not dependent on having elected to participate as demonstrated by the payment of contributions. Usually all members of resident households are entitled to apply for social assistance but the conditions under which it is granted are often restrictive. Frequently there is an assessment of available income in relation to the perceived needs of a household and only those households falling below a given threshold may be entitled to this type of social assistance. (This process is often described as “means-testing”.)

8.93 The extent to which social assistance provides incomes to households varies extensively from country to country. In some countries, indeed, there is no social security and all provision by government of income to meet social needs is provided without contribution but this is not the general case.

2. Types of social benefits

8.94 Social benefits may be paid under three different sorts of institutional arrangements. They may be paid by government as either social assistance or social security or they may be paid by other employment related social insurance schemes. Pensions under all three arrangements are recorded in a similar way but with a distinction drawn between those that are made under social assistance and those that are made under social insurance. Non-pension benefits payable in cash are also recorded in a similar way but with a distinction drawn between those that are made under social assistance and those that are made under social insurance. Non-pension benefits payable in kind are recorded differently for those payable by government, whether as social assistance or social security.

Pensions

8.95 The main social benefit payable in cash is pension provision for retirees. However, others may be entitled to pensions, for example widows and the permanently disabled. Pensions are almost always paid in cash though there may be some circumstances where housing is available free or at a reduced rate to some pensioners in which case the value of this housing benefit is treated as part of the cash payment with the same amount showing as purchase of housing services from the provider.

8.96 As noted, pensions payable under social insurance pensions are distinguished from those payable as social assistance.

Non-pension benefits payable in cash

8.97 While the nature of a pension payment is generally unambiguous, other social insurance payments must be carefully distinguished from other payments made to households. Once such payments are eliminated, non-

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pension benefits in cash are recorded under social insurance non-pension benefits and social assistance benefits in cash.

Receivables by households that are not social benefits

8.98 Government may make payments to a household in respect of the production activities of the household. An example might be a payment to encourage the production of a particular agricultural crop. Such payments are treated as subsidies to the household enterprise. Less common, but conceptually possible, is if government made a payment to permit the household to acquire a fixed asset for use in production, this would be recorded as an investment grant (a capital transfer).

8.99 An employer, whether government or not, may provide an employee with equipment that is necessary to carrying out the labour services the employee provides. Examples are uniforms or small tools, such as scissors for hairdressers or bicycles for delivering mail. This equipment is recorded as intermediate consumption of the employing enterprise and is never recorded as being acquired by the household to which the employee belongs. The same convention applies to services provided to employees carrying out their tasks, for example the cost of food and hotel accommodation when travelling on business is treated as intermediate consumption of the employer and not final consumption of the employee.

8.100 When an employer makes available to the employee a good or service that the employee does use other than in the course of his employment, these goods and services are treated as the provision of wages and salaries in kind that are recorded as being in cash with corresponding expenditure by the employees on the goods and services. Examples include the provision of free housing or making a car available to the employee to use for personal purposes as well as for business. Typically the value of these goods and services will be treated as part of the employee's income for tax purposes.

8.101 Households may receive significant gifts from other households, both resident in the same economy and abroad, or may receive compensation from another unit in respect of an injury sustained or wrongful arrest, for example. Even though these payments may enable the household to improve their standard of living (as might a lottery win also) they are not treated as social benefits in the SNA. Other current transfers, both those payable and receivable by households and other sectors of the economy also, are discussed in more detail in section G.

Non-pension benefits payable in kind

8.102 All benefits arising from employment-related social insurance schemes other than social security are recorded as if they are received in cash. Even if the employee does not initially pay for health treatment, for example, but simply sends the bill to his social insurance scheme for payment by them, the amount paid by the social insurance scheme is recorded as paid to the employee and the expenditure on the health service is then recorded as being undertaken by the employee. The rationale for this is that a private social insurance scheme operates simply as a financial corporation and cannot have final consumption expenditure. Some services provided by an employer are regarded as intermediate consumption by the employer, for example a medical service at the workplace to provide assistance to someone falling ill at work or training that it is in the interests of the employer that the employee should undertake. However, general health and education provision via a social insurance scheme are part of the compensation package of the employee and not part of the intermediate consumption of the employer.

Benefits provided in kind by government

8.103 Social benefits paid in cash allow households to use this cash indistinguishably from income coming from other sources. When social benefits are payable in kind, the household has no discretion over the use of the benefit; the benefits simply relieve the household from having to meet these expenses out of income from other sources. However, governments all over the world take on responsibility to provide households with services they can make use of but not trade for other services or exchange them with other households. These are the individual services provided by government to households either free or at prices that are not economically significant. These benefits are described as social transfers in kind. They are recorded not in the secondary distribution of income account but in the redistribution of income in kind account as described below in section H.

8.104 A special case of benefits payable in kind is that of reimbursements, when the household initially makes a cash outlay but the government reimburses some or all of the expense. For example, when a payment is made by an employee or other member of a resident household for health or education benefits and these are subsequently reimbursed by government, they are not shown as a social insurance benefit and thus as part of compensation of employees but as part of the expenditure by government on health services provided to individual household members. The expenditure by government on individual services is part of government final consumption expenditure and not part of household final consumption expenditure nor of compensation of employees.

8.105 If a household is reimbursed by government for only a part of the health (or other) services provided, the part that is reimbursed is treated as government final consumption expenditure and the part that is not reimbursed by government as household final consumption expenditure. Only if the employer explicitly agrees to reimburse the part of the expenditure not reimbursed by government is it treated as part of compensation of employees.

8.106 All social benefits in kind provided by government are treated in the same way with no attempt made to separate these into social security and social assistance.

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3. Social benefits recorded in the secondary distribution of income account

8.107 Taking the foregoing considerations into account, social benefits recorded in the secondary distribution of income account are structured as follows:

Social benefits other than social transfers in kind
- Social security benefits in cash
  - Social security pension benefits
  - Social security non-pension benefits in cash
- Other social insurance benefits
  - Other social insurance pension benefits
  - Other social insurance non-pension benefits
- Social assistance benefits in cash.

8.108 ***Social security benefits in cash are social insurance benefits payable in cash to households by social security funds.*** The benefits are divided between pensions and non-pension benefits.

8.109 ***Other employment-related social insurance benefits are social benefits payable by social insurance schemes other than social security to contributors to the schemes, their dependants or survivors.*** The benefits are divided between pensions and other benefits.

8.110 ***Social assistance benefits in cash are current transfers payable to households by government units or NPISHs to meet the same needs as social insurance benefits but which are not made under a social insurance scheme requiring participation usually by means of social contributions.*** They therefore exclude all benefits paid by social security funds. The benefits are divided between pensions and other benefits.

8.111 Social assistance benefits do not include current transfers paid in response to events or circumstances that are not normally covered by social insurance schemes. Thus, social assistance benefits do not cover transfers in cash or in kind made in response to natural disasters such as drought, floods or earthquakes. Such transfers are recorded separately under other current transfers.

8.112 Table 8.4 shows table 8.1 with the disaggregation of social benefits described here.

G. Other current transfers

8.113 Other current transfers consist of all current transfers between resident institutional units, or between residents and non-residents, except for current taxes on income, wealth, etc. and social contributions and benefits. Other current transfers include a number of different kinds of transfers serving quite different purposes. The four categories are insurance-related transactions, transfers within government, current international cooperation and miscellaneous current transfers. Each of these is described in turn below.

Table 8.5:The secondary distribution of income account - with details of current transfers - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Current transfers	98	277	248	582	7	1 212	17		1 229
Current taxes on income, wealth, etc.	24	10	0	178	0	212	1		213
Net social contributions				333		333	0		333
Social benefits other than social transfers in kind	62	205	112	0	5	384	0		384
Other current transfers	12	62	136	71	2	283	16		299
Net non-life insurance premiums	8	13	4	31	0	56	2		58
Net non-life direct insurance premiums	8	0	4	31	0	43	1		44
Net non-life reinsurance premiums		13				13	1		14
Non-life insurance claims		48				48	12		60
Non-life direct insurance claims		45				45	0		45
Non-life reinsurance claims		3				3	12		15
Current transfers within general government			96			96	0		96
Current international cooperation			31			31	1		32
Miscellaneous current transfers	4	1	5	40	2	52	1		53
Current transfers to NPISHs	1	1	5	29	0	36	0		36
Current transfers between resident and non-resident households				7		7	1		8
Other miscellaneous current transfers	3	0	0	4	2	9	0		9
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604

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8.114 Table 8.5 shows table 8.1 with this disaggregation of current transfers.

1. Insurance-related transactions

8.115 There are three types of transactions included under the heading of insurance. These are net premiums and claims related to direct insurance, net premiums and claims related to reinsurance and payments related to standardized guarantees. Each of these is described below. A more detailed description of transactions to be recorded for insurance appears in part 1 of chapter 17 and for standardized guarantees in part 3 of chapter 17.

8.116 It should be noted that in this context "net" as applied to premiums implies that the service charge for the insurance services has been deducted from actual premiums paid plus premium supplements. There is no netting between direct insurance and reinsurance; each is recorded in full and separately from the other.

Net non-life insurance premiums

8.117 Non-life insurance policies provide cover against various events or accidents resulting in damage to goods or property or harm to persons as a result of natural or human causes (for example, fires, floods, crashes, collisions, sinkings, theft, violence, accidents, sickness, etc.) or against financial losses resulting from events such as sickness, unemployment, accidents, etc. Such policies are taken out by enterprises, government units, NPISHs or individual households. The policies taken out by individual households are those taken out on their own initiative and for their own benefit, independently of their employers or government and outside any social insurance scheme. ***Net non-life insurance premiums comprise both the actual premiums payable by policyholders to obtain insurance cover during the accounting period (premiums earned) and the premium supplements payable out of the investment income attributed to insurance policyholders less the service charges payable to the insurance corporation.*** The way in which the service charges are calculated is explained in paragraphs 6.184 to 6.191. After deducting the service charges from the sum of non-life insurance premiums and premium supplements, the remainder is described as net non-life insurance premiums. Only the net non-life insurance premiums constitute current transfers and are recorded in the secondary distribution of income account. The service charges constitute purchases of services by the policyholders and are recorded as intermediate or final consumption, as appropriate.

Non-life insurance claims

8.118 ***Non-life insurance claims are the amounts payable in settlement of damages that result from an event covered by a non-life insurance policy during the current accounting period.*** Claims normally become due at the moment when the eventuality occurs that gives rise to a valid claim under the terms of the policy. An exception is made in cases where the possibility of making a claim is recognized only long after the event has happened. For example, an important series of claims were recognized only when exposure to asbestos was established as a cause of serious illness. In such cases the claim is recorded at the time that the insurance company accepts the liability. This may not be the same time as when the size of the claim is agreed on or when the claim is paid.

Table 8.5 (cont):The secondary distribution of income account - with details of current transfers - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642
Current transfers	72	275	367	420	40	1 174	55		1 229
Current taxes on income, wealth, etc.			213			213	0		213
Net social contributions	66	213	50	0	4	333	0		333
Social benefits other than social transfers in kind				384		384	0		384
Other current transfers	6	62	104	36	36	244	55		299
Net non-life insurance premiums		47				47	11		58
Net non-life direct insurance premiums		44				44			44
Net non-life reinsurance premiums		3				3	11		14
Non-life insurance claims	6	15	1	35	0	57	3		60
Non-life direct insurance claims	6		1	35		42	3		45
Non-life reinsurance claims		15				15	0		15
Current transfers within general government			96			96	0		96
Current international cooperation			1			1	31		32
Miscellaneous current transfers	0	0	6	1	36	43	10		53
Current transfers to NPISHs					36	36			36
Current transfers between resident and non-resident households				1		1	7		8
Other miscellaneous current transfers			6			6	3		9

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8.119 The settlement of a non-life insurance claim is treated as a transfer to the claimant. The claimant is usually but not invariably the policyholder. Claims are usually treated as current transfers, even when large sums may be involved as a result of the accidental destruction of a fixed asset or serious personal injury to an individual. The amounts received by claimants are usually not committed for any particular purpose and goods or assets that have been damaged or destroyed need not necessarily be repaired or replaced.

8.120 Some claims arise because of damages or injuries that the policyholders cause to the property or persons of third parties, for example, the damages or injuries that insured drivers of vehicles may cause to other vehicles or persons. In these cases, valid claims are recorded as being payable directly by the insurance enterprise to the injured parties and not indirectly via the policyholder.

8.121 In exceptional circumstances, some proportion of claims may be recorded not as current transfers but as capital transfers. The description of the functioning of the insurance activity in part 1 of chapter 17 explains when this is deemed to be appropriate.

Net reinsurance premiums and claims

8.122 Direct insurers provide a means of redistribution amongst regular policyholders. Instead of a large loss on an irregular basis, policyholders face regular smaller costs in the knowledge that, when and if a large loss happens, it will be settled by the insurance company and thus avoid the policyholder from bearing a large loss in that year. Reinsurance policies work in the same way to allow direct insurers (and other reinsurers) to protect themselves against particularly heavy claims by taking out a policy with another insurance corporation that specializes in reinsurance.

8.123 Net reinsurance premiums and claims are calculated in exactly the same manner as non-life insurance premiums and claims. However, because the reinsurance business is concentrated in a few countries, globally most reinsurance policies are with non-resident units.

Fees and calls under standardized guarantees

8.124 Some units, especially government units, may provide a guarantee against a creditor defaulting in conditions that have many of the same characteristics as non-life insurance. This happens when many guarantees of the same sort are issued and it is possible to make a realistic estimate of the probable level of defaults overall. In this case, the fees payable (and the property income earned on them) are treated in the same way as non-life insurance premiums and the calls under the guarantees are treated in the same way as non-life insurance claims. Part 3 of chapter 17 discusses the topic of standardized guarantees in detail.

8.125 Standardized guarantees provide cover only for financial instruments and do not extend to product warranties

2. Current transfers within general government

8.126 ***Current transfers within general government consist of current transfers between different government units.*** They include current transfers between different levels of government, such as frequently occur between central and state or local government units, and between general government and social security funds. They do not include transfers of funds committed to finance gross fixed capital formation, such transfers being treated as capital transfers.

8.127 One government unit may act as an agent on behalf of a second government unit by, for example, collecting taxes that are due to the second unit, at the same time as it collects its own taxes. Taxes collected on behalf of the second unit in this way are to be recorded as accruing directly to the second unit and are not to be treated as a current transfer from the first to the second unit. Delays in remitting the taxes from the first to the second government unit give rise to entries under “other accounts receivable or payable” in the financial account.

3. Current international cooperation

8.128 ***Current international cooperation consists of current transfers in cash or in kind between the governments of different countries or between governments and international organizations.*** These include:

a. Transfers between governments that are used by the recipients to finance current expenditures, including emergency aid after natural disasters; they include transfers in kind in the form of food, clothing, blankets, medicines, etc.;

b. Annual or other regular contributions paid by member governments to international organizations (excluding taxes payable to supranational organizations);

c. Payments by governments or international organizations to other governments to cover the salaries of those technical assistance staff who are resident in the country in which they are working and are employed by the host government.

Current international cooperation does not cover transfers intended for purposes of capital formation, such transfers being recorded as capital transfers.

4. Miscellaneous current transfers

8.129 ***Miscellaneous current transfers consist of current transfers other than insurance-related premiums and claims, current transfers within general government and current international cooperation.*** Some of the more important examples are described below.

Current transfers between the central bank and general government

8.130 As described in paragraph 6.155, a current transfer representing the value of non-market output of the central bank is recorded as payable by the central bank to general

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government. The non-market output consists of monetary policy services, which are regarded as collective consumption.

8.131 This item may also include transfers between the central bank and government that are recorded when the central bank charges interest at a rate that is out of line with market rates for policy purposes. The recording in such cases is described in paragraphs 7.122 to 7.126.

Current transfers to NPISHs

8.132 ***Current transfers to NPISHs consist of transfers received by NPISHs from other resident or non-resident institutional units in the form of membership dues, subscriptions, voluntary donations, etc. whether made on a regular or occasional basis.*** Transfers to NPISHs are intended to cover the costs of the non-market production of NPISHs or to provide the funds out of which current transfers may be made to resident or non-resident households in the form of social benefits. Transfers in the form of gifts of food, clothing, blankets, medicines, etc. to charities for distribution to resident or non-resident households are included to the extent that they are newly acquired and are treated as transfers in cash used to purchase these commodities. Gifts of unwanted or used articles from households typically do not have a market value and so do not feature in the accounts as transfers. Gifts of valuables are treated as transfers of the value of the valuable in the balance sheet. Payments of membership dues or subscriptions to market NPIs serving businesses, such as chambers of commerce or trade associations, are treated as payments for services rendered and are therefore not transfers (see paragraph 4.88). They are recorded in the production account as intermediate consumption and not in the secondary distribution of income account.

Current transfers between households

8.133 ***Current transfers between households consist of all current transfers made, or received, by resident households to or from other resident or non-resident households.*** The transfers include all cash transfers and the value of transfers in kind. In the context of remittances, current transfers between households are often referred to as personal transfers. They include regular remittances between members of the same family resident in different parts of the same country or in different countries, usually from a member of a family working in a foreign country for a period of a year or longer. Earnings remitted by seasonal workers to their families are not international transfers as the workers remain resident in their country of origin (that is, they are still members of their original households) when they work abroad for periods of less than a year. Their earnings are recorded as compensation of employees from abroad if they have the status of an employee in the non-resident country while they are working there or as the provision of services otherwise.

8.134 Transfers from non-resident households to resident households (and vice versa) are an item of considerable policy interest. In addition, memorandum items in the balance of payments are suggested for personal remittances and total remittances. Personal remittances from abroad are equal to personal transfers from abroad plus compensation of employees from abroad less expenditure abroad by the employees. Personal remittances thus show the total flows into a resident household from households abroad or from a member of the household working abroad for part of the year. Total remittances from abroad are equal to personal remittances plus social benefits (including pensions due from abroad in relation to earlier work abroad by a member of the household). Payments to abroad are defined correspondingly. For more details, reference should be made to chapter 26 and to *BPM6*.

Fines and penalties

8.135 ***Fines and penalties are compulsory payments imposed on institutional units by courts of law or quasi-judicial bodies.*** However, fines or other penalties imposed by tax authorities for the evasion or late payment of taxes cannot usually be distinguished from the taxes themselves and are, therefore, grouped with the latter in practice and not recorded under this heading; nor are payments of fees to obtain licences, such payments being either taxes or payments for services rendered by government units (see paragraph 8.54).

Lotteries and gambling

8.136 The amounts paid for lottery tickets or placed in bets consist of two elements: the payment of a service charge to the unit organizing the lottery or gambling and a residual current transfer that is paid out to the winners. The service charge may be quite substantial and may have to cover taxes on the production of gambling services. The transfers are regarded in the SNA as taking place directly between those participating in the lottery or gambling, that is, between households.

8.137 Some lotteries may be organized with three components, the two as just described and a third element that is donated to charity. This element shows as a transfer to the charity, usually an NPISH.

8.138 When non-resident households take part there may be significant net transfers between the household sector and the rest of the world.

8.139 In some cases the winner of a lottery does not receive a lump sum immediately but a stream of income over future periods. In the SNA this should be recorded as the receipt of the lump sum and the immediate purchase of an annuity. The recording of annuities is described in part 1 of chapter 17.

Payments of compensation

8.140 ***Payments of compensation consist of current transfers paid by institutional units to other institutional units in compensation for injury to persons or damage to property caused by the former that are not settled as payments of non-life insurance claims.*** Payments of compensation could be either compulsory payments awarded by courts of law, or ex gratia payments agreed out of court. This heading covers compensation for injuries or damages caused by other institutional units and ex gratia payments

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made by government units or NPISHs in compensation for injuries or damages caused by natural disasters.

H. Social transfers in kind

8.141 As explained in section G, the secondary distribution of income account is concerned with how income is redistributed among sectors by means of transfers in cash or transfers that are treated as if they are in cash. However, there remains an important class of transfers that are recorded as a transfer of consumption expenditure originally undertaken by general government and NPISHs. These are described as social transfers in kind. ***Social transfers in kind consist of goods and services provided to households by government and NPISHs either free or at prices that are not economically significant.*** These transfers are sufficiently distinctive that two separate accounts are devoted to recording them.

8.142 Social transfers in kind consist of final consumption expenditure undertaken by government and NPISHs on behalf of households. For this reason they are described as individual goods and services. This is in distinction from public goods such as defence and street lighting, which the SNA refers to as collective services. (There is more discussion on the difference between individual and collective expenditure of government in chapter 9.) There are two main reasons why government may choose to provide individual services to households. One is that by meeting the needs of very large sections, or even all, the population centrally there are cost efficiencies to be realized. The other is that the government can ensure that these services are available to the population at reasonable cost to households, prescribe the standards of the service to be observed and can insist that households avail themselves of the services, for example by requiring children to attend school.

8.143 For some analytical purposes, it is instructive to consider a measure of household consumption that includes the goods and services provided as social transfers in kind. The expanded view of consumption, though, must be matched by a similarly extended view of income since household saving is unaffected by this different perspective. In order to accommodate this different view of household income and consumption, the SNA introduces two accounts, one of which derives an alternative measure of income (the redistribution of income in kind account, described below. The second account shows the alternative measure of consumption (the use of adjusted disposable income account) and is described in chapter 9.

1. The redistribution of income in kind account

8.144 The redistribution of income in kind account takes the balancing item of the secondary distribution of income account, disposable income, and adjusts this for the value of social transfers in kind to reach a new balancing item called adjusted disposable income. For households, adjusted disposable income is higher than disposable income; for government and NPISHs, it is lower.

2. Social transfers in kind paid to non-residents

8.145 In principle, social transfers in kind may be paid to non-residents. One simple example is emergency medical care provided to a foreign tourist by a hospital within general government. However, just as non-resident households may benefit from social transfers in kind from the national government, so resident households may benefit from social transfers in kind paid by the government of another economy. In general these flows to non-residents will be small relative to the total level of social transfers in kind and, unless there is strong evidence to the contrary, by convention it may be assumed that the flows to non-residents are balanced by flows from governments (and NPISHs) of other economies. Subject to this convention, it is therefore the case that total disposable income for the total economy is exactly equal to total adjusted disposable income.

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Chapter 9: The use of income accounts

A. Introduction

9.1 The purpose of the use of income accounts is to show how households, government units and non-profit institutions serving households (NPISHs) allocate their disposable income between final consumption and saving. Throughout this chapter, unless otherwise stated, the expression consumption should be taken to mean final consumption. There are two use of income accounts that correspond to two concepts of disposable income and consumption. In the first account, the use of disposable income account, shown in table 9.1, attention is focused on disposable income and the expenditure on consumption goods and services that can be met out of that income. In the second account, the use of adjusted disposable income account, shown in table 9.2, attention is focused on the consumption goods and services acquired and used by institutional units, especially households, whether acquired by expenditure or by social transfers in kind. To explain the difference between the two accounts it is necessary to define some key terms.

9.2 ***A consumption good or service is defined as a good or service that is used (without further transformation in production as defined in the SNA) by households, NPISHs or government units for the direct satisfaction of individual needs (or wants) or for the collective needs of members of the community.***

9.3 ***An individual consumption good or service is one that is acquired by a household and used to satisfy the needs or wants of members of that household.*** Individual goods and services can always be bought and sold on the market, although they may also be provided free, or at prices that are not economically significant, as social transfers in kind. In practice, all goods and most services are individual.

9.4 ***A collective consumption service is a service provided simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region.*** Collective services are automatically acquired and consumed by all members of the community, or section of the community, without any action on their part. Typical examples are public administration and the provision of security, either at a national or local level. Collective services are the "public goods" of economic theory. By their nature, collective services cannot be sold to individuals on a market, and they are financed by government units out of taxation or other revenues. The differences between individual and collective consumption goods or services are elaborated further in paragraphs 9.91 to 9.98.

9.5 Some of the services provided by NPISHs to the members of the associations that own them have some of the characteristics of collective services; for example, some research carried out by NPISHs may benefit all members of the community. However, most of the services provided by NPISHs are individual in nature and, if it is not practicable to identify the outputs of NPISHs that may be considered to be collective in nature, all the services provided by NPISHs may be treated as individual.

9.6 As explained in later sections of this chapter, expenditure is attributed to the institutional units that bear the costs even if they are not the units to whom the goods or services are delivered. Thus, expenditures that government units or NPISHs make on individual goods and services that they provide to households as social transfers in kind are recorded as final consumption expenditure incurred by government units or NPISHs. Although they do not physically consume the goods and services provided as social transfers in kind, government units or NPISHs are the units that pay for them and take the decisions about the amounts to be provided. Information about their expenditure on such goods and services must, therefore, be recorded in the accounts of the SNA in conjunction with their disposable income. However, merely to record the expenditure is not sufficient when the goods and services are consumed by units different from those that control and finance the expenditure. In order to identify the units that benefit from their consumption it is necessary to recognize that the goods and services are in fact transferred to, and used by, households. From this stems the distinction between final consumption expenditure and actual final consumption.

9.7 In the use of disposable income account, the main resource is disposable income, which is the balancing item carried forward from the secondary distribution of income account. The main use is final consumption expenditure. ***Final consumption expenditure is the amount of expenditure on consumption goods and services.*** In the use of adjusted disposable income account, the main resource is adjusted disposable income which is the balancing item carried forward from the redistribution of income in kind account. The main use is actual final consumption. ***Actual final consumption measures the amount of consumption goods and services acquired.***

9.8 In the redistribution of income in kind account, described in chapter 8, the adjusted disposable income of households is derived from their disposable income by adding the value of social transfers in kind receivable, while that for

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government units and NPISHs is derived by subtracting the value of social transfers in kind payable. Corresponding to the redistribution of income in kind account, is the use of adjusted disposable income account in which the actual final consumption of households is derived from their final consumption expenditure by adding the value of social transfers in kind receivable, while the actual final consumption of government units and NPISHs is derived by subtracting the value of social transfers in kind payable. Thus there are two accounts describing the derivation of disposable income in the SNA and two use of income accounts.

9.9 In both the use of disposable income account and the use of adjusted disposable income account, an adjustment item is needed in order to show the change in pension entitlements recorded in the financial account. Saving is the balancing item for both the use of disposable income account and the use of adjusted disposable income account. It is calculated as disposable income adjusted for the change in pension entitlements less final consumption expenditure, or as adjusted disposable income adjusted for the change in pension entitlements less actual final consumption. It follows that saving is the same whether it is calculated in the use of disposable income account or the use of adjusted disposable income account.

9.10 Saving, like disposable income and adjusted disposable income, may have to be recorded gross of consumption of fixed capital because of the difficulty of measuring the latter. As elsewhere, however, the net figures are conceptually preferable.

9.11 Corporations do not have final consumption expenditure. They may purchase the same kinds of goods or services as households use for final consumption (for example electricity or food) but such goods or services are either used for intermediate consumption or provided to employees as remuneration in kind. It is assumed in the SNA that corporations do not make transfers of consumption goods or services to households. As corporations neither make nor receive social transfers in kind, it is also not possible to draw a meaningful distinction between their disposable and adjusted disposable incomes. It follows that both the use of disposable income account and the use of adjusted disposable income account for corporations are only dummy accounts that contain no entries for final consumption expenditure or actual final consumption. Apart from the adjustment item for pension entitlements referred to above and explained in more detail in paragraphs 9.20 to 9.25, the gross or net saving of corporations must be equal to their gross or net disposable, or adjusted disposable, incomes. In other contexts, the saving of corporations is often described as the "retained earnings" or "undistributed incomes" of corporations.

1. The use of disposable income account

9.12 As shown in Table 9.1, the use of disposable income account contains only three main entries apart from the balancing item, saving. Disposable income, the balancing item carried forward from the secondary distribution of income account, is recorded on the right-hand side of the account under resources, while final consumption expenditure is recorded on the left-hand side under uses. As just noted, the account is relevant mainly for the three sectors that incur final consumption expenditure, namely the general government, NPISHs and household sectors.

9.13 The balancing item for the account is saving. Before the balance is struck, however, an adjustment item showing the adjustment for the change in pension entitlements is entered in order to reallocate a certain amount of saving between sectors. This item is needed because of the way in which pension contributions and benefits are recorded in the secondary distribution of income accounts. The adjustment is shown on the right-hand side under resources for households and on the left-hand side under uses for financial corporations or other units responsible for pension liabilities.

9.14 Final consumption expenditure is shown in table 9.1, disaggregated between individual consumption expenditure and collective consumption expenditure to bring out the accounting interrelationships described below. However, it is usually desirable to break down final consumption expenditure using a classification of expenditure by purpose or by type of good or service. Most users will expect at least some degree of disaggregation, for example, between expenditures on goods or services or between expenditures on durable and non-durable goods. Disaggregation by type of goods and services is needed for the supply and use tables, as explained in chapter 14.

Table 9.1:The use of disposable income account - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Final consumption expenditure			352	1 015	32	1 399			1 399
Individual consumption expenditure			184	1 015	31	1 230			1 230
Collective consumption expenditure			168		1	169			169
Adjustment for the change in pension entitlements	0	11	0		0	11	0		11
Saving, gross	228	14	- 35	215	5	427			427
Saving, net	71	2	- 62	192	2	205			205
Current external balance							- 13		- 13

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2. The use of adjusted disposable income account

9.15 As shown in Table 9.2, the use of adjusted disposable income account also contains three main entries apart from the balancing item, saving. Adjusted disposable income, the balancing item brought forward from the redistribution of income in kind account, is recorded on the right-hand side of the account under resources, while actual final consumption is recorded on the left-hand side under uses. As with the use of disposable income account, before the balancing item, saving, is struck, the adjustment for the change in pension entitlements is entered. The account is relevant mainly for the general government, NPISHs and household sectors.

9.16 The actual final consumption of households is obtained by augmenting their final consumption expenditure by the value of social transfers in kind receivable, while that for government units and NPISHs is obtained by subtracting from their final consumption expenditure the value of social transfers in kind payable. Some social transfers in kind may be receivable by non-residents, for example emergency medical treatment in a public hospital for a non-resident tourist, but the figures involved are likely to be very small compared with total social transfers in kind. Further, residents abroad may also benefit from social transfers in kind from a non-resident government (or NPISH) in like manner. Unless there is strong reason to believe otherwise, therefore, it is assumed these two figures offset one another so that all social transfers in kind can be shown as payable to resident households. Thus, the value of actual final consumption for the total economy is equal to that of total final consumption expenditure.

9.17 The actual final consumption of households is a measure of the value of the consumption goods and services acquired by households, whether by purchase or by transfer from government units or NPISHs, and used by households for the satisfaction of their needs (or wants). It is therefore a better indicator of their living standards than their final consumption expenditure. In some countries, the value of the individual non-market goods and services provided to households as social transfers in kind may be quite large, depending upon the kinds of economic and social policies pursued by their governments, so that the value of the actual final consumption of households may exceed that of their expenditure by a significant margin. For these reasons, the actual final consumption of households has sometimes been described as their "enlarged" consumption or their "total" consumption, although these terms are not used in the SNA. The actual final consumption of the general government sector is correspondingly smaller than government final consumption expenditure.

3. The relationship between the two versions of the use of income account

9.18 The two use of income accounts are neither sequential nor hierarchical. They are parallel accounts that serve different analytical or policy purposes. One shows which units incur expenditure; the other which unit benefits from the expenditure and the extent to which households' consumption levels are provided by themselves. The values of the goods and services involved in social transfers in kind are recorded in two different ways in the SNA, both of which represent uses of resources by government units or NPISHs:

a. As final consumption expenditure, payable by government units or NPISHs; and

b. As social transfers in kind, payable by government units or NPISHs but receivable by households and recorded as part of their actual final consumption.

9.19 Although the difference between disposable and adjusted disposable income is attributable to social transfers in kind, even disposable income should not be interpreted as if it were a measure of income available in cash. Its several non-cash elements, such as those associated with production for own consumption or remuneration in kind, were pointed out in paragraphs 8.22 and 8.23.

4. Adjustment for the change in pension entitlements

9.20 As individuals accrue pension entitlements in a social insurance scheme throughout their working lives, the corresponding entitlements become their assets and the liabilities of the units ultimately responsible for paying the pensions. Pensions due under social assistance are excluded because the amounts due do not necessarily accrue in a

Table 9.1 (cont):The use of disposable income account - resources

	Resources								
Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604
Final consumption expenditure								1 399	1 399
Individual consumption expenditure								1 230	1 230
Collective consumption expenditure								169	169
Adjustment for the change in pension entitlements				11		11	0		11

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predictable fashion over time or for predictable reasons. Similar arguments apply to benefits due under social security. In some countries, government assumes responsibility for paying pensions even for non-government employees and these pensions are paid via social security funds. There is detailed discussion in part 2 of chapter 17 about when the liabilities for these schemes can be integrated into the sequence of accounts and when they only appear in a supplementary table. In this chapter, the expression "pension scheme" is used to cover those parts of social security schemes where liabilities can be integrated into the sequence of accounts, including the accumulation accounts and balance sheets, together with all other employment-related schemes.

9.21 Pension schemes are treated in the SNA as having liabilities towards the households with claims on the schemes. The payments of pension contributions into the schemes and the receipts of pensions by pensioners constitute the acquisition and disposal of financial assets. However, this may not accord with the perception of the households concerned, especially pensioners' households, who tend to regard the pensions they receive as income in the form of current transfers. Moreover, at least some pensions received under social security schemes and those received under social assistance are in fact treated as current transfers in the SNA.

9.22 In order to present income information that may be more useful for analysing the behaviour of the households concerned, the payments of pension contributions to all pension schemes and to social security and the receipts of pensions by pensioners' households under both pension schemes and social security are recorded in the secondary distribution of income account as social contributions and social insurance benefits, respectively. They therefore affect the level of disposable incomes of households.

9.23 The rationale for treating pension contributions and benefits as current transfers is that, when looked at for the economy as a whole, the effect of pension provision can be seen as if it were a redistributive process among households. To the extent that contributions and benefits are not exactly equal, there is an impact on household saving. For example, if households as a whole pay more contributions than they receive as benefits, their saving is reduced by this difference. Similarly if household benefits exceed their contributions, saving does not reflect the fact that the negative change in entitlements represents a reduction in net worth. However, as is clear in the financial account, the change in pension entitlements is part of household net worth. It is therefore necessary to adjust saving for the difference between contributions payable and benefits receivable shown in the secondary distribution of income account.

9.24 An item described as the adjustment for the change in pension entitlements therefore appears in both the use of disposable income account and the use of the adjusted disposable income account. It is equal to:

the total value of the actual and imputed social contributions payable into pension schemes,

plus the total value of contribution supplements payable out of the property income attributed to pension fund beneficiaries,

minus the value of the associated service charges,

minus the total value of the pensions paid out as social insurance benefits by pension schemes.

9.25 Opposite adjustments are needed in the use of income accounts of the units responsible for paying pensions. These adjustments can affect non-resident institutional units, both households and pension providers.

5. Saving

9.26 Saving is the balancing item in the two use of income accounts. Its value is the same whether it is derived as disposable income less final consumption expenditure or as adjusted disposable income less actual final consumption (in both cases, after making the adjustment for the change in pension entitlements just described).

9.27 As already noted, non-financial and financial corporations have no final consumption expenditure or actual final consumption. Their net saving is equal to their net disposable, or adjusted disposable, income (apart from the adjustment item for pension entitlements).

Table 9.2:The use of adjusted disposable income account - uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Actual final consumption			168	1 230	1	1 399			1 399
Actual individual consumption				1 230		1 230			1 230
Actual collective consumption			168		1	169			169
Adjustment for the change in pension entitlements	0	11	0		0	11	0		11
Saving, gross	228	14	- 35	215	5	427			427
Saving, net	71	2	- 62	192	2	205			205
Current external balance							- 13		- 13

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9.28 ***Saving represents that part of disposable income (adjusted for the change in pension entitlements) that is not spent on final consumption goods and services.*** It may be positive or negative depending on whether disposable income exceeds final consumption expenditure, or vice versa. Assuming that saving is positive (and in the absence of capital transfers), the unspent income must be used to acquire assets (possibly only an increase in cash) or reduce liabilities. If saving is negative, some financial or non-financial assets must have been liquidated, (including a run down of cash) or some liabilities increased. Thus, saving provides the link between the current accounts of the SNA and the subsequent accumulation accounts.

9.29 If saving is zero, final consumption expenditure equals disposable income plus the change in pension entitlements. In that case, the institutional unit is not obliged to dispose of any assets or increase any of its liabilities unless capital transfers are receivable or payable. As already indicated in chapter 8, disposable income can, therefore, be interpreted as the maximum amount that an institutional unit can afford to spend on final consumption goods and services in the accounting period without having to reduce its cash, liquidate other assets or increase its liabilities.

6. Calculating savings ratios

9.30 The savings ratio, especially for households, is a key economic variable. It is usually calculated by dividing saving by disposable income for the sector. However, the entry of the change in pension entitlements in both the use of disposable income account and the use of adjusted disposable income account complicates this calculation. It is necessary to use not the balancing item from the secondary distribution of income account (disposable income) or from the redistribution of income in kind account (adjusted disposable income) but to add the adjustment for the change in pension entitlements to each of these figures to derive a figure for total disposable income or total adjusted disposable income. It is this total figure that should be the denominator in the savings ratio calculation.

B. Expenditures, acquisitions and consumption of goods and services

9.31 The distinction between final consumption expenditure and actual final consumption depends on the general distinction between expenditures on, and acquisitions of, goods and services. The purpose of this section is to explain not only how expenditure differs from acquisition but also how both of them differ from the actual or physical use of goods and services.

1. Expenditures

9.32 ***Expenditures on goods and services are defined as the values of the amounts that buyers pay, or agree to pay, to sellers in exchange for goods or services that sellers provide to them or to other institutional units designated by the buyers.*** The buyer incurring the liability to pay need not be the same unit that takes possession of the good or service. As already noted, it is common for government units or NPISHs to pay for goods or services that the sellers provide to households. Moreover, as explained below, the liability incurred by the buyer does not necessarily have to be settled by a payment of cash.

The timing of expenditures on goods and services

9.33 Expenditures on goods or services occur at the times when buyers incur liabilities to sellers. These are usually the times when:

a. The ownership of the good is transferred from the seller to the new owner; or

b. The delivery of a service by the producer is completed to the satisfaction of the consumer.

Table 9.2 (cont):The use of adjusted disposable income account - resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Adjusted disposable income, gross	228	25	133	1 434	6	1 826			1 826
Adjusted disposable income, net	71	13	106	1 411	3	1 604			1 604
Actual final consumption								1 399	1 399
Actual individual consumption								1 230	1 230
Actual collective consumption								169	169
Adjustment for the change in pension entitlements				11		11	0		11

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9.34 The times at which sellers are actually paid for the goods or services they deliver are not necessarily the times at which the expenditures occur. As explained in chapter 3, payments may either precede, or lag behind, the actual deliveries of the goods or services sold. For this reason, the values of expenditures are measured by the values of the amounts receivable and payable at the times the expenditures are incurred. When payments take place before or after the expenditures are incurred, there must be consequential changes in the financial assets or liabilities (other than cash) of the two units concerned at the time the change of ownership takes place or the service is delivered.

9.35 The precise moment at which the ownership of a good is transferred, or delivery of a service is completed to the satisfaction of the consumer, may not be easy to determine in practice in some cases. It may be perceived differently, or even disputed, by the two parties concerned.

2. Acquisitions

9.36 ***Acquisitions of goods and services by institutional units occur when they become the new owners of the goods or when the delivery of services to them is completed.*** Acquisitions are valued at the transaction prices paid by the units that incur the expenditures. In most cases, the transaction price is the market price. The value of the goods or services acquired by an institutional unit or sector consists of the value the goods or services acquired through its expenditure plus the value of goods or services received through social transfers in kind less the value of goods or services paid to other units as social transfers in kind.

9.37 The difference between final consumption expenditure and actual final consumption is exactly the difference between expenditure on consumption goods and services and acquisition of consumption goods and services. Since all consumption goods and services must be both the subject of expenditure and also be acquired, this difference between final consumption expenditure and actual final consumption, sector by sector, explains the redistribution of goods and services by means of social transfers in kind.

9.38 The distinction between consumption expenditure and actual consumption and thus between expenditure and acquisitions is made only in respect of final consumption. The difference is explained exactly by social transfers in kind.

3. Consumption of goods and services

9.39 ***Consumption of goods and services is the act of completely using up the goods and services in a process of production or for the direct satisfaction of human needs or wants. The activity of consumption consists of the use of goods and services for the satisfaction of individual or collective human needs or wants.*** The satisfaction of needs or wants is immediate and direct in the case of final consumption; it is indirect and delayed in the case of intermediate consumption where goods and services are used to produce other goods and services that ultimately lead to the satisfaction of human needs or wants.

9.40 In the case of goods, the distinction between acquisition and consumption is clear. Producers acquire goods that they may hold for varying periods of time before physically using them up in processes of production. Households may hold consumption goods before using them for the satisfaction of their needs or wants. Few goods are so perishable that they have to be used immediately. For example, most foodstuffs need not be eaten until some time after they have been acquired.

9.41 In the case of services, however, the distinction between acquisition and use may not be relevant in a practical sense. The situations of units to whom services are delivered are automatically affected by those services and no further action may be needed in order to benefit from them.

Durable versus non-durable goods

9.42 In the case of goods, the distinction between acquisition and use is analytically important. It underlies the distinction between durable and non-durable goods that is used extensively in economic analysis. In fact, the distinction between durable and non-durable goods is not based on physical durability as such. Instead, the distinction is based on whether the goods can be used once only for purposes of production or consumption or whether they can be used repeatedly, or continuously. For example, coal is a highly durable good in a physical sense, but it can be burnt only once. ***A durable good is one that may be used repeatedly or continuously over a period of more than a year, assuming a normal or average rate of physical usage. A consumer durable is a good that may be used for purposes of consumption repeatedly or continuously over a period of a year or more.***

Consumption as the using up of goods and services

9.43 A consumption function that expresses utility as a function of the quantities of goods and services consumed describes the using up of those goods and services rather than expenditures or acquisitions. In order to measure consumption as an activity, it would be necessary to adopt accounting procedures similar to those used in a production account, where a clear distinction is drawn between purchases of goods to be used in production and their subsequent use as inputs.

9.44 In practice, the SNA measures household consumption by expenditures and acquisitions only. The repeated use of durables by households could be recognized only by extending the production boundary by postulating that the durables are gradually used up in hypothetical production processes whose outputs consist of services. These services could then be recorded as being acquired by households over a succession of time periods. However, durables are not treated in this way in the SNA. A possible supplementary extension to the SNA to allow for such an extension of the production boundary could usefully take place in a satellite account.

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C. Measuring the value of non-monetary transactions indirectly

9.45 By mutual agreement between the buyer and the seller, the liability incurred by the buyer may be discharged by providing a good, service or asset other than cash in exchange. For example, goods or services may be exchanged for each other in barter transactions, or employees may provide labour in exchange for goods or services received as remuneration in kind.

9.46 When the buyers do not pay cash, or expect to pay cash, values have to be imputed for the expenditures using the appropriate prices of similar goods or services sold for cash on the market.

9.47 The value of goods produced and consumed within the same household as well as for those household services falling within the production boundary must also be measured indirectly.

9.48 In the interests of brevity, a transaction for which a value has to be imputed may be described as an "imputed expenditure" and this terminology is used below. Strictly speaking, however, the imputation refers to the value of goods or services involved and not to the expenditure itself. In other words it is the valuation that is imputed, not the fact that the transaction takes place. It is therefore preferable to refer to measuring the flows indirectly rather than by imputation.

1. Barter transactions

9.49 ***A barter transaction is one where one basket of goods and services is exchanged for another basket of different goods and services without any accompanying monetary payment.*** The values of the goods or services acquired in barter transactions constitute imputed expenditures. Values have to be estimated indirectly for goods or services exchanged in barter transactions equal to their market values. Thus, when the goods or services obtained through barter are used for household consumption their estimated values must be recorded as household final consumption expenditure. When a good offered for barter is an existing good and not newly produced output, negative imputed expenditure must be recorded for the unit offering the good, in the same way that sales of existing goods are recorded as negative expenditures.

9.50 In barter, both parties to a transaction must be recorded as making expenditures. The value of these expenditures should be based on the purchasers' prices of these bartered products. In practice, neither taxes on products or transportation costs may apply, in which case the purchasers' prices will not differ from the basic prices of the products. As the values of the goods or services bartered may not be the same, the values imputed for the barter transaction may on pragmatic grounds be taken as a simple average of the estimated values of the goods or services exchanged, so that equal expenditures are recorded for both parties. Goods that have been the subject of a barter transaction may be subsequently bartered with another party at a higher price, earning a margin for the unit conducting both barter transactions. However, each barter transaction involves two parties only and no wholesale or retail margin.

2. Expenditures on goods and services received as income in kind

9.51 ***Income in kind received by employees is measured by the value of the goods and services provided by employers to their employees in remuneration for work done.*** Workers receiving remuneration in kind are treated as making expenditures equal to the market value of the goods or services received (at producers' prices if produced by the employer or at purchasers' prices if bought by the employer), the costs of the expenditures being met out of the income they receive as remuneration in kind. Thus, the values of the goods and services must be recorded as final consumption expenditure incurred by households as well as income in kind.

9.52 A distinction has to be made between goods or services provided to employees as remuneration in kind and goods or services provided because they are needed at work, the latter constituting intermediate consumption by the enterprise. In principle, the distinction is clear. Goods or services that employers are obliged to provide to their employees to enable them to carry out their work, such as tools, equipment, special clothing, etc., constitute intermediate consumption. On the other hand, goods or services that employees are able to use in their own time for the direct satisfaction of their needs or wants, or those of their families, constitute remuneration in kind. In practice, there are inevitably borderline cases, such as uniforms that must be worn at work but are also worn extensively by employees away from work. A detailed listing of the kinds of goods and services that are included in remuneration in kind is given in the section on compensation of employees in chapter 7.

3. Expenditure on goods and services produced on own account

9.53 When institutional units retain goods or services produced by themselves for their own final consumption or gross fixed capital formation, they clearly bear the costs themselves. They are, therefore, recorded as incurring expenditures whose values have to be estimated using the basic prices of similar goods or services sold on the market or their costs of production in the absence of suitable basic prices.

9.54 Household final consumption expenditure includes estimates for the values of goods or services produced as outputs of unincorporated enterprises owned by households that are retained for consumption by members of the household. The production of services for own consumption within the same household falls outside the production boundary of the SNA, except for housing services produced by owner-occupiers and services produced by employing paid domestic staff. As the costs of producing goods or services for own consumption are borne by the households themselves, it is clear that the expenditures on them are also incurred by households, even

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though their values must be estimated indirectly. The main types of goods and services produced and consumed within the same household are as follows:

a. Food or other agricultural goods produced for own final consumption by farmers, including subsistence farmers, or others for whom agricultural production is only a secondary, or even a leisure, activity;

b. Other kinds of goods produced by unincorporated enterprises owned by households that are consumed by members of the same households;

c. Housing services produced for own final consumption by owner-occupiers (discussed further below); and

d. Domestic or other services produced for own final consumption by households that employ paid staff for this purpose (domestic staff, cooks, gardeners, chauffeurs, etc.).

9.55 Values are estimated for these goods or services on the basis of the current basic prices of similar goods or services sold on the market, or by costs of production when suitable prices are not available, except for the services of paid staff; by convention, services of paid staff are valued simply by the compensation of employees paid, in cash and in kind.

D. Household final consumption expenditure

1. Introduction

9.56 Household final consumption expenditure consists of expenditure incurred by resident households on consumption goods or services. As well as purchases of consumer goods and services, final consumption expenditure includes the estimated value of barter transactions, goods and services received in kind, and goods and services produced and consumed by the same household, valued as explained in section C.

9.57 Final consumption expenditure excludes expenditure on fixed assets in the form of dwellings or on valuables. Dwellings are goods used by their owners to produce housing services. Expenditure on dwellings by households, therefore, constitutes gross fixed capital formation. When dwellings are rented by their owners, rentals are recorded as output of housing services by owners and final consumption expenditure by tenants. When dwellings are occupied by their owners, the imputed value of the housing services enters into both the output and final consumption expenditure of the owners. Valuables are expensive durable goods that do not deteriorate over time, are not used up in consumption or production, and are acquired primarily as stores of value. They consist mainly of works of art, precious stones and metals and jewellery fashioned out of such stones and metals. Valuables are held in the expectation that their prices, relative to those of other goods and services, will tend to increase over time, or at least not decline. Although the owners of valuables may derive satisfaction from possessing them, they are not used up in the way that consumption goods, including consumer durables, are used up over time.

9.58 The treatment of expenditure in some specific situations or on certain specific types of goods and services is outlined in the following sections.

2. Expenditures by households owning unincorporated enterprises

9.59 When a household includes one or more persons who own an unincorporated enterprise, all expenditure incurred for business purposes is excluded from household consumption expenditure. It is necessary to ensure that only expenditure for the direct satisfaction of human needs and wants is included in household final consumption expenditure. This may not be easy in practice when the same good or service (for example, electricity or other fuels) may be used equally well for business purposes or for final consumption. Business expenditures cannot therefore be identified purely on the basis of the type of good or service purchased. Particular care needs to be exercised in the case of farms, including subsistence farms, where goods that have been purchased, or produced on own account, may be used either for household final consumption or for intermediate consumption; for example, corn or potatoes may be consumed by members of the households, fed to animals or used as seeds for future crops.

9.60 Care is also needed with purchases of consumer durables such as vehicles, furniture, or electrical equipment, which are to be classified as gross fixed capital formation by the household enterprise when purchased for business purposes but as final consumption expenditure when purchased for the personal use of household members. While the nature of the distinction may be clear in principle, it is often blurred in practice, especially when the owner of the business uses a durable good, such as a vehicle, partly for business purposes and partly for personal benefit. In such cases, the expenditure on the purchase of the durable should be split between gross fixed capital formation by the enterprise and household final consumption expenditure in proportion to its usage for business and personal purposes. When durables are purchased wholly or partly for business purposes, the decline in their value attributable to their use within the business should be recorded under the consumption of fixed capital of the unincorporated enterprise.

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3. Expenditures on particular types of goods and services

Expenditures on financial services

9.61 When appropriate, values must be estimated for the expenditures that households incur on services provided by financial institutions for which no explicit charges are made. Expenditures on services for which financial institutions do make charges are recorded in the usual way.

Financial services, except insurance and pension fund services

9.62 Financial institutions, except insurance corporations and pension funds, and money lenders charge interest rates higher than a reference rate and pay interest at a rate lower than the reference interest rate. As explained in chapters 6 and 7, SNA interest is recorded in the allocation of primary income account at a reference rate and the difference between SNA interest and bank interest is recorded as final consumption expenditure of households. (If it is possible to identify interest payments and receipts relating exclusively to unincorporated household enterprises, the charges would appear as intermediate consumption of those enterprises, but this is often not possible.)

9.63 When households acquire or dispose of foreign exchange and some other financial assets, the dealer in the financial asset will typically quote a buying price and a selling price for the asset. The difference between the price actually receivable or payable and the average of the buying and selling price at the time of the transaction is also treated as expenditure on the services of financial institutions.

Insurance and pension fund services

9.64 The way in which the value of the services produced by insurance enterprises and pension schemes is calculated in the SNA is explained in chapter 6. The values of the insurance services consumed by different sectors, subsectors or institutional units are estimated by allocating the value of the services produced by an insurance enterprise in proportion to the actual premiums. When the value of output is estimated by line of business, which is desirable if practicable, the service charge should be allocated across premiums by line of business also. The amounts paid by households are recorded as final consumption expenditure (except for the insurance services purchased by unincorporated enterprises owned by households, which are treated as intermediate consumption). The whole of the service charge on pension schemes is borne by households (some of which may be non-resident).

Services of dwellings, repairs and improvements

Services of owner-occupied dwellings

9.65 Persons who own the dwellings in which they live are treated as owning unincorporated enterprises that produce housing services that are consumed by the household to which the owner belongs. The housing services produced are deemed to be equal in value to the rentals that would be paid on the market for accommodation of the same size, quality and type. Care must be taken in respect of any taxes paid on housing. Taxes such as value added tax are rarely paid on housing services, but if they are payable, they should be excluded from the value of owner-occupied housing if the owner-occupier is exempt from payment. The imputed values of the housing services are recorded as final consumption expenditures of the owners.

Decoration, minor repairs and maintenance

9.66 "Do-it-yourself" activities of decoration and undertaking minor repairs, often of a routine nature, of a kind that would normally be seen as the responsibility of a tenant are treated as falling outside the production boundary. Purchases of materials used for such decoration or repairs should therefore be treated as final consumption expenditure, as should fees and service charges paid to builders, carpenters, plumbers, etc. Maintenance that is the responsibility of tenants is also treated as final consumption expenditure.

9.67 Expenditures that owners, including owner-occupiers, incur on the decoration, minor repairs and maintenance of the dwelling that would normally be seen as the responsibility of a landlord should not be treated as household final consumption expenditure but as intermediate expenditure incurred in the production of housing services. These expenditures may consist either of payments for services provided by professional builders or decorators or purchases of materials for "do-it-yourself" repairs and decoration. In the latter case, no cost of the labour involved in the activity is included. The only value added for the imputed rental of owner-occupied housing is operating surplus.

Major improvements

9.68 Expenditures on major improvements (that is, reconstructions, renovations or enlargements) to dwellings are not classed in the same way as decoration, minor repairs and maintenance. They are excluded from household consumption expenditure and are treated as gross fixed capital formation on the part of the owners of those dwellings, including owner-occupiers.

The repair and maintenance of durables

9.69 Expenditures on all repair and maintenance of consumer durables, including vehicles, are treated in the same way as minor repairs to dwellings of the type carried out by tenants. Repairs and maintenance constitute final consumption expenditure whether they are carried out by specialist producers or by members of the household as "do-it-yourself" activities. In the latter case, only the values of the materials purchased should be included in household consumption expenditure.

Licences and fees

9.70 Households make payments to government units to obtain various kinds of licences, permits, certificates, passports, etc., and in some cases it is not clear whether the

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government units actually provide services in return, such as testing or inspection, or whether the payments are de facto taxes. As explained in paragraph 8.64 (c), the treatment of certain borderline cases has been decided by the following convention, based on the practices followed in the majority of countries: payments by households for licences to own or use vehicles, boats or aircraft and also licences for recreational hunting, shooting or fishing are treated as taxes. Payments for licences to undertake a specific activity, for example a taxi licence, are treated as a tax on production. Payments for all other kinds of licences, permits, certificates, passports, etc., are treated as purchases of services and included in household consumption expenditure.

4. Classification of household final consumption expenditure

9.71 Household final consumption expenditure is typically a large aggregate covering a wide range of goods and services. It is thus usually desirable to break down the figure. The *CPC* may be used for a breakdown by type of good or service. The Classification of Individual Consumption by Purpose (COICOP) may be used for a breakdown by purpose or function, such as food, health and education services.

5. Timing and valuation of household final consumption expenditure

Timing

9.72 In accordance with the general principles adopted in the SNA, expenditures should be recorded when the payables are created, that is, when the purchaser incurs a liability to the seller. This implies that expenditure on a good is to be recorded at the time its ownership changes while expenditure on a service is recorded when the delivery of the service is completed. Non-monetary transactions are recorded when the goods involved are made available to the household.

9.73 When a good is acquired under a hire purchase agreement, financial lease or similar method of financing, the purchaser accepts the risks and rewards of ownership on the good from the time the good is delivered. A change of ownership is therefore imputed at the time of delivery. Even though there is no legal change of ownership at this point, it is assumed that there is a change of economic ownership. The purchaser must also be shown in the financial accounts as incurring a liability to the hire purchase or finance corporation.

Valuation

9.74 Household expenditure is recorded at the purchasers' prices paid by households including any taxes on products that may be payable at the time of purchase. As defined in paragraphs 6.64 to 6.68, the purchaser's price of a good is the amount payable to take delivery of a unit of the good at the time and place required by the purchaser. It includes any transport charges incurred by the purchaser not already included in the seller's invoice price.

9.75 The value of barter and goods received as income in kind is recorded at the prices paid by the units incurring the expenditure initially. Goods produced on own account are valued at basic prices, consistently with their valuation as production.

9.76 Different households may pay different prices for identical products because of market imperfections. Price differences may persist because households may not be aware of them, or they may have imperfect information because the costs of searching for the retail outlets selling at the lowest prices may be too great. Even when households are aware of the price differences, it may be too inconvenient or costly to visit the outlets selling at the lowest prices. Another reason for the persistence of price differences is that many service producers deliberately practise price discrimination by charging different households different prices for identical services (for example, by charging lower prices or fees to pensioners or people with low incomes). As services cannot be retraded, price discrimination is extremely common, or even prevalent, among service producers. Household expenditures are nevertheless recorded at the prices actually paid, as this is the appropriate value of the transaction.

9.77 Apparent price differences between the same goods or services are often not genuine price differences as they may be due to differences in quality, including differences in the terms or conditions of sale. For example, lower prices are often charged for bulk purchases of goods or off-peak purchases of services. Such expenditures are recorded at the prices actually paid; that is, after deducting from the standard or list prices or charges any discounts for bulk or off-peak purchases.

Valuation of purchases on credit

9.78 The purchaser's price does not include any interest or service charges that may be added when the seller arranges for credit to be provided to the purchaser. Similarly, the purchaser's price does not include any extra charges that may be incurred as a result of failing to pay within the period stated at the time the purchases were made, such charges being effectively interest payments on the credit extended by the seller. If the credit is arranged by a financial institution, the total charge may need to be allocated between a financial service charge and interest, as explained in paragraph 9.62. If the credit is provided by a non-financial institution, no financial service charge is provided. Note, however, that many large retailers have subsidiaries handling credit facilities, which are classed as financial institutions in their own right.

6. Expenditures by resident and non-resident households

9.79 Resident households make expenditures while travelling abroad, and non-resident households may make expenditures inside the economic territory of a country. Household final consumption expenditure in the SNA refers to the expenditure incurred by resident households, whether that expenditure is incurred within the economic territory or abroad.

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9.80 In order to calculate total household final consumption expenditure it may be convenient to calculate the total expenditure made by all households, whether resident or not, within the economic territory and to adjust this figure by adding expenditures by residents abroad and subtracting expenditures by non-residents within the economy territory. Expenditures by residents abroad constitute imports, while expenditures by non-residents are exports. However, while the total expenditures by all households within the economic territory may be used for calculation in this way, it is not an aggregate recognized within the SNA.

E. Household actual final consumption

9.81 ***Household actual final consumption consists of the consumption goods and services acquired by individual households.*** The value of household actual final consumption is given by the sum of three components:

a. The value of households' expenditures on consumption goods or services including expenditures on non-market goods or services sold at prices that are not economically significant;

b. The value of the expenditures incurred by government units on individual consumption goods or services provided to households as social transfers in kind; and

c. The value of the expenditures incurred by NPISHs on individual consumption goods or services provided to households as social transfers in kind.

9.82 The values of social transfers in kind provided by government units or NPISHs are equal to the values of the goods or services supplied to households less the amounts of any expenditures incurred by households when the prices charged are not economically significant.

9.83 As described in sections F and H, the consumption expenditure on individual goods and services by both general government and NPISHs is broken down between those that are produced by the units themselves as non-market producers and those that are purchased from market producers for onward transmission to households free or at prices that are not economically significant. This means that total household actual final consumption can also be split into these two components.

F. Consumption expenditures incurred by general government

9.84 Expenditures on a wide range of consumption goods and services are incurred by general government, either on collective services or on selected individual goods or services.

9.85 The final consumption expenditures of general government can be classified in several ways. In particular, they may be classified:

a. According to whether the goods or services have been produced by market or non-market producers;

b. According to whether the expenditures are on collective services or individual goods or services;

c. By function or purpose according to the classification of the functions of government (COFOG); or

d. By type of good or service according to the *CPC*.

1. Expenditures on the outputs of market and non-market producers

9.86 Expenditures on the outputs of non-market producers that are provided free, or at prices that are not economically significant, to individual households or the community account for most of the final consumption expenditure by general government. It is therefore appropriate to take them first.

Expenditures on the outputs of non-market producers

9.87 Government may produce output for own final use and some market output but most production by units of general government is non-market in nature. As explained in chapter 6 the value of the non-market output is estimated by the sum of the costs involved in production. Although government delivers goods and services to the population individually and collectively, the costs of so doing are shown as final consumption expenditure by government.

9.88 The value of government final consumption expenditure on non-market goods and services is not necessarily exactly equal to the value of government output of these goods and services. The values of these expenditures are equal to the estimated values of all types of output less the value of production for own capital formation and less the values of any receipts from sales. These receipts may be derived from sales of some goods or services at prices that are not economically significant or from sales of a few goods or services at prices that are economically significant (sales of secondary market output).

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Expenditures on consumption goods and services produced by market producers

9.89 Government units also purchase consumption goods and services produced by market producers that are supplied directly to households. The role of the government unit is confined to paying for the goods or services and ensuring that they are distributed to households as social transfers in kind. The government unit does not engage in any further processing of such goods or services and the expenditures are treated as final consumption expenditure and not intermediate consumption of the government unit. The values of the goods or services distributed in this way form part of social transfers in kind. In this way, expenditure by government on market goods and services on behalf of households is recorded as both final consumption expenditure of government and actual final consumption of households.

Government output and final consumption expenditure

9.90 Final consumption expenditure of government can be derived as follows:

The value of all types of output of general government,

less the value of output for own account capital formation,

less the value of sales of goods and services at both economically insignificant prices and at economically significant prices,

plus the value of goods and services purchased from market producers for delivery to households free or at economically insignificant prices.

2. Expenditures on individual and collective goods and services

9.91 The consumption expenditures incurred by government units have to be divided into those incurred for the benefit of individual households and those incurred for the benefit of the community as a whole, or large sections of the community.

Individual goods and services

9.92 Individual goods and services are essentially “private”, as distinct from “public”, goods and services. They have the following characteristics:

a. It must be possible to observe and record the acquisition of the good or service by an individual household or member thereof and also the time at which it took place;

b. The household must have agreed to accept the provision of the good or service and to take whatever action is necessary to make it possible, for example, by attending a school or clinic; and

c. The good or service must be such that its acquisition by one household or person, or possibly by a small, restricted group of persons, precludes its acquisition by other households or persons.

9.93 The reference to a small, restricted group of persons is needed because certain services are provided to small groups of people simultaneously; for example, several persons may travel in the same bus, train, ship or plane or attend the same class, lecture, concert or live theatre performance. However, these are still essentially individual services if there is a restriction on the number of individuals who can consume them. Other members of the community are excluded and derive no benefit from them.

9.94 From a welfare point of view, the important characteristic of an individual good or service is that its acquisition by one household, person or group of persons brings no (or very little) benefit to the rest of the community. While the provision of certain individual health or education services (for example, vaccination or immunization) may bring some external benefits to the rest of the community, in general the individuals concerned derive the main benefit. Thus, when a government unit incurs expenditures on the provision of individual goods or services, it must decide not only how much to spend in total but how to allocate, or distribute, the goods or services among individual members of the community. From the point of view of economic and social policy, the way in which they are distributed may be as important as the total amount spent.

Individual consumption by type of producer

9.95 The whole of individual consumption of general government is treated as social transfers in kind in the redistribution of income in kind account and in the use of adjusted disposable income account. It is analytically interesting to split individual consumption into those goods and services produced by general government as a non-market producer and those that are purchased by general government from market producers for onward transmission to households either free or at prices that are not economically significant.

Collective services

9.96 Most goods can be privately owned and are individual in the sense used here. On the other hand, certain kinds of services can be provided collectively to the community as a whole. The characteristics of these collective services may be summarized as follows:

a. Collective services are delivered simultaneously to every member of the community or to particular sections of the community, such as those in a particular region of a locality;

b. The use of such services is usually passive and does not require the explicit agreement or active participation of all the individuals concerned; and

c. The provision of a collective service to one individual does not reduce the amount available to others in the

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same community or section of the community. There is no rivalry in acquisition.

9.97 The collective services provided by government consist mostly of the provision of security and defence, the maintenance of law and order, legislation and regulation, the maintenance of public health, the protection of the environment, etc. All members of the community can benefit from such services. As the individual usage of collective services cannot be recorded, individuals cannot be charged according to their usage.

The borderline between individual and collective services

9.98 Expenditures incurred by governments in connection with individual services such as health and education are to be treated as collective when they are concerned with the formulation and administration of government policy, the setting and enforcement of public standards, the regulation, licensing or supervision of producers, etc. For example, the expenditures incurred by Ministries of Health or Education at a national level are to be included in collective consumption expenditures as they are concerned with general matters of policy, standards and regulation. On the other hand, any overhead expenses connected with the administration or functioning of a group of hospitals, schools, colleges or similar institutions are to be included in individual expenditures. For example, if a group of private hospitals has a central unit that provides certain common services such as purchasing, laboratories, ambulances, or other facilities, the costs of these common services would be taken into account in the prices charged to patients. The same principle must be followed when the hospitals are non-market producers: all the costs that are associated with the provision of services to particular individuals, including those of any central units providing common services, should be included in the value of expenditures on individual services.

The classification of individual and collective government expenditures

9.99 The classification of the functions of government (COFOG) is a classification of transactions designed to apply to general government and its subsectors. There are ten classes in the classification as follows:

01 General public services;

02 Defence;

03 Public order and safety;

04 Economic affairs;

05 Environmental protection;

06 Housing and community amenities;

07 Health;

08 Recreation, culture and religion;

09 Education;

10 Social protection.

9.100 All of classes 01 to 06 are collective services, as are section 07.5 and 07.6 of health, sections 08.3 to 08.6 of recreation, culture and religion, sections 09.7 and 09.8 of education, and sections 10.8 and 10.9 of social protection. These sections cover expenditures on general administration, regulation, research that is not recorded as capital formation and so on. The remaining sections of health, recreation, culture and religion, education and social protection (which dominate each of the classes) are individual services.

Non-market services to enterprises

9.101 Many government expenditures benefit enterprises as much as households; expenditures on the cleaning, maintenance and repair of public roads, bridges, tunnels, etc. including the provision of street lighting, are examples. These are services whose consumption can be monitored and for this reason they are frequently provided on a market basis by charging tolls on road usage. When they are provided free, however, it would be difficult to separate the services provided free to enterprises from those provided free to households and, by convention, all these expenditures are treated as collective final expenditure.

9.102 Collective services such as the provision of security by the police, fire services, etc. that are provided free to the community at large also benefit individual enterprises as well as households.

G. Actual final consumption of general government

9.103 The value of the actual final consumption of general government is equal to the value of its total final consumption expenditure less its expenditure on individual goods or services provided as social transfers in kind to households. The value of the actual final consumption of government units is thus equal to the value of the expenditures they incur on collective services. Although collective services benefit the community, or certain sections of the community, rather than the government, the actual consumption of these services cannot be distributed among individual households, or even among groups of households such as subsectors of the household sector, or to enterprises, as just noted. It is therefore attributed to the government units that incur the corresponding expenditures.

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9.104 The identification and measurement of government actual final consumption serves two main analytical or policy purposes:

a. Collective services can be identified with "public goods" as defined in public finance and economic theory. While it may be technically possible to charge individual consumers of certain collective services according to their usage, the transactions costs of so doing would be prohibitively high. This provides an economic, rather than political, rationale for government involvement;

b. Collective services do not provide a mechanism for redistributing resources among individual households. As redistribution may be one of the main economic objectives of government policy, it is useful to separate the collective services that do not serve this purpose from the individual goods and services that are ultimately channelled to individual households, even though paid for by government.

H. Consumption expenditures incurred by NPISHs

9.105 The treatment of consumption expenditures incurred by NPISHs is very similar to that for general government. This section itemizes only those aspects that differ. Whereas government expenditures are financed in large part out of taxation, those of NPISHs are financed principally out of subscriptions, contributions or donations or property income.

9.106 The services provided by NPISHs are often confined to the members of the associations that own them, although they may also provide individual goods or services to third parties. Many NPISHs are only concerned with protecting the interests or welfare of their members or providing recreational, sporting or cultural facilities that households or persons cannot otherwise easily obtain for themselves acting individually. Although NPISHs may provide services to their members in groups, the services are essentially individual rather than collective. In general, persons other than their members are excluded and derive no benefit from the services provided.

9.107 It is possible for NPISHs to produce collective services. For example a privately funded non-profit institution may undertake medical research and make its results freely available. However, unless such activities are evident and quantifiable, the assumption can be made that the expenditure of NPISHs is on individual goods and services only.

9.108 The final consumption expenditures of NPISHs can be classified in several ways. In particular, they may be classified:

a. According to whether the goods or services have been produced by market or non-market producers;

b. According to whether the expenditures are on collective services or individual goods and services;

c. By function or purpose according to the classification of the purposes of non-profit institutions serving households (COPNI); and

d. By type of good or service according to the *CPC*.

9.109 For NPISHs as for government, it is possible that they purchase goods from market producers for distribution to households. It is also possible that they may have some receipts from sales either of non-market output at prices that are not economically significant or from sales of secondary market production at economically significant prices. However for many NPISHs, the value of their consumption expenditure will exactly match the value of their non-market output.

Individual consumption by type of producer

9.110 The whole of individual consumption of NPISHs is treated as social transfers in kind in the redistribution of income in kind account and in the use of adjusted disposable income account. It is analytically interesting to split individual consumption into those goods and services produced by NPISHs as non-market producers and those that are purchased by NPISHs from market producers for onward transmission to households either free or at prices that are not economically significant.

I. Actual final consumption of NPISHs

9.111 The value of the actual final consumption of NPISHs is equal to the value of its total final consumption expenditure less its expenditure on individual goods or services provided as social transfers in kind to households. The value of the actual final consumption of NPISHs is thus equal to the value of the expenditures they incur on collective services. If it is not possible to identify and measure collective services provided by NPISHs, there may be no actual final consumption of NPISHs shown in the accounts.

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J. Final consumption expenditure and actual final consumption: summary

9.112 The purpose of this section is to summarize the conceptual interrelationship between the main consumption aggregates for the three sectors in which final consumption takes place, namely, the household sector, the NPISH sector and the general government sector.

1. Final consumption expenditure

9.113 ***Household final consumption expenditure consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant and including consumption goods and services acquired abroad.***

9.114 ***General government final consumption expenditure consists of expenditure, including expenditure whose value must be estimated indirectly, incurred by general government on both individual consumption goods and services and collective consumption services.***

9.115 ***Final consumption expenditure of NPISHs consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident NPISHs on individual consumption goods and services and possibly on collective consumption services.***

2. Actual final consumption

9.116 ***Actual final consumption of households is measured by the value of all the individual consumption goods and services acquired by resident households***. There are three sets of goods and services entering into household actual final consumption:

a. Those acquired through expenditure by households themselves;

b. Those acquired as social transfers in kind from general government and NPISHs that are the output of these institutions as non-market producers;

c. Those acquired as social transfers in kind from general government and NPISHs that have been purchased by these institutions from market producers for onward transmission to households free or at prices that are not economically significant.

9.117 ***Actual final consumption of general government is measured by the value of the collective consumption services provided to the community, or large sections of the community, by general government.***

9.118 ***Actual final consumption of NPISHs is measured by the value of the collective consumption services provided to the community, or large sections of the community, by NPISHs.***

3. Total final consumption in the economy

9.119 Total final consumption in the economy may be viewed from two angles. It may be defined from the expenditure side as the total value of all expenditures on individual and collective consumption goods and services incurred by resident households, resident NPISHs and general government units. Or, it may be defined in terms of actual final consumption as the value of all the individual goods and services acquired by resident households plus the value of the collective services provided by general government and NPISHs to the community or large sections of the community.

9.120 As noted in paragraph 8.145, social transfers in kind may be paid to non-residents. One simple example is emergency medical care provided to a foreign tourist by a hospital within general government. However, just as non-resident households may benefit from social transfers in kind from the national government, so resident households may benefit from social transfers in kind paid by the government of another economy. In general these flows to non-residents will be small relative to the total level of social transfers in kind and, unless there is strong evidence to the contrary, by convention it may be assumed that the flows to non-residents are balanced by flows from governments (and NPISHs) of other economies. Subject to this convention, it is therefore the case that consumption expenditure for the total economy is exactly equal to total actual consumption.

9.121 In order to ensure that the values of the two aggregates are the same, the goods and services acquired by resident households through social transfers in kind must always be valued at the same prices at which they are valued in the expenditure aggregates and the time of recording the goods and services acquired by social transfers in kind must be the same as the time of recording in the expenditure aggregates.

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Chapter 10: The capital account

A. Introduction

10.1 The capital account is the first of four accounts dealing with changes in the values of assets held by institutional units. It records transactions in non-financial assets. The financial account records transactions in financial assets and liabilities. The other changes in the volume of assets account records changes in the value of both non-financial and financial assets that result from neither transactions nor price changes. The effects of price changes are recorded in the revaluation account. These four accounts enable the change in the net worth of an institutional unit or sector between the beginning and end of the accounting period to be decomposed into its constituent elements by recording all changes in the prices and volumes of assets, whether resulting from transactions or not. The impact of all four accounts is brought together in the balance sheets. The immediately following chapters describe the other accounts just mentioned.

10.2 The purpose of the capital account, shown in table 10.1, is to record the values of the non-financial assets that are acquired, or disposed of, by resident institutional units by engaging in transactions and to show the change in net worth due to saving and capital transfers. The transactions may be either with other institutional units, both resident and non-resident, or internal transactions in which units retain products that they have produced themselves for use as capital formation.

10.3 When compiling balance sheets, it is customary to record assets on the left-hand side and liabilities and net worth on the right-hand side. The same convention is followed in the accumulation accounts, where changes in assets are recorded on the left-hand side and other items on the right-hand side. As in the current accounts, the balancing item of the capital account, net lending or net borrowing, is recorded on the left-hand side. Consumption of fixed capital is also recorded on the left-hand side of the capital account.

10.4 The right-hand side of the capital account records the resources available for the accumulation of assets. These consist of net saving, the balancing item carried forward from the use of income account, and capital transfers. Capital transfers payable are recorded with a negative sign.

1. The definitions of ownership and assets

10.5 Ownership and assets are defined in chapter 3 but it is helpful to recall some of the key features of the definitions here. It is important to distinguish between legal ownership and economic ownership. ***The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the entities.*** By contrast, ***the economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks***.

10.6 Every entity has both a legal owner and an economic owner, though in many cases the economic owner and the legal owner of an entity are the same. Where they are not, the legal owner has handed responsibility for the risk involved in using the entity in an economic activity to the economic owner along with associated benefits. In return the legal owner accepts another package of risks and benefits from the economic owner.

10.7 When government claims legal ownership of an entity on behalf of the community at large, the benefits also accrue to the government on behalf of the community at large. Thus government is regarded as both the legal and economic owner of these entities.

10.8 ***An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.*** All assets in the SNA are economic assets.

2. Non-financial assets

10.9 Two different categories of non-financial assets are distinguished from each other: produced assets and non-produced assets.

a. Produced assets are non-financial assets that have come into existence as outputs from production processes that fall within the production boundary of the SNA.

b. Non-produced assets are non-financial assets that have come into existence in ways other than through processes of production.

Produced assets

10.10 There are three main types of produced assets: fixed assets, inventories and valuables. Both fixed assets and inventories are assets that are held only by producers for purposes of

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production. Valuables may be held by any institutional unit and are primarily held as stores of value.

10.11 ***Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year.*** The distinguishing feature of a fixed asset is not that it is durable in some physical sense, but that it may be used repeatedly or continuously in production over a long period of time, which is taken to be more than one year. Some goods, such as coal, may be highly durable physically but cannot be fixed assets because they can be used once only. Fixed assets include not only structures, machinery and equipment but also cultivated assets such as trees or animals that are used repeatedly or continuously to produce other products such as fruit or dairy products. They also include intellectual property products such as software or artistic originals used in production.

10.12 ***Inventories are produced assets that consist of goods and services, which came into existence in the current period or in an earlier period, and that are held for sale, use in production or other use at a later date.*** Inventories consist of stocks of outputs that are still held by the units that produced them prior to their being further processed, sold, delivered to other units or used in other ways and stocks of products acquired from other units that are intended to be used for intermediate consumption or for resale without further processing. Inventories of services consist of work-in-progress or finished products, for example architectural drawings, which are in the process of completion or are completed and waiting for the building to which they relate to be started. Inventories held by government include, but are not limited to, inventories of strategic materials, and grain and other commodities of special importance to the nation.

10.13 ***Valuables are produced goods of considerable value that are not used primarily for purposes of production or consumption but are held as stores of value over time.*** Valuables are expected to appreciate or at least not to decline in real value, nor to deteriorate over time under normal conditions. They consist of precious metals and stones, jewellery, works of art, etc. Valuables may be held by all sectors of the economy.

Non-produced assets

10.14 ***Non-produced assets consist of three categories: natural resources; contracts, leases and licences; and purchased goodwill and marketing assets.***

10.15 ***Natural resources consist of naturally occurring resources such as land, water resources, uncultivated forests and deposits of minerals that have an economic value***.

10.16 Contracts, leases and licences are treated as assets only when two conditions are both satisfied.

a. ***The terms of the contract, lease or licence specify a price for the use of an asset or provision of a service that differs from the price that would prevail in the absence of the contract, lease or licence***.

b. One party to the contract must be able legally and practically to realize this price difference.

The second condition presupposes that a market for the contract exists. It is recommended that in practice contracts, leases and licences should only be recorded in the accounts when the holder does actually exercise his right to realize the price difference.

10.17 ***Purchased goodwill and marketing assets represent the whole or part of the net worth of an institutional unit.*** They are recorded only when a unit is purchased in its entirety or an identifiable marketing asset is sold to another unit.

Table 10.1: The capital account - concise form - changes in assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Gross capital formation	308	8	38	55	5	414			414
Net capital formation	151	- 4	11	32	2	192			192
Gross fixed capital formation	280	8	35	48	5	376			376
Consumption of fixed capital	- 157	- 12	- 27	- 23	- 3	- 222			- 222
Gross fixed capital formation by type of asset									
Changes in inventories	26	0	0	2	0	28			28
Acquisitions less disposals of valuables	2	0	3	5	0	10			10
Acquisitions less disposals of non-produced assets	- 7	0	2	4	1	0			0
Capital transfers, receivable									
Capital transfers, payable									
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0

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3. The structure of the capital account

Saving

10.18 The right-hand side of the capital account represents changes in liabilities and net worth. The first item recorded on the right-hand side is the balancing item carried down from the use of disposable income account, net saving. When positive, net saving represents that part of disposable income that is not spent on consumption goods and services and must, therefore, be used to acquire non-financial or financial assets of one kind or another, including cash, or to repay liabilities. When negative, net saving measures the amount by which final consumption expenditure exceeds disposable income: the excess must be financed by disposing of assets or incurring new liabilities.

Capital transfers

10.19 ***Capital transfers are unrequited transfers where either the party making the transfer realizes the funds involved by disposing of an asset (other than cash or inventories), relinquishing a financial claim (other than accounts receivable) or the party receiving the transfer is obliged to acquire an asset (other than cash) or both conditions are met.*** Capital transfers are often large and irregular but neither of these are necessary conditions for a transfer to be considered a capital rather than a current transfer. If there is doubt about whether a transfer should be treated as current or capital, it should be treated as current.

10.20 Capital transfers receivable represent an increase in net worth and so are shown on the right-hand side of the account for the recipient. By convention, the matching amounts payable are also shown on the right-hand side of the account but as a negative entry (that is, a decrease in net worth) for the payer.

Changes in net worth due to saving and capital transfers

10.21 The total of the entries on the right-hand side of the account is explicitly shown and described as changes in net worth due to saving and capital transfers. It is not a balancing item. ***Changes in net worth due to saving and capital transfers represent the positive or negative amount available to the unit or sector for the acquisition of non-financial and financial assets.***

Acquisitions less disposals of non-financial assets

10.22 The left-hand side of the capital account records how much of the change in net worth due to saving and capital transfers is used to acquire non-financial assets and how much is left to be explained by the acquisition of financial assets or liabilities in the financial account. Resources coming from the disposal of existing assets appear as negative entries on the left-hand side of the account also. As well as purchases and sales of assets, non-financial assets acquired (or disposed of) via barter or by means of production for own use are included.

10.23 Three headings for the net change in the value of non-financial assets are shown in the capital account:

a. Gross capital formation;

b. Consumption of fixed capital;

c. Acquisitions less disposals of non-produced non-financial assets.

The treatment given to each of these categories of changes in assets is described in later sections of this chapter.

10.24 ***Gross capital formation shows the acquisition less disposal of produced assets for purposes of fixed capital formation, inventories or valuables.*** It is possible (if

Table 10.1 (cont): The capital account - concise form - changes in liabilities and net worth

Changes in liabilities and net worth

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Saving, net	71	2	- 62	192	2	205			205
Current external balance							- 13		- 13
Gross capital formation								414	414
Net capital formation								192	192
Gross fixed capital formation								376	376
Consumption of fixed capital								- 222	- 222
Gross fixed capital formation by type of asset									
Changes in inventories								28	28
Acquisitions less disposals of valuables								10	10
Acquisitions less disposals of non-produced assets								0	0
Capital transfers, receivable	33	0	6	23	0	62	4		66
Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1		- 66
Changes in net worth due to saving and capital transfers	88	- 5	- 90	210	- 1	202	- 10		192

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uncommon) for the gross capital formation of an individual institutional unit or sector to be negative if it sells off enough of its existing assets to other units or sectors.

10.25 ***Consumption of fixed capital is the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage.*** When, as recommended in the SNA, the balancing item carried down from the use of income account is net saving, it already reflects the fact that net worth has been reduced by the amount of consumption of fixed capital, the amount by which fixed assets are reduced in the period. Since the capital account is designed to show the way in which net worth is augmented by the acquisition of non-financial assets, this amount has to be offset from the value of new acquisitions of fixed assets so the addition to the capital stock of fixed assets is a net amount. For this reason, consumption of fixed capital is recorded as a negative change in assets on the left-hand side of the capital account.

10.26 If it is not feasible to measure consumption of fixed capital because of lack of data, the saving figure carried forward from the use of income account has to be gross. In this case, there is no entry for consumption of fixed capital in the capital account. If consumption of fixed capital has to be omitted from both sides of the account, the balancing item of the account is not affected; net lending or borrowing can be derived residually whether or not consumption of fixed capital can be estimated. However, if consumption of fixed capital is not estimated, the accumulation accounts do not record all changes between two successive balance sheets.

10.27 The remaining item on the left-hand side of the capital account refers to non-produced non-financial assets. The total value of the acquisitions less disposals of non-produced non-financial assets may also be positive or negative. Since natural resources are owned by units that are either actually or notionally resident, this part will generally be zero for the economy as a whole. (An exception exists for land purchased by a foreign government for an embassy or military base.) However, there may be transactions in contracts, leases and licences or marketing assets with non-resident units.

Net lending

10.28 The balancing item of the capital account, ***net lending, is defined as the difference between changes in net worth due to saving and capital transfers and net acquisitions of non-financial assets (acquisitions less disposals of non-financial assets, less consumption of fixed capital). If the amount is negative it represents net borrowing.*** It shows the amount of the resources remaining for purposes of lending or that need to be borrowed. Even if funds are not actively lent but are retained in cash, or in a bank deposit, the holder of the counterpart obligations represented by these financial assets has in effect borrowed from the unit holding the cash or bank deposit.

10.29 The identity between the balancing items of the capital account and the financial account is an important feature of the set of the accounts as a whole. What is borrowed by one unit must be lent by another and vice versa. The conceptual identity between the balancing items provides a check on the numerical consistency of the set of accounts as a whole, although the two balancing items are likely to diverge in practice because of errors of measurement.

10.30 In general in the SNA, and especially in balancing items, the prefix net means excluding the consumption of fixed capital. For net lending this is not the case; it represents the difference between those assets giving rise to making funds available to other units and those drawing funds from other units.

B. Gross capital formation

10.31 Gross capital formation is measured by the total value of the gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables. Before discussing in detail the entries to be recorded under each of these items, it is necessary to clarify the coverage of the item and the application of accounting rules such as valuation, time of recording and the identification of ownership.

1. Gross fixed capital formation

10.32 ***Gross fixed capital formation is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of non-produced assets.*** In order to ensure that the coverage of gross fixed capital formation is precisely defined, it is necessary first to define what does and what does not constitute a fixed asset and what activities are treated as adding to the value of non-produced assets.

The asset boundary

10.33 All goods and services supplied to the economy by means of production, imports or the disposal of produced assets must be used for exports, consumption (intermediate or final) or as part of capital formation. The boundary line between those products that are retained in the economy and are used for consumption and those products that are used for capital formation is known as the asset boundary. ***The asset boundary for fixed assets consists of goods and services that are used in production for more than one year.***

10.34 Two exclusions from the asset boundary should be noted at the outset. The first is that consumer durables are not treated as fixed assets. The services these durables produce

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are household services outside the production boundary of the SNA. If, for example, a washing machine were to be treated as a fixed asset, the production boundary would have to be extended to include all laundry services, whether undertaken by machine or by hand. As it stands, the production boundary restricts laundry services to those services provided to other units but includes services provided by both machine and by hand. However, owner-occupied dwellings are not treated as consumer durables but are included within the asset boundary. The owner-occupiers are treated as owners of unincorporated enterprises producing housing services for their own consumption.

10.35 The second exclusion is pragmatic rather than conceptual and concerns small tools. Some goods may be used repeatedly, or continuously, in production over many years but may nevertheless be small, inexpensive and used to perform relatively simple operations. Hand tools such as saws, spades, knives, axes, hammers, screwdrivers and spanners or wrenches are examples. If expenditures on such tools take place at a fairly steady rate and if their value is small compared with expenditures on more complex machinery and equipment, it may be appropriate to treat the tools as materials or supplies used for intermediate consumption. Some flexibility is needed, however, depending on the relative importance of such tools. In countries in which they account for a significant part of the value of the total stock of an industry's durable producers' goods, they may be treated as fixed assets and their acquisition and disposal by producers recorded under gross fixed capital formation.

10.36 Not all goods included within the asset boundary must be newly produced. Since assets have a long life, they may change hands but continue to function as fixed assets for their new owners. Thus it is important to define what existing fixed assets are and how they are treated in measuring gross fixed capital formation.

10.37 Nor are all services included within the asset boundary immediately recognizable. Important classes of services are included in the asset boundary because of the impact they have on the value of new or existing assets. These are improvements to existing assets and the cost of ownership transfer of assets. These are described below after defining existing fixed assets.

Existing fixed assets

10.38 Because assets have service lives that may range up to 50 years or more for dwellings or other structures, their ownership may change several times before they are eventually scrapped, demolished or abandoned. ***An existing fixed asset is one whose value was included in the stock of fixed capital of at least one producer unit in the domestic economy at some earlier point in time either in the current period or in the immediately previous accounting period.*** In many countries, well-organized markets exist to facilitate the buying and selling of many kinds of existing fixed assets, notably automobiles, ships, aircraft, dwellings and other structures. Indeed, the number of existing dwellings bought and sold within a given time period may considerably exceed the number of new dwellings. In practice, most existing fixed assets will have been used in production by their current owners, but an existing capital good might be sold by its owner before it has actually been used.

10.39 In general, sales or other disposals of existing goods, whether fixed assets or not, are recorded as negative expenditures or negative acquisitions. Thus, when the ownership of an existing fixed asset is transferred from one resident producer to another, the value of the asset sold, bartered or transferred is recorded as negative gross fixed capital formation by the former and as positive gross fixed capital formation by the latter. The value of the positive gross fixed capital formation recorded for the purchaser exceeds the value of the negative gross fixed capital formation recorded for the seller by the value of the costs of ownership transfer incurred by the purchaser. The treatment of these costs is explained in more detail in a later section.

10.40 When the sale takes place between two resident producers, the positive and negative values recorded for gross fixed capital formation cancel out for the economy as a whole except for the costs of ownership transfer. Similarly, if an existing immovable fixed asset, such as a building, is sold to a non-resident, by convention the latter is treated as purchasing a financial asset that is the equity of a notional resident unit while the notional resident unit is deemed to purchase the asset, so that the sale and purchase of the asset takes place between resident units. However, if an existing movable fixed asset, such as a ship or aircraft, is exported, no positive gross fixed capital formation is recorded elsewhere in the economy to offset the seller's negative gross fixed capital formation.

10.41 Some durable goods, such as vehicles, may be classified as fixed assets or as consumer durables depending upon the owner and the purpose for which they are used. If, therefore, the ownership of such a good were transferred from an enterprise to a household to be used for final consumption, negative gross fixed capital formation is recorded for the enterprise and positive consumption expenditure by the household. If a vehicle owned by a household were to be acquired by an enterprise, it would be recorded as an acquisition of a "new" fixed asset by the enterprise, even though it is an existing good, and as negative consumption expenditure by the household. A similar treatment is applied to imports of used products acquired by resident producers as assets.

10.42 Thus, it is perfectly possible for gross fixed capital formation to be negative as a result of the sale or disposal of existing fixed assets, although aggregate gross fixed capital formation is unlikely to be negative for large groups of units such as subsectors, sectors or the economy as a whole.

Improvements to existing assets

10.43 Gross fixed capital formation may take the form of improvements to existing fixed assets, such as buildings or computer software, that increase their productive capacity, extend their service lives, or both. By definition, such gross fixed capital formation does not lead to the creation of new assets that can be separately identified and valued, but to an increase in the value of the asset that has been improved.

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Accordingly, it is the improved asset that is henceforth relevant to the SNA and on which consumption of fixed capital must be calculated subsequently.

10.44 A different treatment is applied to improvements to land in its natural state. In this case the improvements are treated as the creation of a new fixed asset and are not regarded as giving rise to an increase in the value of the natural resource. If land, once improved, is further improved, then the normal treatment of improvements to existing fixed assets applies.

10.45 The distinction between ordinary maintenance and repairs that constitute intermediate consumption and those that are treated as capital formation is not clear cut. As explained in paragraphs 6.226 to 6.229, ordinary maintenance and repairs are distinguished by two features:

a. They are activities that must be undertaken regularly in order to maintain a fixed asset in working order over its expected service life. The owner or user of the asset has no choice about whether or not to undertake ordinary maintenance and repairs if the asset in question is to continue to be used in production;

b. Ordinary maintenance and repairs do not change the fixed asset's performance, productive capacity or expected service life. They simply maintain it in good working order, if necessary by replacing defective parts by new parts of the same kind.

10.46 On the other hand, improvements to existing fixed assets that constitute gross fixed formation must go well beyond the requirements of ordinary maintenance and repairs. They must bring about significant changes in some of the characteristics of existing fixed assets. They may be distinguished by the following features:

a. The decision to renovate, reconstruct or enlarge a fixed asset is a deliberate investment decision that may be taken any time, even when the good in question is in good working order and not in need of repair. Major renovations of ships, buildings or other structures are frequently undertaken well before the end of their normal service lives;

b. Major renovations, reconstructions or enlargements increase the performance or productive capacity of existing fixed assets or significantly extend their previously expected service lives, or both. Enlarging or extending an existing building or structure constitutes a major change in this sense, as does the refitting or restructuring of the interior of a building or ship or a major extension to or enhancement of an existing software system.

10.47 It is difficult to provide simple objective criteria that enable improvements to be distinguished from repairs because any repair may be said to improve the performance or extend the working life of the unrepaired asset. For example, machines may cease to function at all because of the failure of one small part. The replacement of such a part does not, however, constitute gross fixed capital formation. Thus, improvements have to be identified either by the magnitude of the changes in the characteristics of the fixed assets such as size, shape, performance, capacity, or expected service lives, or by the fact that improvements are not the kinds of changes that are observed to take place routinely in other fixed assets of the same kind, as part of ordinary maintenance and repair programmes.

Costs incurred on acquisition and disposal of assets

10.48 Purchasing a fixed asset is often a complicated procedure that may involve using lawyers to establish legal title to the asset, engineers to certify that it is in satisfactory working order and so on. There may also be taxes to be paid occasioned by the change of ownership of the item. Further, in the case of highly complex machinery there may be significant costs associated with delivery and installation that were not included in the purchase price.

10.49 The benefits to be derived from the use of the asset in production have to cover these costs as well as the initial price of the asset. Costs incurred on acquisition of an asset are treated as an integral part of the value of that unit's gross fixed capital formation. The value at which the asset enters the balance sheet of its new owner therefore includes these costs. This applies to both new and existing assets.

10.50 Just as there may be costs incurred on the acquisition of an asset, there may also be costs incurred on the disposal of an asset. Some of these may be parallel to those costs incurred on acquisition, for example legal fees and disinstallation costs. However, in the case of some significantly large and important assets, such as oil rigs and nuclear power stations, there may also be major costs associated with the decommissioning of the asset at the end of its productive life. For some land sites, such as those used for landfill, there may be large costs associated with rehabilitation of the site. These are referred to collectively as terminal costs.

10.51 All these costs associated with acquiring and disposing of assets may be described as costs of ownership transfer. ***The costs of ownership transfer consist of the following kinds of items:***

a. All professional charges or commissions incurred by both units acquiring or disposing of an asset such as fees paid to lawyers, architects, surveyors, engineers and valuers, and commissions paid to estate agents and auctioneers;

b. Any trade and transport costs separately invoiced to the purchaser;

c. All taxes payable by the unit acquiring the asset on the transfer of ownership of the asset;

d. Any tax payable on the disposal of an asset;

e. Any delivery and installation or disinstallation costs not included in the price of the asset being acquired or disposed of; and

f. Any terminal costs incurred at the end of an asset's life such as those required to render the structure safe or to restore the environment in which it is situated.

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10.52 All these costs of ownership transfer are treated as gross fixed capital formation. They are attributed to the purchaser or seller of the asset according to which unit bears the responsibility of meeting the costs. The time of recording of these costs is discussed below. The costs are written off via consumption of fixed capital over the period the new owner expects to hold the asset, as discussed in the section on consumption of fixed capital except for the terminal costs that should be written off over the whole life of the asset.

Time of recording

10.53 The general principle for the time of recording of acquisitions less disposals of fixed assets is when the ownership of the fixed assets is transferred to the institutional unit that intends to use them in production. Except in two special cases, this time is not generally the same as the time at which the fixed assets are produced. Nor is it necessarily the time at which they are put to use in the production of other goods or services.

10.54 The two exceptions cover assets that take some time to produce such as construction projects and some cultivated biological resources. In general, incomplete construction projects and immature animals and plantations are treated as work-in-progress. They are reclassified from inventories to fixed capital when complete and delivered to the unit intending to use them as fixed assets. However, when the assets are being produced on own account, the partially complete products are recorded as fixed capital formation as work takes place.

10.55 When assets are developed under a contract of sale, the producer records work-in-progress as normal but when stage payments are made, these are regarded as purchase of [part of] a fixed asset or as a trade advance if the value of the stage payment exceeds the value of the work put in place. In the latter case, work is recorded as fixed capital delivered to the final owner as work proceeds until the trade credit is exhausted. When there is no contract of sale agreed in advance, the output produced by the enterprise must be recorded as work-in-progress or as additions to the producers' inventories of finished goods, depending on whether the product is completed. For example, finished dwellings built speculatively remain as additions to the producers' inventories of finished goods until they are sold or otherwise acquired by users.

Ownership of assets

10.56 In most cases, the ownership of fixed assets is straightforward; it is the unit that acquires the asset for use in production. There are however, three exceptions to be noted. One concerns assets subject to a financial lease; the second concerns assets produced by communal effort; the third concerns immovable assets owned by non-residents.

10.57 A financial lease is a contract between a lessor and a lessee whereby the lessor legally owns the good but the terms of the lease are such that the lessee takes over both the economic risks and rewards of using the asset in production. In effect, therefore, the lessee becomes the economic owner of the asset even if the lessor remains the legal owner. In these cases, the asset is recorded as being acquired by the lessee in return for a loan extended by the lessor to the lessee. The asset is then recorded on the balance sheet of the lessee and not the lessor. The payments due under the lease arrangement are treated as forming a repayment of the principal of the loan and a payment of interest and possibly a service charge. More details of these arrangements are given in chapter 17.

10.58 Certain structures may be produced for own communal use by groups of households: for example, buildings, roads, bridges, etc. After they are finished, the ownership of such structures may then be transferred to some government unit that assumes responsibility for their maintenance. When the transfer occurs, the gross fixed capital formation on own account originally attributed to the group of households is cancelled by their negative gross fixed capital formation resulting from the capital transfer in kind made to the government unit. The final gross fixed capital formation remaining is that of the government unit resulting from its acquisition of the asset through the capital transfer in kind. If no such transfer exists and the structure remains the communal property of the group of households responsible for its construction, an NPISH providing collective services should be created.

10.59 A further consideration to be taken into account in determining ownership concerns assets built under a private finance initiative (PFI), sometimes also described as a public-private partnership (PPP) or a build, own, operate, transfer (BOOT) scheme or some other similar shorthand. Such schemes are under accounting scrutiny at the time of writing. Provisional guidance on how to ascribe the ownership of such schemes is given in chapter 22.

10.60 All buildings and other structures within the economic territory are deemed, by convention, to be owned by resident units. If the economic owner (or lessee under a financial lease) would not otherwise qualify as a resident unit, a notional resident unit is created for this purpose. The notional resident unit is assumed to purchase (or lease) the building or structure. The legal owner (or lessor) is deemed to hold equivalent equity in the notional resident unit. If a building or structure is owned in part by a resident unit and in part by one or several non-residents, there is one notional resident unit established with each of the owners having a proportionate share of the equity of the notional resident unit.

Valuation

10.61 The various components of acquisitions and disposals of fixed assets are listed below:

a. Value of fixed assets purchased;

b. Value of fixed assets acquired through barter;

c. Value of fixed assets received as capital transfers in kind;

d. Value of fixed assets retained by their producers for their own use, including the value of any fixed assets being produced on own account that are not yet completed or fully mature;

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less

e. Value of existing fixed assets sold;

f. Value of existing fixed assets surrendered in barter;

g. Value of existing fixed assets surrendered as capital transfers in kind.

Items (a) to (d) include new assets, existing assets, the value of improvements to assets and the cost of ownership transfers in respect of these assets. Items (e), (f) and (g) include disposals of assets that may cease to be used as fixed assets by their new owners: for example, vehicles sold by enterprises to households for their personal use, assets that are scrapped or demolished by their new owners and assets that are exported.

10.62 Fixed assets acquired through barter are valued at their estimated purchasers' prices plus any costs of ownership transfer. In practice, neither taxes on products nor transportation costs may apply, in which case the purchasers' prices will not differ from the basic prices of the product. Fixed assets produced for own gross fixed capital or assets transferred in kind are valued at their estimated basic prices, or by their costs of production when satisfactory estimates of their basic prices cannot be made.

10.63 Special considerations apply to fixed assets produced by communal construction by households. If the value of the asset must be estimated on the basis of costs, and some or all of the labour is provided free, as may happen, an estimate of what the cost of paid labour would be must be included in the estimated total production costs using wage rates for similar kinds of labour in the vicinity or region. Otherwise, the value of the finished structure will be seriously underestimated. However, this estimate is not treated as compensation of employees but as gross mixed income. This income accrues to the households concerned who are then assumed to use it to "purchase" the final construction. If the construction is then handed over to government, there is negative gross fixed capital formation recorded by the community offsetting their previously recorded acquisition of the asset and positive gross fixed capital formation recorded by government, along with a capital transfer of the value of the construction from the community to government.

Transactions in fixed assets

10.64 ***Gross fixed capital formation in a particular category of fixed asset consists of the value of producers' acquisitions of new and existing products of this type less the value of their disposals of fixed assets of the same type.*** Gross fixed capital formation is not recorded until the ownership of the fixed assets is transferred to the unit that intends to use them in production unless it is being constructed to order under a contract agreed in advance. Thus, new assets that have not yet been sold form part of additions to inventories of finished goods held by the producers of the assets. Similarly, an imported product is not recorded as gross fixed capital formation until it is acquired by the unit that intends to use it.

10.65 Table 10.2 shows the changes in assets side of table 10.1 expanded to show the entries for transactions in fixed assets. It will be noted that the SNA recommends showing acquisitions of certain categories of assets separately from disposals of those assets when this provides analytically useful data.

10.66 In presentations of the capital account, gross fixed capital formation is usually shown by type of asset, where the accounting principles of the last paragraph are applied to each category of fixed asset in turn. Table 10.2 also incorporates the classification of fixed assets used in the SNA. Each of the main categories of fixed assets is defined and described in turn below.

10.67 The SNA does not formally include a division between tangible and intangible assets in the classification. However, the categories of dwellings, other buildings and structures, machinery and equipment, weapons systems and cultivated biological resources can be taken to correspond to tangible assets and the other categories to intangible assets.

Dwellings

10.68 ***Dwellings are buildings, or designated parts of buildings, that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences***. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included, as are public monuments identified primarily as dwellings.

10.69 Examples include products included in *CPC* 2 class 5311, residential buildings and part of *CPC 2.*group 387. The former class includes single and multiple dwelling buildings as well as residential buildings for communities, retirement homes, hostels, orphans etc. The latter class includes prefabricated buildings, including those intended for housing or for buildings associated with housing such as garages.

10.70 The costs of clearing and preparing the site for construction are part of the costs of new dwellings (and other buildings and structures) and are therefore included in the value of the buildings.

10.71 Incomplete dwellings are included to the extent that the ultimate user is deemed to have taken ownership, either because the construction is on own-account or as evidenced by the existence of a contract of sale or purchase.

10.72 Dwellings acquired for military personnel are included because they are used for the production of housing services, in the same way as dwellings acquired by civilian units.

Other buildings and structures

10.73 ***Other buildings and structures comprise non-residential buildings, other structures and land improvements.*** These are described in turn below.

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Buildings other than dwellings

10.74 ***Buildings other than dwellings include whole buildings or parts of buildings not designated as dwellings. Fixtures, facilities and equipment that are integral parts of the structures are included***. For new buildings, costs of site clearance and preparation are included. Public monuments identified primarily as non-residential buildings are also included.

10.75 Examples include products included in *CPC 2.0* class 5312, non-residential buildings, such as warehouses and industrial buildings, commercial buildings, buildings for public entertainment, hotels, restaurants, schools, hospitals, prisons etc. Prisons, schools and hospitals are regarded as buildings other than dwellings despite the fact that they may shelter institutional households.

Other structures

10.76 ***Other structures include structures other than buildings, including the cost of the streets, sewer, etc***. The costs of site clearance and preparation are also included. Public monuments for which identification as dwellings or non-residential buildings is not possible are included as are shafts, tunnels and other structures associated with mining mineral and energy resources, and the construction of sea walls, dykes, flood barriers etc. intended to improve the quality and quantity of land adjacent to them. The infrastructure necessary for aquaculture such as fish farms and shellfish beds is also included.

10.77 Examples include products included in *CPC 2.0* group 532, civil engineering works, such as highways, streets, roads, railways and airfield runways; bridges, elevated highways, tunnels and subways; waterways, harbours, dams and other waterworks; long-distance pipelines, communication and

Table 10.2:The capital account - the classification of fixed assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Gross capital formation	308	8	38	55	5	414			414
Net capital formation	151	- 4	11	32	2	192			192
Gross fixed capital formation	280	8	35	48	5	376			376
Acquisitions less disposals of fixed assets	263	8	35	48	5	359			359
Acquisitions of new fixed assets	262	8	38	45	5	358			358
Acquisitions of existing fixed assets	5	0	0	3	1	9			9
Disposals of existing fixed assets	- 4		- 3	0	- 1	- 8			- 8
Costs of ownership transfer on non-produced assets	17					17			17
Consumption of fixed capital	- 157	- 12	- 27	- 23	- 3	- 222			- 222
Gross fixed capital formation by type of asset									
Dwellings									
Other buildings and structures									
Buildings other than dwellings									
Other structures									
Land improvements									
Machinery and equipment									
Transport equipment									
ICT equipment									
Other machinery and equipment									
Weapons systems									
Cultivated biological resources									
Animal resources yielding repeat products									
Tree, crop and plant resources yielding repeat products									
Costs of ownership transfer on non-produced assets									
Intellectual property products									
Research and development									
Mineral exploration and evaluation									
Computer software and databases									
Computer software									
Databases									
Entertainment, literary or artistic originals									
Other intellectual property products									
Changes in inventories	26	0	0	2	0	28			28
Acquisitions less disposals of valuables	2	0	3	5	0	10			10
Acquisitions less disposals of non-produced assets	- 7	0	2	4	1	0			0
Capital transfers, receivable									
Capital transfers, payable									
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0

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power lines; local pipelines and cables, ancillary works; constructions for mining and manufacture; and constructions for sport and recreation.

10.78 The construction of new public monuments constitutes gross fixed capital formation and similarly, major improvements to existing public monuments are also included in gross fixed capital formation. ***Public monuments are identifiable because of particular historical, national, regional, local, religious or symbolic significance.*** They are accessible to the general public, and visitors are often charged for admission to the monuments or their vicinity. Their owners, who may be government units, non-profit institutions (NPIs), corporations or households, typically use public monuments to produce cultural or entertainment-type services. In principle, the gross fixed capital formation in public monuments should be included in dwellings, non-residential buildings, and other structures as appropriate; in practice, it may be desirable to classify them with other structures. Consumption of fixed capital on new monuments, or on major improvements to existing monuments, should be calculated on the assumption of appropriately long service lives.

Land improvements

10.79 ***Land improvements are the result of actions that lead to major improvements in the quantity, quality or productivity of land, or prevent its deterioration***. Activities such as land clearance, land contouring, creation of wells and watering holes that are integral to the land in question are to be treated as resulting in land improvements. Activities such as the creation of seawalls, dykes, dams and major irrigation systems which are in the vicinity of the land but not integral to it, which often affect land belonging to several owners and which are often carried out by government, result in assets that are to be classified as structures.

10.80 Land improvements represent a category of fixed assets distinct from the non-produced land asset as it existed before improvement. Land before improvements are effected remains a non-produced asset and as such is subject to holding gains and losses separately from price changes affecting the improvements. In cases where it is not possible to separate the value of the land before improvement and the value of those improvements, the land should be allocated to the category that represents the greater part of the value.

10.81 The costs of ownership transfer on all land are to be included with land improvements.

Machinery and equipment

10.82 ***Machinery and equipment cover transport equipment, machinery for information, communication and telecommunications (ICT) equipment, and other machinery and equipment***. As explained above, machinery and equipment under a financial lease are treated as acquired by the user (lessee) rather than as acquired by the lessor. Tools that are relatively inexpensive and purchased at a relatively steady rate, such as hand tools, may be excluded. Also excluded are machinery and equipment integral to buildings that are included in dwellings and non-residential buildings. Machinery and equipment other than weapons systems acquired for military purposes are included; weapons systems form another category.

10.83 Machinery and equipment such as vehicles, furniture, kitchen equipment, computers, communications equipment, etc. that are acquired by households for purposes of final consumption are not fixed assets and their acquisition is not treated as gross fixed capital formation. However, houseboats, barges, mobile homes and caravans that are used as the principal residences of households are treated as dwellings, so that their acquisition by households is included in gross fixed capital formation.

Transport equipment

10.84 ***Transport equipment consists of equipment for moving people and objects.*** Examples include products other than parts included in *CPC 2.0* division 49, transport equipment, such as motor vehicles, trailers and semi-trailers; ships; railway and tramway locomotives and rolling stock; aircraft and spacecraft; and motorcycles, bicycles, etc.

ICT equipment

10.85 ***Information, computer and telecommunications (ICT) equipment consists of devices using electronic controls and also the electronic components forming part of these devices.*** Examples are products within *CPC 2.0* categories 452 and 472. In practice, this narrows the coverage of ICT equipment mostly to computer hardware and telecommunications equipment.

Other machinery and equipment

10.86 ***Other machinery and equipment consists of machinery and equipment not elsewhere classified***. Examples include products other than parts and items identified in other categories of fixed capital formation included in *CPC 2.0* divisions 43, general purpose machinery; 44, special purpose machinery; 45, office, accounting and computing equipment; 46, electrical machinery and apparatus; 47, radio, television and communication equipment and apparatus; and 48, medical appliances, precision and optical instruments, watches and clocks. Other examples are products other than parts included in *CPC 2.0* groups 337, fuel elements (cartridges) for nuclear reactors; 381, furniture; 383, musical instruments; 384, sports goods; and 423, steam generators except central heating boilers.

Weapons systems

10.87 ***Weapons systems include vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc.*** Most single-use weapons they deliver, such as ammunition, missiles, rockets, bombs, etc., are treated as military inventories. However, some single-use items, such as certain types of ballistic missile with a highly destructive capability, may provide an ongoing service of deterrence against aggressors and therefore meet the general criteria for classification as fixed assets.

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Cultivated biological resources

10.88 ***Cultivated biological resources cover animal resources yielding repeat products and tree, crop and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility and management of institutional units***.

10.89 In general, when the production of fixed assets takes a long time to complete, those assets whose production is not yet completed at the end of the accounting period are recorded as work-in-progress. However, when the assets are produced on own account they are treated as being acquired by their users at the same time as they are produced and not as work-in-progress. These general principles also apply to the production of cultivated assets such as animals or trees that may take a long time to reach maturity. Two cases need to be distinguished from each other: the production of cultivated products by specialized producers, such as breeders or tree nurseries, and the own-account production of cultivated assets by their users.

10.90 In the case of the specialist producers, animals or trees whose production is not yet complete and are not ready for sale or delivery are recorded as work-in-progress. Examples are one-year-old horses bred for sale as two-year-old race horses, or young fruit trees that need further growth before being marketable. Such work-in-progress is recorded and valued in exactly the same way as that originating in any other kind of production.

10.91 However, when animals or trees intended to be used as fixed assets are produced on own account by farmers or others, incomplete assets in the form of immature animals, trees, etc. that are not ready to be used in production are treated not as work-in-progress but as gross fixed capital formation by the producing unit in its capacity as eventual user.

Animal resources yielding repeat products

10.92 ***Animal resources yielding repeat products cover animals whose natural growth and regeneration are under the direct control, responsibility and management of institutional units.*** They include breeding stocks, dairy cattle, draft animals, sheep or other animals used for wool production and animals used for transportation, racing or entertainment. Animals raised for slaughter, including poultry, are not fixed assets but inventories. Immature cultivated assets are excluded unless produced for own use.

10.93 This heading includes aquatic resources yielding repeat products, consisting of aquatic resources maintained for controlled reproduction. In all but exceptional cases, though, these will be small and may be ignored unless of significant importance.

10.94 Gross fixed capital formation in livestock that are cultivated for the products they yield year after year (dairy cattle, draught animals, etc.) is measured by the value of acquisitions less disposals, taking account of the treatment just described of immature livestock reared on own account. It is therefore equal to the total value of all mature animals and immature animals produced on own account acquired by users of the livestock less the value of their disposals. Disposals consist of animals sold or otherwise disposed of, including those sold for slaughter, plus those animals slaughtered by their owners. Exceptional losses of animals due to major outbreaks of disease, contamination, drought, famine, or other natural disasters are recorded in the other changes in the volume of assets account and not as disposals. Incidental losses of animals due to occasional deaths from natural causes form part of consumption of fixed capital. Consumption of fixed capital of an individual animal is measured by the decline in its value as it gets older.

Tree, crop and plant resources yielding repeat products

10.95 ***Tree, crop and plant resources yielding repeat products cover plants whose natural growth and regeneration are under the direct control, responsibility and management of institutional units.*** They include trees (including vines and shrubs) cultivated for fruits and nuts, for sap and resin and for bark and leaf products. Trees grown for timber that yield a finished product once only when they are ultimately felled are not fixed assets, just as cereals or vegetables that produce only a single crop when they are harvested cannot be fixed assets.

10.96 Gross fixed capital formation in plantations, orchards, etc., consists of the value of the acquisitions less disposals of mature trees, shrubs, etc., including acquisitions of immature trees, shrubs, etc., produced on own account. As explained above, the value of the latter may be approximated, if necessary, by the value of costs incurred in their production during the period: for example, the costs of preparing the ground, planting, staking, protection from weather or disease, pruning, training, etc., until the tree reaches maturity and starts to yield a product. Disposals consist of trees, shrubs, etc., sold or otherwise transferred to other units plus those cut down before the end of their service lives. All agricultural output is at the mercy of the weather. Expected output must take account of normal variations in climatic conditions and exceptional losses should be confined to those outside recent past experience. Disposals do not include exceptional losses of trees due to drought or other natural disasters such as gales or hurricanes, these being recorded in the other changes in the volume of assets account.

Costs of ownership transfer on non-produced assets

10.97 The costs of ownership transfer on non-produced assets represent produced assets but their value cannot be integrated with the value of another produced asset. They must therefore be shown as a separate category of gross fixed capital formation. An exception is made in the case of land where costs of ownership transfer are treated by convention as land improvements. Costs of ownership transfer are defined in paragraphs 10.48 to 10.52.

Intellectual property products

10.98 Examples of intellectual property products are the results of research and development, mineral exploration and evaluation, computer software and databases, and

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entertainment, literary or artistic originals. They are characterized by the fact that most of their value is attributable to intellectual endeavour. They can be described in general terms in the following way. ***Intellectual property products are the result of research, development, investigation or innovation leading to knowledge that the developers can market or use to their own benefit in production because use of the knowledge is restricted by means of legal or other protection.*** The knowledge may be embodied in a free-standing product or may be embodied in another. When the latter is the case, the product embodying the knowledge has an increased price relative to a similar product without this embodied knowledge. The knowledge remains an asset as long as its use can create some form of monopoly profits for its owner. When it is no longer protected or becomes outdated by later developments, it ceases to be an asset.

10.99 Some intellectual property products are used solely by the unit responsible for their development or by a single unit to whom the product is transferred. Mineral exploration and evaluation is an example. Other products, such as computer software and artistic originals, are used in two forms. The first is the original or "master copy". This is frequently controlled by a single unit but exceptions exist as explained below. The original is used to make copies that are in turn supplied to other units. The copies may be sold outright or made available under a licence.

10.100 A copy sold outright may be treated as a fixed asset if it satisfies the necessary conditions, that is, it will be used in production for a period in excess of one year. A copy made available under a licence to use may also be treated as a fixed asset if it meets the necessary conditions, that is, it is expected to be used in production for more than one year and the licensee assumes all the risks and rewards of ownership. A good, but not necessary, indication is if the licence to use is purchased with a single payment for use over a multiyear period. If the acquisition of a copy with a licence to use is purchased with regular payments over a multiyear contract and the licensee is judged to have acquired economic ownership of the copy, then it should be regarded as the acquisition of an asset. If regular payments are made for a licence to use without a long-term contract, then the payments are treated as payments for a service. If there is a large initial payment followed by a series of smaller payments in succeeding years, the initial payment is recorded as gross fixed capital formation and the succeeding payments are treated as payments for a service. If the licence allows the licensee to reproduce the original and subsequently assume responsibility for the distribution, support and maintenance of these copies, then this is described as a licence to reproduce and should be regarded as the sale of part or whole of the original to the unit holding the licence to reproduce.

10.101 When copies are distributed by the owner free of charge, then no flows between the owner and recipients are recorded in the SNA. If, despite making copies freely available, the owner still expects to obtain benefits, then the present value of those benefits should be recorded in its balance sheet. It may be that when the information was distributed freely it was incomplete and the owner intends to make more detailed information available at a price later. Software distributed freely at the beta test stage is one example. Alternatively, the owner justifies the expenditure on the basis of the benefits to its own production and may make copies available for marketing purposes, generating goodwill or in cases it considers deserving.

10.102 It is often the case for some intellectual property products that some of the benefits accrue to units other than the owner to the extent they stimulate the production of other intellectual property products by other units. Examples of such spillovers include a breakthrough in the development of a new class of drug leading other enterprises to develop competing drugs of the same type, and the success or failure of mineral exploration in a particular zone informing other units with exploration rights in a neighbouring zone. These are treated in the same way as other externalities in the SNA. Unless there is a quantifiable monetary impact for one or both parties, nothing is recorded in the SNA. A *Handbook on Deriving Capital Measures of Intellectual Property Products* (Organisation for Economic Co-operation and Development, forthcoming) is under preparation.

Research and development

10.103 Intellectual property products include the results of research and development (R&D). ***Research and [experimental] development consists of the value of expenditures on creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and use of this stock of knowledge to devise new applications. This does not extend to including human capital as assets within the SNA.*** The value of research and development (R&D) should be determined in terms of the economic benefits it is expected to provide in the future. This includes the provision of public services in the case of R&D acquired by government. In principle, R&D that does not provide an economic benefit to its owner does not constitute a fixed asset and should be treated as intermediate consumption. Unless the market value of the R&D is observed directly, it may, by convention, be valued at the sum of costs, including the cost of unsuccessful R&D, as described in chapter 6.

10.104 R&D should be recognized as part of capital formation. In order to achieve this, several issues have to be addressed. These include deriving measures of research and development, price indices and service lives. Specific guidelines, together with handbooks on methodology and practice, will provide a useful way of working towards solutions that give the appropriate level of confidence in the resulting measures.

10.105 With the inclusion of R&D expenditure as capital formation, patented entities no longer feature as assets in the SNA. The patent agreement is to be seen instead as the legal agreement concerning the terms on which access to the R&D is granted. The patent agreement is a form of licence to use which is treated as giving rise to payments for services or the acquisition of an asset.

Mineral exploration and evaluation

10.106 ***Mineral exploration and evaluation consists of the value of expenditures on exploration for petroleum and natural gas and for non-petroleum deposits and subsequent***

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evaluation of the discoveries made. These expenditures include prelicence costs, licence and acquisition costs, appraisal costs and the costs of actual test drilling and boring, as well as the costs of aerial and other surveys, transportation costs, etc., incurred to make it possible to carry out the tests. Re-evaluations may take place after commercial exploitation of the reserve has started and the cost of these re-evaluations is also included in gross fixed capital formation.

10.107 Mineral exploration is undertaken in order to discover new deposits of minerals or fuels that may be exploited commercially. Such exploration may be undertaken on own account by enterprises engaged in mining or the extraction of fuels. Alternatively, specialized enterprises may carry out exploration either for their own purposes or for fees. The information obtained from exploration influences the production activities of those who obtain it over a number of years. The expenditures incurred on exploration within a given accounting period, whether undertaken on own account or not, are therefore treated as expenditures on the acquisition of an intellectual property product and included in the enterprise's gross fixed capital formation.

10.108 The expenditures included in gross fixed capital formation include not only the costs of actual test drillings and borings, but also the costs incurred to make it possible to carry out tests, for example, the costs of aerial or other surveys, transportation costs, etc. The value of the resulting asset is not measured by the value of new deposits discovered by the exploration but by the value of the resources allocated to exploration during the accounting period. When the activities are carried out by contractors, the prices charged by these contractors, including their operating surplus, become part of the value of the expenditures incurred. Consumption of fixed capital may be calculated for such assets by using average service lives similar to those used by mining or oil corporations in their own accounts.

Computer software and databases

10.109 Computer software and databases are grouped together because a computerized database cannot be developed independently of a database management system (DBMS), which is itself computer software.

Computer software

10.110 ***Computer software consists of computer programs, program descriptions and supporting materials for both systems and applications software***. Gross fixed capital formation in computer software includes both the initial development and subsequent extensions of software as well as acquisition of copies that are classified as assets.

10.111 The development of computer software represents the development of an intellectual property product. It is treated as an asset if it is to be used in production by its owner for more than one year. The software may be intended only for own use or may be intended for sale by means of copies. If copies of the software are sold on the market, their treatment follows the principles described in paragraph 10.100. Software purchased on the market is valued at purchasers' prices, while software developed in-house is valued at its estimated basic price, or at its costs of production if it is not possible to estimate the basic price.

Databases

10.112 ***Databases consist of files of data organized in such a way as to permit resource-effective access and use of the data.*** Databases may be developed exclusively for own use or for sale as an entity or for sale by means of a licence to access the information contained. The standard conditions apply for when an own-use database, a purchased database or the licence to access a database constitutes an asset.

10.113 The creation of a database will generally have to be estimated by a sum-of-costs approach. The cost of the data base management system (DBMS) used should not be included in the costs but be treated as a computer software asset unless it is used under an operating lease. The cost of preparing data in the appropriate format is included in the cost of the database but not the cost of acquiring or producing the data. Other costs will include staff time estimated on the basis of the amount of time spent in developing the database, an estimate of the capital services of the assets used in developing the database and costs of items used as intermediate consumption.

10.114 Databases for sale should be valued at their market price, which includes the value of the information content. If the value of a software component is available separately, it should be recorded as the sale of software.

Entertainment, literary and artistic originals

10.115 ***Entertainment, literary and artistic originals consist of the original films, sound recordings, manuscripts, tapes, models, etc., on which drama performances, radio and television programming, musical performances, sporting events, literary and artistic output, etc., are recorded or embodied.*** Such works are frequently developed on own account. Subsequently they may be sold outright or by means of licences. The standard conditions on when the originals and copies are recognized as fixed assets apply. If an original is acquired as a valuable, its production does not count as own account production of a fixed asset but it may have been classified as work-in-progress.

10.116 An original purchased on the market is valued at the purchaser's price**.** One developed in-house is valued at its estimated basic price or at its costs of production if it is not possible to estimate the basic price.

Other intellectual property products

10.117 ***Other intellectual property products include any such products that constitute fixed assets but are not captured in one of the specific items above***.

2. Changes in inventories

10.118 ***Changes in inventories are measured by the value of the entries into inventories less the value of withdrawals and less the value of any recurrent losses of goods held in***

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inventories during the accounting period. Some of these acquisitions and disposals are attributable to actual purchases or sales, but others reflect transactions that are internal to the enterprise.

10.119 It is useful to distinguish between two functions performed by an enterprise: its function as a producer of goods and services and its function as an owner of assets. When a good is entered into inventories it is acquired as an asset by the enterprise in its capacity as owner either by purchase (or barter) or by an internal transaction with itself as the producer. Conversely, a good leaving inventories represents the disposal of an asset by the owner either by sale or other use, by an internal transfer to the producer or possibly as a result of recurrent losses (recurrent wastage, accidental damage or pilfering).

Storage and stocks of inventories

10.120 Most goods going into inventories simply remain there until they are withdrawn in the same state as when they entered. Not infrequently, the price of the goods will have increased while they are in inventories, but these increases are not due to production but are simply holding gains. There are some goods, though, where the passage of time in store changes the character of the goods. In such cases, the increase in value due to storage is to be treated as production and not as holding gains, though holding gains (or losses) may occur as well.

10.121 The indication that storage is being undertaken as a production activity is that the price of the good stored, relative to the general level of prices, is expected to increase by a certain amount over a predetermined time. For example, winter wheat may be expected, on the basis of past experience, to fetch a given multiple of its price at harvest. Similarly, wine that is several years old is more valuable than the current year's vintage by a predictable factor.

10.122 The activity of storage may be undertaken by any institutional unit, not just the original producer of the product or may be undertaken by several units in succession if the ownership of the goods changes during storage.

10.123 The goods in storage are classified as work-in-progress and not finished goods. The increase in value during the accounting period up to the expected level at that time is treated as production of storage; any difference from this level is treated as a holding gain or loss. The method of valuing storage is described in the annex to chapter 6. The expected level of price increase for items being stored for more than one year, though, needs to be calculated in accordance with the principles of valuing work-in-progress described below.

Valuation

10.124 The enterprise in its capacity as a producer may obtain goods or services for intermediate consumption either by purchasing them on the market for immediate use or by internal transfers out of inventories. In order to ensure that all the goods and services used for intermediate consumption are consistently valued at current prices, the goods transferred out of inventories are valued at purchasers' prices current at the time of the withdrawal from inventories.

10.125 Similarly, the output produced by the producer may either be sold or otherwise disposed of or be transferred to inventories as finished products or work-in-progress. In order to ensure that output is consistently valued, finished goods transferred into inventories are valued as if they were

Table 10.3:The capital account - changes in inventories and valuables

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Gross capital formation	308	8	38	55	5	414			414
Net capital formation	151	- 4	11	32	2	192			192
Gross fixed capital formation	280	8	35	48	5	376			376
Consumption of fixed capital	- 157	- 12	- 27	- 23	- 3	- 222			- 222
Gross fixed capital formation by type of asset									
Changes in inventories	26	0	0	2	0	28			28
Materials and supplies									
Work-in-progress									
Work-in-progress on cultivated biological assets									
Other work-in-progress									
Finished goods									
Military inventories									
Goods for resale									
Acquisitions less disposals of valuables	2	0	3	5	0	10			10
Acquisitions less disposals of non-produced assets	- 7	0	2	4	1	0			0
Capital transfers, receivable									
Capital transfers, payable									
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0

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sold at that time, while additions to work-in-progress are given the value they have at the time they are added to inventories.

Valuation of work-in-progress

10.126 Much work-in-progress is of short duration and occurs only because production is a continuous process and some goods will be incomplete at the end of one accounting period but will be completed long before the end of the next. For output with a production period of a year or less, and assuming that prices and costs remain stable during the period of production, the value of the additions to work-in-progress for non-agricultural products within a given accounting period can be approximated by calculating the proportion of the total production costs incurred in that period and applying that ratio to the basic price realized by the finished product. Thus, the value of the output of the finished product is distributed over the accounting periods in which it was produced in proportion to the costs incurred in each period. If the average levels of prices and costs change from period to period, the output should be allocated initially using the prices and costs at the time the production is finished, and then the values of the work-in-progress thus calculated for earlier periods should be recalculated in proportion to the change in average cost levels from period to period.

10.127 For agricultural products, this method of allocating output over multiple periods may not be satisfactory. A disproportionate share of the costs may be incurred in sowing a crop with little if any costs being incurred until harvest. Prorating the output to the physical growth of the crop may be considered a possibility but in cases where there is serious risk of climatic damage just before the crop is harvested, this may give over-optimistic indications of probable output. Pragmatic distributions over quarters based on past experience may have to be used, or where multicropping is the norm, to allow the whole output of each crop to be counted in the period when it is harvested.

10.128 There are important activities, such as construction of buildings, structures and complex machinery, where the production process may take several years. In these cases, the valuation of the partially complete product requires careful consideration especially since such large projects are by their nature very costly.

10.129 Even if one fifth of the work involved is put in place annually over a period of five years, it does not follow that one fifth of the value (assuming zero inflation for simplicity) should be recorded in each year. The work put in place in the first year cannot be used for four more years and so the value of it must be discounted to allow for this delay. In the second year, the value of the work put in place in the first year will increase by one discount factor and this should be added to the value of the work put in place in the second year and so on. This case is discussed in more detail in chapter 20.

Transactions in inventories

10.130 The transactions in the capital account relating to inventories show the change in the level of inventories of each type. The changes comprise the additions less withdrawals and less regular losses from inventories. Table 10.3 shows the expansion of table 10.1 to incorporate changes in inventories. Each of the categories is described and defined below.

Materials and supplies

10.131 ***Materials and supplies consist of all products that an enterprise holds in inventory with the intention of using them as intermediate inputs into production.*** Not all necessarily get used in this way, however, as some may be lost as a result of physical deterioration, or recurrent accidental damage or pilfering. Such losses of materials and supplies are recorded and valued in the same way as materials and supplies actually withdrawn to be used up in production.

10.132 Enterprises may hold a variety of quite different kinds of goods under the heading of materials and supplies, the most common types being fuels, industrial raw materials, agricultural materials, semi-processed goods, components for assembly, packaging materials, foodstuffs, office supplies, etc. Every enterprise, including non-market producers owned by government units, may be expected to hold some inventories of materials and supplies, if only inventories of office supplies.

10.133 Materials and supplies do not include works of art or stocks of precious metals or stones acquired by enterprises as valuables. However, there are some producers that do use gold, diamonds, etc. as intermediate inputs into the production of other goods or services, for example, manufacturers of jewellery or dentists. Stocks of gold, diamonds, etc., intended for use in production are recorded under materials and supplies.

Work-in-progress

10.134 ***Work-in-progress consists of output produced by an enterprise that is not yet sufficiently processed to be in a state in which it is normally supplied to other institutional units.*** Work-in-progress occurs in all industries, but is especially important in those in which some time is needed to produce a unit of finished output, for example, in agriculture, or in industries producing complex fixed assets such as ships, dwellings, software or films. Work-in-progress can therefore take a wide variety of different forms ranging from growing crops to partially completed film productions or computer programs. Although work-in-progress is output that has not reached the state in which it is normally supplied to others, its ownership is nevertheless transferable, if necessary. For example, it may be sold under exceptional circumstances such as the liquidation of the enterprise.

10.135 Work-in-progress must be recorded for any output that is not complete at the end of the accounting period. This is a particular problem for output taking a long time to complete, such as construction. The shorter the accounting period, the more important work-in-progress is likely to be relatively to finished output. In particular, it is likely to be more significant for quarterly accounts than annual accounts, if only because the production of many agricultural crops is completed within a year but not necessarily within a quarter. The only exceptions to

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recording incomplete work as work-in-progress are for partially completed projects for which the ultimate owner is deemed to have taken ownership, either because the production is for own use or as evidenced by the existence of a contract of sale or purchase.

10.136 Reductions in work-in-progress take place when the production process is completed. At that point, all work-in-progress is reclassified as a finished product. This reclassification appears in the other changes in the volume of assets account.

10.137 If prices and costs have risen, work-in-progress carried forward from previous periods must be revalued using the prices and costs of the period in which the production is finished.

10.138 Current losses from work-in-progress resulting from physical deterioration or recurrent accidental damage or pilfering should be deducted from the additions to work-in-progress accruing as a result of the production carried out in the same period.

10.139 Work-in-progress is subdivided between work-in-progress on cultivated assets and other work-in-progress, as defined below.

Work-in-progress on cultivated biological resources

10.140 ***Work-in-progress on cultivated biological resources consists of output that is not yet sufficiently mature to be in a state in which it is normally supplied to other institutional units.*** In the present context it is necessary to distinguish single-use plants, trees and livestock that produce an output once only (when the plants or trees are cut down or uprooted or the livestock slaughtered) from trees (including vines and shrubs) and livestock that are used repeatedly or continuously for more than one year to produce outputs such as fruit, nuts, rubber, milk, wool, power, transportation and entertainment. Work-in-progress should be recorded for single use resources. For repeat yield resources, being cultivated on own account, or under an agreed contract with another unit, the growth is counted as fixed capital formation and so excluded from inventories. Any remaining cultivation of resources with repeat yields should be included in work-in-progress. This may be the case for nurseries and breeders of race horses or other special animals, for example.

Other work-in-progress

10.141 ***Other work-in-progress consists of output (other than on cultivated biological resources) that is not yet sufficiently processed to be in a state in which it is normally supplied to other institutional units.***

Finished goods

10.142 ***Finished goods consist of goods produced as outputs that their producer does not intend to process further before supplying them to other institutional units***. A good is finished when its producer has completed his intended production process, even though it may subsequently be used as an intermediate input into other processes of production. Thus, inventories of coal produced by a mining enterprise are classified as finished products, although inventories of coal held by a power station are classified under materials and supplies. Inventories of batteries produced by a manufacturer of batteries are finished goods, although inventories of the same batteries held by manufacturers of vehicles and aircraft are classified under materials and supplies.

10.143 Inventories of finished goods may be held only by the enterprises that produce them. Finished goods entering inventories are valued at the basic prices of those goods at the times the entries take place; finished goods withdrawn from inventories are valued at the basic prices at the time when their withdrawals take place. Current losses of finished goods resulting from physical deterioration or recurrent accidental damage or pilfering should be valued at the prices at the time when the losses occur.

Military inventories

10.144 ***Military inventories consist of single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems.*** As noted above in the discussion of weapons systems as fixed capital, most single-use items are treated as inventories but some types of missiles with highly destructive capability may be treated as fixed capital because of their ability to provide an ongoing deterrence service against aggressors.

Goods for resale

10.145 ***Goods for resale are goods acquired by enterprises, such as wholesalers or retailers, for the purpose of reselling them to their customers.*** Goods for resale are not processed further by the enterprises that purchase them, except for presenting them for resale in ways that are attractive to their customers. Thus, goods for resale may be transported, stored, graded, sorted, washed, packaged, etc. by their owners but are not otherwise transformed.

10.146 Goods for resale entering the inventories of the enterprises are valued at their actual or estimated purchasers' prices. These prices include any additional transportation charges paid to enterprises other than the suppliers of the goods, but not the costs of any transport services produced on own account by the enterprise taking delivery. In principle, goods acquired by barter are valued at their estimated purchasers' prices at the time of acquisition. However, because there are no taxes or margins on bartered goods, the purchaser's price is the same as the basic price.

10.147 Goods for resale withdrawn from inventories are valued at the purchasers' prices at which they can be replaced at the time they are withdrawn as distinct from the purchasers' prices that may have been paid for them when they were acquired. Reductions in inventories are valued in this way whether the goods withdrawn are sold at a profit or at a loss, or even not sold at all as a result of physical deterioration or recurrent accidental damage or pilfering.

10.148 By convention, goods acquired by government for distribution as social transfers in kind but that have not yet been so delivered are also included in goods for resale.

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3. Acquisitions less disposals of valuables

The asset boundary

10.149 Valuables include precious metals and stones, antiques and other art objects and other valuables. However, not all items that may be described by one of these titles should necessarily be included as a valuable in the balance sheet of the owner. The intent of the heading is to capture those items that are often regarded as alternative forms of investment. At various times, investors may choose to buy gold rather than a financial asset and pension funds have been known to buy "old master" paintings when the prices of financial assets were behaving in a volatile manner. Individuals (households in SNA terminology) may also choose to acquire some of these items knowing that they may be sold if there is a need to raise funds.

Valuation

10.150 Costs of ownership transfer, such as valuers' and auctioneers' margins, are often incurred when valuables are exchanged. As with other non-financial assets, these costs are treated as gross capital formation and included in the value of the items when recorded in the balance sheet.

Transactions in valuables

10.151 A possible categorization of valuables is: precious metals and stones; antiques and other art objects; and other valuables. This list should be regarded as indicative and supplementary rather than a standard breakdown. The context of each category is described to assist in identifying and valuing valuables.

Precious metals and stones

10.152 Precious metals and stones are treated as valuables when they are not held by enterprises for sale or use as inputs into processes of production nor are held as monetary gold and are not held as a financial asset in the form of unallocated metal accounts.

Antiques and other art objects

10.153 Paintings, sculptures, etc., recognized as works of art and antiques are treated as valuables when they are not held by enterprises for sale. In principle, museum exhibits are included under valuables.

Other valuables

10.154 Other valuables not elsewhere classified include such items as collections of stamps, coins, china, books etc. that have a recognized market value and fine jewellery, fashioned out of precious stones, and metals of significant and realizable value.

C. Consumption of fixed capital

10.155 The concept of consumption of fixed capital is first described and defined in chapter 6 in connection with the difference between gross and net value added and then carries through all subsequent balancing items that may also be shown gross or net of consumption of fixed capital. The capital account is where the counterpart entry to the entry in the production account appears though unusually it appears on the same side as in the production account but with a negative sign rather than on the opposite side of the account.

10.156 Consumption of fixed capital constitutes a negative change in the value of the fixed assets used in production. Consumption of fixed capital must be measured with reference to a given set of prices, that is, the average prices of the type of asset of constant quality over the period. It may then be defined as the decline, between the beginning and the end of the accounting period, in the value of the fixed assets owned by an enterprise, as a result of their physical deterioration and normal rates of obsolescence and accidental damage. Consumption of fixed capital may be deducted from gross fixed capital formation to obtain net fixed capital formation to match the balancing item of net saving carried down from the use of income account.

10.157 Consumption of fixed capital applies to all fixed assets and for every year the asset is in use in production. Because costs of ownership transfer are treated as fixed assets, including terminal costs, they are also subject to consumption of fixed capital. All buildings and other structures are assumed to have finite service lives, even when properly maintained, so that consumption of fixed capital is calculated for all such fixed assets, including railways, roads, bridges, tunnels, airports, harbours, pipelines, dams, etc. Service lives are not determined purely by physical durability, and many pieces of equipment as well as buildings and structures are eventually scrapped because they have become obsolete. However, the service lives for some structures such as certain roads, bridges, dams, etc., may be as long as a century or more.

1. Costs of ownership transfer

10.158 The costs of ownership transfer on the acquisition and disposal of a fixed asset are treated as gross fixed capital formation and included in the value of the asset on acquisition and disposal as recorded in the capital account and in the value of the asset in the balance sheet. However, although consumption of fixed capital is calculated on the value of the asset excluding the costs of ownership transfer over the whole of its life, the consumption of fixed capital in respect of the costs of ownership transfer is calculated

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only over the period that the owner expects to hold the asset. In this way there are no remaining costs of ownership transfer included in the value of the asset when it is sold to a new owner, so the amount the old owner receives is equal to the amount the new owner pays except for any costs of ownership transfer incurred by the new owner.

10.159 In the case of natural resources other than land, the costs of ownership transfer are shown as transactions in gross fixed capital formation in the capital account separately from the acquisition and disposal of natural resources, but the value of the natural resources in the balance sheet includes the value of the costs of ownership transfer. The costs of ownership transfer are still written off according to the expected length of time the owner will hold the asset and treated as consumption of fixed capital in the relevant production account.

10.160 In the case of land, costs of ownership transfer are treated as a part of land improvement, which is itself treated as a produced asset. The value of land improvements other than the costs of ownership transfer is written off over a suitably long period but the costs of ownership transfer are written off over the period the owner expects to own the land.

2. Terminal costs

10.161 In principle, the value of consumption of fixed capital cumulated over the life of an asset, once price changes are taken into account, should be equal to the difference between the acquisition and disposal values. In the case of assets with actual costs at the time of disposal, this means that consumption of fixed capital should cover anticipated terminal costs. Terminal costs should therefore be written off over the whole life of the asset, regardless of the number of owners during the life of the asset. Immediately before the disposal, the value of the asset will have a negative value which is reduced to zero when the terminal costs incurred are treated as gross fixed capital formation. The apparent oddity of an asset with negative value reflects the fact that the owner not only could not sell it but would have to pay another unit to take over responsibility for the asset.

10.162 In practice, it may be difficult to predict terminal costs accurately. In that case, cumulated consumption of fixed capital may not cover all the terminal costs. However, the full costs are still treated as gross fixed capital formation and any amount not already covered by consumption of fixed capital during the life of the asset is written off at the time the costs are incurred as consumption of fixed capital. This is a pragmatic recommendation and will lead to NDP being overstated over the time the asset is in use and understated in the year when the remaining costs are incurred.

10.163 There is further discussion on the treatment of costs of ownership transfer and terminal costs in chapter 20.

D. Acquisitions less disposals of non-produced non-financial assets

10.164 There are three distinct types of non-produced non-financial assets in the SNA: natural resources, contracts, leases and licences, and goodwill and marketing assets. These three types of assets have little in common except that they are all non-produced and non-financial. A separate section discusses each of the three.

10.165 Table 10.4 shows table 10.1 expanded to show the standard detail of non-produced non-financial assets. Each of the categories is discussed under the appropriate section.

1. Natural resources

The asset boundary

10.166 Not all environmental resources qualify as economic assets. It is useful, therefore, to delineate those naturally occurring resources that fall within the asset boundary of the SNA from those that do not.

10.167 In the first place, it must be noted that the accounts and balance sheets of the SNA are compiled for institutional units or groups of units and can only refer to the values of assets that belong to the units in question. Only those naturally occurring resources over which ownership rights have been established and are effectively enforced can therefore qualify as economic assets and be recorded in balance sheets. They do not necessarily have to be owned by individual units, and may be owned collectively by groups of units or by governments on behalf of entire communities. Certain naturally occurring resources, however, may be such that it is not feasible to establish ownership over them: for example, air, or the oceans. In addition, there may be others that cannot be treated as economic assets because they do not actually belong to any particular units. These include not only those whose existence is unknown but also those, including uncultivated forests, that may be known to exist but remain so remote or inaccessible that, in practice, they are not under the effective control of any units.

10.168 Secondly, in order to comply with the general definition of an economic asset, natural assets must not only be owned but must also be capable of bringing economic benefits to their owners, given the technology, scientific knowledge, economic infrastructure, available resources and set of relative prices prevailing on the dates to which the balance sheet relates or expected to do so in the near future. Thus, known deposits of minerals that are not commercially exploitable in the foreseeable future are not included in the balance sheets of the SNA, even though they may possibly become commercially exploitable at a later date as a result of major, unforeseen advances in technology or major changes in relative prices.

10.169 Naturally occurring assets in the form of biota (trees, vegetation, animals, birds, fish, etc.) are renewable. The

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growth and regeneration of trees, crops or other vegetation or the rearing of animals, birds, fish, etc., may take place under the direct control, responsibility and management of institutional units. In this situation, the assets are cultivated, and the activity is treated as falling within the production boundary of the SNA. The growth of animals, birds, fish, etc., living in the wild, or growth of uncultivated vegetation in forests, is not an economic process of production so that the resulting assets cannot be classed as produced assets. Nevertheless, when the forests or the animals, birds, fish, etc. are actually owned by institutional units and are a source of benefit to their owners, they constitute economic assets. When wild animals, birds, fish, etc. live in locations such that no institutional unit is able to exercise effective ownership rights over them they fall outside the asset boundary. Similarly, the forests or other vegetation growing in such regions are not counted as economic assets. On the other hand, fish stocks in the high seas which are subject to international agreement on how much may be caught by individual countries may be counted as falling within the asset boundary.

Ownership

10.170 All owners and purchasers of land and immovable natural resources within the economic territory are deemed to have a centre of economic interest in the economy. If an owner or purchaser would not otherwise qualify as a resident unit, a notional resident unit is created for this purpose. The notional resident unit is deemed to purchase the land while the non-resident is deemed to purchase the equity of the notional unit and thus acquires a financial instead of a non-financial asset. Thus, all purchases and sales of land normally take place between resident units. The one exception is when the boundaries of the economic territory itself are changed, for example, when a foreign government, or international organization, purchases or sells land that is added to, or taken away from, the enclave in which its embassy or offices are located.

10.171 Moreover, as purchases and sales of land and natural resources are recorded excluding costs of ownership transfer for both buyers and sellers, the total value of the purchases and sales of land and natural resources must be equal to each other at the level of the total economy, although not at the level of individual sectors or subsectors.

10.172 Similarly, it is assumed that extraction of subsoil resources can only be undertaken by resident institutional units. As soon as an enterprise starts to prepare to establish for extraction, for example by obtaining the requisite licences, it is assumed to become resident at that point.

Valuation

10.173 Since natural resources are non-produced, the costs of ownership transfer, which are part of fixed capital

Table 10.4:The capital account - non-produced non-financial assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Gross capital formation	308	8	38	55	5	414			414
Net capital formation	151	- 4	11	32	2	192			192
Gross fixed capital formation	280	8	35	48	5	376			376
Consumption of fixed capital	- 157	- 12	- 27	- 23	- 3	- 222			- 222
Gross fixed capital formation by type of asset									
Changes in inventories	26	0	0	2	0	28			28
Acquisitions less disposals of valuables	2	0	3	5	0	10			10
Acquisitions less disposals of non-produced assets	- 7	0	2	4	1	0			0
Acquisitions less disposals of natural resources	- 6	0	2	3	1	0			0
Natural resources									
Land									
Mineral and energy reserves									
Non-cultivated biological resources									
Water resources									
Other natural resources									
Radio spectra									
Other									
Acquisitions less disposals of contracts, leases and licences	- 1	0	0	1	0	0	0		0
Contracts, leases and licences									
Marketable operating leases									
Permits to use natural resources									
Permits to undertake specific activities									
Entitlement to future goods and services on an exclusive basis									
Purchases less sales of goodwill and marketing assets	0	0				0	0		0
Capital transfers, receivable									
Capital transfers, payable									
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0

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formation, must be shown separately in the capital account and not as part of the value of the transaction in the non-produced asset. For land, the costs of ownership transfer are treated, by convention, as being included with land improvements.

Transactions in natural resources

10.174 Transactions in natural resources are shown as acquisitions less disposals of the asset in question, according to the classification given in table 10.4.

Land

10.175 ***Land consists of the ground, including the soil covering and any associated surface waters, over which ownership rights are enforced and from which economic benefits can be derived by their owners by holding or using them.*** The value of land excludes any buildings or other structures situated on it or running through it; cultivated crops, trees and animals; mineral and energy resources; non-cultivated biological resources and water resources below the ground. The associated surface water includes any inland waters (reservoirs, lakes, rivers, etc.) over which ownership rights can be exercised and that can, therefore, be the subject of transactions between institutional units. However, water bodies from which water is regularly extracted, against payment, for use in production (including for irrigation) are included not in water associated with land but in water resources.

10.176 As explained above, land improvements and the costs of ownership transfer on land are treated as fixed assets and shown separately. In consequence, acquisitions and disposals of natural land are recorded at the same value for both the purchaser and the seller. Since both parties to the transaction must be residents, it follows that, for the economy as a whole, the aggregate value of total purchases of land must equal the aggregate value of total sales, although this is not generally true at lower levels of aggregation, such as individual sectors or subsectors. The value of acquisitions less disposals of land is thus zero for the economy as a whole (excluding transactions that change the boundary of the economic territory itself, as noted in paragraph 10.170.

10.177 Buildings, or other structures, and plantations are often purchased or sold together with the land on which they are situated, without separate valuations being placed on the structures and the land. Even if it is not feasible to obtain separate valuations, as may be the case for existing structures, it may be possible to determine which out of the land or the structure accounts for most of their combined value and to classify the transaction as the purchase of land or of a structure depending upon which has the greater value. If it is not possible to determine whether the land or the structure is the more valuable, by convention, the transaction should be classified as the purchase of a structure, that is, as gross fixed capital formation. A similar convention holds for plantations.

10.178 The SNA does not specify a disaggregation of land but it is recommended that if a disaggregation is required, it should be according to that used in the SEEA.

Mineral and energy resources

10.179 ***Mineral and energy resources consist of mineral and energy reserves located on or below the earth's surface that are economically exploitable, given current technology and relative prices.*** Ownership rights to the mineral and energy resources are usually separable from those to the land itself. Mineral and energy resources consist of known reserves of coal, oil, gas or other fuels and metallic ores, and non-metallic minerals, etc., that are located below or on the earth's surface, including reserves under the sea. The transactions recorded in the capital account refer only to those mineral and energy resources over which ownership rights have been established. In most cases, mineral and energy resources may be owned separately from land below which they are located, but in other cases the law may stipulate that the ownership of the mineral and energy resources is inseparably linked to that of the land.

10.180 The transactions in mineral and energy resources recorded in the capital account refer to acquisitions or disposals of deposits of mineral and energy resources in which the ownership of such assets passes from one institutional unit to another. Reductions in the value of known reserves of mineral and energy resources resulting from their depletion as a result of extracting the assets for purposes of production are not recorded in the capital account but in the other changes in the volume of assets account.

10.181 Again if a disaggregation is required, it is recommended to follow that in the SEEA.

Non-cultivated biological resources

10.182 ***Non-cultivated biological resources consist of animals, birds, fish and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth or regeneration is not under the direct control, responsibility and management of institutional units.*** Examples are virgin forests and fisheries within the territory of the country. Only those resources that are currently, or are likely soon to be, exploitable for economic purposes should be included.

10.183 In the SEEA, this category is further split into aquatic resources, animal resources other than aquatic resources, tree, crop and plant resources. Aquatic resources are further split into aquatic resources in national waters including the exclusive economic zone (EEZ) and those in the high seas.

Water resources

10.184 ***Water resources consist of surface and groundwater resources used for extraction to the extent that their scarcity leads to the enforcement of ownership or use rights, market valuation and some measure of economic control.*** If it is not possible to separate the value of surface water from the associated land, the whole should be allocated to the category representing the greater part of the total value.

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Other natural resources

10.185 The category other natural resources currently includes radio spectra. Given the increasing move to carry out environmental policy by means of market instruments, it may be that other natural resources will come to be recognized as economic assets. If so, this is the category to which they should be allocated.

2. Contracts, leases and licences

The asset boundary

10.186 ***Contracts, leases and licences are treated as assets only when both the following conditions are satisfied.***

a. The terms of the contract, lease or licence specify a price for the use of an asset or provision of a service that differs from the price that would prevail in the absence of the contract, lease or licence.

b. One party to the contract must be able legally and practically to realize this price difference.

The second condition presupposes that a market for the contract exists. It is recommended that in practice contracts, leases and licences should only be recorded in the accounts when the holder does actually exercise his right to realize the price difference.

10.187 Part 5 of chapter 17 discusses the whole question of the treatment of leases within the SNA and should be consulted if there is doubt about whether a contract, lease or licence should be treated as an asset.

10.188 As with natural resources, the costs of ownership transfer on the acquisition and disposal of contracts, leases and licences should be shown separately as gross capital formation.

Types of assets included in contracts, leases and licences

10.189 There are four classes of contracts, leases and licences considered to be assets in the SNA: marketable operating leases, permits to use natural resources, permits to undertake specific activities and entitlement to future goods and services on an exclusive basis.

Marketable operating leases

10.190 ***Marketable operating leases are third-party property rights relating to fixed assets***. An example is where a tenant of a building has a fixed rental but the building could fetch a higher rental in the absence of the lease. If, in these circumstances, the tenant is able both legally and practically to sublet the building, then he has an asset of the type of a marketable operating lease.

Permits to use natural resources

10.191 ***Permits to use natural resources are third-party property rights relating to natural resources.*** An example is where a person holds a fishing quota and he is able, again both legally and practically, to sell this to another person.

Permits to undertake specific activities

10.192 ***A permit to undertake a specific activity is one where***:

a. the permits are limited in number and so allow the holders to earn monopoly profits,

b. the monopoly profits do not come from the use of an asset belonging to the permit-issuer,

c. a permit holder is able both legally and practically to sell the permit to a third party.

Such permits are issued mainly by government but may also be issued by other units.

10.193 When governments restrict the number of cars entitled to operate as taxis or limit the number of casinos permitted by issuing licences, they are in effect creating monopoly profits for the approved operators and recovering some of the profits as the fee. The incentive to acquire such a licence is that the licensee believes that he will thereby acquire the right to make monopoly profits at least equal to the amount he paid for the licence. This stream of future income is treated as an asset if the licensee can realize this by on-selling the asset. The type of asset is described as a permit to undertake a specific activity. The value of the asset is determined by the future stream of monopoly profits.

10.194 It is less common for units other than government to be able to limit the participation in a given activity. One instance may be where the owner of property limits the numbers of units allowed to operate on his property, for example a hotel with a policy of only allowing one taxi firm to pick up guests. In this sort of case, the permits are treated as giving rise to payments for services. There is no reason in principle why such permits could not be treated as assets if they were marketable though this may not be a common situation.

Entitlement to future goods and services on an exclusive basis

10.195 ***Entitlement to future goods and services on an exclusive basis relates to the case where one party which has contracted to purchase goods or services at a fixed price at a time in the future is able to transfer the obligation of the second party to the contract to a third party.*** Examples are footballers' contracts, a publisher's exclusive right to publish new works by a named author or issue recordings by named musicians.

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3. Goodwill and marketing assets

10.196 Potential purchasers of an enterprise are often prepared to pay a premium above the net value of its individually identified and valued assets and liabilities. This excess is described as "goodwill" and reflects the value of corporate structures and the value to the business of an assembled workforce and management, corporate culture, distribution networks and customer base. It may not have value in isolation from other assets, but it enhances the value of those other assets. Looked at another way, it is the addition to the value of individual assets because they are used in combination with each other.

10.197 Goodwill cannot be separately identified and sold to another party. The value has to be derived by deducting from the sale value of the corporation the value of assets and liabilities classified elsewhere within the asset boundary of the SNA. (In practice, since it is estimated as a residual, an estimate of goodwill will also reflect errors and omissions in the valuation of other assets and liabilities.)

10.198 As well as residual errors, the value of goodwill may include the value to the corporation of items known as marketing assets***. Marketing assets consist of items such as brand names, mastheads, trademarks, logos and domain names***. A brand can be interpreted as far more than just a corporate name or logo. It is the overall impression a customer or potential customer gains from their experience with the company and its products. Interpreted in that wider sense it can also be seen to encompass some of the characteristics of goodwill such as customer loyalty.

10.199 ***The value of goodwill and marketing assets is defined as the difference between the value paid for an enterprise as a going concern and the sum of its assets less the sum of its liabilities, each item of which has been separately identified and valued.*** Although goodwill is likely to be present in most corporations, for reasons of reliability of measurement it is only recorded in the SNA when its value is evidenced by a market transaction, usually the sale of the whole corporation. Exceptionally, identified marketing assets may be sold individually and separately from the whole corporation in which case their sale should also be recorded under this item.

E. Capital transfers

1. Capital versus current transfers

10.200 Capital transfers are unrequited transfers where either the party making the transfer realizes the funds involved by disposing of an asset (other than cash or inventories), by relinquishing a financial claim (other than accounts receivable) or the party receiving the transfer is obliged to acquire an asset (other than cash or inventories) or both conditions are met. Capital transfers are often large and irregular but neither of these are necessary conditions for a transfer to be considered a capital rather than a current transfer.

Table 10.5:The capital account - capital transfers - changes in liabilities and net worth

Changes in liabilities and net worth

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Saving, net	71	2	- 62	192	2	205			205
Current external balance							- 13		- 13
Gross capital formation								414	414
Net capital formation								192	192
Gross fixed capital formation								376	376
Consumption of fixed capital								- 222	- 222
Gross fixed capital formation by type of asset									
Changes in inventories								28	28
Acquisitions less disposals of valuables								10	10
Acquisitions less disposals of non-produced assets								0	0
Capital transfers, receivable	33	0	6	23	0	62	4		66
Capital taxes, receivable			2			2			2
Investment grants, receivable	23	0	0	0	0	23	4		27
Other capital transfers, receivable	10	0	4	23	0	37			37
Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1		- 66
Capital taxes, payable	0	0	0	- 2	0	- 2	0		- 2
Investment grants, payable			- 27			- 27			- 27
Other capital transfers, payable	- 16	- 7	- 7	- 3	- 3	- 36	- 1		- 37
Changes in net worth due to saving and capital transfers	88	- 5	- 90	210	- 1	202	- 10		192

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10.201 A current transfer reduces the income and consumption possibilities of the first party and increases the income and consumption possibilities of the second party. Current transfers are therefore not linked to, or conditional on, the acquisition or disposal of assets by one or both parties to the transaction.

10.202 Some cash transfers may be regarded as capital by one party to the transfer but as current by the other. For example, the payment of an inheritance tax may be regarded as the transfer of capital by the taxpayer but be regarded as a current receipt by government because it receives many such transfers. Similarly, a large country that makes investment grants to a number of smaller countries may regard the grants as current transfers even though they are specifically intended to finance the acquisition of capital assets. In an integrated system of accounts, such as the SNA, it is not feasible, however, to classify the same transaction differently in different places. Accordingly, a transfer should be classified as capital for both parties even if it involves the acquisition or disposal of an asset, or assets, by only one of the parties. By convention, social transfers are always treated as current transfers.

10.203 There may be cases in which it is difficult to decide on the evidence available whether to classify a cash transfer as current or capital. When there is serious doubt, the transfer should be classified as current rather than capital. It should be noted, however, that the decision as to which way to classify a transfer has important consequences for the allocation of saving between sectors and subsectors, and possibly between the economy as a whole and the rest of the world. Other things being equal, a current transfer increases the saving of the recipient and reduces that of the donor, whereas a capital transfer does not affect the saving of either party. If, therefore, cash transfers are incorrectly classified between current and capital, the saving behaviour recorded for the units or subsectors involved may be misleading for purposes of economic analysis and policymaking.

2. Transfers in cash and in kind

10.204 As explained in chapter 9, transfers may take place in cash or in kind. A capital transfer in kind necessarily concerns the change of ownership of a product previously recorded as a non-financial asset in the accounts of the donor. In this case, the four entries relating to the transaction are all recorded in the capital account. Two relate to the transfer of wealth implied by a capital transfer; the other two are shown as disposal of the asset being transferred by the donor and its acquisition by the recipient. The treatment of fixed assets produced by communal construction and then transferred to government to maintain is discussed in paragraph 10.58.

10.205 All other capital transfers have two entries in the capital account and two in the financial account. In the case of debt forgiveness, the two entries in the financial account show the reduction in the debt liability of the recipient towards the donor and the claim of the donor on the recipient. Other capital transfers are recorded as a transfer in cash and show a decrease in cash or deposits of the donor and an increase by the recipient.

Valuation

10.206 The value of a non-financial asset being transferred is the estimated price at which the asset, whether new or used, could be sold on the market plus any transport, installation or other costs of ownership transfer incurred by the donor but excluding any such charges incurred by the recipient. Transfers of financial assets, including the cancellation of debts, are valued in the same way as other acquisitions or disposals of financial assets or liabilities.

3. Capital taxes

10.207 ***Capital taxes consist of taxes levied at irregular and infrequent intervals on the values of the assets or net worth owned by institutional units or on the values of assets transferred between institutional units as a result of legacies, gifts inter vivos or other transfers.*** They include capital levies and taxes on capital transfers:

a. Capital levies consist of taxes on the values of the assets or net worth owned by institutional units levied at irregular, and very infrequent, intervals of time. Capital levies are treated as exceptional both by units concerned and by the government. They may be payable by households or enterprises. They include betterment levies: that is, taxes on the increase in the value of agricultural land due to planning permission being given by government units to develop the land for commercial or residential purposes (*GFSM2001* tax code 1133; OECD 4500));

b. Taxes on capital transfers consist of taxes on the values of assets transferred between institutional units. They consist mainly of inheritance taxes, or death duties, and gift taxes, including gifts inter vivos made between members of the same family to avoid, or minimize, the payment of inheritance taxes. They do not include taxes on sales of assets as these are not transfers (*GFSM2001* tax code 1134; OECD 4300).

4. Investment grants

10.208 ***Investment grants consist of capital transfers made by governments to other resident or non-resident institutional units to finance all or part of the costs of their acquiring fixed assets.*** The recipients are obliged to use investment grants for purposes of gross fixed capital formation, and the grants are often tied to specific investment projects, such as large construction projects. If the investment project continues over a long period of time, an investment grant in cash may be paid in instalments. Payments of instalments continue to be classified as capital transfers even though they may be recorded in a succession of different accounting periods.

10.209 Investment grants in kind consist of transfers of transport equipment, machinery and other equipment by governments to other resident or non-resident units and also the direct provision of buildings or other structures for resident or non-resident units. These may be constructed by enterprises owned by the donor government or by other enterprises that are paid directly by the donor government. In such cases, a capital transfer in cash is usually recorded

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followed by purchase of the items actually transferred in kind. Exceptionally, if the transfer is of an existing asset, and the recipient is resident, the transfer of ownership of the asset may be recorded as negative capital formation by government and positive capital formation by the recipient, but a capital transfer is still also recorded so that the balance sheet of both parties correctly reflects the change in net worth that has taken place.

5. Other capital transfers

10.210 ***Other capital transfers consist of all capital transfers except capital taxes and investment grants.*** One notable category included here is the cancellation of debt by mutual agreement between the creditor and the debtor. Such a cancellation is treated as a capital transfer from the creditor to the debtor equal to the value of the outstanding debt at the time of cancellation. It includes, but is not confined to, the cancellation of debt owed by non-residents to residents, and vice versa.

10.211 However, the unilateral writing off of debt is not a transaction between institutional units and therefore does not appear either in the capital account or the financial account of the SNA. If the creditor accepts such a write off or default, it should be recorded in the other changes in the volume of assets account of the creditor and the debtor. Provisions for bad debt are treated as bookkeeping entries that are internal to the enterprise and do not appear in the SNA except in the case of expected losses on non-performing loans, which appear as memorandum items in the balance sheets. The unilateral repudiation of debt by a debtor is also not a transaction and is not recognized in the SNA.

10.212 Capital transfers may take various other forms, of which some examples are given below:

a. Major payments in compensation for extensive damages or serious injuries not covered by insurance policies. The payments may be awarded by courts of law or settled out of court. They may be made to resident or non-resident units. They include payments of compensation for damages caused by major explosions, oil spillages, the side effects of drugs, etc.;

b. Exceptionally large insurance settlements in the wake of a disaster. For more details on when this is the appropriate form of recording see chapter 17;

c. Transfers from government units to publicly or privately owned enterprises to cover large operating deficits accumulated over two or more years;

d. Transfers from central government to units at lower levels of government to cover some, or all, of the costs of gross fixed capital formation or large expenditure deficits accumulated over two or more years;

e. Legacies or large gifts inter vivos, including legacies to NPIs;

f. Exceptionally large donations by households or enterprises to NPIs to finance gross fixed capital formation: for example, gifts to universities to cover the costs of building new residential colleges, libraries, laboratories, etc.;

g. Transfers of responsibility for pension entitlements, for example when general government assumes responsibility for pensions provision from an employer;

h. Community built assets where responsibility for maintenance is then assumed by government or by an NPISH.

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Chapter 11: The financial account

A. Introduction

11.1 The financial account is the final account in the full sequence of accounts that records transactions between institutional units. Net saving is the balancing item of the use of income accounts, and net saving plus net capital transfers receivable or payable can be used to accumulate non-financial assets. If they are not exhausted in this way, the resulting surplus is called net lending. Alternatively, if net saving and capital transfers are not sufficient to cover the net accumulation of non-financial assets, the resulting deficit is called net borrowing. This surplus or deficit, net lending or net borrowing, is the balancing item that is carried forward from the capital account into the financial account. The financial account does not have a balancing item that is carried forward to another account, as has been the case with all the accounts discussed in previous chapters. It simply explains how net lending or net borrowing is effected by means of changes in holdings of financial assets and liabilities. The sum of these changes is conceptually equal in magnitude, but on the opposite side of the account, to the balancing item of the capital account.

11.2 The financial account records transactions that involve financial assets and liabilities and that take place between resident institutional units and between resident institutional units and the rest of the world. The left-hand side of the account (table 11.1) records acquisitions of financial assets less disposals, while the right-hand side records incurrence of liabilities less their repayment.

1. Financial assets and liabilities

11.3 As described in chapter 3, an asset is defined as follows. ***An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another.***

11.4 Benefits are exchanged by means of payments. From this a financial claim, and hence a liability, can be defined. There are no non-financial liabilities recognized in the SNA, thus the term liability necessarily refers to a liability that is financial in nature.

11.5 ***A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor).*** The most common circumstance in which a liability is established is a legally binding contract that specifies the terms and conditions of the payment(s) to be made and payment according to the contract is unconditional.

11.6 In addition, a liability may be established not by contract but by long and well-recognized custom that is not easily refuted. Some payments by government to individuals fall under this category. In these cases, the creditor has a valid expectation of payment, despite the lack of a legally binding contract. Such liabilities are called constructive liabilities.

11.7 Whenever either of these types of liability exists, there is a corresponding financial claim that the creditor has against the debtor. ***A financial claim is the payment or series of payments due to the creditor by the debtor under the terms of a liability.*** Like the liabilities, the claims are unconditional. In addition, a financial claim may exist that entitles the creditor to demand payment from the debtor but whereas the payment by the debtor is unconditional if demanded, the demand itself is discretionary on the part of the creditor.

11.8 ***Financial assets consist of all financial claims, shares or other equity in corporations plus gold bullion held by monetary authorities as a reserve asset.*** Gold bullion held by monetary authorities as a reserve asset is treated as a financial asset even though the holders do not have a claim on other designated units. Shares are treated as financial assets even though the financial claim their holders have on the corporation is not a fixed or predetermined monetary amount.

2. Quadruple-entry accounting

11.9 The accounting rules of the SNA, explained in chapter 3, describe how the quadruple principle of accounting is implemented. When a good, service, asset or liability is sold by one institutional unit to another, two pairs of entries are recorded. The first pair records the supply of the item by one unit and the acquisition by the other. The second pair of entries records the second party supplying the means of payment for the item, and the first party receiving this. Similar quadruple entries are required in respect of transactions involving property income and transfers. The second pair of entries usually appears in the financial account though in a few cases of transfers in kind, the second pair of entries may appear as negative and positive final consumption expenditure or disposal and acquisition of a non-financial asset. In all cases except the acquisition of a financial asset or settlement of a liability, the first pair of entries appears in one or more of the non-financial

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accounts. In the case of the exchange of a financial instrument, all four entries appear in the financial account.

11.10 There are thus two reasons for entries in the financial account. The first reason is as counterpart to entries in other accounts; the second is to record transactions involving the exchange of financial assets and liabilities only, so both the original and the counterpart entries are recorded in the financial account.

3. Counterparts of non-financial transactions

11.11 Transactions involving the transfer of ownership of a good or non-financial asset, or the provision of a service or labour almost always entail a counterpart entry in the financial account for means of payment or claims on future means of payment. Even many transactions in kind, such as barter sales and remuneration in kind, conceptually lead to entries in the financial account. If unit A provides a product of value x to unit B, expecting another product of the same value in return, A has a financial claim of x on B. This financial claim is settled and thus no longer needs to be recorded when B fulfils delivery of the product promised. Entries in the financial account are needed when all elements of the in-kind transaction are not completed simultaneously.

11.12 The sale of a good, service, or asset may have as its counterpart a change in currency or transferable deposit. Alternatively, the counterpart may be reflected in the financial account in a trade credit or other category of accounts receivable or payable.

4. Exchanges of financial assets and liabilities

11.13 Whenever one financial asset is exchanged for another or when a liability is repaid with a financial asset, transactions are recorded only in the financial account. These transactions change the distribution of the portfolio of financial assets and liabilities and may change the totals of both financial assets and liabilities, but they do not change the difference between total financial assets and liabilities. For example, trade credits are extinguished by payments. The claim represented by the trade credit no longer exists when the debtor provides means of payment to the creditor. The resulting four entries in the financial account are:

a. the creditor reduces its holdings of trade credits and increases its means of payment (currency or transferable deposits); and

b. the debtor reduces its liabilities (in the form of trade credits) and reduces its financial assets (in the form of means of payment).

11.14 When existing financial assets are exchanged for other financial assets, all entries take place in the financial account and only affect assets. For example, if a debt security such as an existing bond is sold by one institutional unit to another on the secondary market, the seller reduces his holdings of securities and increases his holdings of means of payment by an equal amount. The purchaser increases his holdings of securities and decreases his holdings of means of payment.

11.15 When a new financial asset is created through the incurrence of a liability by an institutional unit, all related entries are also made in the financial account. For example, a corporation may issue short-term securities in exchange for means of payment. The financial account of the corporate sector accordingly shows an increase in liabilities in the form of securities and an increase in financial assets in the form of means of payment; the financial account of the purchasing sector shows a reduction in assets in the form of means of payment and an increase in assets in the form of securities.

5. Net lending

11.16 Some sectors or subsectors are net lenders while others are net borrowers. When institutional units engage in financial transactions with each other, the surplus resources of one sector can be made available by the units concerned for use by other sectors. The financial account indicates how deficit, or net borrowing, sectors obtain the necessary financial resources by incurring liabilities or reducing assets and how the net lending sectors allocate their surpluses by acquiring financial assets or reducing liabilities. The account also shows the relative contributions of various categories of financial assets to these transactions.

Table 11.1:The financial account - concise form - changes in assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net acquisition of financial assets	83	172	- 10	189	2	436	47		483
Monetary gold and SDRs		- 1				- 1	1		0
Currency and deposits	39	10	- 26	64	2	89	11		100
Debt securities	7	66	4	10	- 1	86	9		95
Loans	19	53	3	3	0	78	4		82
Equity and investment fund shares	10	28	3	66	0	107	12		119
Insurance, pension and standardized guarantee schemes	1	7	1	39	0	48	0		48
Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
Other accounts receivable/payable	4	1	5	4	1	15	10		25

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11.17 The evolution of net lending can be seen clearly in table 11.1. Non-financial corporations are shown to have a net borrowing requirement of 72. This requirement is financed by incurring liabilities of 135 and acquiring financial assets of 63; the difference between the two equals net borrowing. Similarly, the household sector, which has a net lending balance of 206, achieves this result by acquiring financial assets of 220 and incurring liabilities of 14.

11.18 Although much borrowing and lending is routed through financial intermediaries, some borrowers can transact directly with non-financial lenders. For example, governments can issue securities in the market; these securities can be purchased by households, non-financial corporations and the rest of the world as well as by financial institutions. In many other cases, financial intermediaries have as their special function the creation of a financial market that links lenders and borrowers indirectly. The financial institution incurs liabilities to net lenders through taking deposits or issuing securities and providing the financial resources thus mobilized to borrowers, for example in the form of loans, holding of debt securities and holdings of equity securities. Thus, their transactions in financial assets and liabilities will be comparatively large relative to other sectors and to the size of their own net lending or borrowing. In table 11.1, the financial corporations sector has a net borrowing of 15, which is financed by net incurrence of liabilities of 182 and net acquisition of financial assets of 167.

11.19 An examination of the financial transactions of the subsectors of the financial corporations sector, in addition to those of the consolidated financial sector, is often useful.

11.20 It is important to note that, for each institutional sector, the financial account indicates the types of financial instruments utilized by that sector to incur liabilities and acquire financial assets. The financial account does not, however, indicate to which sectors the liabilities are incurred and on which sectors the assets indicate financial claims. A more detailed and complex analysis of financial flows between sectors is discussed in chapter 27. The analysis there illustrates debtor or creditor relationships by type of financial asset.

11.21 In the hypothetical case of a closed economy in which resident institutional units do not engage in transactions with non-residents, the total net lending and total net borrowing of the various sectors would have to be equal since the net borrowing requirements of deficit sectors would be met by net lending of surplus sectors. For the economy as a whole, net lending or borrowing would have to be zero. This equality reflects the symmetric nature of financial assets and liabilities. When residents engage in transactions with non-residents, the sum of the net lending and net borrowing of each of the sectors making up the total economy must equal the economy's net lending to, or borrowing from, the rest of the world. In table 11.1 the total economy has acquired financial assets of 436 and incurred liabilities of 426. Net lending for the total economy to the rest of the world is therefore 10.

6. Contingencies

11.22 Many types of contractual financial arrangements between institutional units do not give rise to unconditional requirements either to make payments or to provide other objects of value; often the arrangements themselves do not have transferable economic value. These arrangements, which are often referred to as contingencies, are not actual current financial assets and are not recorded in the SNA. The principal characteristic of contingencies is that one or more conditions must be fulfilled before a financial transaction takes place. One-off guarantees of payment by third parties are contingencies since payment is only required if the principal debtor defaults. Until the default is evident, the value of the one-off guarantee should be shown as a memorandum item. Loan commitments provide a guarantee that funds will be made available but no financial asset exists until funds are actually advanced. Letters of credit constitute promises to make a payment conditional upon the presentation of certain documents specified by contract. Underwritten note issuance facilities (NIFs) provide a guarantee that a potential debtor will be able to sell short-term securities (notes) that he issues and that the bank or banks issuing the facility will take up any notes not sold in the market or will provide equivalent advances. The facility itself is contingent, and the creation of the facility gives rise to no entry in the financial account. Only if the underwriting institution is requested to make funds available will it acquire an actual asset, which is recorded in the financial account.

Table 11.1 (cont):The financial account - concise form - changes in liabilities and net worth

Changes in liabilities and net worth

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0
Net acquisition of liabilities	139	173	93	15	6	426	57		483
Monetary gold and SDRs									
Currency and deposits		65	37			102	- 2		100
Debt securities	6	30	38	0	0	74	21		95
Loans	21	0	9	11	6	47	35		82
Equity and investment fund shares	83	22				105	14		119
Insurance, pension and standardized guarantee schemes		48	0			48	0		48
Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
Other accounts receivable/payable	26	0	9	4		39	- 14		25

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11.23 Certain financial derivatives are not treated as contingent financial assets but as actual assets. These are described in section C below. Standardized guarantees are also treated as giving rise to actual and not contingent liabilities. A standardized guarantee is one where many guarantees of similar characteristics are issued. Even though the probability of any one guarantee being called is uncertain, the fact that there are many similar guarantees means that a reliable estimate of the number of calls under the guarantee can be made. Liabilities of this sort where the size of the liability may be determined probabilistically are often described as provisions. The term liability is used when the fact that payment will be required and the amount of the payment or the way in which the amount will be calculated are agreed. The term provision is used when the fact that a payment will be required is regarded as certain but there is no agreement on how the amount payable will be determined. A contingent liability is one where the size of payment may or may not be known with certainty but there is uncertainty about whether there will be a payment required or not.

11.24 For the purposes of the SNA, the treatment of contingencies is simple. Any payments of fees related to the establishment of contingent arrangements are treated as payments for services. Transactions are recorded in the financial account only when an actual financial asset is created or changes ownership. However, by conferring certain rights or obligations that may affect future decisions, contingent arrangements obviously produce an economic impact on the parties involved. Collectively, such contingencies may be important for financial programming, policy, and analysis. Therefore, where contingent positions are important for policy and analysis, it is recommended that information be collected and presented as supplementary data. Even though no payments may eventually be due for contingent liabilities, the existence of a high level of them may indicate an undesirable level of risk on the part of those units offering them. An example is an overdraft facility on a bank account, which is contingent until exercised.

11.25 Country practices vary in determining which instruments are considered contingent and which are considered actual assets to be recorded in the balance sheet. Flexibility in the application of this recommendation is required to take national practices and variations in the nature of these instruments into account. An example, which is quantitatively important in trade financing, is the bankers' acceptance. A banker's acceptance involves the acceptance by financial institutions of drafts or bills of exchange and the unconditional promise to pay a specific amount at a specified date. The banker's acceptance represents an unconditional claim on the part of the holder and an unconditional liability on the part of the accepting bank; the bank's counterpart asset is a claim on its customer. For this reason, the banker's acceptance is treated as an actual financial asset in the SNA even though no funds may have been exchanged.

11.26 There are other circumstances where future payments are not treated as assets, even though both the size of the payment and the fact that it will be paid are known with a high degree of certainty. One example is that although a bank loan may be granted to an individual using the fact that he is in permanent employment with a regular wage as security, the promise of future earnings is not recognized as a financial asset; nor are future receipts from sales for an enterprise nor a stream of future tax revenue for government.

B. Transactions in financial assets and liabilities

1. The classification of financial assets and liabilities

11.27 Because of the symmetry of financial claims and liabilities, the same classification can be used to portray both assets and liabilities. Further, the same classification is used in all accumulation accounts for financial transactions. Within the SNA, the term "instrument" may be used to relate to the asset or liability aspect of an item on the financial balance sheet. In monetary statistics, some off-balance sheet items may also be described as instruments. The use of the same term in the SNA is for convenience only and does not imply an extension of the coverage of assets and liabilities to include these off-balance-sheet items.

11.28 Two classes of financial assets that cannot properly be equated with identified claims over other designated institutional units are included in the classification of financial instruments. The first class is gold bullion owned by monetary authorities and others subject to the monetary authorities' effective control and held as a financial asset and as a component of foreign reserves. There is no matching liability for gold bullion. The second class is shares, other corporate equity securities and financial participations. These do not have fixed redemption values, as is the case for many other financial assets, but represent claims by the share holders on the net worth of the corporation.

11.29 Table 11.2 shows an elaboration of table 11.1 incorporating the classification of financial instruments. The exact coverage and the definition of each of the items are described in section C along with an explanation of the types of transactions appearing in the financial account that apply to each instrument. The remainder of this section deals with general matters of classification and the application of the accounting rules of the SNA as they apply to transactions in financial instruments.

11.30 The detail in which the classification is employed depends on the institutional sector to be analysed. The types of financial assets in which households transact are more limited than those for other sectors, and sources of information are generally more limited than those for other

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sectors. Financial corporations, on the other hand, transact in the full range of instruments, and information on their operations is often the most detailed and timely of any institutional units. Consequently, a detailed breakdown may be developed for financial corporations. Blanks, rather than zeros in table 11.2 show where entries are conceptually impossible; zeros show that entries are possible but expected to be small.

11.31 The standard items in the classification of financial assets and liabilities provide a useful basis for international comparison of national data. Presentation of data for individual countries, however, must be tailored to meet their analytical needs and to reflect national practices. Thus the particular form of presentation chosen may reflect differing institutional arrangements, the extent and nature of national financial markets, the complexity of financial assets available, and the degree of regulation and other financial control exercised. For this reason, a number of supplementary items are suggested for use in addition to the standard components of the SNA. These are described together with the standard items in section C.

11.32 The classification of financial transactions has become more difficult because of financial innovation that has led to the development and increased use of new and often complex financial assets and other financial instruments to meet the needs of investors with respect to maturity, yield, avoidance of risk, and other factors. The identification issue is further complicated by variations in characteristics of financial instruments across countries and variations in national practices on accounting and classification of instruments. These factors tend to limit the scope for firm recommendations with respect to the treatment of certain transactions within the SNA. Thus, a substantial amount of flexibility, particularly with regard to further breakdowns, is required to match the classification scheme to national capabilities, resources and needs. In particular, further breakdowns of the standard items are desirable for many countries to distinguish important types of assets within categories (such as short-term securities included in measures of money).

2. Negotiability

11.33 Financial claims can be distinguished as to whether they are negotiable or not. A claim is negotiable if its legal ownership is readily capable of being transferred from one unit to another unit by delivery or endorsement. While any financial instrument can potentially be traded, negotiable instruments are designed to be traded on organized and other markets. Negotiability is a matter of the legal form of the instrument. Those financial claims that are negotiable are referred to as securities. Some securities may be legally negotiable, but there is not, in fact, a liquid market where they can be readily bought or sold. Securities include shares and debt securities; listed financial derivatives, such as warrants, are sometimes considered to be securities.

3. Valuation of transactions

11.34 The payments required under a contract relating to financial assets and liabilities almost always represent more than one transaction in the sense used in the SNA. Payments of interest on loans and deposits, as specified by financial institutions, involve both interest as recorded in the SNA and a service fee, which is the service payment to the financial institution for making the loan available or safe-guarding the deposit. The buying and selling prices for foreign currency and shares are usually different; the difference between the buying price and mid-price represents a service provided to and charged to the buyer and the difference between the mid-price and selling price a service provided to and charged to the seller. The mid-price is the mid-point of the buying and selling price at the time a transaction takes place; if the purchase and sale of a share, for instance, do not take place simultaneously, the mid-point for the sale and purchase price at the time of sale and of purchase will not necessarily be equal. For some financial instruments, for example bonds, the increase in value over time is taken to represent interest, not simply a price increase in the value of the asset. In some cases more than one adjustment may be needed to the apparent transaction value to identify and re-route both the service charge and interest associated with the asset.

11.35 It is essential that the value of the transactions in financial instruments recorded in the financial account carefully excludes these service charges and interest payments. Part 4 of chapter 17 describes the adjustments necessary to make these exclusions on an instrument-by-instrument basis.

11.36 Financial transactions with respect to proprietors' net additions to the accumulation of equity in quasi-corporations and changes in households' claims on insurance companies and pension funds raise complex issues of valuation that are referred to in the relevant item under classification of these categories below and more extensively in chapter 17.

4. Time of recording

11.37 In principle, the two parties to a financial transaction should record the transaction at the same point in time. When the counterpart to an entry in the financial account is in another account, the time of recording of financial claims is to be aligned with the time of recording in the other accounts of the transactions that gave rise to the financial claim. For example, when sales of goods or services give rise to a trade credit, the entries in the financial accounts should take place when ownership of the goods is transferred or when the service is provided. Similarly, when accounts receivable or payable arise from transactions related to taxes, compensation of employees and other distributive transactions, the entries in the financial account should take place when the entries are made in the relevant non-financial account.

11.38 When all entries relating to a transaction pertain only to the financial account, they should be recorded when the ownership of the asset is transferred. This point in time is usually clear when the transaction involves the sale of existing financial assets. When the transaction involves the incurrence or redemption of a liability, both parties should record the transaction when the liability is incurred or redeemed. In most cases, this will occur when cash or some other financial asset is paid by the creditor to the debtor or repaid by the debtor to the creditor.

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11.39 In practice, the two parties to a financial transaction may perceive the transaction as being completed at different points in time. This is especially true when trade credits or other accounts payable or receivable are extinguished by final payments and there is a lag between the point in time when payments are made and received, creating a "float". There are several stages at which creditors and debtors could record a transaction. The debtor could record the liability as being extinguished when the cheque or other means of payment is issued to the creditor. A substantial period of time may elapse before the creditor receives the means of payment and records the payment in his accounts. There may then be further time-lags between presentation of a cheque to a bank, cheque clearance, and final settlement of the transaction. Asymmetries in time of recording of this transaction are, therefore, likely to emerge unless the debtor records his transaction on a "cheques cleared" basis, a fairly uncommon accounting procedure. A financial claim exists up to the point that the payment is cleared and the creditor has control of the funds; this would be the optimal point in time for recording the transaction. The float, in practice, may be very large and may affect, in particular, transferable deposits, trade credits, and other accounts receivable. This effect is especially pronounced in countries where the postal system and bank clearing procedures are weak. When the float is significant and accounts for large discrepancies in reporting, it is necessary to develop estimates of the size of the float in order to adjust the accounts.

5. Netting and consolidation

Netting

11.40 As described in chapter 3, netting is a process whereby entries on alternate sides of the account for the same transaction item and same institutional unit are offset against one another. In general the preference of the SNA is to avoid netting where possible but this may not always be possible and for some particular analyses, not always desirable.

11.41 The degree of netting at which transactions in financial assets and liabilities should be recorded depends to a great extent on the analysis for which the data are to be used. In practice, the degree of netting will depend on how data can be reported, and reporting may vary substantially for different classes of institutional units. If detailed information on financial transactions is maintained and reported, gross presentations are possible; if transactions must be inferred from balance sheet data, a certain level of netting is inevitable. A number of degrees of netting can be identified:

a. no netting or fully gross reporting in which purchases and sales of assets are separately recorded, as are the incurrence and repayment of liabilities;

b. netting within a given specific asset, such as subtracting sales of bonds from acquisition of bonds and redemption of bonds from new incurrences of liabilities in the form of bonds;

c. netting within a given category of assets, such as subtracting all disposals of debt securities from all acquisitions of such assets;

d. netting transactions in liabilities against transactions in assets in the same asset category; and

e. netting transactions in groups of liability categories against transactions in assets in the same groups.

11.42 Transactions recorded in the financial account represent net acquisition of assets and net incurrence of liabilities. However, it is clear that, when data are collected on as gross a basis as possible, they can be netted to whatever degree is necessary for a particular use; when data are collected net, they cannot be grossed up. In general, netting beyond the level described in (c) above is discouraged as it hinders the usefulness of the financial accounts for tracing how the economy mobilizes resources from institutional units with positive net lending and transmits them to net borrowers. For detailed flow of funds analysis, gross reporting or netting at level (b) above is desirable, particularly for analysis of securities, but netting at level (c) above still provides useful information on financial flows.

Consolidation

11.43 Consolidation in the financial account refers to the process of offsetting transactions in assets for a given group of institutional units against the counterpart transactions in liabilities for the same group of institutional units. Consolidation can be performed at the level of the total economy, institutional sectors, and subsectors. Different levels of consolidation are appropriate for different types of analysis. For example, consolidation of the financial accounts for the total economy emphasizes the economy's financial position with the rest of the world since all domestic financial positions are netted on consolidation. Consolidation for sectors permits the tracing of overall financial movements between sectors with positive net lending and those with net borrowing and the identification of financial intermediation. Consolidation only at the subsector level for financial corporations can provide much more detail on intermediation and allow, for example, the identification of the central bank's operations with other financial intermediaries. Another area where consolidation can be instructive is within the general government sector when transactions between the various levels of government are consolidated. Chapter 22 makes a specific recommendation in this regard. Within the main sequence of accounts, however, the SNA discourages consolidation.

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C. Recording of individual financial instruments

1. Monetary gold and SDRs

11.44 Monetary gold and Special Drawing Rights (SDRs) issued by the International Monetary Fund (IMF) are assets that are normally held only by monetary authorities.

Monetary gold

11.45 ***Monetary gold is gold to which the monetary authorities (or others who are subject to the effective control of the monetary authorities) have title and is held as a reserve asset.*** It comprises gold bullion (including gold held in allocated gold accounts) and unallocated gold accounts with non-residents that give title to claim the delivery of gold. All monetary gold is included in reserve assets or is held by international financial organizations. Only gold that is held as a financial asset and as a component of foreign reserves is classified as monetary gold. Therefore, except in limited institutional circumstances, gold bullion can be a financial asset only for the central bank or central government. Transactions in monetary gold consist of sales and purchases of gold among monetary authorities. Purchases (sales) of monetary gold are recorded in the financial account of the domestic monetary authority as increases (decreases) in assets, and the counterparts are recorded as decreases (increases) in assets of the rest of the world. Transactions in non-monetary gold (including non-reserve gold held by the monetary authorities and all gold held by financial institutions other than the monetary authorities) are treated as acquisitions less disposals of valuables (if the sole purpose is to provide a store of wealth) and otherwise as final or intermediate consumption, change in inventories, exports or imports. Deposits, loans, and securities denominated in gold are treated as financial assets (not as gold) and are classified along with similar assets denominated in foreign currencies in the appropriate category. A discussion on the treatment of allocated and unallocated gold accounts appears under currency and deposits.

11.46 Gold bullion takes the form of coins, ingots, or bars with a purity of at least 995 parts per thousand; it is usually traded on organized markets or through bilateral arrangements between central banks. Therefore, valuation of transactions is not a problem. Gold bullion held as a reserve asset is the only financial asset with no corresponding liability.

SDRs

11.47 ***Special Drawing Rights (SDRs) are international reserve assets created by the International Monetary Fund (IMF) and allocated to its members to supplement existing reserve assets.*** The Special Drawing Rights Department of the IMF manages reserve assets by allocating SDRs among member countries of the IMF and certain international agencies (collectively known as the participants).

11.48 The mechanism by which SDRs are created (referred to as allocations of SDRs) and extinguished (cancellations of SDRs) gives rise to transactions. These transactions are recorded at the gross amount of the allocation and are recorded in the financial accounts of the monetary authority of the individual participant on the one part and the rest of the world representing the participants collectively on the other.

11.49 SDRs are held exclusively by official holders, which are central banks and certain other international agencies, and are transferable among participants and other official holders. SDR holdings represent each holder's assured and unconditional right to obtain other reserve assets, especially foreign exchange, from other IMF members. SDRs are assets with matching liabilities but the assets represent claims on the participants collectively and not on the IMF. A participant may sell some or all of its SDR holdings to another participant and receive other reserve assets, particularly foreign exchange, in return.

2. Currency and deposits

11.50 Financial transactions in currency and deposits consist of additions to, or disposals of, currency and establishing or incrementing a deposit or making a withdrawal from it. In the case of a deposit, an apparent increase in the value may be due to the payment of interest on an existing stock level. Payments of bank interest are always separated into SNA interest and a charge for financial intermediation services indirectly measured (FISIM). SNA interest is first recorded in the distribution of primary income account and then may be recorded in the financial account as a new deposit. An increase in deposits may correspond to a rundown of currency or vice versa.

11.51 The aggregate of currency, transferable deposits (including inter-bank deposits) and other deposits should always be calculated. A distinction should always be made between currency and deposits in domestic currency and in foreign currency. If it is considered useful to have data for individual foreign currencies, a distinction should be made between currency and deposits in each currency.

Currency

11.52 ***Currency consists of notes and coins that are of fixed nominal values and are issued or authorized by the central bank or government.*** (Commemorative coins that are not actually in circulation should be excluded as should unissued or demonetized currency.) A distinction should be drawn between domestic currency (that is, currency that is the liability of resident units, such as the central bank, other banks and central government) and foreign currencies that are liabilities of non-resident units (such as foreign central banks, other banks and governments). All sectors may hold currency as assets, but normally only central banks and government may issue currency. In some countries, commercial banks are able to issue currency under the authorization of the central bank or government.

11.53 Notes and coins are treated as liabilities at full face value. The cost of producing the physical notes and coins is recorded as government expenditure and not netted against the receipts from issuing the currency.

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Transferable deposits

11.54 Transferable deposits comprise all deposits that:

a. are exchangeable for bank notes and coins on demand at par and without penalty or restriction; and

b. are directly usable for making payments by cheque, draft, giro order, direct debit/credit, or other direct payment facility.

Some types of deposit accounts embody only limited features of transferability; these are excluded from the category of transferable deposits and treated as other deposits. For example, some deposits have restrictions such as on the number of third-party payments that can be made per period or on the minimum size of the individual third-party payments. A transferable deposit cannot have a negative value. A bank current or checking account, for example, is normally treated as a transferable deposit but if it is overdrawn, the withdrawal of funds to zero is treated as the withdrawal of a deposit and the amount of the overdraft is treated as the granting of a loan.

11.55 Transferable deposits should be cross-classified according to:

a. whether they are denominated in domestic currency or in foreign currencies; and

b. whether they are liabilities of resident institutions or the rest of the world.

Inter-bank positions

11.56 Though not strictly accurate, the term bank is frequently used as a synonym for the central bank and other deposit-taking corporations. Banks take deposits from and make loans to all other sectors. There may also be substantial borrowing and lending within the banking subsector, but

Table 11.2:The financial account - full detail - changes in assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net acquisition of financial assets	83	172	- 10	189	2	436	47		483
Monetary gold and SDRs		- 1				- 1	1		0
Monetary gold		0				0	0		0
SDRs		- 1				- 1	1		0
Currency and deposits	39	10	- 26	64	2	89	11		100
Currency	5	15	2	10	1	33	3		36
Transferable deposits	30	- 5	- 27	27	1	26	2		28
Interbank positions		- 5				- 5			- 5
Other transferable deposits	30	0	- 27	27	1	31	2		33
Other deposits	4	0	- 1	27	0	30	6		36
Debt securities	7	66	4	10	- 1	86	9		95
Short-term	10	13	1	3	0	27	2		29
Long-term	- 3	53	3	7	- 1	59	7		66
Loans	19	53	3	3	0	78	4		82
Short-term	14	4	1	3	0	22	3		25
Long-term	5	49	2	0	0	56	1		57
Equity and investment fund shares	10	28	3	66	0	107	12		119
Equity	10	25	3	53	0	91	12		103
Listed shares	5	23	1	48	0	77	10		87
Unlisted shares	3	1	1	2	0	7	2		9
Other equity	2	1	1	3	0	7	0		7
Investment fund shares/units	0	3	0	13	0	16	0		16
Money market fund shares/units	0	2	0	5	0	7	0		7
Non MMF investment fund shares/units	0	1	0	8	0	9	0		9
Insurance, pension and standardized guarantee schemes	1	7	1	39	0	48	0		48
Non-life insurance technical reserves	1	2	0	4	0	7	0		7
Life insurance and annuity entitlements	0	0	0	22	0	22	0		22
Pension entitlements				11		11	0		11
Claim of pension fund on pension managers		3				3	0		3
Entitlements to non-pension benefits				2		2	0		2
Provisions for calls under standardized guarantees	0	2	1	0	0	3	0		3
Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
Financial derivatives	3	8	0	1	0	12	0		12
Options	1	3	0	1	0	5	0		5
Forwards	2	5	0	0	0	7	0		7
Employee stock options	0			2		2			2
Other accounts receivable/payable	4	1	5	4	1	15	10		25
Trade credits and advances	3		1	3		7	8		15
Other accounts receivable/payable	1	1	4	1	1	8	2		10

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this is of different economic significance from their intermediation activities involving other sectors. Chapter 27 describes how a full analysis of the debtor and creditor sector for each instrument can be portrayed. Such an analysis is known as a detailed flow of funds table. However, not all countries are able to provide these tables on a timely basis. Inter-bank positions can usually be identified and are usefully recorded as a separate instrument category. This is one reason to consider separating inter-bank loans and deposits from other loans and deposits. A second reason concerns the calculation of the charge for financial intermediation services indirectly measured (FISIM). This calculation depends on knowing the level of loans and deposits extended by banks to non-bank customers and calculating the difference between the interest the banks receive or pay and the interest when a reference rate is applied to the same levels of loans and deposits. However, there is normally little if any FISIM payable between banks as banks usually borrow from and lend to each other at a risk-free rate. For both these reasons, inter-bank loans and deposits should be separated from other loans and deposits.

11.57 There may be cases where the instrument classification of inter-bank positions is unclear, for example because the parties are uncertain, or one party considers it as a loan and the other a deposit. Therefore, as a convention to assure symmetry, all inter-bank positions other than securities and accounts receivable or payable and changes in the positions are classified under deposits. Chapter 27 describes the detailed flow of funds table which removes the need for identifying inter-bank deposits as a separate category.

Other transferable deposits

11.58 Other transferable deposits are those where one party or both parties to the transaction, or either the creditor or debtor or both of the positions, is not a bank.

Table 11.2 (cont):The financial account - full detail - changes in liabilities and net worth

Changes in liabilities and net worth

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0
Net acquisition of liabilities	139	173	93	15	6	426	57		483
Monetary gold and SDRs									
Monetary gold									
SDRs									0
Currency and deposits		65	37			102	- 2		100
Currency			35			35	1		36
Transferable deposits		26	2			28	0		28
Interbank positions		- 5				- 5			- 5
Other transferable deposits		31	2			33			33
Other deposits		39				39	- 3		36
Debt securities	6	30	38	0	0	74	21		95
Short-term	2	18	4	0	0	24	5		29
Long-term	4	12	34	0	0	50	16		66
Loans	21	0	9	11	6	47	35		82
Short-term	4	0	3	2	2	11	14		25
Long-term	17	0	6	9	4	36	21		57
Equity and investment fund shares	83	22				105	14		119
Equity	83	11				94	9		103
Listed shares	77	7				84	3		87
Unlisted shares	3	4				7	2		9
Other equity	3					3	4		7
Investment fund shares/units		11				11	5		16
Money market fund shares/units		5				5	2		7
Non MMF investment fund shares/units		6				6	3		9
Insurance, pension and standardized guarantee schemes		48	0			48	0		48
Non-life insurance technical reserves		7				7	0		7
Life insurance and annuity entitlements		22				22	0		22
Pension entitlements		11				11	0		11
Claim of pension fund on pension managers		3				3	0		3
Entitlements to non-pension benefits		2				2	0		2
Provisions for calls under standardized guarantees		3	0			3	0		3
Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
Financial derivatives	2	7	0	0	0	9	3		12
Options	2	2	0	0	0	4	1		5
Forwards	0	5	0	0	0	5	2		7
Employee stock options	1	1				2			2
Other accounts receivable/payable	26	0	9	4		39	- 14		25
Trade credits and advances	6	0	6	4	0	16	- 1		15
Other accounts receivable/payable	20	0	3	0	0	23	- 13		10

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Other deposits

11.59 ***Other deposits comprise all claims, other than transferable deposits, that are represented by evidence of deposit.*** Typical forms of deposits that should be included under this classification are savings deposits (which are always non-transferable), fixed-term deposits and non-negotiable certificates of deposit. The category also covers shares or similar evidence of deposit issued by savings and loan associations, building societies, credit unions and the like. Deposits of limited transferability that are excluded from the category of transferable deposits are included here. Claims on the IMF that are components of international reserves and are not evidenced by loans should be recorded in other deposits. (Claims on the IMF evidenced by loans should be included in loans.) Repayable margin payments in cash related to financial derivative contracts (described below) are included in other deposits, as are overnight and very short-term repurchase agreements if they are considered part of the national definition of broad money. Other repurchase agreements should be classified under loans.

11.60 It is possible to hold accounts for both "allocated gold" and "unallocated gold". The distinction is precise, practical and recognized in the balance sheets of units holding these accounts. An allocated gold account gives full outright ownership of the gold and is equivalent to a custody record of title. The unallocated gold account does not give the holder the title to physical gold but provides a claim against the account provider denominated in gold. In effect, therefore, it is a deposit denominated in gold. They are thus treated as deposits in foreign currency. Accounts that are held for allocated gold, on the other hand, are treated as holdings of valuables unless they are held by monetary authorities, or other units authorized by them, as reserves.

11.61 Similar accounts, distinguishing between unallocated and allocated accounts for different precious metals, are also possible and should be treated in a similar way; those for unallocated metals are deposits in foreign currency, those for allocated accounts are holdings of valuables. If the practice of using commodities in this way extends beyond metals, it will be for consideration whether to extend this practice.

11.62 Transferable and other deposits may be held as assets by all sectors. Deposits are most often accepted as liabilities by financial corporations but institutional arrangements in some countries permit non-financial corporations, general government and households to accept deposits as liabilities.

11.63 Other deposits should be cross-classified according to:

a. whether the deposits are denominated in domestic currency or in foreign currencies, and

b. whether they are liabilities of resident institutions or the rest of the world.

3. Debt securities

11.64 ***Debt securities are negotiable instruments serving as evidence of a debt.*** They include bills, bonds, negotiable certificates of deposit, commercial paper, debentures, asset-backed securities, and similar instruments normally traded in the financial markets. ***Bills are defined as securities that give the holders the unconditional rights to receive stated fixed sums on a specified date.*** Bills are issued and usually traded in organized markets at discounts to face value that depend on the rate of interest and the time to maturity. Examples of short-term securities are Treasury bills, negotiable certificates of deposit, bankers' acceptances and commercial paper. ***Bonds and debentures are securities that give the holders the unconditional right to fixed payments or contractually determined variable payments, that is, the earning of interest is not dependent on earnings of the debtors.*** Bonds and debentures also give holders the unconditional rights to fixed sums as payments to the creditor on a specified date or dates.

11.65 Loans that have become negotiable from one holder to another are to be reclassified from loans to debt securities under certain circumstances. For such reclassification, there needs to be evidence of secondary market trading, including the existence of market makers, and frequent quotations of the instrument, such as provided by bid-offer spreads.

11.66 Non-participating preferred stocks or shares are those that pay a fixed income but do not provide for participation in the distribution of the residual value of an incorporated enterprise on dissolution. These shares are classified as debt securities. Bonds that are convertible into equity should also be classified in this category prior to the time that they are converted.

11.67 ***Asset-backed securities and collateralized debt obligations are arrangements under which payments of interest and principal are backed by payments on specified assets or income streams.*** Securitization may also be used as a term to describe this process. Asset-backed securities may be issued by a specific holding unit or vehicle, which issues securities that are sold to raise funds to pay the originator for the underlying assets. Asset-backed securities are classified as debt securities because the security issuers have a requirement to make payments, while the holders do not have a residual claim on the underlying assets; if they did, the instrument would be equity or investment funds shares. Asset-backed securities are backed by various types of financial assets, for example, mortgages and credit card loans, non-financial assets, or by future income streams (such as the earnings of a musician or a government's future revenue) that are not recognized in themselves as an economic asset in macroeconomic statistics.

11.68 ***A banker's acceptance involves the acceptance by a financial corporation, in return for a fee, of a draft or bill of exchange and the unconditional promise to pay a specific amount at a specified date.*** In contrast to acceptances more generally, a banker's acceptance must be tradable. Much international trade is financed this way. Bankers' acceptances are classified under the category of debt securities. The banker's acceptance represents an unconditional claim on the part of the holder and an unconditional liability on the part of the accepting financial corporation; the financial corporation's counterpart asset is a claim on its customer. Bankers' acceptances are treated as financial assets from the time of acceptance, even though funds may not be exchanged until a later stage.

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11.69 ***Stripped securities are securities that have been transformed from a principal amount with coupon payments into a series of zero-coupon bonds, with a range of maturities matching the coupon payment date(s) and the redemption date of the principal amount(s).*** The function of stripping is that investor preferences for particular cash flows can be met in ways different from the mix of cash flows of the original security. Stripped securities may have an issuer different from the original issuer; in which instance, new liabilities are created. There are two cases of stripped securities:

a. When a third party acquires the original securities and uses them to back the issue of the stripped securities. Then new funds have been raised and there is a new financial instrument.

b. When no new funds are raised and the payments on the original securities are stripped and marketed separately by the issuer or through agents (such as strip dealers) acting with the issuer's consent.

11.70 ***Index-linked securities are instruments for which either the coupon payments (interest) or the principal or both are linked to an index such as a price index or the price of a commodity***. The objective is to conserve purchasing power or wealth during a period of inflation in addition to earning interest income. When the coupon payments are index-linked they are treated entirely as interest, as is the case with any variable interest rate financial asset. When the value of the principal is indexed to an indicator that moves in line with a broad-based measure of inflation, the issue price of the security is recorded as the principal and the index payment paid periodically and at maturity is treated as interest. The payment owing to indexation should be recorded as interest (property income) over the life of the security and the counterpart should be recorded under debt securities in the financial account. When a security is indexed to a commodity and thus may be subject to large price fluctuations, a variation on this procedure is recommended. It is explained in detail in part 4 of chapter 17.

Supplementary classifications of debt securities

11.71 A supplementary subclassification of debt securities by maturity into short-term and long-term should be based on the following criteria.

a. Short-term debt securities include those securities that have an original maturity of one year or less. Securities with a maturity of one year or less should be classified as short-term even if they are issued under long-term facilities such as note issuing facilities.

b. Long-term debt securities include those securities that have an original maturity of more than one year. Claims with optional maturity dates, the latest of which is more than one year away, and claims with indefinite maturity dates should be classified as long-term.

In addition, it may sometimes be useful to distinguish listed debt securities from unlisted ones and to record them according to whether they are short- or long-term.

4. Loans

11.72 ***Loans are financial assets that:***

a. are created when a creditor lends funds directly to a debtor, and

b. are evidenced by documents that are not negotiable.

11.73 The category of loans includes overdrafts, instalment loans, hire-purchase credit and loans to finance trade credit. Claims on or liabilities to the IMF that are in the form of loans are also included. An overdraft arising from the overdraft facility of a transferable deposit account is classified as a loan. However, undrawn lines of credit are not recognized as a liability as they are contingent. Securities, repurchase agreements, gold swaps and financing by means of a financial lease may also be classified as loans. However, accounts receivable/payable, which are treated as a separate category of financial assets, and loans that have become debt securities are also excluded from loans.

11.74 ***A securities repurchase agreement is an arrangement involving the provision of securities in exchange for cash with a commitment to repurchase the same or similar securities at a fixed price either on a specified future date (often one or a few days hence, but also further in the future) or with an "open" maturity.*** Securities lending with cash collateral and sale/buy-backs are economically the same as a repurchase agreement; all involve the provision of securities as collateral for a loan or deposit. ***A repo is a securities repurchase agreement where securities are provided for cash with a commitment to repurchase the same or similar securities for cash at a fixed price on a specified future date.*** (It is called a repo from the perspective of the security provider and a reverse repo from the perspective of the security taker.)

11.75 The supply and receipt of funds under a securities repurchase agreement may be treated as a loan or deposit. It is generally a loan, but is classified as a deposit if it involves liabilities of a deposit-taking corporation and is included in national measures of broad money. If a securities repurchase agreement does not involve the supply of cash (that is, there is an exchange of one security for another, or one party supplies a security without collateral), there is no loan or deposit. However, margin calls in cash under a repo are classified as loans.

11.76 The securities provided as collateral under securities lending, including a securities repurchase agreement, are treated as not having changed economic ownership. This treatment is adopted because the cash receiver is still subject to the risks or benefits of any change in the price of the security.

11.77 A gold swap involves an exchange of gold for foreign exchange deposits with an agreement that the transaction be reversed at an agreed future date at an agreed gold price. The gold taker (cash provider) will not usually record the gold on its balance sheet, while the gold provider (cash taker) will not usually remove the gold from its balance sheet. In this manner, the transaction is analogous to a repurchase agreement and should be recorded as a

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collateralized loan or deposit. Gold swaps are similar to securities repurchase agreements except that the collateral is gold.

11.78 When goods are acquired under a financial lease, a change of economic ownership of the goods from the lessor to the lessee is deemed to take place. The change of economic ownership may be distinguished by the fact that all the risks and rewards of ownership are transferred from the legal owner of the good, the lessor, to the user of the good, the lessee. The lessee contracts to make payments that enable the lessor, over the period of the contract, to recover all, or virtually all, of his costs including interest. This de facto change in ownership is recorded by assuming a loan is made by the lessor to the lessee, the lessee uses this loan to acquire the asset and the payments by the lessee to the lessor represent not rentals on the asset but payments of interest, possibly a service charge and repayments of principal on the imputed loan. Interest is recorded as property income payable or receivable and debt repayment is recorded in the financial account as reducing the value of the asset (loan) of the lessor and the liability of the lessee. There is more extensive discussion of financial leases in part 5 of chapter 17.

Supplementary classifications of loans

11.79 Loans may be divided, on a supplementary basis, between short- and long-term loans.

a. Short-term loans comprise loans that have an original maturity of one year or less. Loans repayable on the demand of the creditor should be classified as short-term even when these loans are expected to be outstanding for more than one year.

b. Long-term loans comprise loans that have an original maturity of more than one year.

11.80 It may also be useful to distinguish loans that, though taken out for a period longer than a year, have less than one year to maturity in the accounting period considered, as well as loans secured by mortgages.

5. Equity and investment fund shares

11.81 Equity and investment fund shares have the distinguishing feature that the holders own a residual claim on the assets of the institutional unit that issued the instrument. Equity represents the owner's funds in the institutional unit. In contrast to debt, equity does not generally provide the owner with a right to a predetermined amount or an amount determined according to a fixed formula.

11.82 Investment fund shares have a specialized role in financial intermediation as a kind of collective investment in other assets, so they are identified separately.

Equity

11.83 ***Equity comprises all instruments and records acknowledging claims on the residual value of a corporation or quasi-corporation after the claims of all creditors have been met.*** Equity is treated as a liability of the issuing institutional unit.

11.84 Ownership of equity in legal entities is usually evidenced by shares, stocks, depository receipts, participations, or similar documents. Shares and stocks have the same meaning, while depository receipts are securities that facilitate ownership of securities listed in other economies; a depository issues receipts listed on one exchange that represent ownership of securities listed on another exchange. Participating preferred shares are those that provide for participation in the residual value on the dissolution of an incorporated enterprise. Such shares are also equity securities, whether or not the income is fixed or determined according to a formula. (Non-participating preferred shares are treated as debt securities as explained above.)

11.85 Equities are subdivided into:

a. listed shares;

b. unlisted shares; and

c. other equity.

Both listed and unlisted shares are negotiable and are therefore equity securities.

11.86 ***Listed shares are equity securities listed on an exchange.*** They are also referred to as quoted shares. The existence of quoted prices of shares listed on an exchange means that current market prices are usually readily available.

11.87 ***Unlisted shares are equity securities not listed on an exchange.*** Unlisted shares can also be called private equity; venture capital usually takes this form. Unlisted shares tend to be issued by subsidiaries and smaller scale enterprises and typically have different regulatory requirements but neither qualification is necessarily the case.

11.88 ***Other equity is equity that is not in the form of securities.*** It can include equity in quasi-corporations (such as branches, trusts, limited liability and other partnerships), unincorporated funds and notional units for ownership of real estate and other natural resources. The ownership of some international organizations is not in the form of shares and so is classified as other equity (although equity in the Bank for International Settlements (BIS) is in the form of unlisted shares).

11.89 Transactions in equity in the financial account cover three different types of transactions. The first is the recording of the value of shares bought and sold on an exchange. From time to time corporations restructure their shares and may offer shareholders a new number of shares for each share previously held. These bonus shares are not however treated as transactions but as a form of redenomination since the value of the new number of shares times the new price represents the same proportion of the value of the corporation as the old number of shares times the old price.

11.90 The second type of transaction concerning equity is capital injections by the owners or, on occasion, withdrawals of

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equity by the owners. Dividends are recorded in the distribution of primary income account as if they were always paid out of operating surplus earned in the current period. An enterprise, though, usually aims to have a smooth track record of dividend payments and will therefore sometimes pay out more than the current operating surplus and sometimes rather less, the balance carrying through to the accumulation accounts by way of saving (which might be negative). However, if the dividends paid out are significantly in excess of recent average earnings, then the excess should no longer all be recorded in the allocation of primary income account but should be regarded as a withdrawal of equity by the owners and be reflected under this item. Such payments are sometimes referred to as "superdividends". Withdrawals may take the form of proceeds from sales of fixed or other assets, transfers of fixed and other assets from the quasi-corporation to the owner and funds taken from accumulated retained earnings and reserves for the consumption of fixed capital. (The particular case of payments between government and public enterprises is discussed in chapter 22.) Equally, liquidating dividends paid to shareholders when an enterprise becomes bankrupt should be recorded as withdrawal of equity.

11.91 Conversely, owners may inject extra finance into an enterprise. If the enterprise is publicly controlled and runs a regular deficit each year as a matter of government economic or social policy that is covered by a receipt from government to match this deficit, the payment is regarded as a subsidy. If the payment from government is irregular but clearly designed to cover accumulated losses, it is treated as a capital transfer. If government makes an investment grant to a public corporation this also is recorded as a capital transfer. However, there may be cases where the owners (public or private) agree to make new finance available to permit expansion, say, and represent not just a reduction of debt but a positive addition to the enterprise's own funds. The finance consists of funds for use by the enterprise in purchasing fixed assets, accumulating inventories, acquiring financial assets or redeeming liabilities. Transfers by owners of fixed and other assets to the quasi-corporation are also included as addition to equity. Such payments are to be included in this item as an acquisition of equity, even if no new shares are issued in response to the financial contribution.

11.92 The third type of transaction concerning equity is the special case of equity addition and withdrawal that happens in respect of the reinvestment of earnings of foreign direct investment enterprises. In the distribution of primary income account, the share of operating surplus proportionate to the foreign direct investor's share of equity is shown as being withdrawn and distributed to him as reinvested earnings. Because it is not actually withdrawn, it adds to the value of the equity of the enterprise by a recording as reinvestment of earnings in the financial account.

11.93 Notional resident units are treated in the same manner as quasi-corporations. For example, an extension to a holiday home of a non-resident is recorded as an increase in the value of an asset owned by a resident notional unit with a matching increase in the equity of the non-resident owner. However, the entire income from a holiday home is treated as a withdrawal by the owner of the notional resident unit so there are no earnings left to be reinvested. This ensures that the entire net worth of the notional resident unit is the value of the property in question.

Investment fund shares or units

11.94 ***Investment funds are collective investment undertakings through which investors pool funds for investment in financial or non-financial assets.*** Those units acquiring shares in the funds thus spread their risk across all the instruments in the fund.

11.95 In a detailed flow-of-funds table, the acquisition of instruments by the investment funds is shown separately from the acquisition of shares in the funds and a full analysis of the from-whom-to-whom transactions captures the holdings of instruments via investment funds without needing to have a separate category for it. However, as noted in connection with the category of inter-bank positions, timely flow-of-funds tables are not always available. Therefore, in order to distinguish when non-financial units acquire instruments such as securities and equities directly and when they are acquired via investment funds, the latter are shown separately.

11.96 Investment funds include mutual funds and unit trusts. Investment funds issue shares when a corporate structure is used and units when a trust structure is used. Investment fund shares refer to the shares issued by mutual funds, rather than the shares the mutual fund may hold.

11.97 Investment funds are divided into money market funds (MMF) and non-MMF investment funds. The fundamental difference between them is that MMFs typically invest in money market instruments with a residual maturity of less than one year, are often transferable and are often regarded as close substitutes for deposits. Non-MMF investment funds typically invest in longer-term financial assets and possibly real estate. They are not transferable and are typically not regarded as substitutes for deposits.

11.98 The increase in value of investment fund shares or units other than from holding gains and losses and after any reinvested earnings are deducted is shown in the SNA as distributed to the share or unit holders and reinvested by them in the financial account.

Money market fund shares or units

11.99 ***Money market funds are investment funds that invest only or primarily in short-term money market securities such as Treasury bills, certificates of deposit and commercial paper.*** Money market funds sometimes are functionally close to transferable deposits, for example, accounts with unrestricted cheque-writing privileges. If these fund shares are included in broad money in the reporting economy, they should be recorded as a separate item to allow reconciliation with monetary statistics. ***Money market fund shares or units represent a claim on a proportion of the value of an established money market fund.***

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Other investment fund shares or units

11.100 Other investment fund shares or units represent a claim on a proportion of the value of an established investment fund other than a money market fund.

Supplementary classifications of investment fund shares

11.101 It may be useful to distinguish listed from unlisted investment fund shares.

11.102 Investment funds invest in a range of assets including debt securities, equity, commodity-linked investments, real estate, shares in other investment funds and structured assets. Data on the composition of their assets could be useful in economies where investment funds are significant.

6. Insurance, pension and standardized guarantee schemes

11.103 Insurance, pension and standardized guarantee schemes all function as a form of redistribution of income or wealth mediated by financial institutions. The redistribution may be between individual institutional units in the same period or for the same institutional unit over different periods or a combination of the two. Units participating in the schemes contribute to them and may receive benefits (or have claims settled) in the same or later periods. While they hold the funds, insurance corporations invest them on behalf of the participants. The part of the investment income that is distributed to the participants as property income is returned as extra contributions. In all cases, net contributions or premiums are defined as actual contributions or premiums plus distributed property income less the service charge retained by the financial institution concerned. Entries in the financial account, therefore, reflect the difference between net contributions or net premiums paid to the schemes less benefits and claims paid out. Significant other additions to the reserves of the schemes come via other changes in the volume of assets and especially holding gains. There is more extensive discussion on the recording of all these schemes in parts 1, 2 and 3 of chapter 17.

11.104 There are five sorts of reserves applicable to insurance, pension and standardized guarantee schemes. These are non-life insurance technical reserves, life insurance and annuities entitlements, pension entitlements, claims of pension funds on the pension manager and provisions for calls under standardized guarantees.

Non-life insurance technical reserves

11.105 ***Non-life insurance technical reserves consist of prepayments of net non-life insurance premiums and reserves to meet outstanding non-life insurance claims.*** They consist of premiums paid but not yet earned (called unearned premiums) and claims due but not yet settled, including cases where the amount is in dispute or the event leading to the claim has occurred but has not yet been reported (called claims outstanding). The only transactions for non-life insurance technical reserves recorded in the financial account are accrual adjustments.

Life insurance and annuities entitlements

11.106 ***Life insurance and annuities entitlements show the extent of financial claims policyholders have against an enterprise offering life insurance or providing annuities.*** The only transaction for life insurance and annuity entitlements recorded in the financial account is the difference between net premiums receivable and claims payable.

Pension entitlements

11.107 ***Pension entitlements show the extent of financial claims both existing and future pensioners hold against either their employer or a fund designated by the employer to pay pensions earned as part of a compensation agreement between the employer and employee.*** The only transaction for pension entitlements recorded in the financial account is the difference between net contributions receivable and benefits payable. The increase in pension entitlements shown in the financial account is equal to the entry in the use of income accounts for the change in pension entitlements plus any transfer of entitlements from a previous pension manager.

Claims of pension funds on pension manager

11.108 An employer may contract with a third party to administer the pension funds for his employees. If the employer continues to determine the terms of the pension schemes and retains the responsibility for any deficit in funding as well as the right to retain any excess funding, the employer is described as the pension manager and the unit working under the direction of the pension manger is described as the pension administrator. If the agreement between the employer and the third party is such that the employer passes the risks and responsibilities for any deficit in funding to the third part in return for the right of the third part to retain any excess, the third party becomes the pension manger as well as the administrator.

11.109 When the pension manger is a unit different from the administrator, with the consequences that responsibility for any deficit, or claims on any excess, rest with the pension manager, the claim of the pension fund on the pension manager is shown under this heading. (The entry is negative if the pension fund makes more investment income from the pension entitlements it holds than is necessary to cover the increase in entitlements and the difference is payable to the pension manager of the scheme.)

Provisions for calls under standardized guarantees

11.110 ***Provisions for calls under standardized guarantees consist of prepayments of net fees and provisions to meet outstanding calls under standardized guarantees.*** The transactions for provisions for calls under standardized guarantee schemes recorded in the financial account are

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similar to the reserves for non-life insurance; they include unearned fees and calls not yet settled.

7. Financial derivatives and employee stock options

Financial derivatives

11.111 ***Financial derivatives are financial instruments that are linked to a specific financial instrument or indicator or commodity, through which specific financial risks can be traded in financial markets in their own right***. The value of a financial derivative derives from the price of the underlying item: the reference price. The reference price may relate to a commodity, a financial asset, an interest rate, an exchange rate, another derivative or a spread between two prices. The derivative contract may also refer to an index or a basket of prices.

11.112 An observable market price or an index for the underlying item is essential for calculating the value of any financial derivative. If a financial derivative cannot be valued because a prevailing market price or index for the underlying item is not available, it cannot be regarded as a financial asset. Unlike debt instruments, no principal amount is advanced to be repaid and no investment income accrues. Financial derivatives are used for a number of purposes including risk management, hedging, arbitrage between markets and speculation. Financial derivatives enable parties to trade specific financial risks (interest rate risk, currency, equity and commodity price risk and credit risk, etc.) to other entities who are more willing, or better suited, to take or manage these risks, typically, but not always, without trading in a primary asset or commodity. The risk embodied in a derivatives contract can be "traded" either by trading the contract itself, such as is possible with options, or by creating a new contract that embodies risk characteristics that match, in a countervailing manner, those of the existing contract owned. The latter is termed offsetability and is particularly common in forward markets or where there are no formal exchanges through which to trade derivatives.

11.113 Financial derivative instruments that can be valued separately from the underlying item to which they are linked should be treated as financial assets, regardless of whether "trading" occurs on- or off-exchange. Transactions in financial derivatives should be treated as separate transactions, rather than as integral parts of the value of underlying transactions to which they may be linked. The two parties to the derivatives may have different motives for entering into the transaction. One may be hedging, while the other may be dealing in derivative instruments or acquiring the derivative as an investment. Even if both parties are hedging, they may be hedging transactions or risks that involve different financial assets or even transactions in different accounts. Therefore, if derivative transactions were treated as integral parts of other transactions, such treatment would lead to asymmetries of measurement in different parts of the accounts or to asymmetries of measurement between institutional sectors.

11.114 Any commissions paid to or received from brokers or other intermediaries for arranging options, futures, swaps and other derivatives contracts are treated as payments for services in the appropriate accounts. Financial derivatives transactions may take place between two parties directly, or through an intermediary. In the latter case, implicit or explicit service charges may be involved. However, it is usually not possible to distinguish the implicit service element. Net settlement payments under derivative contracts are therefore recorded as financial transactions. However, where possible, the service charge component should be separately recorded. Financial derivatives contracts are usually settled by net payments of cash. This often occurs before maturity for exchange-traded contracts such as commodity futures. Cash settlement is a logical consequence of the use of financial derivatives to trade risk independently of ownership of an underlying item. However, some financial derivative contracts, particularly involving foreign currency, are associated with transactions in the underlying item. A transaction in an asset underlying a financial derivative contract that goes to delivery should be recorded at the prevailing market price for the asset with the difference between the prevailing price and the price actually paid (times the quantity of the asset) recorded as a transaction in financial derivatives.

11.115 There are two broad classes of financial derivatives: option contracts (options) and forward-type contracts (forwards). Within each class, a further distinction could be made by market risk categories; foreign exchange, single-currency interest rate, equity, commodity, credit and other.

11.116 A major difference between forward and option contracts is that, whereas either party to a forward contract is a potential debtor, the buyer of an option contract acquires an asset and the option writer incurs a liability. However, option contracts frequently expire without worth; options are exercised only if settling a contract is advantageous for the option holder.

Options

11.117 ***Options are contracts that give the purchaser of the option the right, but not the obligation, to buy (a "call" option) or to sell (a "put" option) a particular financial instrument or commodity at a predetermined price (the "strike" price) within a given time span (American option) or on a given date (European option).*** Many options contracts, if exercised, are settled by a cash payment rather than by delivery of the underlying assets or commodities to which the contract relates. Options are sold or "written" on many types of underlying bases such as equities, interest rates, foreign currencies, commodities and specified indices. The buyer of the option pays a premium (the option price) to the seller for the latter's commitment to sell or purchase the specified amount of the underlying instrument or commodity on demand of the buyer. While the premium paid to the seller of the option can conceptually be considered to include a service charge, in practice, it is usually not possible to distinguish the service element. The full price should be recorded as acquisition of a financial asset by the buyer and as incurrence of a liability by the seller. However, where possible, the service charge component should be separately recorded.

11.118 The timing of premium payments on options varies. Depending on the type of contract, premiums are paid when the contracts begin, when the options are exercised, or

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when the options expire. The value of an option at inception should be recorded at the full price of the premium. If the premiums are paid after the purchase of an option, the value of the premium payable is recorded as an asset at the time the derivative is purchased, financed by an account receivable from the writer. Subsequent purchases and sales of options are also to be recorded in the financial account. If an option based on a financial asset is exercised or if a commodity based option proceeds to delivery, the acquisition or sale of the underlying asset should be recorded at the prevailing market price in the appropriate accounts with the difference between this amount and the amount actually paid recorded as transactions in financial derivatives.

11.119 Warrants are a form of options that are treated in the financial account in the same way as other options. ***Warrants are tradable instruments giving the holder the right to buy, under specified terms for a specified period of time, from the issuer of the warrant (usually a corporation) a certain number of shares or bonds***. There are also currency warrants based on the amount of one currency required to buy another and cross-currency warrants tied to third currencies. They can be traded apart from the underlying securities to which they are linked and therefore have a market value. The issuer of the warrant incurs a liability, which is the counterpart of the asset held by the purchaser.

Forwards

11.120 Under a forward contract, the two counterparties agree to exchange a specified quantity of an underlying item (a particular product or financial asset) at an agreed contract price (the "strike" price) on a specified date. Futures contracts are forward contracts traded on organized exchanges. ***A forward contract is an unconditional financial contract that represents an obligation for settlement on a specified date. Futures and other forward contracts are typically, but not always, settled by the payment of cash or the provision of some other financial instrument rather than the actual delivery of the underlying item and therefore are valued and traded separately from the underlying item.*** At the inception of the contract, risk exposures of equal market value are exchanged and hence the contract has zero value. Some time must elapse for the market value of each party's risk to differ so that an asset (creditor) position is created for one party and a liability (debtor) position for the other. The debtor/creditor relationship may change both in magnitude and direction during the life of the forward contract.

11.121 Common forward-type contracts include interest rate swaps, forward rate agreements (FRA), foreign exchange swaps, forward foreign exchange contracts and cross-currency interest rate swaps.

a. ***An interest rate swap contract involves an exchange of cash flows related to interest payments, or receipts, on a notional amount of principal, which is never exchanged, in one currency over a period of time.*** Settlements are often made through net cash payments by one counterparty to the other.

b. ***A forward rate agreement (FRA) is an arrangement in which two parties, in order to protect themselves against interest rate changes, agree on an interest rate to be paid, at a specified settlement date, on a notional amount of principal that is never exchanged***. FRAs are settled by net cash payments. The only payment that takes place is related to the difference between the agreed forward rate agreement rate and the prevailing market rate at the time of settlement. The buyer of the forward rate agreement receives payment from the seller if the prevailing rate exceeds the agreed rate; the seller receives payment if the prevailing rate is lower than the agreed rate.

c. A foreign exchange swap is a spot sale/purchase of currencies and a simultaneous forward purchase/sale of the same currencies.

d. A forward foreign exchange contract involves two counterparties who agree to transact in foreign currencies at an agreed exchange rate in a specified amount at some agreed future date.

e. ***A cross-currency interest rate swap, sometimes known as a currency swap, involves an exchange of cash flows related to interest payments and an exchange of principal amounts at an agreed exchange rate at the end of the contract.***

11.122 There might also be an exchange of principal at the beginning of the contract and, in these circumstances, there may be subsequent repayments, which include both interest and principal, over time according to the predetermined rules. Streams of net settlement payments resulting from swap arrangements are to be recorded as transactions in financial derivatives and repayments of principal are to be recorded under the relevant instrument item in the financial account.

Credit derivatives

11.123 The financial derivatives described in the previous paragraphs are related to market risk, which pertains to changes in the market prices of securities, commodities, interest and exchange rates. ***Credit derivatives are financial derivatives whose primary purpose is to trade credit risk.*** They are designed for trading in loan and security default risk. Credit derivatives take the form of both forward-type and option-type contracts and like other financial derivatives, they are frequently drawn up under standard master legal agreements and involve collateral and margining procedures, which allow for a means to make a market valuation.

Margins

11.124 Margins are payments of cash or collateral that cover actual or potential obligations under financial derivatives, especially futures or exchange-traded options. Repayable margins consist of deposits or other collateral deposited to protect a counterparty against default risk, but that remain under the ownership of the unit that placed the margins. Although its use may be restricted, a deposit is classified as repayable if the depositor retains the risks and rewards of

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ownership. Repayable margin payments in cash are transactions in deposits, not transactions in a financial derivative. The depositor has a claim on the exchange or other institution holding the deposit. Some compilers may prefer to classify these margins within other accounts receivable or payable in order to reserve the term deposits for monetary aggregates. When repayable margin payments are made in non-cash assets, such as securities, no entries are required because the entity on whom the depositor has a claim (the issuer of the security) is unchanged. Non-repayable margins reduce a financial liability created under a financial derivative contract. The entity that pays a non-repayable margin no longer retains ownership of the margin nor has the right to the risks and rewards of ownership, such as the receipt of income or exposure to holding gains and losses. A payment of a non-repayable margin is normally recorded as a decline in currency and deposits with a counter entry in the reduction in financial derivative liabilities and the receipt of a non-repayable margin is recorded as an increase of holdings of currency and deposits with the counter entry in the reduction in financial derivative assets.

Employee stock options (ESOs)

11.125 ***An employee stock option is an agreement made on a given date (the "grant" date) under which an employee may purchase a given number of shares of the employer's stock at a stated price (the "strike" price) either at a stated time (the "vesting" date) or within a period of time (the "exercise" period) immediately following the vesting date.*** The exercise date is the time at which the option is exercised. It cannot be earlier than the vesting date or later than the end of the exercise period. Transactions in employee stock options are recorded in the financial account as the counterpart to the element of compensation of employees represented by the value of the stock option. The means of valuing and time of recording ESOs is discussed in part 6 of chapter 17.

8. Other accounts receivable or payable

Trade credit and advances

11.126 This category comprises trade credit for goods and services extended to corporations, government, NPISHs, households and the rest of the world, and advances for work that is in progress (if classified as such under inventories) or is to be undertaken. Trade credits and advances do not include loans to finance trade credit, which are classified as loans. It may be valuable to separate short-term trade credits and advances from long-term trade credit and advances by employing the same criteria used to distinguish between other short- and long-term financial assets.

Other

11.127 This category includes accounts receivable and payable, other than those described previously, that is the amounts are not related to the provision of goods and services. It covers amounts related to taxes, dividends, purchases and sales of securities, rent, wages and salaries, and social contributions. Interest that accrues but is not paid is included in this item only if the accrued interest is not added to the value of the asset on which the interest is payable (as is usually the case).

11.128 This category does not include statistical discrepancies.

9. Memorandum items

Foreign direct investment

11.129 Transactions in financial assets and liabilities arising from the provision of, or receipt of, foreign direct investment are to be recorded under the appropriate categories: debt securities, loans, equity, trade credit or other. However, the amounts of foreign direct investment included within each of those categories should also be recorded separately as memorandum items. Foreign direct investment is discussed further in chapters 17 and 24.

Non-performing loans

11.130 It is useful to identify transactions relating to non-performing loans as memorandum items. There is a discussion of the definition of and recording for non-performing loans in chapter 13. In addition, when they are important it may be useful to group all arrears of interest and repayment under a memorandum item.

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Chapter 12: The other changes in assets accounts

A. Introduction

12.1 This chapter is concerned with the recording of changes in the values of assets and liabilities, and thus of the changes in net worth, between opening and closing balance sheets that result from flows that are not transactions, referred to as other flows. Transactions in assets and liabilities and the immediate consequences of transactions on net worth are recorded in the capital account and financial account. The change in the value of produced assets resulting from consumption of fixed capital and from recurrent losses from inventories are treated as transactions and so do not appear in the other changes in assets accounts.

12.2 Although the entries relate to flows that are not transactions, they are not "residual" entries. Rather they serve to demonstrate significant changes in the value and composition of items between the opening and closing balance sheets due to other events.

12.3 The entries in the other changes in assets accounts cover many different kinds of changes in assets, liabilities and net worth. Some of these are particular to the type of asset concerned, some may apply to all types of assets. All changes relating to holding gains and losses are included in the revaluation account. Holding gains and losses arise from changes over time in the level and structure of prices. All other changes in the value of assets are treated as being due to a change in volume due to quality change rather than due to changes in prices and are recorded in the other changes in the volume of assets account. This includes changes in value that result instantaneously, for example, from a reclassification of an asset or from other one-off events.

12.4 The chapter discusses the two accounts in turn, beginning with the other changes in the volume of assets account and proceeding to the revaluation account. Under each account, the entries for each type of asset are discussed separately.

B. The other changes in the volume of assets account

12.5 The other changes in the volume of assets account records the changes in assets, liabilities, and net worth between opening and closing balance sheets that are due neither to transactions between institutional units, as recorded in the capital and financial accounts, nor to holding gains and losses as recorded in the revaluation account. The format of the other changes in the volume of assets account, shown in table 12.1, is similar to that of the other accumulation accounts. The entries for changes in assets are on the left-hand side and the entries for changes in liabilities are on the right-hand side. Non-financial assets, both produced and non-produced, and financial assets are shown separately. The balancing item in the account, the change in net worth due to other changes in volume of assets, is the excess of the sum of the changes in assets over the sum of the changes in liabilities recorded in the account and is shown on the right-hand side of the account.

1. Functions of the other changes in the volume of assets account

12.6 In the capital account, produced assets enter and leave the SNA through acquisition less disposal of fixed assets, consumption of fixed capital and additions to, withdrawals from and recurrent losses from inventories. In the financial account, most financial assets enter the SNA when the debtor acquires something of value and accepts the obligation to make payment, or payments, to the creditor. Financial assets are extinguished when the debtor has fulfilled the financial obligation under the terms of the agreement.

12.7 Both the capital and financial accounts also record transactions in existing assets among the institutional sectors. However, these acquisitions and disposals merely change the ownership of the assets without changing the total net worth for the economy as a whole except where the transactions are between residents and the rest of the world.

12.8 One important function of the other changes in the volume of assets account is to allow certain assets to enter and leave the SNA other than by transactions. The acts of entering and exiting from the balance sheet are referred to as economic appearances and disappearances. Some entrances and exits happen when naturally occurring assets, such as subsoil assets, gain economic value or become worthless. Such entrances and exits come about as interactions between institutional units and nature, thus

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contrasting with entrances and exits that come about as a result of transactions, which typically are interactions by mutual agreement between institutional units. Yet other entrances and exits may also relate to assets created by human activity, such as valuables, purchased goodwill or gold.

12.9 A second function of the account is to record the effects of exceptional, unanticipated events that affect the economic benefits derivable from assets (and corresponding liabilities). These occurrences are referred to as the effect of external events. They include one institutional unit's effectively removing an asset from its owner without the owner's agreement, an action that is not considered a transaction because the element of mutual agreement is absent. These events also include those that destroy assets, such as natural disaster or war.

12.10 A third function of the account is to record changes in classifications of institutional units and assets and in the structure of institutional units.

12.11 The three sections that follow discuss first the recording of the economic appearance and disappearance of assets, then the effects of external events on the value of assets and finally changes in the classification and structure of assets.

2. Appearance and disappearance of assets other than by transactions

12.12 Entries relating to the appearance and disappearance of assets can be grouped according to the main type of asset under consideration as follows:

a. entries relating to recognition of produced assets;

b. entries relating to entry and exit from the asset boundary of natural resources;

c. entries relating to contracts, leases and licences;

d. changes in goodwill and marketing assets; and

e. entries relating to financial assets.

Table 12.2 shows a disaggregation of table 12.1 including the various entries for economic appearance and disappearance of assets.

Economic recognition of produced assets

12.13 Two types of assets can appear under this item: public monuments and valuables. As was described in chapter 10, public monuments are objects, structures or sites of significant or special value. Valuables are items held as stores of value because their value is expected to appreciate, or at least not depreciate, over time. The capital account records the acquisition of valuables and public monuments when these are newly produced goods or imported and it records transactions in existing goods already classified as valuables and public monuments.

12.14 However, existing goods, valuables and public monuments may not already have been recorded in the balance sheets for any of several reasons; they may date from a time before the time period covered by the accounts, they were originally recorded as consumption goods or, if structures, they have already been written off.

Public monuments

12.15 Public monuments are included with dwellings and with other buildings and structures in the classification of fixed assets. When the special archaeological, historical or cultural significance of a structure or site not already recorded in the balance sheet is first recognized, it is classified as an economic appearance and recorded in the other changes in the volume of assets account. For example, such recognition might be accorded to an existing structure or site that is fully written off and thus no longer recorded in the balance sheet. Alternatively, a structure or site that is already within the asset boundary but is new or only partially written off, may be assessed as having the status of a public monument. If the monument was previously written off, then its recognition as a public monument is recorded as an economic appearance of an asset. If it was previously classified as another type of

Table 12.1:The other changes in the volume of assets account - concise form - transactions in assets

Changes in assets

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets	26	0	7	0	0	33			33
Economic disappearance of non-produced non-financial assets	- 9	0	- 2	0	0	- 11			- 11
Catastrophic losses	- 5	0	- 6	0	0	- 11			- 11
Uncompensated seizures	- 5	0	5	0	0	0			0
Other changes in volume n.e.c.	1	1	0	0	0	2			2
Changes in classification	6	- 2	- 4	0	0	0			0
Total other changes in volume	14	- 1	0	0	0	13			13
Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
Non-produced non-financial assets	14	0	3	0	0	17			17
Financial assets	2	1	0	0	0	3			3

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asset, it is recorded as a reclassification of an asset (discussed below) and if at the same time a new valuation is placed on the monument, this increase in value is recorded under economic appearance. If the reclassification occurs at the time of a sale of the asset, for example the acquisition of an asset by general government, this acquisition is recorded in the capital account as normal.

Valuables

12.16 For valuables, such as precious stones, antiques and other art objects, when the high value or artistic significance of an object not already recorded in the balance sheet is first recognized, it is classified as an economic appearance. Hitherto, the object may have been of little value and not considered an asset. For example, the item might have been considered an ordinary good whose purchase had been included in household final consumption expenditure or been regarded as a consumer durable. Recognition of its worth as a store of value leads to its entrance into the balance sheet as a valuable. The recognition of the value of a previously unvalued item is often associated with a sale (for example at auction). The sale is recorded in the capital account as the sale and purchase of a valuable, it having been entered first into the balance sheet of the seller.

Entry of natural resources into the asset boundary

Discoveries and upwards reappraisals of subsoil resources

12.17 In the SNA, subsoil assets are defined as those proven subsoil resources of coal, oil and natural gas, of metallic minerals or of non-metallic minerals that are economically exploitable, given current technology and relative prices. The capital account records acquisitions and disposals among sectors of the resources that exist under those conditions. The other changes in the volume of assets account, in contrast, records increases and decreases that change the total volume for the economy as a whole.

12.18 One way in which the resources may increase is by the discovery of new exploitable deposits, whether as a result of systematic scientific explorations or surveys or by chance. Economic appearance may also occur because resources may be increased by the inclusion of deposits for which exploitation was previously uneconomic but becomes economic as a result of technological progress or relative price changes.

Natural growth of uncultivated biological resources

12.19 The natural growth of uncultivated biological resources, such as natural forests and fish stocks, may take various forms: a stand of natural timber may grow taller, or fish in the estuaries may become more numerous. Although these resources are economic assets, growth of this kind is not under the direct control, responsibility and management of an institutional unit and thus is not treated as production. The increment in the asset must then be regarded as an economic appearance, and it is recorded in the other changes in the volume of assets account.

12.20 In principle, natural growth should be recorded gross, and the depletion of these resources should be recorded as economic disappearance, as described below. This recording would be consistent with the separate recording of acquisitions and disposals described in the capital account. In practice, however, many countries will record natural growth net because the physical measures that are likely to be the only basis available for the recording are, in effect, net measures. These measures may be used in conjunction with a market price for a unit of the asset to estimate the value of the volume change to be recorded.

Transfers of other natural resources to economic activity

12.21 Not all land included in the geographic surface area of a country is necessarily within the asset boundary of the SNA. Land may make its economic appearance when it is transferred from a wild or waste state to one in which ownership may be established and the land can be put to economic use. It may also acquire value because of activity

Table 12.1 (cont):The other changes in the volume of assets account - concise form - transactions in liabilities and net worth

Changes in liabilities and net worth

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets									
Economic disappearance of non-produced non-financial assets									
Catastrophic losses									
Uncompensated seizures									
Other changes in volume n.e.c.	0	0	0	1	0	1			1
Changes in classification	0	0	2	0	0	2			2
Total other changes in volume	0	0	2	1	0	3			3
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets	0	0	2	1	0	3			3
Changes in net worth due to other changes in volume of assets	14	- 1	- 2	- 1	0	10			

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in the vicinity, for example, land that becomes more desirable and thus more valuable because a new development is established nearby or the creation of an access road. The cost of land improvements, affecting the parcel of land being considered directly, is treated as gross fixed capital formation, recorded as land improvements and subsequently subject to consumption of fixed capital. Any excess in the increase in value of the land over the value of land improvements or any increase due to adjacent capital activity is recorded as economic appearance.

12.22 For other natural resources, the first substantial market appearance, generally involving commercial exploitation, is the reference point for recording in this account. For virgin forests, gathering firewood is not commercial exploitation, but large-scale harvesting of a virgin forest for timber is and brings the forest into the asset boundary. Similarly, drawing water from a natural spring does not bring an aquifer into the asset boundary of the SNA, but a significant diversion of groundwater does. A move to charge for regular extraction from a body of surface water may also bring a water resource into the balance sheet.

Quality changes in natural resources due to changes in economic uses

12.23 The SNA, in general, treats differences in quality as differences in volume. As explained with respect to goods and services in chapter 15, different qualities reflect different use values (and in the case of goods and services, different resource costs). Different qualities are, therefore, economically different from each other. The same principle applies to assets. The quality changes recorded here occur as the simultaneous counterparts of the changes in economic use that are shown as changes in classification, as described below. For example, the reclassification of cultivated land to land underlying buildings may result in a change of value as well as a change in classification. In this case, the asset is already within the asset boundary, and it is the change in quality of the asset due to changes in its economic use that is regarded as the appearance of additional amounts of the asset. Another example is that of livestock treated as capital formation, for example, dairy cattle, if they are sent to slaughter earlier than expected.

Exit of natural resources from the asset boundary

12.24 Exits of natural resources from the balance sheets are shown as negative entries on the left-hand side of the account. Many of the possible entries are simply the negative alternative to the positive entries just discussed.

Extractions and downwards reappraisals of subsoil resources

12.25 The changes recorded here are the negative analogues of gross additions to the level of exploitable subsoil resources that result from reassessments of exploitability because of changes in technology or relative prices. In practice, only net additions may be available, and these will be recorded under discoveries and upwards reappraisals of subsoil resources.

12.26 The depletion of natural resources covers the reduction in the value of deposits of subsoil assets as a result of the physical removal and using up of the assets.

Table 12.2:The other changes in the volume of assets accounts - changes in assets due to economic appearance and disappearance

Changes in assets

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets	26	0	7	0	0	33			33
Produced non-financial assets			3			3			3
Non-produced non-financial assets	26	0	4	0	0	30			30
Natural resources	22		4			26			26
Contracts, leases and licences	4					4			4
Goodwill and marketing assets						0			0
Economic disappearance of non-produced non-financial assets	- 9	0	- 2	0	0	- 11			- 11
Depletion of natural resources	- 6	0	- 2	0	0	- 8			- 8
Natural resources	- 6		- 2			- 8			- 8
Other economic disappearance of non-produced non-financial assets	- 3	0	0	0	0	- 3			- 3
Natural resources						0			0
Contracts, leases and licences	- 1					- 1			- 1
Goodwill and marketing assets	- 2					- 2			- 2
Catastrophic losses	- 5	0	- 6	0	0	- 11			- 11
Uncompensated seizures	- 5	0	5	0	0	0			0
Other changes in volume n.e.c.	1	1	0	0	0	2			2
Changes in classification	6	- 2	- 4	0	0	0			0
Total other changes in volume	14	- 1	0	0	0	13			13
Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
Non-produced non-financial assets	14	0	3	0	0	17			17
Financial assets	2	1	0	0	0	3			3

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Harvesting of uncultivated biological resources

12.27 The depletion of natural forests, fish stocks in the open seas and other uncultivated biological resources included in the asset boundary as a result of harvesting, forest clearance, or other use beyond sustainable levels of extraction should be included here.

Transfers of other natural resources out of economic activity

12.28 It is possible that some natural resources cease to be deployed in economic activity because of changing technology, or reduced demand for the resulting product or for legislative reasons, for example the suspension of fishing to ensure the survival of fish stocks.

Quality changes in natural resources due to changes in economic uses

12.29 The changes recorded here are the negative equivalent of the upward changes in volume associated with the changes in classification. For example, if a change in land use leads to reclassifying some land from cultivated land to communal grazing land, there well may be a resulting change in the value of the land.

12.30 All degradation of land, water resources and other natural assets caused by economic activity is recorded in the other changes in the volume of assets account. The degradation may be an anticipated result from regular economic activity or less predictable erosion and other damage to land from deforestation or improper agricultural practices.

Initiation and cancellation of contracts, leases and licences

12.31 The contracts, leases and licences that can be treated as assets in their own right are all some form of transferable lease, contract or permit. They may relate to the use of a fixed asset under an operating lease, the use of a natural resource under a resource lease, a permit to undertake some specific economic activity or a service contract relating to future services to be provided by a named individual. Holding the operating lease, the resource lease, the permit or the service contract represents an asset for the holder only when two conditions hold:

a. the current prevailing price for the use of the asset, permit or provision of the service differs from the price specified in the contract or lease or paid for the permit, and

b. the holder of the lease, contract or permit can legally and practically realize this difference by subcontracting the lease or contract or on-selling the permit.

In practice, it is recommended to try to record such assets only when they are sold. In this case they are first recorded in the other changes in the volume of assets account and subsequently form the basis of a transaction (or series of transactions) in the capital account.

12.32 The value of the contract, lease or licence treated as an asset is equal to the net present value of the excess of the prevailing price over the contract price. It will decline as the period of the agreement declines and the difference in

Table 12.2 (cont):The other changes in the volume of assets accounts - changes in liabilities and net worth due to economic appearance and disappearance

Changes in liabilities and net worth

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets									
Produced non-financial assets									
Non-produced non-financial assets									
Natural resources									
Contracts, leases and licences									
Goodwill and marketing assets									
Economic disappearance of non-produced non-financial assets									
Depletion of natural resources									
Natural resources									
Other economic disappearance of non-produced non-financial assets									
Natural resources									
Contracts, leases and licences									
Goodwill and marketing assets									
Catastrophic losses									
Uncompensated seizures									
Other changes in volume n.e.c.	0	0	0	1	0	1			1
Changes in classification	0	0	2	0	0	2			2
Total other changes in volume	0	0	2	1	0	3			3
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets	0	0	2	1	0	3			3
Changes in net worth due to other changes in volume of assets	14	- 1	- 2	- 1	0	10			

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price is no longer evident. Changes in the value of the contract, lease or licence due to changes in the prevailing price are recorded as revaluation; changes due to the expiration of the advantage given by the asset as the time over which it is valid are recorded as other changes in volume. There is more extensive discussion of the treatment of contracts, leases and licences in part 5 of chapter 17.

Changes in the value of goodwill and marketing assets

12.33 When an enterprise, whether a corporation, quasi-corporation or unincorporated enterprise, is sold, the price paid may not equal the sum of all the assets less the liabilities of the enterprise. The difference between the price paid and the sum of all the assets less liabilities is called the purchased goodwill and marketing assets of the enterprise. The value may be positive or negative (or zero). By its calculation and designation as an asset of the enterprise, the net worth of the enterprise at the moment it is bought is exactly zero, whatever the legal status of the enterprise.

12.34 The value of purchased goodwill and marketing assets is calculated at the time of the sale, entered in the books of the seller in the other changes in the volume of assets account and then exchanged as a transaction with the purchaser in the capital account. Thereafter the value of the purchased goodwill and marketing asset must be written down in the books of the purchaser via entries in the other changes in the volume of assets account. The rate at which it is written down should be in accordance with commercial accounting standards. These are typically conservative in the amount that may appear on the balance sheet of an enterprise and should be subject to an "impairment test" whereby an accountant can satisfy himself that the remaining value is likely to be realizable in case of a further sale of the enterprise.

12.35 Goodwill that is not evidenced by a sale or purchase is not considered an economic asset in the SNA. Exceptionally, a marketing asset may be subject to sale. When this is so, entries should be made for the buyer and the seller along the lines of those made for purchased goodwill and marketing assets when the entire enterprise is sold.

Appearance and disappearance of financial assets and liabilities

12.36 Financial assets that are claims on other institutional units are created when the debtor accepts the obligation to make a payment, or payments, to the creditor in the future; they are extinguished when the debtor has fulfilled the obligation under the terms of the agreement. Monetary gold held in the form of gold bullion, however, cannot be created and extinguished in this way; hence when it becomes a reserve asset it enters the financial part of the balance sheet as a reclassification in the other changes in the volume of assets account from valuables to monetary gold. (At the time it is acquired by a monetary authority it is first classified as a valuable.) The same recording is followed for allocated gold accounts that become part of monetary gold. When allocated gold accounts become reserve assets they are reclassified from currency and deposits to monetary gold, also in the other changes in the volume of assets accounts. Monetary gold may be sold to another monetary authority but otherwise any reduction in holdings follows a similar declassification path; the monetary gold is reclassified to be either a valuable (in the case of gold bullion) or currency and deposits (in the case of allocated gold accounts). Subsequent transactions, if and

Table 12.3:The other changes in the volume of assets account - changes in assets due to external events

Changes in assets

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets	26	0	7	0	0	33			33
Economic disappearance of non-produced non-financial assets	- 9	0	- 2	0	0	- 11			- 11
Catastrophic losses	- 5	0	- 6	0	0	- 11			- 11
Produced non-financial assets	- 5		- 4			- 9			- 9
Non-produced non-financial assets			- 2			- 2			- 2
Financial assets/liabilities						0			0
Uncompensated seizures	- 5	0	5	0	0	0			0
Produced non-financial assets	- 1		1			0			0
Non-produced non-financial assets	- 4		4			0			0
Financial assets/liabilities						0			0
Other changes in volume n.e.c.	1	1	0	0	0	2			2
Produced non-financial assets	1					1			1
Non-produced non-financial assets						0			0
Financial assets/liabilities		1				1			1
Changes in classification	6	- 2	- 4	0	0	0			0
Total other changes in volume	14	- 1	0	0	0	13			13
Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
Non-produced non-financial assets	14	0	3	0	0	17			17
Financial assets	2	1	0	0	0	3			3

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when they occur, are recorded in terms of valuables or currency and deposits and not in terms of monetary gold.

12.37 Also recorded here are the effects of events not anticipated when the terms of financial claims were set.

Debt operations

12.38 There are a number of circumstances that may lead to reduction or cancellation of debt by other than normal repayment of liabilities. The most common instances are described below.

12.39 A debtor and creditor may become parties to a bilateral agreement (often referred to as "debt forgiveness") that a financial claim no longer exists. Such an agreement gives rise in the SNA to the recording of a capital transfer payable or receivable (recorded in the capital account at the time the debt forgiveness occurs) and the simultaneous extinction of the claim (recorded in the financial account). Debt forgiveness usually concerns government debt. Some taxes and social security contributions that government recognizes as unlikely to be collected from the outset are excluded from tax and social security contribution receipts and so do not appear in the other changes in the volume of assets account.

12.40 Changes in claims resulting from debt assumption or rescheduling should be reflected in the financial account when the terms of the debt contract (maturity, interest rate, etc.) change, or when the institutional sector of the creditor or debtor changes, as these are considered new contractual arrangements. However, all other changes in claims resulting from write-offs and write-downs are excluded from the financial account because there is no mutual agreement between the parties. Specifically, a creditor may recognize that a financial claim can no longer be collected because of bankruptcy, liquidation or other factors and he may remove the claim from his balance sheet. This recognition (by the creditor) should be accounted for in the other changes in volume of assets account. (The corresponding liability must also be removed from the balance sheet of the debtor to maintain balance in the accounts of the total economy.)

12.41 Most commercial situations where the impossibility of debt collection is recognized are treated as unilateral cancellation of debt. Unilateral cancellation of a financial claim by a debtor (debt repudiation) is not recognized in the SNA. Write-downs that reflect the actual market values of financial assets should be accounted for in the revaluation account. However, changes in value that are imposed solely to meet regulatory, supervisory or accounting requirements do not reflect the actual market values of those financial assets and should not be recorded in the SNA.

12.42 Another debt-related operation that raises questions as to how it should be recorded in the SNA relates to debt defeasance. Debt defeasance allows a debtor (whose debts are generally in the form of debt securities and loans) to remove certain liabilities from the balance sheet by pairing irrevocably assets of equal value to the liabilities. Subsequent to the defeasance, neither the assets nor the liabilities are included in the balance sheet of the debtor, nor, frequently, need they be reported for statistical purposes. Defeasance may be carried out either by placing the paired assets and liabilities in a trust account within the institutional unit concerned, or by transferring them to another institutional unit. In the former case, no entry is recorded for defeasance and the assets and liabilities will not be excluded from the balance sheet of the unit. In the latter case, the transactions by which the assets and liabilities are moved to the second institutional unit are

Table 12.3 (cont):The other changes in the volume of assets account - changes in liabilities due to external events

Changes in liabilities and net worth

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets									
Economic disappearance of non-produced non-financial assets									
Catastrophic losses									
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets/liabilities									
Uncompensated seizures									
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets/liabilities									
Other changes in volume n.e.c.	0	0	0	1	0	1			1
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets/liabilities	0	0	0	1	0	1			1
Changes in classification	0	0	2	0	0	2			2
Total other changes in volume	0	0	2	1	0	3			3
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets	0	0	2	1	0	3			3
Changes in net worth due to other changes in volume of assets	14	- 1	- 2	- 1	0	10			

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recorded in the financial account of the units concerned and reported in the balance sheet of the unit that holds the assets and liabilities. Therefore, debt defeasance as such never results in liabilities being removed from the SNA, although it sometimes leads to a change in the institutional unit that reports those liabilities.

Creation and exhaustion of financial derivatives

12.43 Typically there are no entries in the other change in the volume of assets accounts for financial derivatives. Financial derivatives appear in the financial account when an agreement is reached between the two parties concerned. Employee stock options are similarly recorded in the same account at the grant date. They then may be subject to transactions in the financial account. When the agreement described in the derivative is activated, or it lapses because the time period is exhausted, the value of the derivative becomes zero and the change in value is shown in the revaluation account.

12.44 If the amount payable under a derivative remains due for payment after the derivative matures, the amount due no longer represents a derivative as there is no longer any risk associated with it. It is therefore reclassified as an other account receivable or payable.

3. The effect of external events on the value of assets

12.45 There are three principal causes of the reduction in value of an asset, or even its total disappearance, that are not related to the nature of the asset but to conditions prevailing in the economy that impact either the value or ownership of assets. These are catastrophic losses, uncompensated seizures and other volume changes of assets. Each is discussed below. Table 12.3 shows an expansion of table 12.1 to include entries for these events.

Catastrophic losses

12.46 The volume changes recorded as catastrophic losses in the other changes in the volume of assets account are the result of large scale, discrete and recognizable events that may destroy a significantly large number of assets within any of the asset categories. Such events will generally be easy to identify. They include major earthquakes, volcanic eruptions, tidal waves, exceptionally severe hurricanes, drought and other natural disasters; acts of war, riots and other political events; and technological accidents such as major toxic spills or release of radioactive particles into the air. Included here are such major losses as deterioration in the quality of land caused by abnormal flooding or wind damage; destruction of cultivated assets by drought or outbreaks of disease; destruction of buildings, equipment or valuables in forest fires or earthquakes.

12.47 Catastrophic losses of financial assets are less common but where evidence of ownership depends on written records and these records are destroyed, it may not be possible to re-establish ownership. Accidental destruction of currency or bearer securities may result from a natural catastrophe or political events.

Uncompensated seizures

12.48 Governments or other institutional units may take possession of the assets of other institutional units, including non-resident units, without full compensation for reasons other than the payment of taxes, fines, or similar levies. If the compensation falls substantially short of the values of the assets as shown in the balance sheet, the difference should be recorded as an increase in assets for

Table 12.4:The other changes in the volume of assets account - changes in assets due to changes in classifications

Changes in assets

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets	26	0	7	0	0	33			33
Economic disappearance of non-produced non-financial assets	- 9	0	- 2	0	0	- 11			- 11
Catastrophic losses	- 5	0	- 6	0	0	- 11			- 11
Uncompensated seizures	- 5	0	5	0	0	0			0
Other changes in volume n.e.c.	1	1	0	0	0	2			2
Changes in classification	6	- 2	- 4	0	0	0			0
Changes in sector classification and structure	6	0	- 4	0	0	2			2
Produced non-financial assets	3		- 3			0			0
Non-produced non-financial assets	1		- 1			0			0
Financial assets	2					2			2
Changes in classification of assets and liabilities	0	- 2	0	0	0	- 2			- 2
Produced non-financial assets		- 2				- 2			- 2
Non-produced non-financial assets	0	0	0			0			0
Financial assets	0	0	0			0			0
Total other changes in volume	14	- 1	0	0	0	13			13
Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
Non-produced non-financial assets	14	0	3	0	0	17			17
Financial assets	2	1	0	0	0	3			3

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the institutional unit doing the seizing and a decrease in assets for the institutional unit losing the asset under the entry for uncompensated seizures of assets.

12.49 It should be noted that foreclosures and repossessions of goods by creditors are not treated as uncompensated seizures. They are treated as transactions, specifically as disposals by debtors and acquisitions by creditors, because, explicitly or by general understanding, the agreement between debtor and creditor provided this avenue of recourse.

Other changes in volume n.e.c.

12.50 The value of a fixed asset is continually reduced by the consumption of fixed capital until the asset is disposed of or has no remaining value. It is possible, though, for the assumptions underlying the calculation of consumption of fixed capital to be mistaken and when this is so, corrections need to be made in the other changes in the volume of assets account. Similarly, if the assumption about the rate of shrinkage of inventories is mistaken, this should also be corrected in the other changes in the volume of assets account. The financial assets and liabilities that can be affected by volume change are some of the reserves for insurance, pension and standardized guarantee schemes. There is further discussion of this in parts 1, 2 and 3 of chapter 17.

Fixed assets

12.51 The calculation of the consumption of fixed capital reflects an assumption about normal rates of physical deterioration, obsolescence and accidental damage. Each of these assumptions may prove to be faulty. In that case, an adjustment in the other changes in the volume of assets account must be made. In principle, revised assumptions, reflecting the new circumstances, should then be used to calculate consumption of fixed capital for the remainder of the asset's useful life. If this is not done, continual adjustment in the other changes in the volume of assets account is necessary and the measure of net value added in subsequent years is overstated.

12.52 Physical deterioration may include the effect of unforeseen environmental degradation on fixed assets. Entries must, therefore, be made in the other changes in the volume of assets account for the decline in the value of the fixed assets from, for example, the effects of acidity in the air and acid rain on building surfaces or vehicle bodies.

12.53 The introduction of improved technology such as improved models of the asset or of a new production process that no longer requires the asset may lead to unforeseen obsolescence. In consequence, the amount included for their previously expected obsolescence may fall short of the actual obsolescence.

12.54 The amount included for normally expected damage may fall short of the actual damage. For the economy as a whole, this difference should normally be small; for individual units this difference may be significant and may fluctuate in sign. Adjustments must therefore be made in the other changes in the volume of assets account for the decline in the value of the fixed assets due to these events. These losses are larger than normal, but are not on a scale sufficiently large to be considered catastrophic.

12.55 As explained in chapter 10, costs of ownership transfer should be written off over the expected time the asset will be in the possession of the purchaser. If the asset is disposed of before the costs of ownership transfer are completely written off, the remainder should also be

Table 12.4 (cont):The other changes in the volume of assets account - changes in liabilities and net worth due to changes in classifications

Changes in liabilities and net worth

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Economic appearance of assets									
Economic disappearance of non-produced non-financial assets									
Catastrophic losses									
Uncompensated seizures									
Other changes in volume n.e.c.	0	0	0	1	0	1			1
Changes in classification	0	0	2	0	0	2			2
Changes in sector classification and structure	0	0	2	0	0	2			2
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets	0	0	2	0	0	2			2
Changes in classification of assets and liabilities	0	0	0	0	0	0			0
Produced non-financial assets									0
Non-produced non-financial assets									0
Financial assets	0	0	0	0	0	0			0
Total other changes in volume	0	0	2	1	0	3			3
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets	0	0	2	1	0	3			3
Changes in net worth due to other changes in volume of assets	14	- 1	- 2	- 1	0	10			

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recorded in the other changes in the volume of assets account.

12.56 It is possible that the initial assumptions on any or all of these conditions were overcautious. If that proves to be so, then an upward revision to the value of the asset should be made rather than a downward one.

12.57 Production facilities with long construction periods may cease to have an economic rationale before they are complete or are put into service. For example, a nuclear power plant or industrial site may never be put into service. When the decision to abandon is made, the value of the fixed asset (or in some case, work-in-progress inventories, as explained in chapter 10), as recorded in the balance sheet should be written off in the other changes in the volume of assets account.

Exceptional losses in inventories

12.58 Exceptional losses from fire damage, from robberies, from insect infestation of grain stores, from an unusually high level of disease in livestock, etc., should be recorded here. In this context, exceptional losses indicate that the losses are not only large in value but also irregular in occurrence. Even very large losses, if they occur regularly, should be taken into account when calculating the change in inventories calculated for entry in the capital account as explained in chapter 10.

Life insurance and annuities entitlements

12.59 For an annuity, the relationship between premiums and benefits is usually determined when the contract is entered into, taking account of mortality data available at that time. Any subsequent changes will affect the liability of the annuity provider towards the beneficiary and the consequences are recorded here.

Pension entitlements

12.60 The changes in the volume of reserves for pension entitlements apply to defined benefit schemes, those where the pension to be provided is determined wholly or in part by a formula. No such adjustments are needed for defined contribution schemes where the benefits are determined solely in terms of the investment earnings on contributions fed into the scheme.

12.61 The exact delineation between which changes in pension entitlements are treated as transactions and which as other changes in the volume of assets is still being researched. Part 2 of chapter 17 describes the present situation.

Provisions for calls under standardized guarantee schemes

12.62 If standardized guarantees are provided on a purely commercial basis, the provisions for calls will be covered by the fees paid and investment earnings on them and possible recoveries from the debtor in default. However, government often underwrites such schemes. When it does so, a provision should be entered in the government accounts for the expected excess of calls under the scheme over any fees received, investment income or recoveries made. If the guarantees cover a long period and there is provision for government to claim assets in the case of default, this expected excess should be calculated on the basis of the net present value of calls to be made under the scheme. An entry is required whenever a new scheme is introduced or a significant change to the expected level of

Table 12.5:The other changes in the volume of assets account - changes in asset by type of asset

Changes in assets

Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Total other changes in volume	14	- 1	0	0	0	13			13
Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
Fixed assets	1		- 3			- 2			- 2
Inventories	- 3					- 3			- 3
Valuables		- 2				- 2			- 2
Non-produced non-financial assets	14	0	3	0	0	17			17
Natural resources	10	0	1	0	0	11			11
Contracts, leases and licences	4		2			6			6
Goodwill and marketing assets	0					0			0
Financial assets	2	1	0	0	0	3			3
Monetary gold and SDRs						0			0
Currency and deposits						0			0
Debt securities						0			0
Loans						0			0
Equity and investment fund shares/units	2					2			2
Insurance, pension and standardized guarantee schemes		1				1			1
Financial derivatives and employee stock options						0			0
Other accounts receivable/payable						0			0

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calls is recognized, beyond what will be recovered by fees or other means.

4. Changes in classifications

12.63 The other changes in the volume of assets account records changes in assets and liabilities that reflect nothing more than changes in the classification of institutional units among sectors, changes in the structure of institutional units and changes in the classification of assets and liabilities. Table 12.4 shows an expansion of table 12.1 to include the entries for changes in classification.

Changes in sector classification and structure

12.64 Reclassifying an institutional unit from one sector to another transfers its entire balance sheet. For example, if an unincorporated enterprise becomes more financially distinct from its owner and takes on the characteristics of a quasi-corporation, it and its balance sheet move from the household sector to the non-financial corporations sector; or if a financial corporation is newly authorized to take deposits, it may be reclassified from "other financial intermediaries" to "deposit-taking corporations except the central bank".

12.65 If a household moves from one economy to another, taking its possessions (including financial assets) with it, they are also recorded under changes in classifications and structures. As there is no change in ownership of the possessions, there can be no transaction in them.

12.66 Chapter 21 discusses the flows to be recorded when there is corporate restructuring, either when two corporations merge, when one is taken over by another group or when one corporation is split into two or more units. Most of the resulting financial consequences are recorded as transactions but some may be recorded as other volume changes. Chapter 21 also discusses the implications of nationalization and privatization, describing when the consequences are treated as transactions and when as other volume changes including reclassification by sector.

12.67 Reclassification is needed as a result of trading in securities. When unit A sells a security to unit B, A has a liability and B an asset. If B now sells the same asset to unit C, the transaction between B and C is recorded in the financial account as the sale of a security. Although A is not involved in the sale and purchase of the security between B and C, A's balance sheet is affected as the liability originally owed to B is now owed to C. This reclassification is shown in the other changes in the volume of assets account.

Changes in classification of assets and liabilities

12.68 An asset may appear under one heading in the opening balance sheet and under another in the closing balance sheet. Since transactions in assets must be registered as an increase in holding by one party and a decrease in the holding of the same asset by another, the process of change of classification must be recorded in the other changes in the volume of assets account. The asset may be first recorded as a transaction under the original classification and then recorded as changing its classification in the balance sheet of the new owner. Alternatively, it may be shown first as a reclassification by the first owner and then as a transaction under its new classification. If the change in classification leads to a change in value, it is treated as a quality change, and thus a change in volume, as described earlier under the discussion on economic appearance and disappearance. The choice between whether to reclassify and then record transactions or vice versa depends on the

Table 12.5 (cont):The other changes in the volume of assets account - changes in liabilities and net worth by type of liability

	Changes in liabilities and net worth								
Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Total other changes in volume	0	0	2	1	0	3			3
Produced non-financial assets									
Fixed assets									
Inventories									
Valuables									
Non-produced non-financial assets									
Natural resources									
Contracts, leases and licences									
Goodwill and marketing assets									
Financial assets	0	0	2	1	0	3			3
Monetary gold and SDRs									
Currency and deposits									
Debt securities									
Loans						0			0
Equity and investment fund shares/units			2			2			2
Insurance, pension and standardized guarantee schemes				1		1			1
Financial derivatives and employee stock options									
Other accounts receivable/payable									
Changes in net worth due to other changes in volume of assets	14	- 1	- 2	- 1	0	10			

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nature of the transactors and the question of whether the original or new owner benefits from the change in price. Some examples of reclassifications are described below.

Sale and reclassification of land and buildings

12.69 Unit A sells farm land to unit B, which uses it to build houses on. If A acquires planning permission before selling the land it should be registered as a change in classification in A's accounts (with a probable gain in value to be recorded as an other volume change also in A's accounts), and then a sale of building land to B. If B acquires planning permission after the sale is complete, then it is farm land that is sold and B records a change of classification (and possibly an other volume change) in its books.

12.70 Similar considerations apply to buildings if they are converted from a dwelling to commercial premises or vice versa in response to official designation about the allowed purpose of a building in that location. A conversion resulting solely from new investment in a previous building is not an other change in the volume of the asset but the result of gross fixed capital formation.

Changes of classification involving inventories

12.71 In all instances, work-in-progress needs to be reclassified to finished goods prior to sale. Some animals treated as fixed capital because they are kept as dairy stock or for their fleece may be slaughtered for meat at the end of their productive lives. In this case, they should in principle be reclassified from fixed capital to inventories when they cease to yield repeat products. If this is not practicable, or deemed too fastidious, then some of the source of meat should be accounted for by a reduction in fixed capital rather than a withdrawal from inventories. In principle, reclassification from one type of inventory to another or from fixed capital to inventories, should not involve a change in value. If at the time of conversion the previous valuation is different from the appropriate new valuation, an entry in the other changes in the volume of assets account is recorded under economic appearance or disappearance as appropriate. If this is found to be happening systematically, the valuation techniques for inventories should be re-examined.

5. Summarizing other volume changes

12.72 Tables 12.2 to 12.4 show details of other volume changes for each type of change with details for each asset as a second level of classification. The information there can be aggregated by type of assets, regardless of the cause for the volume change, as shown in table 12.5. This is the form in which information from the other change in the volume of assets account feeds into the reconciliation between opening and closing balance sheets.

C. The revaluation account

1. Different holding gains and losses concepts

12.73 The revaluation account, shown in table 12.6, records the holding gains or losses accruing during the accounting period to the owners of financial and non-financial assets and liabilities. The first entries relate to nominal holding gains and losses which are then decomposed into neutral holding gains and real holding gains. Holding gains or losses on assets are recorded on the left-hand side of the account and those on liabilities on the right-hand side.

12.74 ***The nominal holding gain on a non-financial asset is the value of the benefit accruing to the owner of that asset as a result of a change in its price over a period of time. The nominal holding gain on a financial asset is the increase in value of the asset, other than transactions in the assets (including the accrual of interest over a period of time) and other changes in the volume of assets. The nominal holding gain on a liability is the decrease in value of the liability, other than by transactions or by other volume changes.*** A nominal holding gain that is negative is referred to as a holding loss. A positive holding gain, whether due to an increase in the value of a given asset or a reduction in the value of a given liability, increases the net worth of the unit in question. Conversely, a holding loss reduces the net worth of the unit in question, whether due to a reduction in the value of a given asset or an increase in the value of a given liability.

12.75 As well as the absolute change in value of an asset, it is interesting to know how the change in value compares with a general measure of inflation. When the value of an asset rises over a given period of time by more than the general price level, the asset can be exchanged for a greater volume of the goods, services and assets covered by the general price index at the end of the period than at the beginning. The increase that preserves exactly the same volume of goods and services is called a neutral holding gain. ***A neutral holding gain (loss) over a period is the increase (decrease) in the value of an asset that would be required, in the absence of transactions and other changes in the volume of assets, to maintain command over the same amount of goods and services as at the beginning of the period.***

12.76 The difference between the nominal holding gain or loss and the neutral holding gain or loss for the same asset over the same time period is called the real holding gain or loss. If the value of the asset increases faster than the neutral holding gain, then there is a real holding gain. If the value of the asset does not increase as fast as the overall increase in prices, or does not increase at all, the owner of the asset registers a real holding loss. ***A real holding gain (loss) is the amount by which the value of an asset increases (decreases) over the neutral holding gain for the period, in the absence of transactions and other changes in the volume of assets.*** Nominal, neutral and real holding gains,

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and the interrelationships between them are explained more fully in the following sections.

12.77 The balancing item in the revaluation account is described as ***changes in net worth due to nominal holding gains or losses. It is defined as the algebraic sum of the positive or negative nominal holding gains on all the assets and liabilities of an institutional unit.*** Just as nominal holding gains are decomposed into neutral and real holding gains, so changes in net worth due to nominal holding gains may be decomposed into changes in net worth due to neutral holding gains or losses and changes in net worth due to real holding gains or losses. The latter is an item of considerable analytic interest.

12.78 In order to simplify the terminology and exposition, holding losses will not usually be referred to explicitly unless the context requires it. The term "holding gains" is used to cover both holding gains and losses on the clear understanding that holding gains may be negative as well as positive. Similarly, the term "assets" is used collectively to cover both assets and liabilities, unless the context requires liabilities to be referred to specifically.

12.79 Holding gains are sometimes described as "capital gains". The term "holding gain" is widely used in business accounting and is preferred here because it emphasizes the fact that holding gains accrue purely as a result of holding assets over time without transforming them in any way. Holding gains include not only gains on "capital" such as fixed assets, land and financial assets but also gains on inventories of all kinds of goods held by producers, including work-in-progress, often described as "stock appreciation". For most financial assets, a holding gain experienced by one unit is matched, in whole or in part, by a holding loss for the unit holding the counterpart liability. This is not so for non-financial assets as there are no non-financial liabilities.

12.80 When an asset whose value has increased because of a nominal holding gain is sold or otherwise disposed of, the holding gain is said to be realized. If the asset is retained by the existing owner, the holding gain is unrealized. In common usage, a realized gain is usually understood as the gain realized over the entire period over which the asset is owned or liability is outstanding whether this period coincides with the accounting period or not. Within the SNA, however, all holding gains and losses are measured only from the start of the accounting period. ***A holding gain (loss) is realized when an asset that has increased (decreased) in value due to holding gains (losses) since the beginning of the accounting period is sold, redeemed, used or otherwise disposed of, or a liability incorporating a holding gain or loss is repaid. An unrealized holding gain is one accruing on an asset that is still owned or a liability that is still outstanding at the end of the accounting period.*** It follows that the nominal holding gain or loss on an asset is the sum of the realized and unrealized holding gain or loss for the period in question.

Nominal holding gains

12.81 It is useful to distinguish four different situations giving rise to nominal gains and the methods of valuation to be employed in each case. For clarity of exposition, it is assumed for the moment that there are neither transactions nor other changes in volume intervening between the two dates mentioned.

a. An asset held throughout the accounting period: the nominal holding gain accruing during the accounting period is equal to the closing balance sheet value minus the opening balance sheet value. These values are the estimated values of the assets if they were acquired at the times the balance sheets are drawn up. The nominal gain is unrealized.

b. An asset held at the beginning of the period that is sold during the period: the nominal holding gain accruing is equal to the actual or estimated disposal value minus the opening balance sheet value. The nominal gain is realized.

c. An asset acquired during the period and still held at the end of the period: the nominal holding gain accruing is equal to the closing balance sheet value minus the actual, or estimated, acquisition value of the asset. The nominal gain is unrealized.

d. An asset acquired and disposed of during the accounting period: the nominal holding gain accruing is equal to the actual, or estimated, disposal value minus the actual, or estimated, acquisition value. The nominal gain is realized.

12.82 The basic identity linking balance sheets, transactions, other volume changes and nominal holding gains may be expressed as follows:

the value of the stock of the asset in the opening balance sheet valued at the date of the opening balance sheet,

plus the value of the asset acquired, or disposed of, in transactions valued at the dates the transactions took place,

plus the value of other changes in the volume of the asset valued at the dates the other volume changes are recorded as taking place,

plus the value of the nominal holding gains on the asset,

equals the value of the stock of the asset in the closing balance sheet, valued at the date of the closing balance sheet.

The values of the assets and liabilities in the closing balance sheet incorporate the unrealized holding gains or losses. The value of transactions includes the value of realized holding gains or losses. It therefore follows that the correct value of the revaluation item must cover both realized and unrealized holding gains, in other words to be the full value of the nominal holding gains or losses.

12.83 Because the total nominal holding gains accruing on a particular category of asset over a given period of time include those accruing on assets acquired or disposed of during the accounting period as well as on assets that figure in the opening or closing balance sheets, it is not possible to calculate total holding gains from balance sheet data on

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their own. This can be demonstrated by means of a simple example.

12.84 Suppose a corporation owns 100 units of a stock (inventories or shares, for instance) at the beginning of the period and these are worth 20 each or 2 000 in total. At some point in the period, when the price per unit has risen to 22, another 15 units are bought; a cost of 330. At the end of the period, when the price has risen to 25, some 15 units are sold for a value of 375. The value of the stock in the closing balance sheet represents 100 units valued at 25 each or 2 500. The increase in the balance sheet of 500 represents unrealized holding gain on the stock of 100. The value of the transactions represents a decrease in the balance sheet since the value of the stock added to the balance sheet (330) is less than the value of stock sold (375). The difference, -45, is a reduction in net worth brought about by realizing some holding gains. The total nominal holding gain is thus 545 which satisfies the identity that the opening stock (2 000) plus the transactions (-45) plus the nominal holding gains (545) plus the other changes in the volume of assets (0) equals the value in the closing balance sheet (2 500).

12.85 In order to calculate total holding gains directly, therefore, it is necessary to keep records of all the assets acquired and disposed during the accounting period and the prices at which they were acquired and disposed of, as well as the prices and quantities of assets held at the beginning and end of the period. This sort of recording is more common for financial assets and liabilities than for non-financial assets.

12.86 Each of the five elements that make up the identity in paragraph 12.82 explaining the changes in the balance sheet can be calculated directly and independently of the other four elements. Thus, each element has the same status, none of them being defined residually as a balancing item. Nevertheless, it follows that if any four out of the five elements are calculated directly, the fifth can be estimated residually. For this reason, the identity can be exploited to estimate nominal holding gains from the other four elements, but without this implying that nominal holding gains are a balancing item in the SNA.

Neutral holding gains

12.87 In order to calculate the neutral holding gain on an asset, it is desirable to select a comprehensive price index covering as wide a range of goods, services and assets as possible. In practice, the price index for final expenditures is an acceptable choice for most countries, although other comprehensive indices could be used depending upon the availability of data. A comprehensive index of this kind, however, may be available only once a year, or at best quarterly, and after a significant lapse of time. As holding gains may accrue on assets held for only short periods of time, it may also be necessary to make use of an index that measures changes in prices monthly and that becomes available without too much delay. The consumer price index (CPI) usually meets these requirements and an acceptable procedure would be to use the CPI to interpolate and extrapolate movements in a more broadly based index in order to calculate neutral holding gains.

12.88 The neutral holding gain on an asset over a given period of time is equal to the value of the asset at the beginning of the period multiplied by the proportionate change in some comprehensive price index selected to measure the change in the general price level. Neutral holding gains can, therefore, easily be calculated for assets held throughout the accounting period that appear in both the opening and closing balance sheets. It is more difficult, however, to keep track of the neutral holding gains on assets that are acquired or disposed of during the accounting period unless the times at which the various acquisitions and disposals took place are known.

Real holding gains

12.89 The real holding gain on an asset is defined as the difference between the nominal and the neutral holding gain on that asset. The values of the real holding gains on assets thus depend on the movements of their prices over the period in question, relative to movements of other prices, on average, as measured by the general price index. An increase in the relative price of an asset leads to a positive real holding gain and a decrease in the relative price of an asset leads to a negative real gain, whether the general price level is rising, falling or stationary.

12.90 The nominal holding gains on domestic currency, deposits and loans denominated in domestic currency are always zero. During inflation, the neutral gains on such assets and liabilities must be positive and hence the real holding gains must be negative and equal in absolute value to the neutral gains. In other words, the real value of these assets declines both for the creditor and the debtor as a result of inflation. From the point of view of the debtor a reduction in the real value of a liability represents an increase in net worth expressed in real terms. In effect, there is an implicit transfer of real purchasing power from the creditor to the debtor equal in value to the negative real holding gain on the asset or liability. When such transfers are anticipated by creditors, correspondingly higher nominal rates of interest may be demanded on loans and offered on deposits to compensate for the expected transfers, or loans with fixed monetary values may be replaced by indexed loans.

12.91 As changes in relative prices may be either positive or negative, the owners of some assets benefit from real holding gains while the owners of other assets experience real holding losses. Real holding gains may lead to a significant redistribution of real net worth among institutional units, sectors and even countries, the extent of which depends on the amount of variation in the relative price changes taking place. While such variations may occur even when there is no general inflation, there are systematic effects that are associated with the general rate of inflation as a result of the decline in the real values of monetary assets and liabilities when the general price level is rising.

12.92 As real holding gains increase or decrease the purchasing power of the owners of assets, they exert an influence on their economic behaviour. Real holding gains are important economic variables in their own right as well as for purposes of analysing consumption or capital formation. It can be argued that real holding gains ought to be assimilated with income as defined in the SNA to obtain a

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more comprehensive measure of income, but there is no consensus on this. Apart from the practical difficulty of estimating real holding gains and losses, it is likely that their impact on economic behaviour is not the same as that of income received in cash or in kind. Nevertheless, it is clear that information on real holding gains needs to be made available to users, analysts and policymakers.

12.93 As real holding gains may be obtained residually by subtracting neutral from nominal holding gains, the feasibility of calculating real holding gains depends on the feasibility of calculating nominal and neutral gains.

2. Holding gains and losses on specific assets

Fixed assets

12.94 Nominal holding gains are calculated with reference to assets or liabilities that themselves remain qualitatively and quantitatively unchanged during the period over which the holding gain is measured. Thus, changes in the value of physical assets such as structures, equipment or inventories held by producers that are attributable to some physical or economic transformation of those assets over time, whether improvement or deterioration, are not counted as holding gains. In particular, the decline in the value of the fixed assets owned by producers due to their physical deterioration or normal rates of obsolescence or accidental damage is recorded as consumption of fixed capital and not as a negative holding gain.

12.95 Consumption of fixed capital should be calculated by valuing the opening and closing stock at the average price of the period precisely in order to ensure it excludes any holding gains. Often the price at the mid-point of the period is taken as the average price of the period. Under moderate rates of inflation this may be an acceptable approximation but is less so the higher the rate of inflation and under severe inflation is very misleading.

12.96 Nominal holding gains may occur on existing fixed assets either because of general inflation or because the price of the asset itself changes over time. When assets of the same kind are still being produced and sold on the market, an existing asset should be valued in the opening or closing balance sheet at the current purchaser's price of a newly produced asset less the accumulated consumption of fixed capital up to that time also calculated on the basis of the prices prevailing at the time the balance sheet is drawn up. When new assets of the same type are no longer being produced, the valuation of existing assets may pose difficult conceptual and practical problems. If broadly similar kinds of assets are still being produced, even though their characteristics may differ significantly from those of existing assets (for example, new models of vehicles or aircraft), it may be reasonable to assume that, if the existing assets were still being produced, their prices would have moved in the same way as those of new assets. However, such an assumption becomes questionable when the characteristics of new assets are much improved by technical progress. There is further discussion on this topic in *Measuring Capital*.

Inventories

12.97 The estimation of nominal holding gains on inventories may be difficult because of lack of data on transactions or other volume changes in inventories. As explained in chapter 6, transactions in inventories of work-in-progress and finished goods may not be adequately recorded because they are internal transactions. Goods entering inventories can be regarded as being acquired by the owner of an enterprise from itself as producer, while goods leaving inventories can be regarded as being disposed of by the owner to the producer for use in production or for sale. These internal transactions should be valued at the prices prevailing at the times they take place. The value of withdrawals thus includes any holding gains on the inventories when stored and this ensures that the value of the holding gain is not included in output. However, as explained in paragraphs 6.142 to 6.145 when the storage of goods is essentially an extension of the process of production, the increase in the value of the goods that is due to this production is not to be counted as a nominal holding gain. In the case of goods for resale, the value of the goods when withdrawn from inventory should include the value of any holding gain or loss that has occurred while they were in store but not the value of any margin to be realized by the wholesaler or retailer. That is to say, goods withdrawn from inventories are valued at the prices prevailing at the time of withdrawal for goods in the same state as when the goods entered inventories (except for the storage case).

12.98 Other volume changes are likely to consist of inventories of goods destroyed as a result of exceptional events such as natural disasters (floods, earthquakes, etc.) or major fires. Recurrent losses of goods from inventories, such as losses due to regular wastage or pilfering, are treated in the same way as deliberate withdrawals. Nominal holding gains on inventories thus relate only to the level of inventories once both exceptional and recurrent losses on inventories have been taken into account.

12.99 Unless records are kept of the quantities of goods entering and leaving inventories and their prices at those times, it is not possible to measure the value of changes in inventories directly. As such records may not be available, it becomes necessary to try to deduce the value of changes in inventories from the value and quantities of the opening and closing inventories using methods that attempt to partition the difference between the values of the opening and closing stocks of assets into transactions and nominal holding gains. Such methods are only as good as the assumptions on which they are based. Estimating holding gains and losses based only on period end data involves two problematical assumptions. The first is that prices increase linearly throughout the period; the second is that the changes in volume of inventories increase or decrease linearly between opening and closing balance sheets. Both assumptions are improbable, especially in the case of seasonal products. It should also be noted that this is not only a problem for the accumulation accounts as the values of changes in inventories of inputs and outputs are needed in order to measure intermediate consumption, output and value added and hence all the balancing items of the SNA. In general, if these sorts of assumptions need to be made in order to derive holding gains and losses, they should be made over as short a period as possible. In particular, the

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aggregation of quarterly estimates of this type will be preferable to an annual estimate of the same type.

Valuables

12.100 The nature of valuables is that they are held as a store of value in the expectation that their value will increase over time. Any increase in value of an individual valuable is treated as a nominal holding gain. This may be partitioned into a neutral and a real holding gain in the standard way.

Financial assets and liabilities

12.101 Because it is not always appropriate to describe financial assets and liabilities as having a price, holding gains and losses appear to be treated differently for different categories though the same basic principles apply to all categories. Other changes in the volume of financial assets and liabilities are possible, as described in section B, but are generally ignored in what follows.

12.102 Except for monetary gold and SDRs, the discussion is first in terms of assets denomination in domestic currency and then of the effects when they are denominated in foreign currency.

Monetary gold and SDRs

12.103 Because the price of gold is usually quoted in dollars, monetary gold is subject to nominal and real holding gains and losses because of changes in the exchange rate as well as in the price of gold itself.

12.104 Since the value of the SDR is based on a basket of four key currencies, the value of SDRs is always subject to nominal and real holding gains and losses. From time to time, new allocations of SDRs may be made; when this occurs the allocation is recorded as a transaction.

Currency

12.105 Domestic currency is not subject to any nominal holding gains or losses. It can be thought of as a fixed "quantity" of currency units (for example, one dollar) with a price that is always unity. However, although the nominal holding gains are zero, the neutral holding gains on currency are not. Under inflation, neutral holding gains are positive and so the associated real holding gains are negative and of an equal size.

Deposits and loans

12.106 Deposits and loans denominated in domestic currency also do not register nominal holding gains and losses for the same reasons as currency. There may be increases in the values of a loan or a deposit during an accounting period but this must be due to transactions including the addition of interest to the previous level of principal. As with currency, deposits and loans denominated in domestic currency register real holding losses of the same magnitude as their neutral holding gains.

Debt securities

12.107 Debt securities typically have market values and these market values change over time. However, not all of the changes in value are treated as holding gains and losses.

12.108 A bond is a security that gives the holder the unconditional right to a fixed money income or contractually determined variable money income over a specified period of time and (except in the case of perpetual bonds) the right also to a fixed sum as repayment of principal on a specified date or dates. Bonds are usually traded on markets and the holder of a bond may change several times during the life of the bond. The issuer of such a bond may sometimes be able to repay the principal outstanding at any time by purchasing it back in advance of the date on which it matures.

12.109 As explained in part 4 of chapter 17, when a bond is issued at a discount, including deep discounted and zero coupon bonds, the difference between its issue price and its face or redemption value when it matures measures interest that the issuer is obliged to pay over the life of the bond. Such interest is recorded as property income payable by the issuer of the bond and receivable by the holder of the bond in addition to any coupon interest actually paid by the issuer at specified intervals over the life of the bond. In principle, the interest accruing is treated as being simultaneously reinvested in the bond by the holder of the bond. It is, therefore, recorded in the financial account as the acquisition of additional value of the existing asset. Thus the gradual increase in the market price of a bond that is attributable to the accumulation of accrued, reinvested interest reflects a growth in the principal outstanding. It is essentially a quantum or volume increase and not a price increase. It does not generate any holding gain for the holder of the bond or holding loss for the issuer of the bond. The increases in value due to the accrual of interest are recorded in the distribution of primary income account and the financial account and not in the revaluation account (nor in the other changes in the volume of assets account).

12.110 The prices of fixed-rate marketable bonds also change, however, when the market rates of interest change, the prices varying inversely with the interest rate movements. The impact of a given interest rate change on the price of an individual bond is less, the closer the bond is to maturity. Changes in bond prices that are attributable to changes in market rates of interest constitute price and not quantum changes. They therefore generate nominal holding gains or losses for both the issuers and the holders of the bonds. An increase in interest rates generates a nominal holding gain for the issuer of the bond and an equal nominal holding loss for the holder of the bond, and vice versa in the case of a fall in interest rates. Whenever the interest rate changes, the market value of the bond changes; this change in value is recorded as a revaluation. Within the SNA, the interest recorded due to the fact that the redemption date is nearer is calculated on the basis of the interest rate at the issue date. Over the whole of the life of the bond, therefore, the holding gains and losses are offsetting and total interest recorded is the difference between issue price and redemption price.

12.111 Prices of bonds may also change because of a change in the creditworthiness (up as well as down) of the issuer or

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guarantor. Such changes give rise to the same sorts of entries as changes in the interest rate. This is because the market price of the bond changes to reflect the market's view of the creditworthiness of the issuer. It does not imply that impairments to loans and deposits should be treated as revaluations. The appropriate treatment for impaired loans is discussed in paragraphs 13.66 to 13.68.

12.112 Nominal holding gains or losses may accrue on bills in the same way as for bonds. However, as bills are short-term securities with much shorter times to maturity, the holding gains generated by interest rate changes are generally much smaller than on bonds with the same face values.

Equity and investment fund shares

12.113 For corporations that are foreign direct investment enterprises and investment funds, any undistributed earnings are shown as reinvested earnings in the distribution of primary income account and as reinvestment of earnings in the financial account. Reinvestment of earnings increases the value of equity and investment fund shares. For listed shares and investment fund shares and units, market prices exist and changes in the value other than via reinvested earnings are treated as holding gains and losses exactly as for inventories with no storage component or valuables.

12.114 For other forms of equity, holding gains are calculated in a manner similar to the way in which the value of the equity is calculated. For example, for a quasi-corporation where the value of other equity is derived as the balance of assets less liabilities, holding gains are calculated as the sum of holding gains on assets less the holding gains on liabilities.

Insurance, pension and standardized guarantee schemes

12.115 When the reserves for insurance and standardized guarantee schemes are denominated in domestic currency, there are generally no nominal holding gains and losses just as there are none for currency or deposits and loans. Exceptionally, if a figure for a claim outstanding has been agreed and it has been agreed to be indexed pending payment, then there may be a nominal holding gain or loss recorded for it.

12.116 As far as pension entitlements are concerned, increases in the value of entitlements due to indexation are recorded via reinvestment of investment income payable to the beneficiaries and not in the revaluation account.

12.117 The assets the financial institutions use to meet their commitments under these schemes do indeed benefit from holding gains, for example investments in equity and investment funds, but the liabilities towards the policyholders and beneficiaries change only as a result of transactions and other changes in the volume of assets.

Financial derivatives and employee stock options

12.118 Financial derivatives have quoted prices and thus register nominal holding gains and losses as for listed shares and investment fund shares and units. As explained in part 6 of chapter 17, employee stock options may also register nominal holding gains and losses.

Other accounts receivable or payable

12.119 Other accounts receivable or payable denominated in domestic currency do not register nominal holding gains and losses. All changes in value between the start and end of the accounting period are due to transactions, possibly including accrued interest. As with currency, there may be real holding gains equal in magnitude to the neutral holding losses under inflation.

Assets denominated in foreign currency

12.120 Residents may hold assets denominated in foreign currency just as non-residents may hold assets denominated in domestic currency. For balance sheet purposes, the value of an asset denominated in foreign currency is measured by its current value in foreign currency converted into the currency of the country in which its owner is resident at the mid-point of the bid and offer rate of the exchange rate on the balance sheet date. Nominal holding gains may therefore occur not only because the price of the asset in local currency changes but also because the exchange rate changes.

12.121 Neutral holding gains are calculated in the same way as for any other type of asset by calculating what the holding gains would have been if the prices of the assets, expressed in the domestic currency, had moved in the same way as the general internal price level. Real holding gains, again expressed in the domestic currency, can then be derived residually by subtracting the neutral from the nominal gains. If, in addition to the asset being denominated in foreign currency, either the creditor or debtor is non-resident, the real holding gains (losses) of the creditor need not be equal to the real holding losses (gains) of the debtor when the general rates of inflation are different in the two countries.

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Table 12.6:The revaluation account - changes in assets

Changes in assets

	Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Nominal holding gains and losses	Non-financial assets	144	4	44	80	8	280			280
	Produced non-financial assets	63	2	21	35	5	126			126
	Fixed assets	58	2	18	28	5	111			111
	Inventories	4		1	2		7			7
	Valuables	1		2	5		8			8
	Non-produced non-financial assets	81	2	23	45	3	154			154
	Natural resources	80	1	23	45	3	152			152
	Contracts, leases and licences	1	1				2			2
	Goodwill and marketing assets									
	Financial assets/liabilities	8	57	1	16	2	84	7		91
	Monetary gold and SDRs		11	1			12			12
	Currency and deposits						0			0
	Debt securities	3	30		6	1	40	4		44
	Loans						0			0
	Equity and investment fund shares/units	5	16		10	1	32	3		35
	Insurance, pension and standardized guarantee schemes						0			0
	Financial derivatives and employee stock options						0			0
	Other accounts receivable/payable						0			0
Neutral holding gains	Non-financial assets	101	3	32	56	6	198			198
	Produced non-financial assets	60	2	20	34	5	121			121
	Fixed assets	58	2	18	28	5	111			111
	Inventories	1		1	2		4			4
	Valuables	1		1	4		6			6
	Non-produced non-financial assets	41	1	12	22	1	77			77
	Natural resources	40	1	12	22	1	76			76
	Contracts, leases and licences	1					1			1
	Goodwill and marketing assets									
	Financial assets/liabilities	18	71	8	36	3	136	12		148
	Monetary gold and SDRs		14	2			16			16
	Currency and deposits	8		3	17	2	30	2		32
	Debt securities	2	18		4	1	25	3		28
	Loans	1	24	3			28	1		29
	Equity and investment fund shares/units	3	14		9		26	2		28
	Insurance, pension and standardized guarantee schemes	1	1		5		7	1		8
	Financial derivatives and employee stock options						0			0
	Other accounts receivable/payable	3			1		4	3		7
Real holding gains and losses	Non-financial assets	43	1	12	24	2	82			82
	Produced non-financial assets	3	0	1	1	0	5			5
	Fixed assets	0	0	0	0	0				
	Inventories	3	0	0	0	0	3			3
	Valuables	0	0	1	1	0	2			2
	Non-produced non-financial assets	40	1	11	23	2	77			77
	Natural resources	40	0	11	23	2	76			76
	Contracts, leases and licences	0	1	0	0	0	1			1
	Goodwill and marketing assets									
	Financial assets/liabilities	- 10	- 14	- 7	- 20	- 1	- 52	- 5		- 57
	Monetary gold and SDRs	0	- 3	- 1	0	0	- 4	0		- 4
	Currency and deposits	- 8	0	- 3	- 17	- 2	- 30	- 2		- 32
	Debt securities	1	12	0	2	0	15	1		16
	Loans	- 1	- 24	- 3	0	0	- 28	- 1		- 29
	Equity and investment fund shares/units	2	2	0	1	1	6	1		7
	Insurance, pension and standardized guarantee schemes	- 1	- 1	0	- 5	0	- 7	- 1		- 8
	Financial derivatives and employee stock options	0	0	0	0	0				
	Other accounts receivable/payable	- 3	0	0	- 1	0	- 4	- 3		- 7

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Table 12.6 (cont):The revaluation account - changes in liabilities and net worth

Changes in liabilities and net worth

	Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Nominal holding gains and losses	Non-financial assets									
	Produced non-financial assets									
	Fixed assets									
	Inventories									
	Valuables									
	Non-produced non-financial assets									
	Natural resources									
	Contracts, leases and licences									
	Goodwill and marketing assets									
	Financial assets/liabilities	18	51	7	0	0	76	15		91
	Monetary gold and SDRs							12		12
	Currency and deposits									
	Debt securities	1	34	7			42	2		44
	Loans									
	Equity and investment fund shares/units	17	17				34	1		35
	Insurance, pension and standardized guarantee schemes									
	Financial derivatives and employee stock options									
	Other accounts receivable/payable									
	Changes in net worth due to nominal holding gains/losses	134	10	38	96	10	288	- 8		280
Neutral holding gains	Non-financial assets									
	Produced non-financial assets									
	Fixed assets									
	Inventories									
	Valuables									
	Non-produced non-financial assets									
	Natural resources									
	Contracts, leases and licences									
	Goodwill and marketing assets									
	Financial assets/liabilities	37	68	13	5	3	126	22		148
	Monetary gold and SDRs							16		16
	Currency and deposits	1	26	2		1	30	2		32
	Debt securities	1	21	4			26	2		28
	Loans	18		7	3	1	29			29
	Equity and investment fund shares/units	14	14				28			28
	Insurance, pension and standardized guarantee schemes		7				7	1		8
	Financial derivatives and employee stock options									
	Other accounts receivable/payable	3			2	1	6	1		7
	Changes in net worth due to neutral holding gains/losses	82	6	27	87	6	208	- 10		214
Real holding gains and losses	Non-financial assets									
	Produced non-financial assets									
	Fixed assets									
	Inventories									
	Valuables									
	Non-produced non-financial assets									
	Natural resources									
	Contracts, leases and licences									
	Goodwill and marketing assets									
	Financial assets/liabilities	- 19	- 17	- 6	- 5	- 3	- 50	- 7		- 57
	Monetary gold and SDRs	0	0	0	0	0	0	- 4		- 4
	Currency and deposits	- 1	- 26	- 2	0	- 1	- 30	- 2		- 32
	Debt securities	0	13	3	0	0	16	0		16
	Loans	- 18	0	- 7	- 3	- 1	- 29	0		- 29
	Equity and investment fund shares/units	3	3	0	0	0	6	1		7
	Insurance, pension and standardized guarantee schemes	0	- 7	0	0	0	- 7	- 1		- 8
	Financial derivatives and employee stock options	0	0	0	0	0	0	0		0
	Other accounts receivable/payable	- 3	0	0	- 2	- 1	- 6	- 1		- 7
	Changes in net worth due to real holding gains/losses	52	4	11	9	4	80	2		66

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Chapter 13: The balance sheet

A. Introduction

13.1 This chapter is concerned with measuring the stocks of assets, both non-financial and financial, and liabilities. Assets and liabilities can be aggregated across all types so as to show the total value of assets less liabilities, or net worth, of an institutional unit. Alternatively, the total value of a given type of asset across all units in the economy can be derived. Tables depicting the first sort of aggregation are called balance sheets; those depicting the second sort are called asset accounts. For both balance sheets and asset accounts, it is also important to show how the transactions and other flows recorded during the course of an accounting period explain the changes in value of the stock in question between the start and end of the period. The value of the stock at the start of the period is referred to as the opening stock and the value at the end of the period is referred to as the closing stock. Sometimes a stock level is referred to as a position, especially in the balance of payments context.

1. Balance sheets

13.2 ***A balance sheet is a statement, drawn up in respect of a particular point in time, of the values of assets owned and of the liabilities owed by an institutional unit or group of units***. A balance sheet may be drawn up for institutional units, institutional sectors and the total economy. A similar account is drawn up showing the stock levels of assets and liabilities originating in the total economy held by non-residents and of foreign assets and liabilities held by residents. In *BPM6* this account is called the international investment position (IIP) but is drawn up from the point of view of residents whereas in the SNA it is drawn up from the point of view of the rest of the world with the rest of the world being treated in the same way as domestic sectors.

13.3 Assets appear in the balance sheet of the unit that is the economic owner of the asset. In many cases this unit will also be the legal owner but in the case of a financial lease, the leased asset appears on the balance sheet of the lessee, while the lessor has a financial asset of similar amount and a corresponding claim against the lessee. On the other hand, when a natural resource is the subject of a resource lease, the asset continues to appear in the balance sheet of the lessor even though most of the economic risks and rewards of using the asset in production are assumed by the lessee. A fuller description of the treatment of leases is given in part 5 of chapter 17 and of the distinction between legal and economic owner is given in chapter 3.

13.4 The financial and non-financial resources at the disposal of an institutional unit or sector shown in the balance sheet provide an indicator of economic status. These resources are summarized in the balancing item, net worth. ***Net worth is defined as the value of all the assets owned by an institutional unit or sector less the value of all its outstanding liabilities.*** For the economy as a whole, the balance sheet shows the sum of non-financial assets and net claims on the rest of the world. This sum is often referred to as national wealth.

13.5 The balance sheet completes the sequence of accounts, showing the ultimate result of the entries in the production, distribution and use of income, and accumulation accounts.

13.6 The existence of a set of balance sheets integrated with the flow accounts encourages analysts to look more broadly when monitoring and assessing economic and financial conditions and behaviour. Balance sheets provide information necessary for analysing a number of topics. For example, in studies of the factors determining household behaviour, consumption and saving functions often include wealth variables to capture the effects of such factors as price fluctuations in corporate securities or the deterioration and obsolescence of stocks of durable consumer goods on households' purchasing patterns. Further, balance sheets for groups of households are needed in order to assess the distribution of wealth and liquidity.

13.7 Balance sheets allow economists to assess the financial status of a sector and permit risk analyses by a central bank, for example. For corporations, balance sheets permit the computation of widely used ratios that involve data on the level of the different items on the balance sheet. Banks and other financial institutions, for example, are required to maintain specific reserve ratios that can be monitored via a balance sheet. Non-financial corporations check certain ratios such as current assets in relation to current liabilities and the market value of corporate shares in relation to the adjusted book value. Data on the stocks of fixed assets owned by corporations, as well as by other institutional units, are useful in studies of their investment behaviour and needs for financing. Balance sheet information on financial assets held by, and liabilities owed to, non-residents are of considerable interest as indicators of the economic resources of a nation and for assessing the external debtor or creditor position of a country.

2. Asset accounts

13.8 As well as drawing up a balance sheet showing the values of all assets held by an institutional unit, it is possible to draw up a similar account for the value of a single type of

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Table 13.1:Opening and closing balance sheets with changes in assets

	Stocks and changes in assets	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Opening balance sheet	Non-financial assets	2 151	93	789	1 429	159	4 621			4 621
	Produced non-financial assets	1 274	67	497	856	124	2 818			2 818
	Fixed assets	1 226	52	467	713	121	2 579			2 579
	Inventories	43		22	48	1	114			114
	Valuables	5	15	8	95	2	125			125
	Non-produced non-financial assets	877	26	292	573	35	1 803			1 803
	Natural resources	864	23	286	573	35	1 781			1 781
	Contracts, leases and licences	13	3	6			22			22
	Goodwill and marketing assets									
	Financial assets/liabilities	982	3 421	396	3 260	172	8 231	805		9 036
	Monetary gold and SDRs		690	80			770			770
	Currency and deposits	382		150	840	110	1 482	105		1 587
	Debt securities	90	950		198	25	1 263	125		1 388
	Loans	50	1 187	115	24	8	1 384	70		1 454
	Equity and investment fund shares/units	280	551	12	1 749	22	2 614	345		2 959
	Insurance, pension and standardized guarantee schemes	25	30	20	391	4	470	26		496
	Financial derivatives and employee stock options	5	13	0	3	0	21	0		21
	Other accounts receivable/payable	150		19	55	3	227	134		361
Total changes in assets	Non-financial assets	300	- 2	57	116	11	482			482
	Produced non-financial assets	195	- 4	29	67	7	294			294
	Fixed assets	165	- 2	23	53	7	246			246
	Inventories	27	0	1	4	0	32			32
	Valuables	3	- 2	5	10	0	16			16
	Non-produced non-financial assets	105	2	28	49	4	188			188
	Natural resources	101	1	26	48	4	180			180
	Contracts, leases and licences	4	1	2	1	0	8			8
	Goodwill and marketing assets	0	0	0	0	0	0			0
	Financial assets/liabilities	93	230	- 9	205	4	523	54		577
	Monetary gold and SDRs	0	10	1	0	0	11	1		12
	Currency and deposits	39	10	- 26	64	2	89	11		100
	Debt securities	10	96	4	16	0	126	13		139
	Loans	19	53	3	3	0	78	4		82
	Equity and investment fund shares/units	17	44	3	76	1	141	15		156
	Insurance, pension and standardized guarantee schemes	1	8	1	39	0	49	0		49
	Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
	Other accounts receivable/payable	4	1	5	4	1	15	10		25
Closing balance sheet	Non-financial assets	2 451	91	846	1 545	170	5 103			5 103
	Produced non-financial assets	1 469	63	526	923	131	3 112			3 112
	Fixed assets	1 391	50	490	766	128	2 825			2 825
	Inventories	70	0	23	52	1	146			146
	Valuables	8	13	13	105	2	141			141
	Non-produced non-financial assets	982	28	320	622	39	1 991			1 991
	Natural resources	965	24	312	621	39	1 961			1 961
	Contracts, leases and licences	17	4	8	1	0	30			30
	Goodwill and marketing assets	0	0	0	0	0	0			0
	Financial assets/liabilities	1 075	3 651	387	3 465	176	8 754	859		9 613
	Monetary gold and SDRs	0	700	81	0	0	781	1		782
	Currency and deposits	421	10	124	904	112	1 571	116		1 687
	Debt securities	100	1 046	4	214	25	1 389	138		1 527
	Loans	69	1 240	118	27	8	1 462	74		1 536
	Equity and investment fund shares/units	297	595	15	1 825	23	2 755	360		3 115
	Insurance, pension and standardized guarantee schemes	26	38	21	430	4	519	26		545
	Financial derivatives and employee stock options	8	21	0	6	0	35	0		35
	Other accounts receivable/payable	154	1	24	59	4	242	144		386

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Table 13.1 (cont):Opening and closing balance sheets with changes in liabilities and net worth

	Stocks and changes in liabilities	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Opening balance sheet	Non-financial assets									
	Produced non-financial assets									
	Fixed assets									
	Inventories									
	Valuables									
	Non-produced non-financial assets									
	Natural resources									
	Contracts, leases and licences									
	Goodwill and marketing assets									
	Financial assets/liabilities	3 221	3 544	687	189	121	7 762	1 274		9 036
	Monetary gold and SDRs						0	770		770
	Currency and deposits	40	1 281	102	10	38	1 471	116		1 587
	Debt securities	44	1 053	212	2		1 311	77		1 388
	Loans	897		328	169	43	1 437	17		1 454
	Equity and investment fund shares/units	1 987	765	4			2 756	203		2 959
	Insurance, pension and standardized guarantee schemes	12	435	19		5	471	25		496
	Financial derivatives and employee stock options	4	10				14	7		21
	Other accounts receivable/payable	237		22	8	35	302	59		361
	Net worth	- 88	- 30	498	4 500	210	5 090	- 469		4 621
Total changes in liabilities and net worth	Non-financial assets									
	Produced non-financial assets									
	Fixed assets									
	Inventories									
	Valuables									
	Non-produced non-financial assets									
	Natural resources									
	Contracts, leases and licences									
	Goodwill and marketing assets									
	Financial assets/liabilities	157	224	102	16	6	505	72		577
	Monetary gold and SDRs							12		12
	Currency and deposits	0	65	37	0	0	102	- 2		100
	Debt securities	7	64	45	0	0	116	23		139
	Loans	21	0	9	11	6	47	35		82
	Equity and investment fund shares/units	100	39	2	0	0	141	15		156
	Insurance, pension and standardized guarantee schemes	0	48	0	1	0	49	0		49
	Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
	Other accounts receivable/payable	26	0	9	4	0	39	- 14		25
	Changes in net worth, total	236	4	- 54	305	9	500	- 18		482
	Saving and capital transfers	88	- 5	- 90	210	- 1	202	- 10		192
	Other changes in volume of assets	14	- 1	- 2	- 1	0	10			10
	Nominal holding gains/losses	134	10	38	96	10	288	- 8		280
	Neutral holding gains/losses	82	6	27	87	6	208	- 10		198
	Real holding gains/losses	52	4	11	9	4	80	2		82
Closing balance sheet	Non-financial assets									
	Produced non-financial assets									
	Fixed assets									
	Inventories									
	Valuables									
	Non-produced non-financial assets									
	Natural resources									
	Contracts, leases and licences									
	Goodwill and marketing assets									
	Financial assets/liabilities	3 378	3 768	789	205	127	8 267	1 346		9 613
	Monetary gold and SDRs							782		782
	Currency and deposits	40	1 346	139	10	38	1 573	114		1 687
	Debt securities	51	1 117	257	2	0	1 427	100		1 527
	Loans	918	0	337	180	49	1 484	52		1 536
	Equity and investment fund shares/units	2 087	804	6	0	0	2 897	218		3 115
	Insurance, pension and standardized guarantee schemes	12	483	19	1	5	520	25		545
	Financial derivatives and employee stock options	7	18	0	0	0	25	10		35
	Other accounts receivable/payable	263	0	31	12	35	341	45		386
	Net worth	148	- 26	444	4 805	219	5 590	- 487		5 103

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asset (or liability) held by all institutional units in the economy. This is called an asset account. A basic accounting identity links the opening balance sheet and the closing balance sheet for a given asset:

The value of the stock of a specific type of asset in the opening balance sheet;

plus the total value of the same type of asset acquired, less the total value of the same type of asset disposed of, in transactions that take place within the accounting period: transactions in non-financial assets are recorded in the capital account (including consumption of fixed capital) and transactions in financial assets are recorded in the financial account;

plus the value of other positive or negative changes in the volume of these assets held, for example, as a result of the discovery of a subsoil asset or the destruction of an asset (as a result of war or a natural disaster): these changes are recorded in the other changes in the volume of assets account;

plus the value of the positive or negative nominal holding gains accruing during the period resulting from a change in the price of the asset: these changes are shown in the revaluation account;

equals the value of the stock of the asset in the closing balance sheet.

Table 13.2:Asset accounts for the total economy

				Revaluation account			
	Opening balance sheet	Capital and financial account	Other changes in the volume of assets account	Nominal holding gains and losses	Neutral holding gains and losses	Real holding gains and losses	Closing balance sheet
Non-financial assets	4 621	192	10	280	198	82	5 103
Produced assets	2 818	175	- 7	126	121	5	3 112
Fixed assets	2 579	137	- 2	111	111	0	2 825
Dwellings							
Other buildings and structures							
Machinery and equipment							
Weapons systems							
Cultivated biological resources							
Intellectual property products							
Inventories	114	28	- 3	7	4	3	146
Valuables	125	10	- 2	8	6	2	141
Non-produced assets	1 803	17	17	154	77	77	1 991
Natural resources	1 781	17	11	152	76	76	1 961
Land							
Mineral and energy reserves							
Non-cultivated biological resources							
Water resources							
Other natural resources							
Contracts, leases and licences	22	0	6	2	1	1	30
Goodwill and marketing assets	0	0	0	0	0	0	0
Financial assets	8 231	436	3	84	136	- 52	8 754
Monetary gold and SDRs	770	- 1	0	12	16	- 4	781
Currency and deposits	1 482	89	0	0	30	- 30	1 571
Debt securities	1 263	86	0	40	25	15	1 389
Loans	1 384	78	0	0	28	- 28	1 462
Equity and investment fund shares/units	2 614	107	2	32	26	6	2 755
Insurance, pension and standardised guarantee schemes	470	48	1	0	7	- 7	519
Financial derivatives and employee stock options	21	14	0	0	0	0	35
Other accounts receivable/payable	227	15	0	0	4	- 4	242
Financial liabilities	7 762	426	3	76	126	- 50	8 267
Monetary gold and SDRs	0	0	0	0	0	0	0
Currency and deposits	1 471	102	0	0	30	- 30	1 573
Debt securities	1 311	74	0	42	26	16	1 427
Loans	1 437	47	0	0	29	- 29	1 484
Equity and investment fund shares/units	2 756	105	2	34	28	6	2 897
Insurance, pension and standardised guarantee schemes	471	48	1	0	7	- 7	520
Financial derivatives and employee stock options	14	11	0	0	0	0	25
Other accounts receivable/payable	302	39	0	0	6	- 6	341
Net worth	5 090	202	10	288	208	80	5 590

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13.9 Although balance sheets are more familiar to those used to working with commercial accounts, asset accounts are particularly useful for some types of analyses. One example is in connection with environmental accounting where the asset account provides a particularly revealing picture of whether an asset is being used sustainably or not. Another example is in connection with the development of capital stock series for fixed assets. Many financial statistics describe the evolution of an individual financial asset, for example showing how the level of lending has changed over the period.

3. Structure of the balance sheet

13.10 The balance sheet records assets on the left-hand side and liabilities and net worth on the right-hand side, as do the accumulation accounts for changes in these items. In table 13.1, only a limited number of classes of assets are shown, though in principle the table can include all the detailed non-financial assets described and defined in chapter 10 and the full set of financial assets and liabilities described and defined in chapter 11. A balance sheet relates to the values of assets and liabilities at a particular point in time. The SNA provides for balance sheets to be compiled at the beginning of the accounting period (with the same values as at the end of the preceding period) and at its end. The SNA then provides for a complete recording of the changes in the values of the various items in the balance sheet between the beginning and end of the accounting period to which the flow accounts of the SNA relate. The balancing item in the balance sheet is net worth, which, as noted earlier, is defined as the value of all the assets owned by an institutional unit or sector less the value of all its outstanding liabilities**.** Changes in net worth can thus be explained fully only by examining the changes in all the other items that make up the balance sheet.

13.11 Table 13.1 consists of three sections. The first shows the opening balance sheet and net worth for each institutional sector and the total economy. For the rest of the world, the only relevant entries are for contracts, leases and licences, financial assets and liabilities, and net worth.

13.12 The second part of table 13.1 consists of a summary of the entries in the capital, financial, other changes in volume of assets and revaluation accounts grouped by type of asset. The entries for fixed assets, for example, show the totals of the entries for fixed assets in each of the capital account, the other changes in volume of assets account and the revaluation account. Under these entries there is a breakdown showing how much of the change in net worth is due to saving and capital transfers, other changes in the volume of assets and holding gains. There is no entry carried forward from the financial account because the changes in net worth due to saving and capital transfers are completely exhausted by changes in transactions in financial and non-financial assets.

13.13 The third section of table 13.1 shows the closing balance sheet which is numerically equal, cell by cell, to the sum of the corresponding cells in the first two parts of the table. In practice, though, these figures will be determined independently and a reconciliation exercise needed to ensure the identities inherent in the table are satisfied.

4. Structure of asset accounts

13.14 An example of a set of asset accounts is given in table 13.2. The same data for the stock levels in the opening and closing balance sheets are given for the same range of assets, but instead of the breakdown by sectors, the columns show the entries for each type of asset coming from the capital and financial account, the other changes in the volume of assets account and the revaluation account.

13.15 Unlike table 13.1, table 13.2 does not include any entries for assets held by or due to the rest of the world because it focuses on the holding by resident units of particular assets and liabilities. However, by comparing the figures for financial assets and liabilities of the same instrument, it is possible to derive the balance with the rest of the world. For example, in the opening balance sheet figures, the value of financial assets for currency and deposits is 1 482 and of liabilities is 1 471. This implies that the rest of the world has a net liability with the national economy of 11. Table 13.1 shows that the asset position of the rest of the world is 105 and the liability position 116.

B. General principles of valuation

13.16 For the balance sheets to be consistent with the accumulation accounts of the SNA, every item in the balance sheet should be valued as if it were being acquired on the date to which the balance sheet relates. This implies that when they are exchanged on a market, assets and liabilities are to be valued using a set of prices that are current on the date to which the balance sheet relates and that refer to specific assets. In the case of non-financial assets, other than land, the value includes any associated costs of ownership transfer. Financial claims that are not traded on organized financial markets are valued at the amount the debtor must pay to the creditor to extinguish the claim.

13.17 The prices at which assets may be bought or sold on markets are the basis of decisions by investors, producers, consumers and other economic agents. For example, investors in financial assets (such as securities) and natural resources (such as land) make decisions in respect of acquisitions and disposals of these assets in the light of their values in the market. Producers make decisions about how much of a particular commodity to produce and about where to sell their output by reference to prices on markets. For a given asset, there is a clear relationship between the price paid by the purchaser and the price received by the seller. For non-financial assets other than land, the price paid by the purchaser exceeds that received by the seller by the costs of ownership transfer. In the case of financial

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assets, the value is the same for creditor and debtor because the costs of transferring financial assets and liabilities are treated as consumption rather than accumulation.

13.18 Ideally, observable market prices should be used to value all assets and liabilities in a balance sheet. However, in estimating the current market price for balance sheet valuation, a price averaged over all transactions in a market can be used if the market is one on which the items in question are regularly, actively and freely traded. When there are no observable prices because the items in question have not been purchased or sold on the market in the recent past, an attempt has to be made to estimate what the prices would be were the assets to be acquired on the market on the date to which the balance sheet relates.

13.19 In addition to values observed in markets or estimated from observed prices, values may be approximated for balance sheet valuation in two other ways. In some cases, values may be approximated by accumulating and revaluing acquisitions less disposals of the type of asset in question over its lifetime and adjusted for changes such as consumption of fixed capital; this generally is the most practical and also the preferred method for fixed assets, but it can be applied to other assets as well. In other cases, values may be approximated by the present, or discounted, value of future economic benefits expected from a given asset; this is the case for a number of financial assets, natural resources and even for fixed assets. With good information and efficient markets, the values of the assets obtained by accumulating and revaluing transactions should equal, or at least approximate, both the present, or discounted, value of the remaining future benefits to be derived from them and their market values when active second-hand markets exist. These three price bases are discussed below in general terms.

1. Value observed in markets

13.20 The ideal source of price observations for valuing balance sheet items is a market, like the stock exchange, in which each asset traded is completely homogeneous, is often traded in considerable volume and has its market price listed at regular intervals. Such markets yield data on prices that can be multiplied by indicators of quantity in order to compute the total market value of different classes of assets held by sectors and of different classes of their liabilities. These prices are available for nearly all financial claims, existing transportation equipment, crops, and livestock as well as for newly produced fixed assets and inventories.

13.21 For securities quoted on a stock exchange, for example, it is feasible to gather the prices of individual assets and of broad classes of assets and, in addition, to determine the global valuation of all the existing securities of a given type. In some countries, another example of a market in which assets may be traded in sufficient numbers to provide useful price information is the market for existing dwellings.

13.22 In addition to providing direct observations on the prices of assets actually traded there, information from such markets may also be used to price similar assets that are not traded. For example, information from the stock exchange also may be used to price unlisted shares by analogy with similar, listed shares, making some allowance for the inferior marketability of the unlisted shares. Similarly, appraisals of assets for insurance or other purposes generally are based on observed prices for items that are close substitutes, although not identical, and this approach can be used for balance sheet valuation. For a discussion of the special valuation problems associated with direct investment enterprises, see chapters 21 and 26.

2. Values obtained by accumulating and revaluing transactions

13.23 Most non-financial assets change in value year by year reflecting changes in market prices. At the same time, initial acquisition costs are reduced by consumption of fixed capital (in the case of fixed assets) or other forms of depreciation over the asset's expected life. The value of such an asset at a given point in its life is given by the current acquisition price of an equivalent new asset less the accumulated depreciation. This valuation is sometimes referred to as the "written-down replacement cost". When reliable, directly observed prices for used assets are not available, this procedure gives a reasonable approximation of what the market price would be were the asset to be offered for sale.

3. Present value of future returns

13.24 In the case of assets for which the returns either are delayed (as with forests) or are spread over a lengthy period (as with subsoil assets), although market prices are used to value the ultimate output, a rate of discount must, in addition, be used to compute the present value of the expected future returns.

4. Assets denominated in foreign currencies

13.25 Assets and liabilities denominated in foreign currencies should be converted into the domestic currency at the market exchange rate prevailing on the date to which the balance sheet relates. This rate should be the mid-point between the buying and selling spot rates for currency transactions.

C. The entries in the balance sheet

13.26 Definitions of the assets in the balance sheet at the most detailed level of the classification of assets are given in chapter 10 for non-financial assets and in chapter 11 for financial assets. Definitions are repeated in this section only to the extent needed to provide the context for

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information on valuation specific to particular assets and other specialized topics.

1. Produced assets

Fixed assets

13.27 In principle, fixed assets should be valued at the prices prevailing in the market for assets in the same condition as regards technical specifications and age. In practice, this sort of information is not available in the detail required and recourse must be had to valuation by another method, most commonly the value derived by adding the revaluation element that applied to the asset during the period covered by the balance sheet to the opening balance sheet value (or the time since acquisition for newly acquired assets) and deducting the consumption of fixed capital estimated for the period as well as any other volume changes and the value of disposals. In calculating the value of consumption of fixed capital, assumptions have to be made about the decline in price of the asset and even where full market information is not available, partial information should be used to check that the assumptions made are consistent with this.

13.28 Estimates of consumption of fixed capital must include the decline in value of the purchasers' costs of ownership transfer on acquisition and disposal associated with these assets. These are to be written off over the period the purchaser expects to own the asset. In many cases, this period may coincide with the expected life length of the asset but for some types of asset, particularly vehicles, the purchaser may intend to sell them after a certain period, for example, in order to acquire a newer model with a higher level of specification and lower maintenance costs. Installation costs should be treated in a similar manner. Where possible, the estimates of consumption of fixed capital should also allow for anticipated terminal costs such as decommissioning or rehabilitation. Further explanation of these adjustments can be found in chapters 10 and 19. More detail on the application of a perpetual inventory method (PIM) of estimating the value of capital stock of fixed assets can be found in *Measuring Capital*.

13.29 For dwellings, there may be adequate information available from the sale of both new and existing buildings to assist in making balance sheet estimates of the total value of dwellings. However house prices depend to a considerable extent on location and the geographical pattern of sales in the period may not cover all areas adequately, in which case a technique such as a PIM will have to be used. This technique will probably also apply to many other buildings and structures since their characteristics are often specific to the structure concerned.

13.30 The value of land improvements is shown as the written down value of the improvements as originally carried out, suitably revalued. This will always be equal to the difference in value between the land concerned in an unimproved or natural state, and its value after the improvements have been effected, though both the land and the land improvements will be subject to price changes over time.

13.31 Markets for existing automobiles, aircraft, and other transportation equipment may be sufficiently representative to yield useful price observations for valuation of these stocks or at least to use in conjunction with a set of PIM assumptions. In the case of existing industrial plant and equipment, however, observed prices on markets may not be suitable for determining values for use in the balance sheets, either because many of the transactions involve assets that for some reason are not typical, or because they embody specialized characteristics, or because they are obsolete or because they are being disposed of under financial duress.

13.32 For balance sheet purposes, livestock that continue to be used in production year after year should be valued on the basis of the current purchasers' prices for animals of the same age. Such information is less likely to be available for trees (including shrubs) cultivated for products they yield year after year; in this case they should then be recorded at the current written-down value of the cumulated capital formation.

13.33 Research and development expenditure carried out on contract is valued at the contract price. If carried out on own account, it is valued as cumulated costs. If it is carried out by a market producer, the costs include a return to capital. Both valuations need to be increased for changes in prices and reduced because of consumption of fixed capital over the life of the asset.

13.34 Even though costs of ownership transfer on non-produced assets (other than land) are shown separately in the capital account, and treated as gross fixed capital formation, in the balance sheets these costs are incorporated in the value of the asset to which they relate even though the asset is non-produced. Thus there are no costs of ownership transfer shown separately in the balance sheets. The costs of ownership transfer on financial assets are treated as intermediate consumption when the assets are acquired by corporations or government, final consumption when the assets are acquired by households and exports of services when the assets are acquired by non-residents.

13.35 Mineral exploration and evaluation should be valued either on the basis of the amounts paid under contracts awarded to other institutional units for the purpose or on the basis of the costs incurred for exploration undertaken on own account. These costs should include a return to the fixed capital used in the exploration activity. That part of exploration undertaken in the past that has not yet been fully written off should be revalued at the prices and costs of the current period.

13.36 Originals of intellectual property products, such as computer software and entertainment, literary or artistic originals should be entered at the written down value of their initial cost, revalued to the prices of the current period. Since these products will have often been produced on own account, the initial cost may be estimated by the sum of costs incurred including a return to capital on the fixed assets used in production. If value cannot be established in this way, it may be appropriate to estimate the present value of future returns arising from the use of the original in production.

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13.37 Subsequent copies may appear as assets (i) if the original owner has subcontracted the duties of reproducing and providing support to users of the copies, or (ii) if a copy is being used under a contract that is effectively a financial lease. In these cases, market prices should be available to use for valuation.

Inventories

13.38 Inventories should be valued at the prices prevailing on the date to which the balance sheet relates, and not at the prices at which the products were valued when they entered inventory. In the balance sheets, figures for inventories frequently have to be estimated by adjusting figures of book values of inventories in business accounts, as described in chapter 6.

13.39 As is the case elsewhere in the SNA, inventories of materials and supplies are valued at purchasers' prices, and inventories of finished goods and work-in-progress are valued at basic prices. Inventories of goods intended for resale without further processing by wholesalers and retailers are valued at prices paid for them, excluding any transportation costs that have been separately invoiced to the wholesalers or retailers and included in their intermediate consumption.

13.40 For inventories of work-in-progress, the value for the closing balance sheet should be consistent with the value of the opening balance sheet, plus any work put in place during the current period, less any work completed and reclassified as finished goods. In addition, an allowance for any necessary revaluation for changes in prices in the period must be included. As explained in chapter 6 and chapter 19, the time series of the value of work in progress put in place over a period of time should reflect the increase in value of work put in place earlier as the delivery date approaches.

13.41 Standing single-use crops (including timber) cultivated by human activity and livestock being raised for slaughter are also counted as inventories in work-in-progress. The conventional way of valuing standing timber is to discount the future proceeds of selling the timber at current prices after deducting the expenses of bringing the timber to maturity, felling, etc. For the most part, other crops and livestock can be valued by reference to the prices of such products on markets.

Valuables

13.42 Given their primary role as stores of value, it is especially important to value works of art, antiques, jewellery, precious stones and metals at current prices. To the extent that well-organized markets exist for these items, they should be valued at the actual or estimated prices that would be paid for them to the owner were they sold on the market, excluding any agents' fees or commissions payable by the seller, on the date to which the balance sheet relates. On acquisition they are valued at the price paid by the purchaser including any agents' fees or commissions.

13.43 An approach in the absence of organized markets is to value these items using data on the values at which they are insured against fire, theft, etc., to the extent information is available.

2. Non-produced assets

Natural resources

Land

13.44 In principle, the value of land to be shown under natural resources in the balance sheet is the value of land excluding the value of improvements, which is shown separately under fixed assets, and excluding the value of buildings on the land which is also to be shown separately under fixed assets. Land is valued at its current price paid by a new owner, excluding the costs of ownership transfer which are treated, by convention, as gross fixed capital formation and part of land improvements and are subject to consumption of fixed capital.

13.45 Because the current market value of land can vary considerably according to its location and the uses for which it is suitable or sanctioned, it is essential to identify the location and use of a specific piece or tract of land and to price it accordingly.

13.46 For land underlying buildings, the market will, in some instances, furnish data directly on the value of the land. More typically, however, such data are not available and a more usual method is to calculate ratios of the value of the site to the value of the structure from valuation appraisals and to deduce the value of land from the replacement cost of the buildings or from the value on the market of the combined land and buildings. When the value of land cannot be separated from the building, structure, or plantation, vineyard, etc. above it, the composite asset should be classified in the category representing the greater part of its value. Similarly, if the value of the land improvements (which include site clearance, preparation for the erection of buildings or planting of crops and costs of ownership transfer) cannot be separated from the value of land in its natural state, the value of the land may be allocated to one category or the other depending on which is assumed to represent the greater part of the value.

13.47 It is usually much easier to make a division between land and buildings for the total economy than for individual sectors or subsectors. Separate figures are needed for studies of national wealth and environmental problems. Fortunately, combined figures are often suitable for purposes of analysing the behaviour of institutional units and sectors.

13.48 Land appears on the balance sheet of the legal owner except when it is subject to a financial lease as may most often occur in connection with a financial lease over a building or plantation on the land. By convention, an exception is made for cases where the legal owner of a building is not the legal owner of the land on which the building stands but the purchase price of the building includes an upfront payment of rent on the land beneath without any prospect of further payments being due in future. In such a case, land is recorded on the balance sheet of the owner of the building on the land.

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Mineral and energy resources

13.49 The value of subsoil mineral and energy resources is usually determined by the present value of the expected net returns resulting from the commercial exploitation of those resources, although such valuations are subject to uncertainty and revision. As the ownership of mineral and energy resources does not change frequently on markets, it may be difficult to obtain appropriate prices that can be used for valuation purposes. In practice, it may be necessary to use the valuations that the owners of the assets place on them in their own accounts.

13.50 It is frequently the case that the enterprise extracting a resource is different from the owner of the resource. In many countries, for example, oil resources are the property of the state. However, it is the extractor who determines how fast the resource will be depleted and since the resource is not renewable on a human time-scale, it appears as if there has been a change of economic ownership to the extractor even if this is not the legal position. Nor is it necessarily the case that the extractor will have the right to extract until the resource is exhausted. Because there is no wholly satisfactory way in which to show the value of the asset split between the legal owner and the extractor, the whole of the resource is shown on the balance sheet of the legal owner and the payments by the extractor to the owner shown as rent. (This is therefore an extension of the concept of a resource rent applied in this case to a depletable asset.)

Non-cultivated biological resources, water resources and other natural resources

13.51 Non-cultivated biological resources, water and other natural resources are included in the balance sheet to the extent that they have been recognized as having economic value that is not included in the value of the associated land. As observed prices are not likely to be available, they are usually valued by the present value of the future returns expected from them.

Contracts, leases and licences

13.52 Contracts, leases and licences may be marketable operating leases, licences to use natural resources, permits to undertake specific activities and entitlement to future goods and services on an exclusive basis. As explained in part 5 of chapter 17, these sorts of contracts are regarded as assets only if the existence of the legal agreement confers benefits on the holder in excess of the price paid to the lessor, owner of the natural resource or permit issuer and the holder can realize these benefits legally and practically. It is recommended that such assets be recorded only when the value of the asset is significant and is realized, in which case a suitable market price necessarily exists. The asset does not exist beyond the length of the contract agreement and its value must be reduced accordingly as the remaining contract period shortens.

Goodwill and marketing assets

13.53 The balance sheet entry for goodwill and marketing assets is the written-down value of the entry that appears in the financial account when an enterprise is taken over or when a marketing asset is sold. These entries are not revalued.

3. Financial assets and liabilities

13.54 In line with the general valuation principles described above, whenever financial assets and liabilities are regularly traded on organized financial markets, they should be valued at current prices. Financial claims that are not traded on organized financial markets should be valued by the amount that a debtor must pay to the creditor to extinguish the claim. Financial claims should be assigned the same value in the balance sheets whether they appear as assets or liabilities. The prices should exclude service charges, fees, commissions and similar payments for services provided in carrying out the transactions. There is more detailed discussion on the definition of financial assets and their recording in chapter 11 and part 4 of chapter 17.

Monetary gold and SDRs

13.55 Monetary gold is to be valued at the price established in organized markets or in bilateral arrangements between central banks.

13.56 The value of the SDR is determined daily by the IMF on the basis of a basket of currencies. Rates against domestic currencies are obtainable from the prices in foreign exchange markets; both the basket and the weights are revised from time to time.

Currency and deposits

13.57 For currency, the valuation is the nominal or face value of the currency. For deposits, the values to be recorded in the balance sheets of both creditors and debtors are the amounts of principal that the debtors are contractually obliged to repay the creditors under the terms of the deposits when the deposits are liquidated. The amount of principal outstanding includes any interest and service charge due but not paid. Currency and deposits in foreign currency are converted to domestic currency at the mid-point of the bid and offer spot exchange rates prevailing on the date of the balance sheet. Repayable margin payments in cash related to financial derivatives contracts are included in other deposits.

Debt securities

13.58 Short-term securities, and the corresponding liabilities, are to be valued at their current market values. Such a valuation is particularly important under conditions of high inflation or high nominal interest rates.

13.59 Long-term securities should always be valued at their current prices on markets, whether they are bonds on which regular payments of interest are paid or deep-discounted or zero-coupon bonds on which little or no interest is paid. The price should always be that including accrued interest (the so-called “dirty” price). Although the nominal liability of the issuer of a long-term security may be fixed in money terms, the market prices at which fixed interest securities are traded may vary considerably in response to variations

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in general market rates of interest. As the issuer of a long-term security usually has the opportunity to refinance the debt by repurchasing the security on the market, valuation at market prices is generally appropriate for both issuers and holders of long-term securities, especially financial transactors who actively manage their assets or liabilities.

13.60 An index-linked debt security is also valued at its market price in the balance sheet whatever the nature of the index to which the security is linked.

13.61 If both the principal and coupons of a debt instrument are indexed to a foreign currency, the security should be treated as if it is denominated in that foreign currency with conversion to domestic currency at the mid-point of the rates prevailing on the date of the balance sheet.

Loans

13.62 The values of loans to be recorded in the balance sheets of both creditors and debtors are the amounts of principal outstanding. This amount should include any interest that has been earned but not been paid. It should also include any amount of indirectly measured service charge (the difference between bank interest and SNA interest) due on the loan that has accrued and not been paid. In some instances, accrued interest may be shown under accounts receivable or payable but inclusion in loans is to be preferred if possible.

13.63 The value of a loan does not reflect the consequences of any interest payments due after the date of the balance sheet, even if these were specified in the original loan agreement.

13.64 If there is evidence of a secondary market for a loan, and frequent market quotations are available, the loan is reclassified as a security. A loan that is traded once only and for which there is no evidence of a continuing market is not reclassified but continues to be treated as a loan. The valuation rules for debt securities and loans then apply.

13.65 Loans where the principal is index-linked, or both principal and interest are indexed to a foreign currency, should be treated in the manner described above for debt securities with these characteristics.

Non-performing loans

13.66 Despite the fact that loans are to be recorded in the balance sheets at nominal values, certain loans that have not been serviced for some time should be identified and memorandum items concerning them should be included in the balance sheet of the creditor. These loans are termed non-performing loans. A common definition of such a loan is as follows. ***A loan is non-performing when payments of interest or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons (such as a debtor filing for bankruptcy) to doubt that payments will be made in full.*** This definition of a non-performing loan is to be interpreted flexibly, taking into account national conventions on when a loan is deemed to be non-performing. Once a loan is classified as non-performing, it (or any replacement loans) should remain classified as such until payments are received or the principal is written off on this or subsequent loans that replace the original.

13.67 Two memorandum items are recommended relating to non-performing loans. The first is the nominal value of the loans so designated, including any accrued interest and service charge. The second is the market equivalent value of these loans. The closest approximation to market equivalent value is fair value, which is "the value that approximates the value that would arise from a market transaction between two parties". Fair value can be established using transactions in comparable instruments, or using the discounted present value of cash flows, or may sometimes be available from the balance sheets of the creditor. In the absence of fair value data, the memorandum item will have to use a second best approach and show nominal value less expected loan losses.

13.68 These memorandum items should be standard for both the government sector and the financial corporations sector. If they are significant for other sectors, or for loans with the rest of the world, they should be shown as supplementary items.

Equity and investment funds

Equity

13.69 *Listed shares* are regularly traded on stock exchanges or other organized financial markets. They should be valued in the balance sheets at their current prices.

13.70 For *unlisted shares*, there may be no observable market prices for positions in equity not listed on a stock exchange. This situation often arises for direct investment enterprises, private equity, equity in unlisted and delisted companies, listed but illiquid companies, joint ventures, and unincorporated enterprises.

13.71 When actual market values are not available, an estimate is required. Alternative methods of approximating market value of shareholders' equity in a direct investment enterprise follow. These are not ranked according to preference, and each would need to be assessed according to the circumstances and the plausibility of results.

a. *Recent transaction price.* Unlisted instruments may trade from time to time, and recent prices, within the past year, at which they were traded may be used. Recent prices are a good indicator of current market values to the extent that conditions are unchanged. This method can be used as long as there has been no material change in the corporation's position since the transaction date. Recent transaction prices become increasingly misleading as time passes and conditions change.

b. *Net asset value*. Appraisals of untraded equity may be conducted by knowledgeable management or directors of the enterprise, or provided by independent auditors to obtain total assets at current value less total liabilities

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(excluding equity) at market value. Valuations should be recent (within the past year).

c. *Present value/price to earnings ratios.* The present value of unlisted equity can be estimated by discounting the forecast future profits. At its simplest, this method can be approximated by applying a market or industry price-to-earnings ratio to the (smoothed) recent past earnings of the unlisted enterprise to calculate a price. This method is most appropriate where there is a paucity of balance sheet information but earnings data are more readily available.

d. *Book values reported by enterprises with macrolevel adjustments by the statistical compiler.* For untraded equity, information on "own funds at book value" can be collected from enterprises, then adjusted with ratios based on suitable price indicators, such as prices of listed shares to book value in the same economy with similar operations. Alternately, assets that enterprises carry at cost (such as land, plant, equipment, and inventories) can be revalued to current period prices using suitable asset price indices.

e. *Own funds at book value.* This method for valuing equity uses the value of the enterprise recorded in the books of the direct investment enterprise, as the sum of (i) paid-up capital (excluding any shares on issue that the enterprise holds in itself and including share premium accounts); (ii) all types of reserves identified as equity in the enterprise's balance sheet (including investment grants when accounting guidelines consider them company reserves); (iii) cumulated reinvested earnings; and (iv) holding gains or losses included in own funds in the accounts, whether as revaluation reserves or profits or losses. The more frequent the revaluation of assets and liabilities, the closer the approximation to market values. Data that are not revalued for several years may be a poor reflection of market values.

f. *Apportioning global value.* The current market value of a global enterprise group can be based on the market price of its shares on the exchange on which its equity is traded, if it is a listed company. Where an appropriate indicator may be identified (for example, sales, net income, assets, or employment), the global value may be apportioned to each economy in which it has direct investment enterprises, on the basis of that indicator, by making the assumption that the ratio of net market value to sales, net income, assets, or employment is a constant throughout the transnational enterprise group. (Each indicator could yield significantly different results from the others.)

13.72 In cases where none of the above methods is feasible, less suitable data may need to be used. For example, cumulated flows or a previous balance sheet adjusted by subsequent flows may be the only sources available. Since these sources use the prices of previous periods, they should be adjusted for subsequent price developments, for example by using aggregate share price or asset price indices, and taking into account exchange rate movements, where relevant. The use of unadjusted summing of past transactions is not a recommended practice. Equity represents owners' funds. The means through which equity can be generated may take various forms, such as share issues, equity injections without any commensurate issue of shares (sometimes called "contributed surplus" or "capital contributions"), share premiums, accumulated reinvested earnings, or revaluation. While these should be taken into account when cumulated flows need to be used as a starting point to measure the value of equity, the different categories are all components of equity and need not be identified separately in other cases.

13.73 If the current market price is not directly observable, the decision about the method to adopt should take into account the availability of information as well as judgments as to which available method best approximates market values. Different methods may be suitable for different circumstances and a standard ranking of the alternative methods is not proposed for valuing instruments when current market prices are not directly observable. Compilers should be transparent and should state clearly the method(s) used. Methods for valuation of direct investment equity positions are discussed in more detail in the *OECD Benchmark Definition of Foreign Direct Investment, fourth edition* (Organisation for Economic Co-operation and Development, 2008) referred to as the *BD*.

13.74 *Other equity* covers equity in any corporation or quasi-corporation that does not issue shares or units. Such corporations include public enterprises, the central bank, some special government units, partnerships, unlimited liability companies and quasi-corporations whenever they are institutional units without shares. Other equity should be valued as equal to the value of the unit's assets less the value of its liabilities.

Investment fund shares or units

13.75 Shares (or units) in money market funds or in other investment funds should be valued in a manner similar to the proposals under equity. Listed shares should be valued using the market price of the share. Unlisted shares should be valued according to one of the methods described above for unlisted equity.

Insurance, annuities, pension and standardized guarantee schemes

Non-life insurance technical reserves

13.76 The amount of the reserves for non-life insurance to be recorded in the balance sheet covers premiums paid but not earned at the date for which the balance sheet is drawn up plus the amount set aside to meet outstanding claims. This latter amount represents the present value of the amounts expected to be paid out in settlement of claims, including disputed claims, as well as allowances for claims for incidents which have taken place but have not yet been reported.

Life insurance and annuities entitlements

13.77 The amount to be recorded under the stock values for life insurance and annuities entitlement is similar to that for non-life insurance technical reserves in that it represents

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reserves sufficient to meet all future claims. However, in the case of life insurance, the level of the reserves is considerable and represents the present value of all expected future claims. In the commercial accounts of insurance corporations, some of these will be described as provisions for bonuses and rebates. These are the result of the insurance industry's practice of smoothing benefits over time and possibly retaining some benefits until the policy matures.

Pension entitlements

13.78 The entitlements due under pension schemes comprise two elements; one when the formula determining the amount of the pension is agreed in advance (as under a defined benefit scheme) and one where the amount of the pension depends on the performance of financial assets acquired with the future pensioner's contributions (a defined contribution scheme). For the former, an actuarial estimation of the liabilities of the pension provider is used; for the latter the value is the market value of the financial assets held by the pension fund on behalf of the future beneficiaries. The basis on which pension entitlement is calculated and the alternative means of representing these in the accounts of the SNA are described in detail in chapter 17.

Provisions for calls under standardized guarantees

13.79 The value to be entered in the balance sheet for provisions for calls under standardized guarantees is the expected level of claims under current guarantees less any expected recoveries. Strictly speaking, these amounts will represent a degree of double counting in the assets of the units benefiting from the guarantees. For example, if financial institutions make 1 000 loans of 20 each that are covered by guarantees and 10 are expected to default, the value of the loans made is still shown as 20 000 and in addition the lenders have an asset of 200 in respect of the expected calls under the guarantee. However, the unit offering the guarantee has a liability of 200 with no matching asset so the net worth for the whole economy is not overstated.

Financial derivatives

13.80 The treatment of derivatives is discussed in chapter 11. Financial derivatives should be included in the balance sheets at market value. If market value data are unavailable, other fair value methods to value derivatives, such as options models or present values, may be used.

Options

13.81 Options should be valued in the balance sheets as either the current value of the option, if this is available, or the amount of the premium payable. A liability should be entered in the sector of the writer of the option to represent either the current cost of buying out the rights of the option holder or the accrual of a holding gain. Depending on how margin systems operate, it may be appropriate to enter zero for the value of an option, as any profits (losses) will have been received (paid) daily by the holder. The counterpart of these asset entries should be entered as liabilities.

Forwards

13.82 A forward is recorded at market value. When payments are effected, the value of the asset and associated liability is amortized and subsequently reflected in the balance sheet value on the appropriate accounting date. The market value of a forward contract can switch between an asset position and a liability position between accounting dates depending on price movements in the underlying item(s). All price changes, including those that result in such switches, are treated as revaluations.

Employee stock options

13.83 Employee stock options (ESOs) should be valued by reference to the fair value of the equity instruments granted. The fair value of equity instruments should be measured at grant date using a market value of equivalent traded options (if available) or using an option pricing model (binomial or Black-Scholes) with suitable allowance for particular features of the options. The IASB gives detailed recommendations on how ESOs may be valued and their recommendations are likely to be followed by corporations using ESOs as a form of compensation for their employees. The value of the ESO alters between grant date and vesting date and then between the vesting date and exercise date as the value of the shares covered changes. Part 6 of chapter 17 covers ESOs in more detail.

Other accounts receivable or payable

13.84 Trade credit and advances and other items due to be received or paid (such as taxes, dividends, rent, wages and salaries, and social contributions) should be valued for both creditors and debtors at the amount of principal the debtors are contractually obliged to pay the creditors when the obligation is extinguished. Interest due on other accounts receivable or payable may be included here but, in general, interest due on debt securities is recorded as increasing the value of the asset concerned. Interest accruing on deposits and loans may have to follow national practices and be classified here if it is not incorporated into the principal of the relevant loan or deposit.

4. Net worth

13.85 Net worth is the difference between the value of all financial and non-financial assets and all liabilities at a particular point in time. For this calculation, each asset and each liability is to be identified and valued separately. As the balancing item, net worth is calculated for institutional units and sectors and for the total economy.

13.86 For government, households and NPISHs, the value of net worth is clearly the worth of the unit to its owners. In the case of quasi-corporations, net worth is zero, because the value of the owners' equity is assumed to be equal to its assets less its liabilities. For other corporations, the situation is less clear-cut.

13.87 In the SNA, net worth of corporations is calculated in exactly the same way as for other sectors, as the sum of all assets less the sum of all liabilities. In doing so, the value of shares and other equity, which are liabilities of

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corporations, are included in the value of liabilities. Shares are included at their market price on the balance sheet date. Thus, even though a corporation is wholly owned by its shareholders collectively, it is seen to have a net worth (which could be positive or negative) in addition to the value of the shareholders' equity.

13.88 An alternative calculation is similar to the treatment of quasi-corporations. This calculates the value of the shareholders' equity in such a way that net worth is zero. This calculation of shareholders' equity is called own funds and is calculated as the sum of its assets less the sum of its liabilities other than shares.

13.89 A non-zero value of own funds comes about through a number of factors. One reason is the existence of "assets" that are not recognized as such in the SNA such as goodwill and marketing assets. Another is that the view in the SNA that the value of some financial assets, such as bonds and non-performing loans, may not coincide with a fair value approach. Some or all of these items may be available from the balance sheet of the corporation and it may be useful to compare the sum of these with the amount derived as the difference between net worth and the value of owner's equity. (For unlisted shares, indeed, this may be one way to value these shares.) Further, the market value of shares reflects market sentiment about future income streams which may fluctuate with much more volatility than the underlying value of the corporation.

13.90 Own funds include accumulation over time of retained and reinvested earnings. Once current transfers receivable are added to entrepreneurial income and current transfers payable (and the pension entitlement adjustment) are deducted, what remains is available for distribution in the form of dividends. Retained earnings are the amount of a corporation's income available for distribution as dividends that is not so distributed. This amount may be negative on occasion, representing a withdrawal from own funds. In the case of a direct investment enterprise a proportion of retained earnings is treated as reinvested earnings, the proportion depending on the extent of the direct investor's ownership of the corporation. These earnings are recorded in the financial account as being reinvested in the corporation and form part of own funds at that time.

13.91 From time to time, some of own funds may be assigned to (or withdrawn from) either general or special reserves. They may be augmented by an injection of capital by the owners or by the receipt of investment grants.

5. Memorandum items

13.92 In addition to the memorandum items on non-performing loans, the SNA allows for two memorandum items to the balance sheets in order to show items not separately identified as assets in the central framework that are of more specialized analytic interest for particular institutional sectors. These two are consumer durables and foreign direct investment.

Consumer durables

13.93 Households acquire durable goods such as cars and electrical goods. However, these are not treated as being used in a production process giving rise to household services. They therefore do not constitute fixed assets and are not shown as such in the balance sheet. Nevertheless, it is useful to have data on these goods and so consumer durables are included in the balance sheets as a memorandum item. The stocks of consumer durables held by households are to be valued at current prices, both gross and net of accumulated depreciation equivalent to consumption of fixed capital. The figures shown as memorandum items in the balance sheet should be net of these accumulated charges.

13.94 Durable goods held by owners of unincorporated enterprises may be used partly by the enterprise for production and partly by members of the household for final consumption. The values shown in the balance sheet for the enterprise should reflect the proportion of the use that is attributable to the enterprise, but this may not always be known in practice.

Foreign direct investment

13.95 Just as flows of foreign direct investment are shown in the financial account, so it is interesting to have similar items in the balance sheets showing the stock of assets and liabilities invested in the country by non-residents and invested abroad by residents. All sectors may have investment abroad; only financial and non-financial corporations (excluding non-profit institutions within them) may receive investment from abroad.

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Chapter 14: The supply and use tables and goods and services account

A. Introduction

14.1 The sequence of accounts described in chapters 6 to 13 portrays the working of the economy with particular emphasis on how income is generated, distributed, redistributed and used for consumption or the acquisition of assets and when assets are disposed of, or a liability is incurred, to acquire other assets or undertake more consumption than current income permits. An alternative view of the economy focuses less on income and more on the processes of production and consumption. Where do products come from and how are they used? The present chapter is concerned with this aspect of the accounts. It consists of a description of a product balance and the generalization of this to the goods and services account, as well as the practical and conceptual benefits of these accounts. It also shows how supply and use tables can be compiled for the economy and provides a link to input-output tables, which are described in chapter 28.

14.2 In this chapter, and elsewhere, the expressions "product balance" and "product flow" methods are used in preference to "commodity balance" and "commodity flow method" as reflecting more recent usage of the word product in place of commodity. The change in terminology does not indicate a change in methodology, however.

14.3 Supply and use tables are a powerful tool with which to compare and contrast data from various sources and improve the coherence of the economic information system. They permit an analysis of markets and industries and allow productivity to be studied at this level of disaggregation. When, as is usually the case, supply and use tables are built from establishment data, they provide a link to detailed economic statistics outside the scope of the SNA.

1. Product balances

14.4 The amount of a product available for use within the economy must have been supplied either by domestic production or by imports. The same amount of the product entering an economy in an accounting period must be used for intermediate consumption, final consumption, capital formation (including changes in inventories) or exports. These two statements can be combined to give a statement of a product balance:

Output + imports = intermediate consumption + final consumption + capital formation + exports

14.5 The accounting rules from chapter 3 including the time of recording and the valuation rules from chapter 6 and elsewhere apply to each of the entries in this identity. Because the uses of products are usually valued at purchasers' prices, but production at basic prices, it is necessary to add trade and transport margins, and taxes on products less subsidies on products to the left-hand (or supply) side of the identity so both sides are expressed in purchasers' prices. Thus a fuller articulation of ***the product balance for any product recognizes that the sum of output at basic prices plus imports plus trade and transport margins plus taxes on products less subsidies on products is equal to the sum of intermediate consumption, final consumption and capital formation, all expressed at purchasers' prices, plus exports***. The treatment of margins and taxes is complex and is described at length in section B. The valuation applied to imports and exports requires special consideration and is described in sections B and C below.

14.6 A product balance is an especially powerful tool for a compiler as is best illustrated by example. Typically the production of tobacco products, mainly cigarettes, is well measured but consumption of cigarettes is not, because of the reluctance of respondents to report accurately how much is spent on them in a household budget survey. Assuming that output, imports and exports are well measured then the identity of the product balance can be used to generate data for consumption that will be consistent with other items in the identity. The compiler can then use judgement to reach a balance by adjusting the components as necessary.

14.7 It is not always final consumption that is the weakest component of the identity. In some cases, consumption data may be more reliable than output data. For example, in the case of taxi services where much may be supplied by unregulated and unmeasured activity, the estimate of how much households spend on taxis may help improve the estimates of output to include these aspects of the non-observed economy.

14.8 Even for items where informal activity is not an issue, a product balance may be useful. Aircraft manufacture is a long process. Work in progress may be measured either by the amount the manufacturer claims to have completed or by the amounts the potential purchaser has paid for by means of stage payments. These two sources of data need to be reconciled with adjustments in the financial accounts for accounts receivable or payable as necessary.

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2. The goods and services account

14.9 If a product balance is drawn up for all goods and services in the economy (either individually or in groups of products) and these are aggregated, the totals for output, imports, intermediate consumption, final consumption, capital formation and exports must be equal to the corresponding items identified in the sequence of accounts elaborated in previous chapters. The trade and transport services embodied in margins represent products that may also be seen as being used for intermediate or final consumption, capital formation or exports. The fact that the value of the margins may be included with the value of the goods they apply to does not invalidate the identity. Thus when product balances are aggregated across all goods and services, these margins are necessarily included and do not need to be specified additionally.

14.10 Since the figures for output and intermediate consumption correspond to the entries for output and intermediate consumption in the production account, the identity of the sum of all product balances may be rearranged to become ***the goods and services account, which reads:***

Output - intermediate consumption + taxes on products – subsidies on products = final consumption + capital formation + exports – imports.

As explained in chapter 6, the left-hand side of this identity is equivalent to GDP at market prices. The right-hand side is therefore also equal to GDP at market prices and is the well-known statement of GDP often described as the "expenditure approach". By contrast, the definition coming from the left-hand side of the identity is known as the "production approach" to GDP.

14.11 The goods and services account is one of the most basic, if not the most basic, identity in the SNA. It captures the idea that all output from within the production boundary, plus imports, must be accounted for in one of the other two basic activities of the SNA, consumption of goods and services or accumulation of goods and services. Without the goods and services account, a supply and use table would not be fully articulated and exhaust all products available within the economy. The whole sequence of accounts can be viewed as built around the goods and services account by adding transactions relating to the generation, distribution and redistribution of income and saving. When these transactions are aggregated across all sectors and the rest of the world, total resources are equal to total uses. If these were to be "consolidated" out of the sequence of accounts, only the goods and services account would be left.

14.12 Every row of the supply and use tables is a reminder of the basic identity of the goods and services account.

3. Supply and use tables

14.13 With a complete set of product balances, supply and use tables can be created. Supply and use tables exist in pairs with common valuation and level of detail as regards the products identified. The most common format of supply and use tables is at purchasers' prices. ***A use table at purchasers' prices consists of a set of product balances covering all products available in an economy arranged in the form of a rectangular matrix with the products, valued at purchasers' prices, appearing in the rows and the columns indicating the disposition of the products to various types of uses. A supply table at purchasers' prices consists of a rectangular matrix with the rows corresponding to the same groups of products as the matching use tables and columns corresponding to the supply from domestic production valued at basic prices plus columns for imports and the valuation adjustments necessary to have total supply of each [group of] product[s] valued at purchasers' prices.***

14.14 Sections B and C below describe the supply and use tables respectively.

14.15 Supply and use tables are a necessary first step in preparing input-output tables as described in chapter 28 but have important uses on their own, both analytically and as quality control tools. When supply and use tables are first prepared, they are unlikely to balance and until they are brought into balance, GDP measured from the production approach will differ from the expenditure measure of GDP. Only supply and use tables provide a sufficiently rigorous framework to eliminate discrepancies in the measured flows of goods and services throughout the economy to ensure the alternative measures of GDP converge to the same value.

14.16 Some countries with less advanced statistical systems still have difficulty in deriving a detailed breakdown of household consumption expenditure from direct sources on a regular basis. Such a breakdown is necessarily available from within a set of supply and use tables. One benefit of this is that the proportionate distribution of expenditure on different product groups can be compared with the weights used in a consumer price index (CPI) as a means of checking both the CPI weights and the supply and use tables for plausibility and consistency.

4. The industry dimension

14.17 It is conceptually possible to compile a set of supply and use tables with intermediate consumption treated in total only, with the use table showing how much of each product is used for intermediate consumption but with no further detail. Such a presentation has little value as either a compilation or analytical tool but from the earliest elaboration of supply and use tables and input-output tables onwards, further detail was introduced to relate the products used in the economy to the units producing them. The simplest case and the one most often elaborated in text books assumes that it is possible to establish a one-to-one correspondence between products and producing units. This indeed is the motivation for defining an establishment as a unit producing only one type of product. However, there is no necessary reason for the match to be one-to-one and many countries now work with matrices where many more groups of products are distinguished than groups of producing units. The most important reason for this is that most units produce very many products, for example, a footwear manufacturer may make sandals, sports shoes, uniform boots and fashion shoes, and it would be neither practicable nor interesting to try to create an establishment for each type of footwear.

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14.18 Once a set of producing units is determined, the supply matrix is expanded to show exactly which products each of the groups of producing units supplies and the use matrix is expanded to show intermediate demand for each of these groups of producing units. In addition, extra information relating to the producing units is appended below the demand for intermediate consumption so that the columns corresponding to the producing units contain the components of value added as well as total output. In other words, the identity that

intermediate consumption + value added = output

is apparent for each group of producing units (industry) in addition to the aggregate product based equivalent. Further information relating to capital formation and number of employees, for instance, may also be added. These extensions are discussed in section D.

5. A numerical example

14.19 Tables illustrating supply and use tables are shown in section E with associated descriptive text. These tables contain all the features described in the chapter but at a high level of aggregation since they are intended for illustrative purposes only. In addition, some extracts from these tables are included in the text to illustrate the features being described.

B. The supply table

14.20 The main part of the supply matrix is a matrix of products (or commodities) by industry showing which industry supplies or "makes" which product. For this reason, it used sometimes to be described as a "make matrix".

1. Products and producing units

14.21 While it is possible to compile a supply table using enterprises as the basic building block, it is more common and generally recommended to work with establishments. As noted in the introduction, the idea of an establishment as a unit where only one type of product is produced derives from the idea of an input-output table where there is a one-to-one correspondence between the groups of products distinguished and the groups of producing units distinguished. All the conventions described in chapter 5 about when an establishment is identified apply in the context of using establishment data for a supply matrix; indeed although establishment-level data may be used in the context of short-term economic indicators, they are used in the SNA only in the context of the supply and use tables.

14.22 The basis for grouping products is most commonly an aggregation of *CPC* and the resulting groups were often described as "commodities" though modern usage would be "products". The basis for grouping producing units is most commonly *ISIC* and the resulting groups are often described as "industries".

14.23 In the case where there are the same number of groups of producing units as there are products, there will be a large entry in one cell of the column representing the principal product of that group of producing unit, that is the product that gives rise to the largest proportion of value added. If the group of producing units contains only pure establishments, there will be no other entries in the column but most often there will be some secondary production showing as smaller entries in other cells in the column.

14.24 When there are the same number of groups of producing units as groups of products, the rows and columns are arranged so that the entries for the principal products fall on the diagonal of the resulting matrix.

14.25 In practice, it is common for there to be more products than types of producing units. For example it is interesting to specify different sorts of agricultural crops but less interesting or practical to distinguish farms specializing in each of the possible sorts of crop. For this reason, the supply table (make matrix) may be rectangular with more rows than columns but arranged with similar products in adjacent rows so that an aggregation of the rows for similar products would again produce a square matrix.

14.26 The greater the amount of product detail that is used, the more there will be a scatter of entries around the entries for the principal products, for example when a farm produces more than one crop or a manufacturer of machinery produces different types of machines. At a level of detail such as "agricultural product"' and "machinery" these off-diagonal elements will be merged in a larger diagonal element.

14.27 However, as well as similar products, many establishments produce some retail and wholesale services, some transport services and some construction, the last sometimes being produced for own use as capital formation.

2. Accounting rules

14.28 All the rules about time of recording, re-routing and partitioning of transactions described in chapter 3 apply to the entries in the supply and use tables.

14.29 Although the supply and use tables do not record property income flows, the financial services associated with the payment of interest and with the acquisition and disposal of financial assets and liabilities are recorded in the supply and use tables. Chapter 17 explains in detail what sorts of financial service flows are associated with transactions in financial assets and property income flows.

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14.30 The re-routing of flows associated with margins is described below under valuation.

3. Production

14.31 The principles for recording output in the supply and use tables are exactly the same as those for recording output in the production account, as described in chapter 6. It should be emphasized that all the concepts and definitions of the SNA elaborated in previous chapters describing the sequence of accounts apply equally and exactly to supply and use tables and input-output tables. The only difference is in the manner of presentation of the accounts, not in the underlying fundamentals of the SNA.

14.32 As noted in the introductory section, the producing units to be identified in the supply and use tables are determined by reference to an industrial classification such as *ISIC*. However, it may also be useful to distinguish which producing units are market and which are non-market. This may be applied generally or to just those groups where significant production on both bases is common, for instance in health and education services. Similarly, production on own account may also be of special interest and can be distinguished within the *ISIC* categories, for instance for construction.

Table 14.1: Abbreviated version of the production part of the supply table

	Market production	Production for own final use	Non-market production	Total
Agriculture, forestry and fishery products (0)	78	9	0	87
Ores and minerals; electricity, gas and water (1)	195	0	0	195
Manufacturing (2-4)	1 707	7	0	1 714
Construction (5)	213	31	0	244
Trade, accommodation, food & beverages; transport services (6)	233	0	0	233
Finance and Insurance (7 less 72-73)	146	0	0	146
Real estate services; and rental and leasing services (72-73)	100	95	0	195
Business and production services (8)	256	0	0	256
Community and social services (92-93)	63	0	212	275
Other services (94-99)	86	5	0	91
Public administration (91)		0	168	168
Total	3 077	147	380	3 604

14.33 In general, in keeping with the guidance on their treatment given in chapters 4 and 5, ancillary activities are not treated as giving rise to products that are recorded as output in the accounts. One exception is when some products are used both for own ancillary use and are supplied to another unit. Another exception is where it is appropriate to treat the unit producing the ancillary products as a separate establishment, for example because of its geographical location where it may be a source of significant employment.

14.34 Bearing in mind the discussion about units, the production part of the supply matrix is a matrix with rows corresponding to product groups and columns corresponding to groups of producing units. The entries in this matrix show the value of output of each type of product by each group of producing unit. The goal of creating establishments is to partition horizontally and vertically integrated enterprises so that each row and column of the matrix is dominated by one entry with only a few non-zero entries, which are typically fairly small, elsewhere. There is more discussion on this sort of partitioning of enterprises in chapter 5.

14.35 Table 14.1 shows columns 16, 20, 23 and 24 of the supply matrix shown in table 14.12. In the full version it is clear that most entries in the sub-matrix for market production are zero. Even in the abbreviated table, this is obvious for production for own final use and for non-market production.

4. Imports

Classification

14.36 In order to add imports to domestic production to reach total supply, imports must be classified by products in a manner consistent with that used for domestic production. This is not always straightforward since imports (and exports) are classified not according to *CPC* but according to the HS or SITC. Finding a level of aggregation of the trade data that is sufficiently detailed but also consistent with domestic production may be a factor in determining the level of detail to be adopted in the supply and use tables.

Goods for processing

14.37 The traditional view of an input-output table or a supply and use table was that it portrayed the physical or technological process of production. The aim was to show which products were combined, and in what proportions, to make other products. One consequence of this, in combination with the idea of establishments, was that if one establishment of an enterprise was responsible for making steel and another for making steel products, the steel from the first establishment was shown as being delivered (or "sold") to the second. This meant the final customer for the steel products bought them entirely from the second establishment and the production account showed the value of the steel included in both intermediate inputs and output. A similar approach was taken for goods sent abroad for processing but then returned to the original economy.

14.38 In terms of the SNA, this approach amounts to imputing a change of ownership when goods are delivered from the first unit to the second. For imports and exports, this is particularly inappropriate in the case of goods sent abroad for processing since to ensure consistency in the SNA, financial transactions that do not take place have to be imputed to match the imputed change in ownership of the goods. In reality, though, the unit processing the goods assumes no risk associated with the eventual marketing of the products; the risk remains with the legal owner. The processor is not at risk from (and does not benefit from) any unexpected changes in prices of either the components or the final product. The only risk the processor accepts is limited to meeting the contractual commitment in the most

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cost-effective manner. The value of the output of the processor is the fee agreed for the processing. Any other change in the value of the goods and services processed, for example due to holding gains or losses or to the incorporation of R&D or the benefits of marketing assets accrue to the legal owner of the product. When the processing is carried out abroad, exports from the processing country consist only of the processing fee.

14.39 With the increasing importance of outsourcing under globalization of markets, there is great interest in knowing where the returns to labour arise and how far operating surplus accrues to the processor and how far to the unit that contracts the processing.

14.40 The pattern of inputs for an establishment processing goods on behalf of another unit is quite different from the pattern of inputs when the establishment is manufacturing similar goods on their own account. A simple illustration may be given by referring to crude petroleum. The unit refining on own account has intermediate consumption of crude oil and output of refined petroleum products; the unit processing on behalf of another unit has all the other similar inputs and uses the same sort of fixed capital but shows neither the crude petroleum nor the refined products in its production account. For similar amounts of crude oil processed, the value added and other inputs will be comparable and when the process is carried out for a non-resident, imports will exclude the crude oil and exports will exclude the refined products but include the processing fee. As a result, the current external balance will be unaffected by this treatment. The result of recording only the processing fee rather than the full value of the goods processed does, however, affect the ratios of imports and exports to GDP and gives a more realistic picture of the extent to which domestic financial resources are required to fund imports or benefit from exports.

14.41 Similar consequences hold for processing by resident producers. There is discussion in chapter 6 about whether or not to record deliveries from one establishment to another in the same enterprise.

14.42 Measuring goods for processing by the processing fee instead of by the full value of the processed goods changes the nature of input-output coefficients. They no longer represent the technological structures of an industrial process but an economic process. Changes in coefficients may result not from changes in technology but from changes in the proportion of oil (in this case) processed on own account and processed on behalf of another unit. More extensive discussion on the treatment of goods for processing (and the similar but distinct case of merchanted goods) is given in chapter 26 but the consequences for supply and use tables and input-output tables are extremely significant and change many of the traditional perceptions about what information is conveyed in these tables.

14.43 Interpreting input-output coefficients as representing the technological structure of an industry does not recognize the role of other factors, such as whether fixed capital is rented or owned, the importance of ancillary activities or the consequences of a statistician balancing the tables. These factors still play an important part in determining input-output coefficients but where extensive processing of goods by third parties occurs, this may be the largest single factor contributing to change in the coefficients.

5. Valuation

14.44 As explained in the introduction, in order to balance total supply with total use, both must be valued in the same way. The most usual way to achieve this is to raise total supply to purchasers' prices and this is the approach described here. However, the alternative, of reducing total use to basic prices is also considered in section D under discussion about deflating the supply and use tables to prices of another year.

14.45 It is helpful to begin by recapitulating the distinction between the purchaser's, producer's and basic prices as explained in chapter 6 and, because of the complexity of VAT and similar deductible taxes, to itemize the difference between the three ways in which VAT is recorded.

a. Invoiced VAT is the VAT payable on the sales of a producer; it is shown separately on the invoice that the producer presents to the purchaser;

b. Deductible VAT is the VAT payable on purchases of goods or services intended for intermediate consumption, gross fixed capital formation or for resale that a producer is permitted to deduct from his own VAT liability to the government in respect of VAT invoiced to his customers;

c. Non-deductible VAT is VAT payable by a purchaser that is not deductible from his own VAT liability, if any.

14.46 Bearing these ways of recording VAT in mind, the price bases in the SNA are expressed as follows:

a. The purchaser's price is the amount paid by the purchaser, excluding any deductible VAT or similar deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place;

b. The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer;

c. The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, on that unit as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

14.47 When an item is not sold directly by the producer but passes through the hands of one or more wholesaler or retailer, it is necessary to consider the distribution margins these wholesalers and retailers add to the cost of the

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product. One possibility is to treat distribution margins as another element increasing the value of the purchaser's price over the producer's price. An alternative possibility is to treat the purchaser as undertaking two quite different transactions; one is the purchase of the item directly from the producer, the second is the purchase of the margins involved. A supply and use table at purchasers' prices assumes the former; a supply and use table at basic prices assumes the latter.

14.48 Whichever alternative for handling trade margins is chosen, the three price valuations can be linked schematically as follows:

Purchasers' prices

minus wholesale and retail distribution margins (trade margins),

minus transportation charges invoiced separately (transport margins),

minus non-deductible VAT,

equals producers' prices;

minus taxes on products resulting from production excluding invoiced VAT,

plus subsidies on products resulting from production,

equals basic prices.

14.49 Thus the three factors that need to be considered in converting the values of output and imports to purchasers' prices are:

a. Trade margins,

b. Transport margins,

c. Taxes less subsidies on products.

Each of these is considered in turn below. Trade margins are typically more significant in size than transport margins but are conceptually more straightforward. Transport margins are complex because of the different ways in which the cost of transport can be recovered.

Trade margins

14.50 Trade margins may be significant and may apply to virtually all goods. When a supply and use table is compiled at purchasers' prices, the distribution margins need to be added to the rows for each group of products.

14.51 In order to account for the use of wholesalers and retailers margins, an adjustment column is added to the supply part of the supply and use tables. This column shows the addition to the value of each group of goods to which the margins apply with an offsetting negative entry for the rows corresponding to the margins. Typical entries for transport margins are treated in the same manner. Table 14.2 shows the adjustment column (2) from the full supply table 14.12.

14.52 Trade margins are usually produced within the economy but may apply to both domestic production and to imports. Transport margins, on the other hand, may be provided by both residents and non-residents and may be provided to both residents and non-residents. This aspect of transport margins is discussed in the following paragraphs.

Table 14.2: An example of the entries to adjust supply to include trade and transport margins

	Trade and transport margins
Agriculture, forestry and fishery products (0)	2
Ores and minerals; electricity, gas and water (1)	2
Manufacturing (2-4)	74
Construction (5)	0
Trade, accommodation, food & beverages; transport services (6)	-78
Finance and Insurance (7 less 72-73)	0
Real estate services; and rental and leasing services (72-73)	0
Business and production services (8)	0
Community and social services (92-93)	0
Other services (94-99)	0
Public administration (91)	0
Total	0

Transport margins

14.53 It is helpful to consider the case of domestic transport charges first and see how they are included in the supply and use tables before turning to transport margins on imports.

Domestic transport charges

14.54 As explained in paragraphs 6.65 to 6.66, if the producer agrees to deliver the product to the purchaser without explicit charge, the cost of delivery is included in the basic price. Only if the purchaser is explicitly invoiced for the delivery is there a specific transportation margin that is part of the purchaser's price.

14.55 Consider the situation where a unit, A, sells a product to unit B. For simplicity it is assumed they are both producers with factories some distance apart. If B collects the product from A, the price charged is 200. The cost of transport from A's factory to that of B is 10. Both A and B have delivery fleets that can transfer the product from A to B or either may use a third party, C, to make the transfer. Ten per cent tax (not VAT) is payable on both the cost of the product and the transport costs. Different values of the three possible prices result from the alternative means of moving the product from A to B as shown in table 14.3.

14.56 The entries in the use matrix will be quite different for each of these six cases, even though the total cost to B is similar throughout. Only when B collects the product itself is the purchaser's price for the product plus delivery less than 231. In this case it must be assumed that the internal costs

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of collection are 10, as before, so only the tax payable on this, 1, is a reduction in the total cost of taking delivery of A's product even though the purchaser's price is 220 compared with 231 for other modes of delivery.

14.57 When A or B undertake transport as an ancillary activity, the cost of petrol and other consumables will appear in intermediate consumption, the driver's wages in compensation of employees and there will be consumption of fixed capital recorded in respect of the vehicle used.

14.58 These entries will appear for A when it is undertaking a secondary activity but the cost of the secondary activity will appear as intermediate consumption of A's primary activity.

14.59 When C acts as an agent for A, whether A charges B directly for C's services or not, the cost of C's services forms part of A's intermediate consumption. When C is hired directly by B, then the service cost is part of B's intermediate consumption.

14.60 The rationale behind these different recordings is that the point when change of ownership occurs is different under the different scenarios. If A agrees or is obliged to provide transport to B, even for a charge, then change of ownership takes place when the product is delivered to B's factory. If B agrees or is obliged to arrange delivery itself, then change of ownership takes place when the product leaves A's factory.

International transport charges

14.61 The information for allocating domestic transport charges is typically available to national accountants from survey information collected from domestic establishments. In the example above, information from A, B and C would, in principle, be available. For products delivered to establishments abroad, this is not the case. Either A or B is non-resident and possibly C also. The most common situation is where information coming from the administrative records compiled by customs authorities must be used. Increasingly, however, some products circulate without direct customs supervision and recording. This applies to services but services seldom if ever have transportation charges associated with their delivery.

14.62 The following are examples of goods that may not be covered in customs statistics:

a. Goods circulating within a single customs area that spans several economies;

b. Goods delivered to offshore establishments such as oil platforms;

c. Certain types of goods, such as diamonds and other precious goods of high value but small volume, that may be carried by persons;

d. Ships and aircraft, which, while hardly concealable in a physical sense, may be difficult to distinguish from the vehicles that belong to another economy and simply transit through the domestic economy.

It is therefore appropriate to consider products subject to customs documentation separately from other internationally traded products. Separate consideration also must be given to transport related to merchanted goods and goods sent abroad for processing.

Table 14.3:Example of the impact on prices of transport charges

Delivery method	Basic price	Tax	Pro-ducer's price	Transport margin plus tax on transport	Pur-chaser's price	Comment
A charges B an all-inclusive price and uses own delivery fleet	210	21	231		231	Transport is an ancillary activity of A
A charges B for delivery but uses own delivery fleet	200	20	220	11	231	Transport is a secondary activity of A
A charges B an all-inclusive price but uses C to deliver	210	21	231		231	C's production is intermediate consumption of A
A charges B for delivery but uses C to deliver	200	20	220	11	231	C's production is intermediate consumption of A
B collects the product from A using own delivery fleet	200	20	220		220	Transport is an ancillary activity of B
B uses C to collect product from A and deliver to B	200	20	220		220	B buys 2 products; one from A for 220 and one from C for 11
	10	1	11		11	

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Products not included in customs documentation

14.63 In the absence of customs documentation, information must be obtained from surveys and other sources and will typically record the prices at which transactions are actually undertaken. The analysis above for goods transported within the domestic economy is likely to apply to international transport also. When the supplier (exporter) commits to deliver goods to the importer, the value of the goods will include the transport costs. When the purchaser (importer) is responsible for transport, the value of the goods excludes the transport costs and these feature as a separate purchase. Whichever of the units takes responsibility for the transport, the values of the goods for both the exporter and importer are identical. This is an important distinction from the valuation used in customs merchandise trade statistics as discussed in the immediately following section.

14.64 Following the example in the previous section, if A and B are resident in different economies, whenever A takes responsibility for delivery to B, the value of exports from A (and the corresponding value of imports to B) includes the transport element. If B takes responsibility for the transport from A, then neither the value of exports from A nor the value of imports into B includes the value of the transport.

14.65 If the third party, C, is used to undertake the transport, the residence of C is important in determining the value of total imports and exports. If C is co-resident with A and provides services to A, this is a domestic transaction within A's economy. However, the value of the exports of goods from A will reflect the fact that they must cover the cost of services bought from C. If C is co-resident with A but provides services to B to transport the goods from A to B, then C also provides exports to B but these are shown as exports of transport services, not of goods.

14.66 If C is co-resident with B and contracts with A to transport goods to B, there are imports of transport services from B's economy to A's which are then included in the value of exports from A to B. If C contracts with B to transport the goods, this is a domestic transaction for B's economy even though C is operating in foreign territory in collecting and moving the goods.

14.67 If C is resident in an economy other than that of A and B, then the services provided to A constitute exports of services from C's economy to A's and the value of the goods exported from A to B are sufficient to cover this cost of imports just as previously they covered the cost of a domestic transaction. If C contracts with B to move the goods, the cost shows as an export of services from C's economy to B's.

14.68 As in the domestic case, the question of whether the value of goods covers the cost of transportation or not depends on whether the exporter or importer is responsible for transport. Again this is equivalent to whether change of ownership takes place after or before transportation from A to B.

Products covered by customs documentation

14.69 In most countries, most information on imports and exports of goods will come from customs declarations. These declarations are compiled for administrative purposes, namely the levy of import and export duties, and are therefore not necessarily ideal for use in the national accounts or balance of payments context but are used because of their general availability and consistency of valuation.

14.70 Within customs declarations, imports are usually valued CIF (that is, they include cost, insurance and freight) at the point of entry into the importing economy. This valuation is standard, regardless of whether any of the CIF elements are provided by domestic enterprises because import duties are typically imposed on the CIF valuation. It also excludes the cost of transport from the border of the importing economy to the premises of the importer. This transport also may be provided by either a resident or non-resident carrier. Exports are valued FOB (free on board) at the point of exit from the exporter's economy. It includes the cost of transport from the exporter's premises to the border of the exporting economy. The CIF/FOB valuation principles arise from the common situation where goods are transported by ship from one country to another and it is not unreasonable to assume that transport to and from the ship would be undertaken by carriers resident in the relevant economy. This assumption may still hold in the main for goods transported by sea and air. It is much less satisfactory for goods transported overland where a single vehicle may transport goods from the exporter to importer without a break at national borders.

14.71 As noted already, if it is the exporter that contracts the delivery (whatever the nationality of the carrier), it is correct that the cost of transport is included in the value of the good imported, though describing this as CIF is not helpful in the context of the SNA since it is a legitimate part of the cost of the imported good and should not be seen as a separate import of transport services. The delivery contractor provides services to the exporter and these are shown as an import of services to the exporting economy if the contractor is not co-resident with the exporter.

14.72 If it is the importer that contracts the delivery and if the carrier is not co-resident with the importer, an import of services takes place and, ideally, for the SNA it would be desirable to separate the CIF value into the value of the good only and the value of the transport service. If the importer undertakes delivery itself or contracts with a unit resident in the same economy, there is in fact no import of services even though it will appear there when imports of goods are recorded CIF. To counteract this, a fictional export of the same amount of services must be shown to leave the current balance of goods and services correct.

Transport on merchanted goods

14.73 Merchanting is a process whereby a unit in economy X purchases goods from economy Y for sale in economy Z. The goods legally change ownership but do not physically enter the economy where the owner is resident. By convention, the acquisition of the goods intended for resale is shown as negative exports. When the goods are sold,

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they are shown as [positive] exports. When acquisition and sale take place in the same period, the difference shows as an addition to exports. If only the acquisition takes place in an accounting period, the negative export is offset by an increase in inventories of goods for resale, even though those goods are held abroad. In a subsequent period when the goods are sold, the exports recorded for their sale are offset by a withdrawal from inventories. As normal, the withdrawals should be valued at the cost of the goods at the date of the withdrawal, any increase in value due to a change in the price of the goods being shown as a holding gain or loss.

14.74 The services provided to transport the goods from Y to Z may be paid for by any of the units in X, Y or Z and should be recorded consistently with the principles outlined above. (See chapter 26 for more on merchanting.)

Table 14.4: An example of imports entries in the supply table with the global CIF-to-FOB adjustment

	CIF/FOB adjustment	Goods	Services
Agriculture, forestry and fishery products (0)		37	
Ores and minerals; electricity, gas and water (1)		61	
Manufacturing (2-4)		284	
Construction (5)			
Trade, accommodation, food & beverages; transport services (6)	-6		62
Finance and Insurance (7 less 72-73)	-4		17
Real estate services; and rental and leasing services (72-73)			
Business and production services (8)			5
Community and social services (92-93)			
Other services (94-99)			
Public administration (91)			
CIF/FOB adjustment	10	-10	
Purchases abroad by residents		20	23
Total	0	392	107

Transport on goods sent abroad for processing

14.75 Goods sent abroad from economy X to economy Y for processing without changing ownership, after which they are returned to economy X, are not shown as either exports of goods from X to Y or subsequently as exports of goods from Y to X. As explained above, only the agreed processing fee is shown as an export of service from Y to X. However, there are costs of transporting the goods on both the journey from X to Y and then on the return journey from Y to X. The costs of these journeys, excluding the value of the goods themselves, must be shown as transportation services. If X is responsible for transport on either the outward or inward journey, the cost is an import to X's economy unless it is carried out by X or another unit co-resident with X. If Y is responsible for the transport, the cost is an import to Y unless it is carried out by Y or another unit co-resident with Y. When Y is responsible for transport costs (on either or both journeys) the costs will be covered by the agreed processing fee and hence in the value of the exports of services from Y to X.

Recording transport margins in the supply and use tables

14.76 In the supply and use tables, either supply must be adjusted to be at purchasers' prices or use must be adjusted to be at basic prices since both sides of the balance must be expressed in the same prices. It is common to compile the use table, initially at least, in purchasers' prices. As shown in table 14.3, this value will often be the same however the good is transported from the seller to the buyer. The only exception is when the buyer fetches the goods using its own resources. The way the transport service shows in the use table, however, depends critically on how the service is provided (using own resources or a third party contractor) and to whom (the buyer or seller). The different forms of recording in different circumstances are indicated in table 14.3.

14.77 Imports of goods are to be recorded in the supply table at basic prices with taxes and margins added subsequently. There is no universally appropriate valuation for imports of goods at basic prices. The following recommendations should be noted.

a. If the data come from other than customs documentation, it is to be assumed that actual transaction prices are used and it should be clear whether transport services are separately invoiced or not. If they are, the basic price excludes the value of transport; if not, the basic price value of goods includes transport costs. The purchaser's price will differ from the basic price only because of any taxes payable by the purchaser.

b. If the data come from customs documentation and if it is the exporter of the goods who is responsible for meeting the transportation costs, the value of the goods at basic prices should include the transport costs. In this case a CIF valuation will approximate the basic price (approximate unless a domestic carrier assumes responsibility for transport from the border of the importing country). The purchaser's price will differ from the basic price only because of any taxes and subsidies payable by the purchaser.

c. If the data come from customs documentation and if it is the importer of the goods who is responsible for meeting the transportation costs, the value of the goods at basic prices should exclude the transport costs. In this case an FOB valuation will approximate the basic price (approximate because the value of transport from the place of origin to the border of the exporting economy is included in the FOB valuation). The purchaser's price will differ from the basic price because of the transport costs incurred plus any taxes and subsidies payable by the purchaser.

d. It may not be possible to determine from customs declarations which unit is responsible for the transport costs and, even when it is and conceptually the transport costs should be separated from the value of the goods themselves, there may be no information and no resources available to make the separation in practice. In such a case the CIF value of imports may be the only source with a disaggregation by type of

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good. If the disaggregated CIF figures are used for imports of goods, though, that part of the transport costs and insurance also included in imports of services would be double-counted. In order to avoid this, therefore, an adjustment column is inserted into the supply table. The adjustment column consists of a deduction from the services items for transport and insurance equal to the CIF-to-FOB adjustment for these items with an offsetting global adjustment made to imports of goods. Table 14.4 gives an example of such an adjustment.

Taxes and subsidies on products

14.78 The taxes and subsidies on products that add to the value of products available in the economy are exactly those described as taxes and subsidies on products in chapter 7. Other taxes on production are included in the basic price measurement of output and other subsidies on production are excluded so do not feature in the adjustment for taxes that intervenes between a valuation at basic prices and purchasers' prices.

14.79 Value added type taxes in the SNA include VAT proper and taxes that are deductible in a way similar to VAT. The SNA recommends that output, even at producers' prices, is valued excluding VAT invoiced by the producer; imports also are valued excluding invoiced VAT. For intermediate and final uses, the purchases of goods and services are recorded including non-deductible VAT only.

14.80 The general cases in which VAT is usually deductible, non-deductible or just not applicable are as follows:

Deductible VAT:
- Most of intermediate consumption
- Most of gross fixed capital formation
- Part of changes in inventories.

Non-deductible VAT:
- Most of final consumption expenditure
- Part of gross fixed capital formation
- Part of changes in inventories
- Part of intermediate consumption.

VAT not applicable:
- Exports
- Any goods or services subject to a zero rate of VAT regardless of their use
- Any producers exempted from VAT registration (small businesses or the like).

14.81 When output is at basic prices, the taxes column contains total non-deductible VAT on products, taxes and duties on imports excluding VAT, export taxes and taxes on products excluding VAT, import and export taxes. When output is at producers' prices, the taxes column includes only taxes and duties on imports (excluding VAT), plus total non-deductible VAT on those products.

14.82 Subsidies are recorded as if they were negative taxes on products or negative taxes on production. Only subsidies on products (if any) are entered into the column for the tax adjustment to the valuation of supply; they appear with a negative sign to indicate they reduce the value of purchasers' prices rather than increase it.

14.83 Table 14.5 shows columns 3 and 4 from the full supply matrix in table 14.12 that show the adjustments for taxes and subsidies on products.

Table 14.5: An example of the entries to adjust supply to include taxes less subsidies on products

	Taxes on products	Subsidies on products
Agriculture, forestry and fishery products (0)	5	-3
Ores and minerals; electricity, gas and water (1)	5	
Manufacturing (2-4)	94	-5
Construction (5)	17	
Trade, accommodation, food & beverages; transport services (6)	5	
Finance and Insurance (7 less 72-73)	0	
Real estate services; and rental and leasing services (72-73)	0	
Business and production services (8)	11	
Community and social services (92-93)	0	
Other services (94-99)	4	
Public administration (91)	0	
Total	141	-8

C. The use table

14.84 A use table can be viewed as a rectangular table with four quadrants, two in the upper part and two in the lower part. The upper left quadrant consists of a sub-matrix showing the use of different products by different groups of producing units. In other words, this quadrant contains intermediate consumption, disaggregated by product in the rows and by industries in the columns. The upper right quadrant consists of a sub-matrix showing the use of different products by final consumers, a sub-matrix for exports and a sub-matrix showing the use of different products for capital formation. Together these three sub-matrices show final demand. The lower left quadrant contains information on value added disaggregated to show the elements of the generation of income account, that is compensation of employees, gross operating surplus or gross mixed income and taxes less subsidies on production. Each of these five sub-matrices is described below. The lower right quadrant is empty.

14.85 The upper part of the use matrix (the intermediate and final demand quadrants) can be valued at purchasers' prices or at basic prices. In this section sub-matrices at purchasers' prices are discussed. The alternative valuation at basic

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prices is discussed in section D along with considerations about expressing the use table in volume terms.

14.86 Together the left-most quadrants (the intermediate consumption and value added quadrants) can be viewed as a set of columns, each relating to a group of producing units, containing information relating to the production and generation of income accounts plus other information that can be attributed to groups of producing units at a more disaggregated level than groups of enterprises. This other information most often includes capital formation and the number of employees for each group of producing units. These aspects are also discussed in section D.

1. The use of products by producing units

14.87 The sub-matrix showing the use of specific products by each type of producing unit (the upper left quadrant of the table) has long been considered one of the more interesting aspects of supply and use tables and input-output tables. It gives a picture of how products are converted to more complex products either for yet further processing or for sale to final users or as exports. Unlike the supply table or make matrix, which also shows products by producing units, the sub-matrix of the use table (sometimes called the "absorption matrix") is densely rather than sparsely populated. The patterns of inputs for market, own final use and non-market producers of the same products are likely to bear a strong resemblance to one another but the variations give insights into how the characteristics of the three sorts of production vary.

14.88 The definition of intermediate consumption and the borderlines with payments for the use of labour and capital are exactly as explained in chapter 6.

14.89 Compiling the sub-matrix usually starts from information provided by establishments about their intermediate consumption. These may be classified according to the purpose they serve rather than the type of good. The classification of outlays of producers by purpose (COPP) consists of six main headings that apply to intermediate consumption of establishments, only one of which relates to current production techniques. The other five cover more general categories such as outlays on marketing and human resource development that are common to most establishments. Use of this detail in the form of a satellite account is discussed in chapter 29.

14.90 When this is all the information available to the compiler, he must make a judgement of what type of products will be covered in each heading allowing for variations between producing units of different types.

14.91 It is important to bear in mind the interpretation of data in this sub-matrix. The total across the rows show how much of a given product is used as intermediate consumption by all producing units. The total down a column shows the total of all types of products used as intermediate consumption inputs by a single type of producing unit. There is absolutely no reason why the relative size of these two entities should be related in any systematic manner but mistaking one concept for the other is a common error made by users not very familiar with the nature of a supply and use table.

14.92 Table 14.6 shows columns 16, 20, 23 and 24 of the use matrix that include the intermediate consumption by each type of production. This contrasts with table 14.1 which shows the same columns for the supply part of table 14.12. Whereas table 14.1 shows that most manufactured products are produced by the market producers in the manufacturing industry, table 14.6 shows that all three types of producers use manufactured products and that only about half of manufactured products are used in manufacturing industries. While the proportion quoted depends on this example, the phenomenon is generally observed.

Table 14.6:Abbreviated version of the intermediate consumption part of the use table

	Market production	Production for own final use	Non-market production	Total
Agriculture, forestry and fishery products (0)	82	1	5	88
Ores and minerals; electricity, gas and water (1)	208	0	9	217
Manufacturing (2-4)	878	32	80	990
Construction (5)	22	0	18	40
Trade, accommodation, food & beverages; transport services (6)	110	0	9	119
Finance and Insurance (7 less 72-73)	76	5	23	104
Real estate services; and rental and leasing services (72-73)	39	0	18	57
Business and production services (8)	171	12	39	222
Community and social services (92-93)	2	0	32	34
Other services (94-99)	6	0	4	10
Public administration (91)	0	0	2	2
Total	1 594	50	239	1 883

2. The use of products for final consumption

14.93 As explained in chapter 9, there are three types of units that undertake final consumption; households, NPISHs and general government. The manner of compiling the sub-matrix of the use table showing the use of products for final consumption is similar for each of the three types of consumer but starts from a different classification for each of them.

14.94 Information on consumption by households usually starts from household surveys. In these, household expenditures are classified according to the classification of individual consumption by purpose (COICOP). COICOP classifies household expenditure into ten main categories, such as food, clothing and housing. This is useful for analysis of how much of household consumption goes on essentials, for instance, and is basic to the establishment of weights for the consumer price index but it is not in the necessary format for inclusion in the use table. For that a conversion table is necessary showing which of the designated products are purchased as food, which as clothing and so on. It should be noted that household surveys typically include expenditure by households abroad, for example on holidays, which must be separated from demand in the domestic economy in the supply and use tables.

14.95 A similar approach is used for consumption expenditure by NPISHs but starting from the classification of the purposes of non-profit institutions serving households (COPNI). COPNI spells out the different sorts of NPISHs there may be by their objectives, for example, whether they undertake

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research and scientific services, education services or are religious associations. Given this knowledge, it should be possible to determine whether the NPISH is one with costs mainly limited to those associated with running an office with few paid employees or whether there are significant costs associated with acquiring goods and services to pass on to households, for instance.

14.96 For general government consumption expenditure the starting classification is the classification of functions of government (COFOG). This classification is consistent with that proposed in the *GFSM2001* and shows a breakdown of government expenditure by standard functions associated with general public services, defence, law and order and so on. As with the classification for NPISHs, knowing the type of function gives a way to start to allocate the expenditure between intermediate consumption and other expenditure and to allocate intermediate consumption to specific product types.

14.97 It may be useful if possible to split the columns for general government (and NPISHs if appropriate) to show individual consumption expenditure and collective consumption expenditure separately in order to calculate actual consumption rather than consumption expenditure as explained in chapter 9.

Table 14.7:The final consumption part of a use table

	Households	NPISHs	General government	Total
Agriculture, forestry and fishery products (0)	28	0	2	30
Ores and minerals; electricity, gas and water (1)	40	0	0	40
Manufacturing (2-4)	570	0	3	573
Construction (5)	2	0	0	2
Trade, accommodation, food & beverages; transport services (6)	42	0	0	42
Finance and Insurance (7 less 72-73)	53	0	0	53
Real estate services; and rental and leasing services (72-73)	115	0	0	115
Business and production services (8)	40	0	0	40
Community and social services (92-93)	21	14	204	239
Other services (94-99)	85	0	0	85
Public administration (91)	5	2	159	166
Purchases abroad by residents	43	0	0	43
Domestic purchases by non-residents	- 29	0	0	- 29
Total	1 015	16	368	1 399

14.98 When these entries are compiled at purchasers' prices, as assumed in this section, there are no entries for consumption of wholesale and retail services as these are included with the expenditure on the products to which they apply. Equally, taxes payable on products are included in the purchaser's value and do not show separately. (These statements apply equally to products used for intermediate consumption and for capital formation but are much more significant for final consumption.)

14.99 Table 14.7 illustrates the part of the use table for final consumption (columns 30, 31, 32 and 29 of table 14.12). The entry for production for own final use by households includes the estimate for the rental of owner-occupied dwellings. The item for expenditure on non-market production by households represents the partial payments made by households for items supplied at nominal prices by government and NPISHs.

3. The use of products for capital formation

14.100 There are three types of capital formation to be examined, gross fixed capital formation, changes in inventories and acquisition less disposal of valuables.

Gross fixed capital formation

14.101 Allocating gross fixed capital formation to products is the easiest part of the use table since the categories of fixed capital fall quite naturally into product groups. Further, they will often be exempt from taxes on products and not subject to trade margins. However, some assets are subject to costs of ownership transfer on acquisition and disposal and these costs need to be allocated to the appropriate product. This product may be trade or transport but may also be legal services or real estate services, for example, depending on the asset concerned.

14.102 One aspect that does need to be mentioned, though, is the treatment of existing goods that are resold to another unit. (This applies to consumption expenditure also but is described here because it is most common for fixed capital.)

Resale of existing goods

14.103 Strictly speaking, it is not exactly true that all goods available for purchase in the domestic market come from domestic production or imports. Some goods may exist in the economy already and simply change owners. The most obvious example is fixed capital, where buildings and vehicles are regularly sold before their useful life is exhausted. In this case, the supply of goods is recorded not as a positive entry in the supply table but as a negative entry in the use table.

14.104 When a building is sold, for example, the seller records negative fixed capital formation and the purchaser records positive fixed capital formation. These items frequently do not offset one another exactly as there may be costs of ownership transfer associated with the exchange. As explained in chapter 10, costs of ownership transfer incurred by the seller should be written off during the period the seller has owned the asset, so that by the time the item is sold, all the costs of ownership transfer on acquisition should have been written off. For the purchaser, costs of ownership transfer on acquisition of the asset are recorded as part of gross fixed capital formation and, in turn, are written off over the period the purchaser expects to use the asset. In this way costs of ownership transfer of both disposal and acquisition are treated as new fixed capital formation.

14.105 Fixed assets may not always be sold to other producers in the same economy. For example, it is common for aircraft to be sold abroad. In this case, the supply of the aircraft is still recorded as negative capital formation but the use is recorded as an export.

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14.106 Even when an asset is no longer cost effective, it may have a residual value, for example as scrap. (It should be noted, though, that the margins of scrap merchants are often very high compared to the prices paid by them to acquire the scrap.) In that case the supply is recorded as negative capital formation and the use as intermediate consumption of a producing unit processing the scrap. Chapter 10 also explains why the total of consumption of fixed capital over the life of the asset is not necessarily the whole value of the asset on acquisition but the difference between the value of the asset on acquisition and its value on final disposal, in this case the scrap value. In cases where the scrap value does not coincide with the residual balance sheet value of the asset immediately before disposal, an adjustment is to be made to the value of the asset via the other changes in the volume of assets account.

14.107 Second-hand assets may also become household consumption expenditure, as for example when a hire car company sells its cars to households for recreational purposes.

14.108 If a unit disposes of more assets than it acquires in a period, it will have negative capital formation. It is possible, though not very common, for the figure of capital formation for a group of producing units also to be negative in such a case.

14.109 As explained in chapter 9, it is assumed that a household consumes products at the moment they are acquired. In the case of consumer durables this is not strictly so and consumer durables may be sold or donated to other units at a later time (for example in response to requests for disaster relief). In this case also, the supply of the goods in question is treated as negative expenditure by the previous owner and positive use by the new owner (including households in the rest of the world). The way in which the income element of donations to other units is handled is via transfers, as explained in chapter 8 but for a supply and use table this aspect is not relevant since it is only the physical disposition of the product that is recorded.

Changes in inventories

14.110 While allocating fixed capital formation to product type is relatively straightforward, allocating changes in inventories to product type is challenging. Chapter 10 explains how the types of inventories identified in the SNA are materials and supplies, work-in-progress, finished goods, and goods for resale. Work-in-progress and finished goods are straightforward to allocate since the products concerned must be those that the unit reporting the inventories produces. Materials and supplies are more complex. Some will be specific to the producing unit reporting them but virtually all producing units will hold some office supplies and cleaning materials, for example, though maybe not to a significant degree. For goods for resale, however, practically all types of goods may be included in inventories. Not only is the range of goods extensive, the pattern of goods held for resale is subject to a high degree of variation over time and even within an accounting period.

14.111 In the exercise of balancing a supply and use table, this uncertainty over the composition of inventories, added to the fact that even the valuation of changes in inventories may be less robust than desired, means that inventories are often estimated indirectly and with the need to balance the supply and use table as one of the operating constraints.

Valuables

14.112 The range of products held as valuables is quite extensive and it is an area where existing goods may feature. For example, antiques and old masters, by their very nature, are not output of the current period. The importance of the value of acquisition less disposals of valuables as an item of capital formation, though, tends to be limited and any major disposal, such as sales by a museum, are likely to be well known.

14.113 Table 14.8 illustrates the capital formation part of a use table.

Table 14.8:The capital formation part of a use table

	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables	Total
Agriculture, forestry and fishery products (0)	2	1	0	3
Ores and minerals; electricity, gas and water (1)	0	-1	0	-1
Manufacturing (2-4)	161	5	10	176
Construction (5)	190	23	0	213
Trade, accommodation, food & beverages; transport services (6)	0	0	0	0
Finance and Insurance (7 less 72-73)	0	0	0	0
Real estate services; and rental and leasing services (72-73)	22	0	0	22
Business and production services (8)	1	0	0	1
Community and social services (92-93)	0	0	0	0
Other services (94-99)	0	0	0	0
Public administration (91)	0	0	0	0
Total	376	28	10	414

4. Exports

14.114 The allocation of exports by product requires the same conversion between SITC or HS codes as the allocation of imports does. The valuation of exports is easier, though, since in trade statistics exports are uniformly valued FOB. This valuation may not be in perfect accord with the recording in the SNA since the point of valuation is at the border, not necessarily where change of ownership takes place. As with the valuation of imports, ideally exports should be valued when and where they change ownership from a resident unit to a non-resident unit but, again as with imports, the assumption that this change of ownership takes place at the national border may be the only practical assumption given existing data sources.

5. Introducing value added

14.115 The sum across the rows of the use table, encompassing intermediate consumption, final consumption, capital formation and exports, for each product type must be equal to the sum across the rows of the supply table (domestic production plus imports plus valuation adjustments to make

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the valuation in the supply table consistent with that in the use table) for the same product type. The sum down each column of the supply table shows the value of output for the relevant type of producing unit. The sum down the column of the use table for the same type of producing unit shows the amount of intermediate consumption of that type of producing unit. It is an obvious extension, therefore, to add two further lines to the use table for the column corresponding to producing units. The second of these contains the values of output from the supply table, the first contains the difference between this total and the value of intermediate consumption just described and so represents value added for that type of producing unit.

14.116 Introducing the entries for value added and output is key to one of the main purposes of the supply and use tables, that of using the structure to ensure the accounts are internally consistent. Returning to some of the examples quoted in the introductory section illustrates this point.

14.117 Suppose the data from a household survey for cigarette consumption is assumed to be accurate and suppose for simplicity there are no exports of cigarettes. This figure then virtually determines the total use of tobacco products and subtracting imports of cigarettes gives a figure for the output of the domestic cigarette factories. This may be much lower than the amounts reported by the cigarette manufacturers and the compiler may be inclined to think the output of cigarette manufacturers is overstated. However, the main intermediate input to cigarette manufacture will be tobacco and there will be other figures for either production or imports of tobacco. Given there are few uses for tobacco other than input into tobacco products and exports, if the supply and use table compiler wishes to adhere to the household expenditure survey data, he is faced with assuming either that there are errors of overstatement of cigarette manufacture, tobacco production or imports or the household figures for tobacco consumption are understated.

14.118 Consider the case of taxi services in a country where communal taxis are the main form of personal transport. As well as the value of taxi services reported by the taxi drivers, there may well be information about the number of cars and amount of petrol or diesel claimed as tax deductions because they are used for taxi services. A judgement can be made about whether these inputs are more consistent with the figure from the household expenditure survey than with the reported output figures.

14.119 More generally it should be noted that once the supply and use tables are balanced, any increase in final use for a particular good must be met from increased total supply or decreased intermediate consumption for the same good. If the increased supply comes from domestic production, then value added increases in line with the increases in final use; if the increased supply comes from increased imports, then both value added and GDP are unaffected (or only marginally if there are import taxes on the good in question). Similarly, any increase in intermediate consumption without an increase in domestic output must lead to a decrease in final use and also a decrease in value added.

Table 14.9:The value added part of a use table

	Market production	Production for own final use	Non-market production	Total
Intermediate consumption	1 594	50	239	1 883
Total gross value added/GDP	1 483	97	141	1 721
Compensation of employees	1 041	0	109	1 150
Taxes less subsidies on production and imports	56	0	2	58
Mixed income, gross	46	15	0	61
Operating surplus, gross	340	82	30	452
Consumption of fixed capital - mixed income	5	3		8
Consumption of fixed capital - other	168	16	30	214
Total output	3 077	147	380	3 604

6. Expanding value added

14.120 Useful as it is to add value added to the bottom of the use table, it is possible and even more helpful to disaggregate value added and show all the entries in the generation of income account (described in chapter 7). Table 14.9 shows the entries for each type of production in rows 14 and 17 to 25 of the use part of table 14.12.

7. Adding other variables

14.121 As well as the entries for the generation of income account, it is possible to add memorandum items relating to other variables that are useful in a study of production at the establishment level. These are gross fixed capital formation by establishment and the number of employees. As discussed in chapter 19, it is preferable to show employment on a full time equivalent basis if this is available.

D. Further elaboration of the use table

1. Cross-classification by industry and institutional sectors

14.122 It is possible to take each column of the use table relating to production units and allocate all the entries to one of the institutional sectors of the economy. The column for *ISIC* class K (finance and insurance) is allocated to financial corporations. The columns for non-market output are allocated either to general government or NPISHs. Other columns are mainly allocated to non-financial corporations but with those parts that represent unincorporated enterprises being allocated to households. Such a table provides the link between the supply and use tables and the sequence of accounts since the totals by institutional sector correspond to the data in the production and generation of

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income accounts. Further discussion of this presentation and a numerical example is given in chapter 28.

2. A use table at basic prices

14.123 So far in this chapter, it has been assumed that both the supply and use tables have been expressed in purchasers' prices and this is done by adding to supply valuation terms that explain the differences between basic prices and purchasers' prices. It is also possible to bring the two tables to a common valuation basis by reducing the use table to basic prices, which is the subject of this section. One reason to undertake this more arduous task is to facilitate compiling a supply and use table in volume terms, as described below.

14.124 In looking at any element of the use table at purchasers' prices it is clear that it may be made up of as many as six components:

a. domestic production at basic prices,

b. imports,

c. trade margins,

d. transport margins,

e. taxes on products,

f. subsidies on products.

14.125 In order to reduce the use table to basic prices, each element of the table must be decomposed into these six items. This can be seen as creating six similarly sized tables, each of which contains all the items for one of the components. This is much more resource intensive than bringing the supply table up to purchasers' prices where only six columns are needed, one for each of the six components.

Trade margins

14.126 Margin services are an important kind of activity in the SNA. Many goods pass from the producer to the purchaser by means of a wholesaler or retailer. Indeed, some goods may pass through the hands of several wholesalers on the way to the retailer. Many services, on the other hand, are supplied directly by the producer to the purchaser. This is by no means universal, though. Travel agents and offices offering tickets for sports and entertainment events are examples of a kind of "retailing" for services. In addition, many financial instruments are offered for sale (and are repurchased) with a spread between the buying and selling price. The most obvious example is perhaps foreign exchange. These spreads also represent a margin service supplied to the customer. In the case of services, though, the margin is treated as one of the products of the relevant service industries. In the case of goods, a separate type of activity, wholesale and retail services, covers the margins on all goods Many of these are the output of wholesaler and retail traders but some are provided as secondary activity.

14.127 As long as the use table is shown at purchasers' prices, there is no separate use of the trade margins provided by wholesalers and retailers. Table 14.4 shows that the additions to the values of various goods are exactly offset by negative entries for the supply of trade margins so that in effect there is no remaining supply to be explained in the use table.

14.128 As explained in chapters 3 and 6, the activity of wholesale and retail trade is one where the SNA imposes a partitioning of transactions. Considering the supply and use tables explains why this is desirable. Suppose all goods handled by wholesalers and retailers were shown as being delivered to the wholesaler or retailer and then supplied by them to the purchaser. The rows for goods in the supply and use tables would then be rather uninteresting. Virtually all goods would be used by wholesalers and retailers and almost none would be supplied to other producing units, households or government. The pattern of household consumption would show one large item for purchases from wholesalers and retailers and none from any manufacturing industry or agriculture. Even with grocers distinguished from furniture stores, it would no longer be possible to see exactly what types of food were being purchased and whether it was wooden or metal furniture being sold.

14.129 The standard treatment in a supply and use table, therefore, follows the rules for partitioning transactions adopted for measuring the output of the wholesale and retail activity. Each acquisition of a product from a wholesaler or retailer is regarded as being the acquisition of two distinct products. One is the physical good, valued at producers' prices, the other is the trade margin. The purchase of the good is shown as a use of that good; the margin is shown as a use of services provided by wholesalers and retailers. As noted, though, portraying the activity of wholesalers and retailers in this way in a supply and use table is resource intensive since it is often the case that different proportionate margins are charged to different types of purchasers, for example households paying higher margins than enterprises. Indeed, even within households the margin on the same good in the same outlet may differ with larger quantities having a smaller proportionate margin than smaller quantities. The compiler has thus to apply a considerable amount of specialized knowledge and judgement to make this partition and make it at the detailed product level.

Transport margins

14.130 As explained in reviewing the difference between purchasers', producers' and basic prices, transport margins only occur when transport services are separately invoiced. If they are separately invoiced, then no partitioning is necessary because the transport service is already treated as a separate product. The compiler's task is demanding because, for instance, suppliers may sometimes offer free transport for purchases over a certain value and charge for smaller deliveries.

Taxes on products

14.131 The fact that VAT on the same product may be deductible for some users (typically producing units) and not

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deductible for others (households) is one reason why a supply and use table at purchasers' prices may be difficult to interpret. The apparent share of total use by households will be inflated by the element of non-deductible tax as compared with the proportion of use by producing units. After removing trade and transport margins from purchasers' prices estimates, the next step is therefore to remove non-deductible VAT. Removing non-deductible VAT is reasonably straightforward for final users but may be more complicated for intermediate consumption where most, but not all, VAT may be deductible. Once non-deductible VAT is subtracted, the entries in the use table are valued at producers' prices.

14.132 For some countries it may not be possible to go beyond this but if possible removing other taxes on products as well is desirable, leaving the entries in the use table at basic prices. When this is done, it is necessary to introduce a new row into the use table. This is a row that shows the taxes on products payable by the producing unit concerned. This row is part of the cost of intermediate consumption at purchaser's prices in the same way as the entries for trade and transport margins are. It will include some taxes on imports when imports that are part of intermediate consumption are subject to taxes on entry to the economy. This row of taxes within the intermediate consumption part of the use table should not be confused with the row that may appear in the value added part of the use table when output is valued at producers' prices. That row shows the amount of taxes on products payable on the products supplied by the unit, not the taxes on products payable by the unit on products used by them.

Subsidies on products

14.133 If it is possible to remove taxes on products from the entries in the use table, then subsidies on products must be added back also. There is no counterpart to VAT within subsidies so the elimination of subsidies matches the elimination of taxes on products other than VAT.

Separating imports from domestic production

14.134 A further refinement of the use table in basic prices is to separate imports from domestic production. In some cases, if the only source of a product is from the rest of the world, or if none of the product is imported, there is no problem in making the separation. When products are available from both domestic and foreign sources, making the separation is difficult. One solution may be to work at a more disaggregated level if that helps identify products that are always or never imported, but in general making the separation is a process involving considerable expert knowledge and informed judgement.

14.135 Table 14.15 shows the import content of table 14.12. Table 14.10 shows columns 24, 29 and 35 indicating the amount of imports going to each of intermediate consumption, final consumption and capital formation.

Table 14.10:The imports content of the use matrix

	Intermediate consumption	Final consumption	Capital formation	Total imports
Agriculture, forestry and fishery products (0)	27	10	0	37
Ores and minerals; electricity, gas and water (1)	61	0	0	61
Manufacturing (2-4)	100	100	84	284
Construction (5)	0	0	0	0
transport services (6)	37	25	0	62
Finance and Insurance (7 less 72-73)	17	0	0	17
Real estate services; and rental and leasing services (72-73)	0	0	0	0
Business and production services (8)	0	5		5
Community and social services (92-93)	0	0	0	0
Other services (94-99)	0	0	0	0
Public administration (91)	0	0	0	0
CIF/FOB adjustment	-5	-3	-2	-10
Direct purchases abroad by residents		43		43
Total imports	237	180	82	499

3. Expressing the use table in volume terms

14.136 The supply and use framework not only constrains the current value estimates of supply and use to balance exactly, it also provides a way to ensure that the corresponding volume estimates, expressed in the prices of another year, are in balance and that the series of prices implied by the existence of one table in current prices and one in volume terms are strictly consistent. In general, the best way to ensure mutual consistency is to prepare the supply and use tables in current values and in volume terms at the same time.

14.137 In most countries there are sets of price indices available for consumer prices, producer prices and import and export prices. Separate international manuals on the methodology and compilation of these exist. The general question of the development and use of appropriate prices to deflate national accounts is the subject of chapter 15. What follows, therefore, anticipates that general discussion but is provided here to complete the discussion on supply and use tables. The section illustrates the problems that need to be addressed in expressing a supply and use table in volume terms rather than giving detailed compilation advice. For that, reference should be made to the price manuals and to documents dedicated to the compilation of supply and use tables and input-output tables such as the *Eurostat Manual of Supply, Use and Input-Output Tables* (Eurostat, 2008).

Deflating which tables?

14.138 The first decision to be made in compiling supply and use tables in volume terms is whether to work with tables in basic prices or in purchasers' prices. There are arguments for and against each choice.

14.139 When working with a basic price table, all the elements relating to trade and transport margins and to taxes less subsidies on products will have been separated from the value of goods and services at basic prices. Confusingly, the prices known as producer price indices (PPIs) correspond not to the concept of producer prices in the SNA but to basic prices. They exclude both trade and

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transport margins and the effect of taxes less subsidies on products. PPIs therefore seem well suited to deflating the rows of a basic price supply and use table on the grounds that the entries along a row of the use table are more homogeneous than in the case of a purchasers' price table. However, the claim that the resulting entries are sufficiently homogeneous to justify using a single price index for each of them must be qualified. In addition, the elements referring to margins and taxes must be deflated separately and this raises conceptual and practical issues also.

14.140 When working with purchasers' prices, greater use is made of CPIs and fewer problems arise about the treatment of margins and taxes. However, although CPIs are generally held to be robust, their underlying assumptions might not always be entirely compatible with those in the supply and use tables.

14.141 Whether a purchasers' price table or a basic price table is being deflated, there are likely to be problems in deflating exports and imports.

Homogeneity

14.142 The justification for using PPIs to deflate the rows of a supply and use table is that the elements of the rows are sufficiently homogeneous to use a single price throughput the row. There are two reasons why this may not be so.

14.143 The elements of the rows at purchasers' prices are certainly not homogeneous as they include trade and transport margins on the one hand and taxes less subsidies on the other. As noted, these may not fall on the same product in the same proportion for different users. Eliminating these entries should reduce this cause of non-homogeneity but there will inevitably be a degree of approximation involved in the exercise so some residual non-homogeneity from this cause will persist.

14.144 The other cause of non-homogeneity is due to aggregation. Even with a very large number of products distinguished in the supply and use tables, there is still a considerable degree of aggregation in each row. Even if screws were separated from other metal products, the price of screws varies according to the length, diameter, type of head and material they are intended to be used in. It is obviously impracticable to introduce a degree of disaggregation that would identify each of these types of screw separately and the thought of identifying screws separately from nails and other metal construction materials is already implausible. The problem of non-homogeneity is thus inevitable but may be reduced by considering the level of detail available in PPIs when determining the type of products to be identified in the supply and use tables.

The applicability of CPIs

14.145 Consumer price indices (CPIs) are applicable for deflating household consumption at purchasers' prices but at a disaggregated level. The weights used to compile CPIs are usually not entirely consistent with the weights implicit in the column of expenditures for household consumption. This is because the weights may relate to another year and may exclude some categories of expenditure. The CPIs are likely to have been derived from a household survey. Household surveys often exclude the richest and poorest households, so the coverage is less comprehensive than the household consumption figures in the supply and use tables. As explained above, the act of balancing the table may cause some elements from the household survey to be amended. In the case of tobacco products, for instance, in principle similar adjustments to the CPI weights should also have been made but in some other cases matching adjustments to the CPI weights may not have been made.

Imports and exports

14.146 Import price indices can be problematical. Many countries rely on unit value indices that do not take quality change into account adequately. Even when true import price indices are available, there is the problem of matching the degree of detail in the price indices with that of the products in the supply and use tables. Further, as mentioned in describing the correct valuation of imports, import price indices inevitably make different assumptions about how trade and transport margins are paid for than may be the case for individual purchasers. This can be seen clearly in the case of export prices. The difference between export prices and PPIs for an identical product is due to the assumption that export prices are valued at the border of the economy whereas PPIs are valued as the goods leave the factory.

Trade and transport margins

14.147 Trade and transport margins also need to be expressed in volume terms. If the margin is the same proportion of the purchaser's price in the current year as in the base year, then the volume measure of the margin is simply that proportion of the volume of the expenditure in question; volume measure and price move in line with the product to which the margin applies. Often the rate of the margin will change between the base year and the current period either because of a difference in the rates of margins charged or because of a change in the mix of products in a group. Further discussion of the way to derive estimates of margins in volume terms may be found in the manuals on CPIs and PPIs.

Taxes less subsidies on products

14.148 Different approaches to expressing taxes less subsidies in volume terms are required depending on the way in which the tax is levied.

14.149 If a tax is calculated as a percentage of the value of an item (an *ad valorem* tax) such as VAT, the volume measure is calculated in the same manner as that described for trade and transport margins.

14.150 Some taxes are levied according to the quantity of the item purchased. These are called *specific taxes* and excise duties typically are levied this way. For these taxes, the volume effect is strictly limited to changes in the quantity of the item purchased; any change in the rate of the specific tax is a price increase. The price increase of a specific tax may change in line with the general level of inflation but quite

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often it will move quite differently, for example if government wants to discourage spending on the item in question such as tobacco or alcohol.

14.151 Changes in tax regimes mean that from one year to the next the range of taxes levied changes with one disappearing and another replacing it. Volume series imply using not just the prices of the base year but also the tax structure. Thus volume series for an item may include a tax element that does not exist in the current values of the item and the tax element in the current value may not affect the volume series. In such a case a purchaser's price index is still valid but the concept of a "tax price index" is meaningless.

14.152 Subsidies on products are less common than taxes but if they exist, volume measures should be calculated using the same principles.

Value added

14.153 In the SNA, balancing items such as value added are regarded as not having price and volume dimensions. Nevertheless, it is possible to express them "in real terms" by using the balancing item approach to derive a figure from the volume estimates of the other items in the account.

14.154 Given the existence of PPIs for the rows of the use table, these can be applied to the rows of the supply table also and the column sums then give a figure for output in volume terms. Deducting the figures for intermediate consumption in volume terms derived from the deflation exercise for the product rows in the use table permits the calculation of value added for each type of producing unit as a residual. It is this residual that is described as being "in real terms". It is also possible to derive an implied deflator for value added by dividing the current value by the value in real terms.

14.155 Many analysts are interested in pursuing the question of deflating value added more explicitly. Calculating compensation of employees in volume terms is possible if enough information is available on wage rates and numbers employed by category of worker. Allowance must be made for changes in non-wage compensation and changes between full-time and part-time staff but there are few conceptual problems in deflating compensation.

14.156 In order to deflate taxes less subsidies on production, it is necessary to consider the basis on which the tax is levied. In most cases, taxes on production relate to the numbers of some or all employees or the capital used in production. As with taxes on products, there may be both a price element and a quantity element involved in calculating changes in the volume measure.

14.157 Deriving figures for operating surplus and mixed income in real terms is possible by subtracting compensation of employees and taxes less subsidies on production in volume terms from value added in real terms. However, the advocates of the capital services approach to measuring operating surplus suggest a more direct means of deriving operating surplus in real terms. This approach is not a standard part of the SNA but is described in chapter 20.

E. Numerical example

1. The full supply and use table

14.158 Table 14.12 shows a full supply and use table. The topmost part consists of the supply table. The first column shows total supply at purchasers' prices. This is followed by information first on trade and transport margins, as in table 14.2, and then on taxes and subsidies on products, as in table 14.5. Deducting the elements in all these columns from the corresponding elements in the column for total supply at purchasers' prices gives the next column, which is total supply at basic prices. This is followed by the largest part of the table, the supply of products by type of domestic producing units. This is an expanded form of table 14.1. At the extreme right of the supply table is the information on imports, corresponding to table 14.4.

14.159 The middle part of table 14.12 is the product part of the use table. The first column is total supply at purchasers' prices and corresponds exactly to the column above in the supply table. The next three columns are blank in the use table. Then the detailed information on use of products by type of producing unit is shown. This is the expanded version of table 14.6. The column for exports and columns for final consumption and capital formation follow. These correspond to tables 14.7 and 14.8.

14.160 Below the product part of the use table is the value added part. In the columns for taxes and subsidies, information on taxes and subsidies on production is shown. Details of the generation of income account for each of the types of producing unit are shown under their use of products as intermediate consumption. These entries correspond to the summary information in table 14.9. Information on capital formation by type of producing unit and employment are also shown. There are no entries under the columns for exports, final consumption or capital formation.

2. Margins and taxes

14.161 Within table 14.12, row 3 shows that the value of manufactured products at basic prices is 1 998. To this value, subsidies of 5 are deducted, taxes of 94 and trade and transport margins of 74 are added to give a value at purchasers' prices of 2 161. Within the use part of table 14.12, the whole of the value of 2 161 is accounted for. This means that the margins of 74 are accounted for in this way and not as demand on the trade and transport industry directly. In row 5 of the supply part of the table, therefore, these margins are shown as offsetting supply of trade and transport services (along with margins of 2 apply to each of agricultural products and ores and minerals) so the total of

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trade and transport margins at purchasers' prices shown in column 1 is less than the total at basic prices shown in column 5.

14.162 The right-most part of the supply table shows the way the margins on imports are handled. It is assumed that imports of goods are only available on a CIF basis. Within the balance of payments figures for imports of services, however, the figures of 6 and 4 will be included in the imports of services of these products. Thus column 26 shows the necessary adjustments. The negative entries of 6 and 4 are offset within the column by an adjustment item of 10 in a special row for the CIF/FOB adjustment. This in turn is offset by a negative entry in the same row within the column for the import of goods (column 27).

14.163 Instead of handling margins in this way, it is possible to reduce a supply and use table at purchasers' prices to basic prices by removing the margins and taxes from the purchasers' price estimates of all use elements. As explained in the last part of section D, this is often done as a basis for deflation of the table to volume terms. Table 14.13 shows the elements of trade and transport margins, taxes on products and subsidies on products included in table 14.12. This table does not distinguish all the columns for each type of production but for ease of reference the column numbers in table 14.13 (and indeed for tables 14.14 and 14.15) correspond exactly to those used in table 14.12.

3. A use table at basic prices

14.164 Table 14.14 is the use table expressed in basic prices. It is derived by deducting all the relevant elements of table 14.13 from the corresponding elements of table 14.12. For reasons of compactness, it is presented in the abbreviated form with no distinction between market production, production for own final use and non-market production but the column numbering corresponds to the full version for ease of reference.

4. The imports matrix

14.165 As well as removing the margin and tax elements from table 14.12, it is possible to also identify and remove that part of each element that represents supply from imports rather than from domestic production. In order to do this, a matrix similar to tables 14.1 and 14.14 must be compiled including imports only. Table 14.15 is such a table. This may then be deducted, element by element from table 14.14 to deduce a matrix showing the use of domestic production at basic prices only. (The imports matrix excludes margins and taxes applying to imports so must be deducted from the basic price table and not the purchasers' prices one.)

14.166 Although a complete table showing domestic use only is not presented, table 14.11 shows in summary form how the total value of supply at purchasers' prices is built up from domestic supply, imports, trade and transport margins, subsidies on products and taxes on products.

Table 14.11: Breakdown of use by producing units into the five elements making up purchasers' price valuation

	Domestic production	Imports	Trade and transport margins	Subsidies on products	Taxes on products	Total
1 Agriculture, forestry and fishery products (0)	59	27	1	0	0	87
2 Ores and minerals; electricity, gas and water (1)	148	61	2	0	4	215
3 Manufacturing (2-4)	788	100	35	0	32	955
4 Construction (5)	40	0	0	0	0	40
5 Trade, accommodation, food & beverages; transport services (6)	117	37	0	0	3	157
6 Finance and Insurance (7 less 72-73)	87	17	0	0	0	104
7 Real estate services; and rental and leasing services (72-73)	57	0	0	0	0	57
8 Business and production services (8)	213	0	0	0	9	222
9 Community and social services (92-93)	34	0	0	0	0	34
10 Other services (94-99)	10	0	0	0	0	10
11 Public administration (91)	2			0		2
Total	1 555	242	38	0	48	1 883

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Table 14.12:Supply and use tables at purchasers' prices

	Supply of products	Total supply at purchasers' prices	Trade and transport margins	Taxes on products	Subsidies on products (-)	Total supply (basic prices)	Output by industries (by ISIC Categories)										
							Market										
							Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business services	Education, human health and social work	Other services	Sub-total market
							(A)	(B-E)	(F)	(G-I)	(J)	(K)	(L)	(M-N)	(P-Q)	R-T and U	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Products (by CPC sections)																
1	Agriculture, forestry and fishery products (0)	128	2	5	- 3	124	78	0	0	0	0	0	0	0	0	0	78
2	Ores and minerals; electricity, gas and water (1)	263	2	5	0	256	0	195	0	0	0	0	0	0	0	0	195
3	Manufacturing (2-4)	2 161	74	94	- 5	1 998	0	1 650	6	24	18	0	0	9	0	0	1 707
4	Construction (5)	261	0	17	0	244	0	7	201	3	2	0	0	0	0	0	213
5	Trade, accommodation, food & beverages; transport services (6)	216	- 78	5	0	289	0	6	1	226	0	0	0	0	0	0	233
6	Finance and Insurance (7 less 72-73)	159	0	0	0	159	0	0	0	0	0	146	0	0	0	0	146
7	Real estate services; and rental and leasing services (72-73)	195	0	0	0	195	0	2	0	4	0	0	94	0	0	0	100
8	Business and production services (8)	272	0	11	0	261	0	1	0	3	80	0	0	172	0	0	256
9	Community and social services (92-93)	275	0	0	0	275	0	0	0	0	0	0	0	0	63	0	63
10	Other services (94-99)	95	0	4	0	91	0	0	0	2	0	0	0	2		82	86
11	Public administration (91)	91				91											
12	CIF/FOB adjustment on imports	0				0											
13	Direct purchases abroad by residents	43				43											
14	Total	4 159	0	141	- 8	4 026	78	1 861	208	262	100	146	94	183	63	82	3 077

	Use of products	Total supply at purchasers' prices	Taxes on products	Subsidies on products	Intermediate consumption of industries (by ISIC categories)										
					Market										
					Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business services	Education, human health and social work	Other services	Sub-total market
					(A)	(B-E)	(F)	(G-I)	(J)	(K)	(L)	(M-N)	(P-Q)	R-T and U	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Products (by CPC section)														
	Total uses														
1	Agriculture, forestry and fishery products (0)	128			2	71	0	3	1	2	1	2	0	0	82
2	Ores and minerals; electricity, gas and water (1)	263			3	190	1	6	3	2	1	2	0	0	208
3	Manufacturing (2-4)	2 161			27	675	63	44	16	16	9	19	4	5	878
4	Construction (5)	261			1	9	5	3	1	1	1	1	0	0	22
5	Trade, accommodation, food & beverages; transport services (6)	216			3	65	3	25	4	4	2	4	0	0	110
6	Finance and Insurance (7 less 72-73)	159			1	36	5	18	1	3	3	7	1	1	76
7	Real estate services; and rental and leasing services (72-73)	195			1	15	1	8	2	5	2	4	0	1	39
8	Business and production services (8)	272			2	70	12	15	10	18	9	19	7	9	171
9	Community and social services (92-93)	275			0	1	0	0	0		0	1	0	0	2
10	Other services (94-99)	95			1	1	0	1	1	1	0	1	0	0	6
11	Public administration (91)	168			0	0	0	0	0	0	0	0	0	0	0
12	Direct purchases abroad by residents	43													0
13	Domestic purchases by non-residents	0													0
14	Total	4 236			41	1 133	90	123	39	52	28	60	12	16	1 594
15	Total gross value added/GDP		141	- 8	37	728	118	139	61	94	66	123	51	66	1 483
16	Compensation of employees				19	547	79	102	32	44	49	79	43	47	1 041
17	Taxes less subsidies on production and imports		141	- 8	- 2	43	5	- 5	- 1	4	6	4	1	1	56
18	Mixed income, gross				4	30	3	9	0	0	0	0	0	0	46
19	Operating surplus, gross				16	108	31	33	30	46	11	40	7	18	340
20	Consumption of fixed capital -mixed income				1	3	0	1	0	0	0	0	0	0	5
21	Consumption of fixed capital - other				8	80	11	30	7	12	5	12	1	2	168
22	Total output				78	1 861	208	262	100	146	94	183	63	82	3 077
23	Labour inputs (hours worked)				1 840	31 962	4 244	8 786	1 332	1 290	920	1 562	494	642	53 072
24	Gross fixed capital formation				10	122	8	49	14	7	5	7	1	2	225
25	Closing stocks of fixed assets				142	1 861	143	731	208	143	102	147	22	29	3 528

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Table 14.12 (cont):Supply and use tables at purchasers' prices

	Intermediate consumption of industries (by ISIC categories)									Exports		Final consumption expenditure						Gross capital formation			
	Own final use				Non-market										General government						
	Agriculture, forestry and fishing	Construction	Real estate and private household services	Sub-total own final use	Education, human health and social services	Public Administration	Sub-total non-market	Total industry	Total economy	Goods	Services	Sub-total final consumption expenditure	Households	NPISHs	Sub-total	Collective	Individual	Sub-total gross capital formation	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables
	(A)	(F)	(L)		(P-Q)	(O)															
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
1	1	0	0	1	3	2	5	88			7	0	30	28	0	2	0	2	3	2	1	
2	0	0	0	0	5	4	9	217			7	0	40	40	0	0	0	0	- 1	0	- 1	
3	5	17	10	32	42	38	80	990			422	0	573	570	0	3	0	3	176	161	5	10
4	0	0	0	0	11	7	18	40			6	0	2	2	0	0	0	0	213	190	23	
5	0	0	0	0	4	5	9	119			0	55	42	42	0	0	0	0				
6	0	2	3	5	6	17	23	104			0	2	53	53	0	0	0	0				
7	0	0	0	0	8	10	18	57			0	1	115	115	0	0	0	0	22	22	0	
8	0	5	7	12	15	24	39	222			0	9	40	40	0	0	0	0	1	1	0	
9	0	0	0	0	24	8	32	34			0	2	239	21	14	204	0	204				
10	0	0	0	0	2	2	4	10			0	0	85	85	0	0	0	0				
11	0	0	0	0	1	1	2	2				0	166	5	2	159	156	3				
12													43	43								
13											20	9	- 29	- 29								
14	6	24	20	50	121	118	239	1 883			462	78	1 399	1 015	16	368	156	212	414	376	28	10
15	5	12	80	97	91	50	141	1 721	1 854													
16	0	0	0		70	39	109	1 150	1 150													
17	0	0	0	0	1	1	2	58	191													
18	3	12	0	15				61	61													
19	2	0	80	82	20	10	30	452	452													
20	3	0	0	3				8	8													
21	1	0	15	16	20	10	30	214	214													
22	11	36	100	147	212	168	380	3 604														
23	218	780	0	998	7 299	8 000	15 299	69 369														
24	1	1	124	126	13	12	25	376														
25	17	17	1 851	1 885	201	169	370	5 783														

	Own final use				Non-market					CIF/FOB adjustments on imports	Imports	
	Agriculture, forestry and fishing	Construction	Real estate and private household services	Sub-total own final use	Education, human health and social services	Public Administration	Sub-total non-market	Total industry	Total economy		Goods	Services
	(A)	(F)	(L+T)		(P-Q)	(O)						
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1	9	0	0	9	0	0	0	87			37	
2	0	0	0	0	0	0	0	195			61	
3	2	5	0	7	0	0	0	1 714			284	
4	0	31	0	31	0	0	0	244				
5	0	0	0	0	0	0	0	233		- 6		62
6	0	0	0	0	0	0	0	146		- 4		17
7	0	0	95	95	0	0	0	195				
8	0	0	0	0	0	0	0	256				5
9	0	0	0	0	212	0	212	275				0
10	0	0	5	5	0	0	0	91				0
11						168	168	168				
12										10	- 10	
13											20	23
14	11	36	100	147	212	168	380	3 604		0	392	107

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Table 14.13:Supply and use table: trade and transport margins, taxes and subsidies on intermediate and final use of products

Uses of products	Total uses	Intermediate consumption of industries (by ISIC categories) Market																				Own final use			Non-market				Exports			Final consumption expenditure							Gross capital formation			
		Agriculture, hunting, forestry, fishing	Manufacturing, and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business services	Education, human health and social work	Other services	Sub-total market	Agriculture, hunting, forestry, fishing	Construction	Real estate, household services	Sub-total own final use	Education, health, social services	Public administration, defence, social security, other public services	Sub-total non-market	Total industry	Goods	Services	Sub-total	Household	NPISHs	Sub-total	General government Collective	General government Individual	Sub-total	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables
	(1)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(P-Q) (21)	(O) (22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
		(A)	(B-E)	(F)	(G-I)	(J)	(K)	(L)	(M-N)	(P-Q)	(-T and U)		(A)	(F)	(L+T)																	
Products (by CPC sections)																																
Total uses																																
1 Agriculture, forestry and fishery products (0)	2	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
Trade and transport margins	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0
Taxes on products	-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-3	-3	0	0	0	0	0	0	0	0
Subsidies on products																																
2 Ores and minerals; electricity, gas and water (1)	2	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Trade and transport margins	5	0	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	1	1	0	0	0	0	0	0	0	0
Taxes on products																																
3 Manufacturing (2-4)	74	1	25	3	2	0	0	0	0	0	0	31	0	0	0	0	0	4	4	35	16	0	20	20	0	0	0	0	3	3	0	0
Trade and transport margins	94	1	26	4	0	0	0	0	0	0	0	31	0	0	0	0	0	1	1	32	10	0	48	48	0	0	0	0	4	4	0	0
Taxes on products	-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-5	-5	0	0	0	0	0	0	0	0
Subsidies on products																																
4 Construction (5)	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17	0	0
Taxes on products																																
Trade, accommodation, food & beverages;																																
5 transport services (6)	5	0	2	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	2	2	0	0	0	0	0	0	0	0
Taxes on products																																
6 Finance and Insurance (7 less 72-73)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxes on products																																
Real estate services; and rental and leasing																																
7 services (72-73)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxes on products																																
8 Business and production services (8)	11	0	3	1	1	0	1	1	0	0	0	7	0	0	0	0	1	1	2	9	0	0	2	2	0	0	0	0	0	0	0	0
Taxes on products																																
9 Community and social services (92-93)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxes on products																																
10 Other services (94-99)	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0
Taxes on products																																
11 Public administration (91)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxes on products																																
Total trade and transport margins	78	1	28	3	2	0	0	0	0	0	0	34	0	0	0	0	0	4	4	38	16	0	21	21	0	0	0	0	3	3	0	0
Total taxes on products	141	1	35	5	2	0	1	1	0	0	0	45	0	0	0	0	1	2	3	48	10	0	62	62	0	0	0	0	21	21	0	0
Total subsidies on products	-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-8	-8	0	0	0	0	0	0	0	0

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Table 14.14:Supply and use table: Final and intermediate uses at basic prices, *ISIC* breakdown

Use of products	Total uses at basic prices	Taxes less subsidies on products	Intermediate consumption of industries (by ISIC categories)															Total industry	Total economy	Exports		Final consumption expenditure					Gross capital formation			
			Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business services	Education, human health and social work	Other services	Public administration							Goods	Services	Sub-total final consumption expenditure	Households	NPISHs	General government			Sub-total gross capital formation	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables
																									Sub-total	Collective	Individual				
	(1)	(3)-(4)	(A)	(B-E)	(F)	(G-I)	(J)	(K)	(L)	(M-N)	(P-Q)	(R-T) + U	(O)	(6)+(17)	(8)+(18)	(9)	(10)	(11)	(12)	(13)	(14)+(21)	(15)	(22)	(24)	(25)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
Products (by CPC section)																																				
Total uses																																				
Agriculture, forestry and fishery products (0)	124		3	70	0	3	1	2	1	2	3	0	2	87						7	0	27	25	0	2	0	2	3	2	1			
Ores and minerals; electricity, gas and water (1)	256		3	184	1	6	3	2	1	2	5	0	4	211						7	0	39	39	0	0	0	0	- 1	0	- 1			
Manufacturing (2-4)	1 998		30	624	73	42	16	16	19	19	46	5	33	923						396	0	510	507	0	3	0	3	169	154	5	10		
Construction (5)	244		1	9	5	3	1	1	1	1	11	0	7	40						6	0	2	2	0	0	0	0	196	173	23			
Trade, accommodation, food & beverages; transport services (6)	289		4	91	6	26	4	4	2	4	4	0	9	154						16	55	61	61	0	0	0	0	3	3	0			
Finance and Insurance (7 less 72-73)	159		1	36	7	18	1	3	6	7	7	1	17	104						0	2	53	53	0	0	0	0	0	0	0			
Real estate services; and rental and leasing services (72-73)	195		1	15	1	8	2	5	2	4	8	1	10	57						0	1	115	115	0	0	0	0	22	22	0			
Business and production services (8)	261		2	67	16	14	10	17	15	19	21	9	23	213						0	9	38	38	0	0	0	0	1	1	0			
Community and social services (92-93)	275		0	1	0	0	0	0	0	1	24	0	8	34						0	2	239	21	14	204	0	204	0	0	0			
Other services (94-99)	91		1	1	0	1	1	1	0	1	2	0	2	10						0	0	81	81	0	0	0	0	0	0	0			
Public administration (91)	168		0	0	0	0	0	0	0	0	1	0	1	2						0	0	166	5	2	159	156	3	0	0	0			
Domestic purchases by non-residents	0		0		0						0									20	9	- 29	- 29										
Direct purchases abroad by residents	43		0		0				0	0	0											43	43										
Total uses at basic prices	4 060		46	1 098	109	121	39	51	47	60	132	16	116	1 835						452	79	1 302	918	16	368	156	212	393	355	28			
Taxes less subsidies on products	133		1	35	5	2	0	1	1	0	1	0	2	48						10	0	54	54	0	0	0	0	21	21	0			
Total uses in purchasers' prices	4 193		47	1 133	114	123	39	52	48	60	133	16	118	1 883						462	78	1 400	1 016	16	368	156	212	414	376	28	10		
Total gross value added/GDP		133	42	728	130	139	61	94	146	123	142	66	50	1 721	1 854																		
Compensation of employees			19	547	79	102	32	44	49	79	113	47	39	1 150	1 150																		
Taxes less subsidies on production and imports		133	- 2	43	5	- 5	- 1	4	6	4	2	1	1	58	191																		
Mixed income, gross			7	30	15	9	0	0	0	0	0	0	0	61	61																		
Operating surplus, gross			18	108	31	33	30	46	91	40	27	18	10	452	452																		
Consumption of fixed capital - mixed income			4	3	0	1	0	0	0	0	0	0	0	8	8																		
Consumption of fixed capital - other			9	80	26	30	7	12	5	12	21	2	10	214	214																		
Total output			89	1 861	244	262	100	146	194	183	275	82	168	3 604																			

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Table 14.15:Imports used for intermediate consumption and final demand

	Products (by CPC section)	Intermediate consumption																		Final consumption expenditure								Gross capital formation				Imports	
																				General government													
		Agriculture, forestry and fishing		Manufacturing and other industry		Construction		Trade, transport, accommodation and food		Information and communication		Finance and insurance		Real estate activities		Business services		Education, human health and social work		Other services		Public administration, defence, social security, other public services		Total industry		Sub-total		Households		NPISHs		Sub-total		Collective	
		(A)	(6)+(17)	(B-E)	(7)	(F)	(8)+(18)	(G-I)	(9)	(J)	(10)	(K)	(11)	(L)	(12)	(M-N)	(13)	(P-Q)	(14)+(21)	R-T and U	(15)	(O)	(22)	(24)		(29)		(30)		(31)		(32)		(33)	
1	Total uses																																		
	Agriculture, forestry and fishery products (0)	0		27		0		0		0		0		0		0		0		0		0		27		10		10		0		0		0	
2	Ores and minerals; electricity, gas and water (1)	0		61		0		0		0		0		0		0		0		0		0		61		0		0		0		0		0	
3	Manufacturing (2-4)	0		95		0		5		0		0		0		0		0		0		0		100		100		100		0		0		0	
4	Construction (5)	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
5	beverages; transport services (6)	0		25		0		11		0		0		0		1		0		0		0		37		25		25		0		0		0	
6	Finance and Insurance (7 less 72-73)	0		5		0		0		0		7		0		5		0		0		0		17		0		0		0		0		0	
7	Real estate services; and rental and leasing services (72-73)	0		0		0		0				0		0		0		0		0		0		0		0		0		0		0		0	
8	Business and production services (8)	0		0		0		0		0		0		0		0		0		0		0		0		5		5							
9	Community and social services (92-93)	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
10	Other services (94-99)	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
11	Public administration (91)	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
12	CIF/FOB adjustment			-5																		-5				-3		-3							
13	Direct purchases abroad by residents																									43		43							
14	Total imports	0		208		0		16		0		7		0		6		0		0		0		237		180		180		0		0		0	

	Products (by CPC section)	Imports									
		Gross capital formation									
		Sub-total		Gross fixed capital formation		Changes in inventories		Acquisition less disposals of valuables		Goods	Services
		(35)		(36)		(37)		(38)		(27)	(28)
1	Total uses										
	Agriculture, forestry and fishery products (0)	0		0		0		0		37	
2	Ores and minerals; electricity, gas and water (1)	0		0		0		0		61	
3	Manufacturing (2-4)	84		74		0		10		284	
4	Construction (5)	0		0		0		0		0	0
5	beverages; transport services (6)	0		0		0		0		0	62
6	Finance and Insurance (7 less 72-73)	0		0		0		0		0	17
7	Real estate services; and rental and leasing services (72-73)	0		0		0		0		0	0
8	Business and production services (8)										5
9	Community and social services (92-93)	0		0		0		0		0	0
10	Other services (94-99)	0		0		0		0		0	0
11	Public administration (91)	0		0		0		0		0	0
12	CIF/FOB adjustment	-2		-2						-10	
13	Direct purchases abroad by residents									20	23
14	Total imports	82		72		0		10		392	107

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Chapter 15: Price and volume measures

A. Introduction

15.1 Chapter 14 describes how the goods and services account may be compiled and elaborated within a supply and use table. The changes in the values of flows of goods and services can be directly factored into two components, one reflecting changes in the prices of the goods and services concerned and the other the changes in their volumes. One major advantage of compiling price and volume measures within an accounting framework, such as that provided by the supply and use tables, is that a check is provided on the numerical consistency and reliability of the set of measures as a whole. This is particularly important when every flow of goods and services in the economy has to be covered, including non-market goods and services whose valuation is even more difficult in volume terms than at current prices.

15.2 Another advantage of compiling price and volume measures within an accounting framework is that implicit price or volume measures can be derived for certain important balancing items. In particular, gross value added can be measured in real terms by subtracting intermediate consumption in volume terms from output in volume terms, the so-called "double deflation" method. Double deflation may be used at the level of an individual enterprise, industry or sector. However, the primary objective of the SNA is not simply to provide guidelines on measures of changes in prices and volumes for the main aggregates of the SNA but to assemble a set of interdependent measures that make it possible to carry out systematic and detailed analyses of inflation and economic growth.

1. Index number theory

15.3 Section B gives an overview of the theory of index numbers as applied in the SNA. There have been significant developments in this area over the last decade. New manuals have been published on the theory and practice of consumer price indices (CPIs) and on producer price indices (PPIs). These are *Consumer Price Index Manual: Theory and Practice, (*International Labour Organization, International Monetary Fund, Organisation for Economic and Co-operation and Development, Eurostat, United Nations Economic Commission for Europe and World Bank (2004)) and *Producer Price Index Manual: Theory and Practice, (*International Labour Organization, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, Economic Commission for Europe and the World Bank (2004).) A further manual on export and import price indices (XMPIs), *Export and Import Price Index Manual: Theory and Practice* (International Labour Organization, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations Economic Commission for Europe and World Bank (2009)). These manuals have been prepared with a common structure to help readers. In particular chapter 14 of the CPI and PPI manuals and chapter 15 of the XMPI manual outline how such indices fit into the framework of the SNA.

15.4 The first topic in section B concerns the choice of an appropriate methodology for compiling inter-temporal price and volume measures for flows of goods and services in a national accounting context. Section B also deals with the consequences of price variation due to price discrimination; that is, how to treat goods or services that are sold to different purchasers on the same market in the same period at different prices. Such differences need to be clearly distinguished from price differences attributable to differences in qualities. This section also discusses the treatment of changes in quality over time, including the appearance of new products and the disappearance of old products.

2. Inter-temporal price and volume series

15.5 Section C shows how the considerations in section B can be applied to the SNA and time series of volumes and prices be derived. It discusses not only the elements of the goods and services account but also how stocks of non-financial assets can be decomposed into price and volume elements. Further, the section addresses the question of expressing key aggregates of the SNA that do not themselves have price and volume components in real terms, allowing an analysis of the impact of terms of trade on national income, for instance.

15.6 Like section B, section C does not aim to be exhaustive in its coverage but draws on, and refers to, other manuals developed over the last decade, specifically the *Handbook on Price and Volume Measures in National Accounts* (Eurostat, 2001) and chapter IX of *Quarterly National Accounts Manual: Concepts, Data Sources and Compilation* (International Monetary Fund (IMF), 2001b).

3. International price comparisons

15.7 Although most price and volume index numbers were developed to measure changes in prices and volumes over time, they can also be adapted to compare levels of prices and volumes between different regions or countries in the same period of time. Such comparisons are needed in order

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to be able to compare standards of living, levels of economic development or levels of productivity in different countries.

15.8 These topics are addressed in section D, first in theoretical terms and then in terms of the implications for national accountants. The *Global Purchasing Power Parities and Real Expenditure - 2005 International Comparison Program Methodological Handbook* (World Bank, 2008) describes the methodology underlying the 2005 round of the International Comparison Program (ICP).

4. Further information

15.9 This chapter aims to do no more than introduce the most important concepts and considerations of the application of index number theory to the derivations of volume series within the SNA. Further information should be sought from the other manuals cited.

B. An overview of index number theory

1. Quantities, prices and values

15.10 For each individual type of good or service it is necessary to specify an appropriate quantity unit in which that good or service can be measured. Goods or services may be supplied in units that are either discrete or continuously variable. Automobiles, aircraft, microcomputers, haircuts and appendectomies are examples of goods or services provided in discrete or integral units. The quantities of such goods and services are obtained simply by counting the number of units. Oil, electricity, sugar and transportation are examples of goods or services provided in units that vary continuously in respect of characteristics such as weight, volume, power, duration and distance. The choice of physical unit, and its price in relation to the unit selected, is therefore a matter of convenience. For example, the price quoted per tonne is one thousand times greater than one quoted per kilo. As long as the price is expressed in a manner consistent with the unit of volume, the value (v) at the level of a single, homogeneous good or service is equal to the price per unit of quantity (p) multiplied by the number of quantity units (q), that is: $v = p \times q$.

Additivity of quantities, prices and values

15.11 Certain important properties in relation to the additivity of quantities, prices and values may be briefly noted:

a. Quantities are additive only for a single homogeneous product. For example, it is not economically meaningful to add 10 tonnes of coal to 20 tonnes of sugar. Less obviously, the addition of 10 automobiles of one type to 20 automobiles of another type would not be economically meaningful either if they differ in quality.

b. ***The price of a good or service is defined as the value of one unit of that good or service***. It varies directly with the size of the unit of quantity selected and in many cases can be made to vary arbitrarily by changing the unit of quantity, for example, by choosing to measure in tonnes instead of in kilograms. Prices, like quantities, are not additive across different goods or services. An average of the prices of different goods or services has no economic significance and cannot be used to measure price changes over time.

c. Values are expressed in terms of a common unit of currency and are additive across different products. Values are invariant to the choice of quantity unit.

15.12 In a market system, the relative prices of different goods and services should reflect both their relative costs of production and their relative utilities to purchasers, whether the latter intend to use them for production or consumption. Relative costs and relative utilities influence the rates at which sellers and buyers are prepared to exchange goods and services on markets. An aggregation of the values of different goods and services necessarily reflects the choices of which goods and services have been produced and consumed at the currently prevailing prices.

Volume, quantity, price and unit value indices

15.13 ***A volume index is an average of the proportionate changes in the quantities of a specified set of goods or services between two periods of time***. The quantities compared over time must be those for homogeneous items and the resulting quantity changes for different goods and services must be weighted by their economic importance, as measured by their relative values in one or other, or both, periods. For this reason volume is a more correct and appropriate term than quantity in order to emphasize that quantities must be adjusted to reflect changes in quality.

15.14 Unfortunately, it may sometimes happen, especially in the field of foreign trade statistics based on customs documentation, that the data from which price and volume indices have to be calculated are not sufficiently detailed or are otherwise inadequate for the purpose. For example, the basic information available may be limited to the total number of units of some group of products imported or exported, or their total weight, for example, the total number of pairs of shoes, or total weight of equipment of a certain type. Indices built up from information of this kind are not volume indices when the numbers, or weights, cover different items selling at different prices. They are sometimes described as "quantity indices" for this reason. The "price" indices associated with such indices are usually described as average or "unit value" indices. Unit value indices measure the change in the average value of units that are not necessarily homogeneous and may be affected by changes in the mix of items as well as by changes in their prices. Unit value indices cannot therefore be

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expected to provide good measures of average price changes over time for groups of non-homogeneous items.

2. Inter-temporal index numbers of prices and volumes

15.15 The index numbers of interest within the SNA are designed to decompose changes in value aggregates into their overall change in price and volume components. A price index can be written and calculated as a weighted average of the proportionate changes in the prices of a specified set of goods and services between two periods of time, say a reference period 0 and current period *t*. Similarly, a volume index can be written and calculated as a weighted average of the proportionate changes in the volumes of a specified set of goods and services between two periods of time, say a reference period 0 and current period *t*. There are many index number formulae differing from each other mainly in the weights which they attach to the individual price or quantity relatives and the particular form of average used, whether it is arithmetic, geometric, harmonic, etc. These alternative formulae, their properties and relative merits, are outlined in detail in the CPI and PPI manuals.

Laspeyres and Paasche indices

15.16 The two most commonly used index formulae are the Laspeyres and Paasche indices. The Laspeyres price index (L_P) is defined as a weighted arithmetic average of the price relatives using the value shares of the reference period 0 as weights:

$$L_P = \sum_{i=1}^{n}\left(\frac{p_i^t}{p_i^0}\right)s_i^0 = \frac{\sum_{i=1}^{n}\left(\frac{p_i^t}{p_i^0}\right)p_i^0 q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0} \equiv \frac{\sum_{i=1}^{n} p_i^t q_i^0}{\sum_{i=1}^{n} p_i^0 q_i^0} \qquad (1)$$

that is, where p_i^0, q_i^0 and $v_i^0 = p_i^0 \times q_i^0$ are the prices, quantities and values in period 0 of i=1,…,n products and $s_i^0 = v_i^0 / \sum_{i=1}^{n} v_i^0$, the value shares in period 0. Similar expressions with superscripts *t* refer to period *t*.

15.17 Note from (1) that the Laspeyres price index can be defined as the change in value of a basket of products whose composition is kept fixed as it was in the reference period 0. The Laspeyres volume index (L_Q) can be similarly defined as the change in the value of a basket whose composition every period is updated but the prices of the reference period 0 are applied to the new quantities (or volumes), that is:

$$L_Q = \sum_{i=1}^{n}\left(\frac{q_i^t}{q_i^0}\right)s_i^0 \equiv \frac{\sum_{i=1}^{n} p_i^0 q_i^t}{\sum_{i=1}^{n} p_i^0 q_i^0} \qquad (2)$$

15.18 Paasche indices also exist in both price and volume forms. The Paasche index differs from the Laspeyres index in two respects. It uses a harmonic mean instead of an arithmetic average and the fixed period volumes or prices are those of the current period t. The Paasche price index is given by:

$$P_P = \left[\sum_{i=1}^{n}\left(\frac{p_i^t}{p_i^0}\right)^{-1} s_i^t\right]^{-1} \equiv \frac{\sum_{i=1}^{n} p_i^t q_i^t}{\sum_{i=1}^{n} p_i^0 q_i^t} \qquad (3)$$

and a Paasche volume index, with fixed current period weights or prices, by:

$$P_Q = \left[\sum_{i=1}^{n}\left(\frac{q_i^t}{q_i^0}\right)^{-1} s_i^t\right]^{-1} \equiv \frac{\sum_{i=1}^{n} p_i^t q_i^t}{\sum_{i=1}^{n} p_i^t q_i^0} \qquad (4)$$

Deflation and volume series using Laspeyres and Paasche formulae

15.19 The index of the change in monetary values between two periods, $I_V = \sum_{i=1}^{n} v_i^t \Big/ \sum_{i=1}^{n} v_i^{t-1}$, reflects the combined effects of both price and quantity changes. When Laspeyres and Paasche indices are used, the value change will exactly decompose into a price index times a volume index only if the Laspeyres price index is matched with the Paasche volume index, that is: $L_P \times P_Q = I_V$ or the Laspeyres volume index is matched with the Paasche price index $L_Q \times P_P = I_V$. For example, a price index, 1.05 representing a 5 per cent change multiplied by a volume index of 1.08, an 8 per cent change, yields a value change index of 1.134, a 13.4 per cent change.

15.20 This relationship can be exploited whenever the total current values for both periods are known and either of a price or volume index. Suppose, for example, compilers want to derive a volume index. Laspeyres and Paasche volume indices are derived by dividing (deflating) the value change by appropriate price indices: $L_Q = I_V / P_P$ and $P_Q = I_V / L_P$ respectively. Note that L_Q from the right-hand side of equation (2) generates a time series of Laspeyres volume indices, for periods t = 1,…,T of:

$$\frac{\sum_{i=1}^{n} p_i^0 q_i^1}{\sum_{i=1}^{n} p_i^0 q_i^0}, \frac{\sum_{i=1}^{n} p_i^0 q_i^2}{\sum_{i=1}^{n} p_i^0 q_i^0}, \ldots\ldots, \frac{\sum_{i=1}^{n} p_i^0 q_i^T}{\sum_{i=1}^{n} p_i^0 q_i^0} \qquad (5)$$

Multiplying through the series by the common denominator $\sum_{i=1}^{n} p_i^0 q_i^0$ yields the volume series:

$$\sum_{i=1}^{n} p_i^0 q_i^1, \sum_{i=1}^{n} p_i^0 q_i^2, \ldots\ldots, \sum_{i=1}^{n} p_i^0 q_i^T \qquad (6)$$

The relative movements from period to period for this series are identical with those of the associated Laspeyres

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volume indices given by (5), the two series differing only by a scalar that is the value in period 0.

15.21 Series using the prices of a base year throughout, as illustrated by (6), are easy to understand but are not best practice in national accounts if the time period *T* is a lengthy one over which there are changes in the structure of the economy. For example, if volume changes are measured over a 10 year period, say 1995 to 2005, at constant 1995 prices, then the volume movements in later years are based on a price configuration that is likely to have changed. A better practice is to change the weights of (rebase) the Paasche deflator in 2000 and link the resulting index to the 1999 one. The resulting volume series over the 10 year period will no longer be at constant 1995 prices, but be a more representative volume index. Even better practice, resources permitting, is to form a series of annual bilateral links of constant price comparisons. It is preferable to use the term volume series to describe such series rather than "in" or "at constant prices".

The relationship between Laspeyres and Paasche indices

15.22 Before considering other possible formulae, it is useful to establish the behaviour of Laspeyres and Paasche indices vis-à-vis each other. In general, a Laspeyres index tends to register a larger increase over the base year than a Paasche index, that is, in general:

$$\text{both } L_P > P_P \text{ and } L_Q > P_Q \qquad (7)$$

It can be shown that relationship (7) holds whenever the price and quantity relatives (weighted by values) are negatively correlated, that is, as prices go up the quantities purchased go down or vice versa. Such negative correlation is to be expected for price takers, including consumers and firms purchasing intermediate inputs, who react to changes in relative prices by substituting goods and services that have become relatively less expensive for those that have become relatively more expensive. A positive correlation would be expected for price setting firms that substitute output towards goods and services that have become relatively more expensive. In such circumstances the inequalities in equation (7) would be reversed.

15.23 Consumers are assumed to maximize utility, which in turn is related to combinations of goods and services purchased. Theoretical cost of living indices (COLIs) are defined as the ratio of the minimum expenditures required to enable a consumer to attain a fixed level of utility under the two sets of prices. The COLI increases if it becomes more expensive to maintain the same level of utility. A Laspeyres COLI would hold the preferences and utility fixed in the reference period and a Paasche COLI would hold them fixed in the current period.

15.24 The Laspeyres price index provides an upper bound to the theoretical Laspeyres COLI. Under the COLI, consumers can substitute products that have become relatively less expensive for ones that have become relatively more expensive to obtain the same level of utility, whereas the fixed basket Laspeyres index does not allow such substitution. Similarly, the Paasche index can be shown to provide a lower bound to the theoretical Paasche COLI.

Other index number formulae

15.25 Because different formulae give different results, a consideration of alternative approaches to choosing among them is needed and this in turn gives rise to a consideration of further index number formulae.

15.26 It is apparent from the Laspeyres and Paasche price indices in equations (1) and (3) that both indices hold the basket of quantities fixed. The formulae differ in that Laspeyres holds the basket fixed in the reference period and Paasche in the current period. If the objective is simply to measure the price change between the two periods considered in isolation, there is no reason to prefer the basket of the earlier period to that of the later period, or vice versa. Both baskets are equally justifiable from a conceptual point of view. Thus, although they yield different results, neither formula can be judged superior to the other.

15.27 A compromise solution for the price index is to use a formula that makes symmetric use of the base and current period information on quantities. The Fisher index can be shown to be the most suitable in this regard. (For an explanation of why this is so, see chapter 15 of the CPI and PPI manuals.) The Fisher index (*F*) is defined as the geometric mean of the Laspeyres and Paasche indices, that is, for price and quantity indices respectively:

$$F_P = \{L_P.P_P\}^{½} \text{ and } F_Q = \{L_Q.P_Q\}^{½} \qquad (8)$$

15.28 Economic theory postulates indifference curves that show how consumers would alter their expenditure patterns in response to changes in prices. Unless the utility functions the indifference curves represent are similar in periods 0 and t, a Laspeyres and a Paasche index for this period will each refer to a differently shaped utility function. In general, the Laspeyres index will provide an upper bound to its underlying utility function while the Paasche index will give a lower bound to its underlying utility function but the two utility functions will be different.

15.29 In order to resolve this dilemma, a series of indices called superlative indices have been derived that relate to utility functions that adapt over time to the changes in quantities brought about by changes in prices. The Fisher index is one example of a superlative index; a Törnqvist index is another example. A Törnqvist index is the geometric average of the price relatives weighted by average expenditure shares in two periods. Thus the Törnqvist price and volume indices are defined as:

$$T_P = \prod_{i=1}^{n} \left(\frac{p_i^t}{p_i^0} \right)^{\left(s_i^0 + s_i^t\right)/2} \text{ and } T_Q = \prod_{i=1}^{n} \left(\frac{q_i^t}{q_i^0} \right)^{\left(s_i^0 + s_i^t\right)/2} \qquad (9)$$

Both Fisher and Törnqvist indices utilize and attach equal importance to information on the value shares in both periods for weighting purposes. For this reason they may be expected to lie between the bounds of Laspeyres and Paasche indices, as is desired. The difference between the

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numerical values of the Törnqvist and Fisher indices and other such symmetric indices is likely to be very small. Neither Törnqvist or Fisher volume indices use the prices of a specific single period. The term "at constant prices" is a misnomer for such series; the correct term is a series in volume terms.

15.30 The above analysis has been from the consumer's or purchaser's perspective. Economic theory also defines Laspeyres and Paasche bounds from the producer's perspective. Revenue maximizing producers are expected to increase the relative quantities they produce in response to increases in relative prices. The resulting Laspeyres-Paasche bounds are the reverse of those described above, as quantities produced are substituted towards commodities with above average changes in prices. But the implication for removing substitution bias by the use of Törnqvist and Fisher indices still holds.

Desirable index number characteristics

15.31 There are two frequently quoted characteristics that it is felt index numbers for deflating national accounts should satisfy. These are the "time reversal" and "factor reversal" tests. The time reversal test requires that the index for period *t* compared with period 0 should be the reciprocal of that for period 0 compared with *t*. The factor reversal test requires that the product of the price index and the volume index should be equal to the proportionate change in the current values. It follows from the discussion in the preceding section that Laspeyres and Paasche indices on their own do not pass either of these tests. However, it follows from the definitions of Fisher indices in (8) that the Fisher index does pass these tests.

15.32 The Fisher index therefore has a number of attractions that have led it to be extensively used in general economic statistics. Indeed, Fisher described his index as "ideal". However, the Fisher index requires both reference and current period information for weights, which may affect the timeliness of the index, nor is it as easy to understand as Laspeyres or Paasche indices.

15.33 The CPI and PPI manuals provide in chapters 15, 16 and 17 an extensive account of the various approaches to choosing among index numbers. Also included in chapter 16 is the stochastic approach that favours the Törnqvist index. What is apparent from this extensive body of work is that all three approaches favour the Fisher index; that superlative indices such as the Fisher and Törnqvist indices produce very similar results and can all be justified from the economic theoretical approach and that the difference between superlative indices and the Laspeyres or Paasche indices, or their spread, is due to substitution bias.

Index numbers in practice

15.34 The Laspeyres price index in equation (1) has the same price and weight reference period 0. In practice, especially for CPIs where timeliness is of the essence, the price reference period 0 differs from the earlier weight reference period, say *b*, since it takes time to compile the results from the survey of households, establishments and other sources for the weights to use in the index. The Laspeyres index given by the first expression in equation (1) may have as its weights s_i^b instead of s_i^0. This index is a Young index and, like the Laspeyres index, has the undesirable property of failing the time reversal test.

15.35 Statistical offices often try to overcome this by adjusting the value shares used as weights by the changes in prices between *b* and 0 to form a Lowe index given by:

$$L_{oweP} = \frac{\sum_{i=1}^{n}\left(\frac{p_i^t}{p_i^0}\right)\left(\frac{p_i^0}{p_i^b}\right)v_i^b}{\sum_{i=1}^{n}v_i^b\left(\frac{p_i^0}{p_i^b}\right)} \equiv \frac{\sum_{i=1}^{n}p_i^t q_i^b}{\sum_{i=1}^{n}p_i^0 q_i^b} \qquad (10)$$

3. Chain indices

The rebasing and linking of indices

15.36 As noted in the previous section, over time the pattern of relative prices in the base period tends to become progressively less relevant to the economic situations of later periods to the point where it becomes unacceptable to continue using them to measure volume changes from one period to the next. It is then necessary to update the weights. With long time series, it is as inappropriate to use the most current weights for a date long in the past as it is to use the weights from a long time in the past for the current period. It is therefore necessary to link the old series to the new reweighted series by multiplication. This is a simple numerical operation requiring estimates for an overlapping period of the index or series calculated using both the old and new weights.

15.37 The linking calculation can be undertaken in a number of ways. The current index on the new weights can be multiplied by a linking coefficient of the old to new index to convert the new index to the old index reference period. Alternatively, the index may have its reference period changed at the time of the introduction of new weights and the old index may be revised by dividing it by the linking coefficient. The process of linking an old series and a new one by means of a link for an overlap period is referred to as chaining.

15.38 Whether the chaining is done so as to preserve the earlier reference period in the new series or to change the reference period of the old series to the new one, the calculations have to be undertaken at each level of aggregation. Each component as well as each aggregate has to be linked individually because of non-additivity.

Chaining each period

15.39 The more frequently weights are updated the more representative will the resulting price or volume series be. Annual chain indices result from compiling annual indices over two consecutive years each with updated weights. These "links" are combined by successive multiplication to form a series. In order to understand the properties and behaviour of chain indices in general, it is necessary to establish first how chain Laspeyres and Paasche indices behave in comparison with fixed base indices.

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Chain Laspeyres and Paasche indices

15.40 A chain Laspeyres volume index, L_Q, connecting periods 0 and t, is an index of the following form:

$$L_Q = \frac{\sum_{i=1}^{n} p_i^0 q_i^1}{\sum_{i=1}^{n} p_i^0 q_i^0} \times \frac{\sum_{i=1}^{n} p_i^1 q_i^2}{\sum_{i=1}^{n} p_i^1 q_i^1} \times ..., \frac{\sum_{i=1}^{n} p_i^{t-1} q_i^t}{\sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}} \qquad (11a)$$

The corresponding chain Paasche volume index, $P_{Q,}$ has the following form:

$$P_Q = \frac{\sum_{i=1}^{n} p_i^1 q_i^1}{\sum_{i=1}^{n} p_i^1 q_i^0} \times \frac{\sum_{i=1}^{n} p_i^2 q_i^2}{\sum_{i=1}^{n} p_i^2 q_i^1} \times ..., \frac{\sum_{i=1}^{n} p_i^t q_i^t}{\sum_{i=1}^{n} p_i^t q_i^{t-1}} \qquad (11b)$$

Laspeyres and Paasche price indices are obtained by interchanging the *p*'s and *q*'s in the expressions for the volume indices.

15.41 In general, if fixed base indices are replaced by chain indices, the index number spread between Laspeyres and Paasche is likely to be greatly reduced. Chain indices thus have an advantage over fixed base ones. The relationship between a fixed base index and the corresponding chain index is not always the same, however, as it depends upon the paths followed by individual prices and quantities over time.

15.42 If individual prices and quantities tend to increase or decrease steadily over time it can be shown that chaining will significantly reduce the index number spread, possibly almost eliminating it. Chapters 9 and 19 of the CPI and PPI manuals provide illustrative examples and chapter 15 explains the theory underlying these findings.

15.43 On the other hand, if individual prices and quantities fluctuate so that the relative price and quantity changes occurring in earlier periods are reversed in later periods, chaining will produce worse results than a simple index.

15.44 On balance, situations favourable to the use of chain Laspeyres and Paasche indices over time seem more likely than those that are unfavourable. The underlying economic forces that are responsible for the observed long-term changes in relative prices and quantities, such as technological progress and increasing incomes, do not often go into reverse. Hence, it is generally recommended that annual indices be chained. The price and volume components of monthly and quarterly data are usually subject to much greater variation than their annual counterparts due to seasonality and short-term irregularities. Therefore, the advantages of chaining at these higher frequencies are less and chaining should definitely not be applied to seasonal data that are not adjusted for seasonal fluctuations.

Annually chained quarterly Laspeyres-type indices

15.45 Quarterly chain indices can be constructed that use annual weights rather than quarterly weights. Consider a quarterly Laspeyres-type volume index that measures the volume change from the average of year *y-1* to quarter *c* in year *y*.

$$L_Q^{\overline{(y-1)} \to (c,y)} = \frac{\sum_i P_i^{y-1} q_i^{c,y}}{\sum_i P_i^{y-1} Q_i^{y-1}} = \sum_i \frac{q_i^{c,y}}{Q_i^{y-1}} s_i^{y-1} \qquad (12a)$$

The upper case letters *P* and *Q* denote average quarterly values over a year, while *p* and *q* denote specific quarterly values. The superscripts denote the year (*y*) and quarter (*c*). P_i^{y-1} denotes the average price of item *i* in year *y-1* and $p_i^{c,y-1}$ denotes the price of item *i* in quarter *c* of year *y-1* and s_i^{y-1} is the base period value share, that is the share of item *i* in the total value in year *y-1*.

Thus:

$$P_i^{y-1} = \frac{\sum_c p_i^{c,y-1} q_i^{c,y-1}}{\sum_c q_i^{c,y-1}}; \; Q_i^{y-1} = \frac{\sum_c q_i^{c,y-1}}{4}; \text{ and}$$

$$s_i^{y-1} = \frac{P_i^{y-1} Q_i^{y-1}}{\sum_i P_i^{y-1} Q_i^{y-1}} = \frac{\sum_c p_i^{c,y-1} q_i^{c,y-1}}{\sum_i \sum_c p_i^{c,y-1} q_i^{c,y-1}} \qquad (12b)$$

15.46 The quarterly Laspeyres-type volume indices can then be chained together with annual links. One of two alternative techniques for the annual chaining of quarterly data is usually applied, annual overlaps and one-quarter overlaps. In addition to these two conventional chaining techniques, a third technique sometimes is used based on changes from the same period in the previous year (the "over-the-year technique"). While in many cases all three techniques give similar results, in situations with strong changes in relative quantities and relative prices, the over-the-year technique can result in distorted seasonal patterns in the chained series. While standard price statistics compilation exclusively uses the one-quarter overlap technique, the annual overlap technique may be more practical for Laspeyres-type volume measures in the national accounts because it results in data that aggregate exactly to the corresponding direct annual index. In contrast, the one-quarter overlap technique and the over-the-year technique do not result in data that aggregate exactly to the corresponding direct annual index. The one-quarter overlap provides the smoothest transition between each link in contrast to the annual overlap technique, which often introduces a step between each link, that is, between the fourth quarter of one year and the first quarter of the following year.

15.47 The technique of using annual overlaps implies compiling estimates for each quarter at the weighted annual average

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prices of the previous year, with subsequent linking using the corresponding annual data to provide linking factors to scale the quarterly data upward or downward. The technique of one-quarter overlaps requires compiling estimates for the overlap quarter at the weighted annual average prices of the current year in addition to estimates at the average prices of the previous year. The ratio between the estimates for the linking quarter at the average prices of the current year and at the average prices of the previous year then provides the linking factor to scale the quarterly data up or down. The over-the-year technique requires compiling estimates for each quarter at the weighted annual average prices of the current year in addition to estimates at the average prices of the previous year. The year-on-year changes in these volume series are then used to extrapolate the quarterly volume series of the chosen reference period.

15.48 Discrepancies between an annual chain volume series and the sum of the four quarters of an annually chained quarterly volume series derived using the one-quarter overlap technique can accumulate over time. Hence, quarterly chain volume series derived this way are usually benchmarked to the corresponding annual chain volume series using a procedure that minimizes the disturbance to the quarterly volume series whilst achieving consistency with the annual chain volume series. There is discussion on this in chapter VI of *Quarterly National Accounts.*

15.49 If annual volume series are derived from data balanced in a supply and use table expressed in the prices of the previous year as recommended in section C, then it is standard practice to benchmark quarterly data to the corresponding annual balanced estimates. The benchmarking eliminates all discrepancies between the quarterly and annual chain volume series, including those arising from the use of the one-quarter overlap technique.

15.50 To conclude, chaining using the one-quarter overlap technique combined with benchmarking to remove any resulting discrepancies between the quarterly and annual data gives the best result. In many circumstances, however, the annual overlap technique may give similar results. The over-the-year technique should be avoided.

Chain Laspeyres or chain superlative indices?

15.51 As explained earlier, the index number spread between Laspeyres and Paasche indices may be greatly reduced by chaining when prices and quantities move smoothly over time. In such circumstances the choice of index number formula assumes less significance as all relevant index numbers lie within the bounds of the Laspeyres and Paasche indices. Nevertheless, there may still be some advantages to be gained by choosing an index for chaining, such as the Fisher or Törnqvist, that treats both periods being compared symmetrically.

15.52 Such indices are likely to approximate more closely the theoretical indices based on underlying utility or production functions even though chaining may reduce the extent of their advantages over their Laspeyres or Paasche counterparts in this respect. A chain symmetric index, such as Fisher or Törnqvist, is also likely to perform better when there are fluctuations in prices and quantities. Chain Laspeyres indices, however, do not require current period data for weights and thus may lead to more timely estimates. Retrospective studies of the difference in national accounts estimates from using chain Laspeyres as against chain Fisher or Törnqvist can help in determining the advantage of using the latter formulae.

Annually chained quarterly Fisher-type indices

15.53 Just as it is possible to derive annually chained Laspeyres-type quarterly indices, so it is possible to derive annually chained Fisher-type quarterly indices. For each pair of consecutive years Laspeyres-type and Paasche-type quarterly indices are constructed for the last two quarters of the first year, year *y-1* and the first two quarters of the second year, year *y*. The Paasche-type quarterly indices are constructed as backward-looking Laspeyres-type quarterly indices and then inverted. This is done to ensure that the Fisher-type quarterly indices are derived symmetrically. In the forward-looking Laspeyres-type indices the annual value shares relate to the first of the two years, whereas in the backward-looking Laspeyres-type indices the annual value shares relate to the second of the two years.

$$L_Q^{\overline{(y-1)}\to c} = \frac{\sum_i P_i^{y-1} q_i^c}{\sum_i P_i^{y-1} Q_i^{y-1}} = \sum_i \frac{q_i^c}{Q_i^{y-1}} s_i^{y-1} \qquad (13)$$

$$P_Q^{\bar{y}\to c} = \left[L_Q^{\bar{y}\to c}\right]^{-1} \qquad (14a)$$

$$L_Q^{\bar{y}\to c} = \frac{\sum_i P_i^{y} q_i^c}{\sum_i P_i^{y} Q_i^{y}} = \sum_i \frac{q_i^c}{Q_i^{y}} s_i^{y} \qquad (14b)$$

and q_i^c is the quantity of item *i* in quarter *c* in the second two quarters of year *y-1* or the first two quarters of year *y*.

15.54 For each of the four quarters a Fisher-type index is derived as the geometric mean of the corresponding Laspeyres-type and Paasche-type indices. Consecutive spans of four quarters can then be linked using the one-quarter overlap technique. The resulting annually chained Fisher-type quarterly indices need to be benchmarked to annual chain Fisher indices to achieve consistency with the annual estimates.

15.55 A difficulty arises at the end of the series because it is not possible to construct Paasche-type quarterly indices that use annual weights for the current year, at least using actual observed data. One solution is to construct “true” quarterly chain Fisher indices for the latest year or two and use these to extrapolate the annually chained Fisher-type indices. But this should only be done using seasonally adjusted data. As long as the irregular variation in quarterly price and volume relativities is not very great, quarterly chain Fisher indices of seasonally adjusted data can be expected to produce satisfactory results in most circumstances.

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Chaining and data coverage

15.56 One major practical problem in the construction of index numbers is the fact that products are continually disappearing from markets to be replaced by new products as a result of technological progress, new discoveries, changes in tastes and fashions, and catastrophes of one kind or another. Price and volume indices are compiled by comparing the prices or quantities of goods of the same characteristics or quality (that is, homogenous goods) over time. This is not easy in product areas such as personal computers where quality changes rapidly.

15.57 Chaining helps ameliorate the problems of such constant quality comparisons since the likelihood of an overlap of a product in two consecutive price periods is almost bound to be greatest and the chain indices can accommodate the changes in weight that accompany a new and a disappearing product.

Additivity and chaining

15.58 An aggregate is defined as the sum of its components. Additivity in a national accounts context requires this identity to be preserved for a volume series. Although desirable from an accounting viewpoint, additivity is actually a very restrictive property. Laspeyres volume indices are the only index number formulae considered here that are additive.

15.59 A single link in a chain index is sufficient to destroy additivity even when additive indices, such as Laspeyres volume indices, are linked together. Consequently, if chain volume indices are converted into time series of values by using the indices to extrapolate the values of the base period, the index components may fail to add to aggregates in later periods. A perverse form of non-additivity can occur when the chain index for the aggregate lies outside the range spanned by the chain indices for its components, a result that may be regarded as intuitively unacceptable by many users. Whether published in monetary terms or indices, it is advisable to inform users via a footnote or other meta-data that chain volume series are not additive.

15.60 There is a general tendency for the discrepancies from chaining to become larger the further a period is away from the reference year. If the reference year is chosen to be near the end of the series then the discrepancies will be relatively small for the latest quarters. Indeed, if the chain Laspeyres formula is used and if the reference year is chosen to coincide with the latest base year then the quarters following the reference year are additive. Another advantage of having the reference year near the end of chain volume series is that when they are expressed as monetary values their magnitudes do not differ greatly from the current values for the latest periods if price change is occurring at a modest rate. Maintaining this situation requires rereferencing the series every year when a new link is added to the chain and this entails revising the chain volume series for their entire lengths. Note that rereferencing entails revising levels but not growth rates.

15.61 Although additivity may be preserved by never undertaking a weight change this advantage is significantly outweighed by the disadvantage of increasing irrelevance of the weights in use. Rates of change for subperiods of a series, including annual rates, can be usefully phrased in terms of contributions to change, as explained below.

Variables that change sign

15.62 Index number formulae are generally not applicable to time series that can take positive, negative and zero values. Nevertheless, there are ways of deriving pseudo chain volume series expressed in terms of monetary values in such cases. The most commonly used approach is to identify two associated time series that take only positive values and are such that when differenced yield the target series. An example is the stock of inventories at the start and end of the period as opposed to the change during the period. Chain volume series are not additive and so it is evident that this is an imperfect method since by construction an additive relationship is produced. It follows that the series to be differenced should be as closely aligned in terms of price and volume composition as possible with the target series. Hence, a chain volume series of changes in inventories is derived as a chain volume series of closing inventories less a chain volume series of opening inventories. Sometimes public gross fixed capital formation can take negative values as a result of the sale of assets to the private sector, in which case the chain volume series of acquisitions and sales could be differenced.

Contributions to growth

15.63 When the Laspeyres formula is used and the base year and reference year coincide, the resulting volumes are additive in subsequent periods and the contribution by a component I_i to the growth of an aggregate, such as GDP, between two periods *(t-n)* and *t* can be obtained readily as follows:

$$\%\Delta_i^{(t-n)\to t} = \frac{100(I_i^t - I_i^{t-n})}{\sum_i I_i^{t-n}} \qquad (15)$$

When chain volume series are derived using either the Laspeyres formula for annual indices or the annual chaining of Laspeyres-type quarterly indices, then year-to-year or quarter-to-quarter contributions to growth can be derived easily using data expressed in the prices of the previous year prior to chaining. Such data are additive and so equation (15) can be used with n=1. If contributions to growth are not published by the national statistical office, the user can estimate them. Assuming the one-quarter overlap technique has been used, the formula for calculating the contribution to the percentage change from period *t-1* to period *t* is:

$$\%\Delta_i^{(t-1)\to t} = \frac{100.(I_i^t - I_i^{t-1})s_i^{t-1}}{\sum_i I_i^{t-1} s_i^{t-1}} \qquad (16)$$

where the s are the shares of the items in the total as in equations (12).

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4. Causes of price variation

Price variation due to quality differences

15.64 In general, most types of goods or services, whether simple food products such as potatoes or high technology products such as computers, are available on the market in many different qualities whose physical characteristics differ from each other. For example, potatoes may be old or new, red or white, washed or unwashed, loose or pre-packed, graded or ungraded. Consumers recognize and appreciate the differences and are prepared to pay different prices. For some goods and services, such as personal computers and telecommunication services, there is a rapid turnover in the highly differentiated varieties and this, as considered below, creates severe problems for the measurement of price changes.

15.65 The same generic term, such as potato, computer or transportation is used to describe goods and services that differ from each other in their price-determining characteristics. The price or quantity of a good or service of one quality cannot be directly compared to that of a different quality. Different qualities have to be treated in exactly the same way as different kinds of goods or services.

15.66 Differences in quality may be attributable to differences in the physical characteristics of the goods or services concerned and be easily recognized, but not all differences in quality are of this kind. Goods or services delivered in different locations, or at different times, such as seasonal fruits and vegetables, must be treated as different qualities even if they are otherwise physically identical. The conditions of sale, or circumstances or environment in which the goods or services are supplied or delivered can make an important contribution to differences in quality. For example, a durable good sold with a guarantee, or free after-sales service is higher quality than the same good sold without guarantee or service. The same goods or services sold by different kinds of retailers, such as local shops, specialist shops, department stores or supermarkets may have to be treated as different qualities.

15.67 It is generally assumed in economic analysis that whenever a difference in price is found between two goods and services that appear to be physically identical there must be some other factor, such as location, timing or conditions of sale, that is introducing a difference in quality. Otherwise, it can be argued that the difference could not persist, as rational purchasers would always buy lower priced items and no sales would take place at higher prices.

15.68 When there is price variation for the same quality of good or service, the price relatives used for index number calculation should be defined as the ratio of the weighted average price of that good or service in the two periods, the weights being the relative quantities sold at each price. Suppose, for example, that a certain quantity of a particular good or service is sold at a lower price to a particular category of purchaser without any difference whatsoever in the nature of the good or service offered, location, timing or conditions of sale, or other factors. A subsequent decrease in the proportion sold at the lower price raises the average price paid by purchasers for quantities of a good or service whose quality is the same and remains unchanged, by assumption. It also raises the average price received by the seller without any change in quality. This must be recorded as a price and not a volume increase.

Price variation without quality differences

15.69 Nevertheless, it must be questioned whether the existence of observed price differences always implies corresponding differences in quality. There are strong assumptions underlying the standard argument which are seldom made explicit and are often not satisfied in practice: for example, that purchasers are well informed and that they are free to choose between goods and services offered at different prices.

15.70 In the first place, purchasers may not be properly informed about existing price differences and may therefore inadvertently buy at higher prices. While they may be expected to search for the lowest prices, costs are incurred in the process. Given the uncertainty and lack of information, the potential costs incurred by searching for outlets in which there is only a possibility that the same goods and services may be sold at lower prices may be greater than the potential savings, so that a rational purchaser may be prepared to accept the risk that he or she may not be buying at the lowest price. Situations in which the individual buyers or sellers negotiate, or bargain over prices, provide further examples in which purchasers may inadvertently buy at a higher price than may be found elsewhere. On the other hand, the difference between the average price of a good purchased in a market or bazaar in which individual purchasers bargain over the price and the price of the same good sold in a different type of retail outlet, such as a department store, should normally be treated as reflecting differences in quality attributable to the differing conditions under which the goods are sold.

Price discrimination

15.71 Secondly, purchasers may not be free to choose the price at which they purchase because the seller may be in a position to charge different prices to different categories of purchasers for identical goods and services sold under exactly the same circumstances, in other words, to practise price discrimination. Economic theory shows that sellers have an incentive to practise price discrimination as it enables them to increase their revenues and profits. However, it is difficult to discriminate when purchasers can retrade amongst themselves, that is, when purchasers buying at the lowest prices can resell the goods to other purchasers. While most goods can be retraded, it is usually impossible to retrade services, and for this reason price discrimination is extensively practised in industries such as transportation, finance, business services, health, education, etc., in most countries. Lower prices are typically charged to purchasers with low incomes, or low average incomes, such as pensioners or students. When governments practise or encourage the practice of price discrimination it is usually justified on welfare grounds, but market producers also have reasons to discriminate in favour of households with low incomes as this may enable them to increase their profits. Thus, when different prices are charged to different consumers it is essential to establish whether or not there are in fact any quality

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differences associated with the lower prices. For example, if senior citizens, students or schoolchildren are charged lower fares for travelling on planes, trains or buses, at whatever time they choose to travel, this must be treated as pure price discrimination. However, if they are charged lower fares on condition that they travel only at certain times, typically off-peak times, they are being offered lower quality transportation.

The existence of parallel markets

15.72 Thirdly, buyers may be unable to buy as much as they would like at a lower price because there is insufficient supply available at that price. This situation typically occurs when there are two parallel markets. There may be a primary, or official, market in which the quantities sold, and the prices at which they are sold, are subject to government or official control, while there may be a secondary market, either a free market or unofficial market, whose existence may or may not be recognized officially. If the quantities available at the price set in the official market are limited there may be excess demand so that supplies have to be allocated by rationing or some form of queuing. As a result, the price on the secondary or unofficial market will tend to be higher. It is also possible, but less likely, that lower prices are charged on the secondary or unofficial market, perhaps because the payment of taxes on products can be evaded in such a market.

15.73 For the three reasons just given, lack of information, price discrimination or the existence of parallel markets, identical goods or services may sometimes be sold to different purchasers at different prices. Thus, the existence of different prices does not always reflect corresponding differences in the qualities of the goods or services sold.

15.74 When there is price variation for the same quality of good or service, the price relatives used for index number calculation should be defined as the ratio of the weighted average price of that good or service in the two periods, the weights being the relative quantities sold at each price. Suppose, for example, that a certain quantity of a particular good or service is sold at a lower price to a particular category of purchaser without any difference whatsoever in the nature of the good or service offered, location, timing or conditions of sale, or other factors. A subsequent decrease in the proportion sold at the lower price raises the average price paid by purchasers for quantities of a good or service whose quality is the same and remains unchanged, by assumption. It also raises the average price received by the seller without any change in quality. This must be recorded as a price and not a volume increase.

15.75 It may be difficult to distinguish genuine price discrimination from situations in which the different prices reflect differences in quality. Nevertheless, there may be situations in which large producers (especially large service producers in fields such as transportation, education or health) are able to make the distinction and provide the necessary information. If there is doubt as to whether the price differences constitute price discrimination, it seems preferable to assume that they reflect quality differences, as they have always been assumed to do so in the past.

5. The measurement of changes in quality over time

15.76 Goods and services and the conditions under which they are marketed are continually changing over time, with some goods or services disappearing from the market and new qualities or new goods or services replacing them. National accountants use disaggregated price indices to deflate changes in consumption, production and investment values as the principle means of determining volume changes in such aggregates. Deficiencies in price indices carry over to estimates of volume changes. For example, estimates of price indices for computers that do not fully incorporate the increases in quality over time will overstate price changes and understate volume changes. National accountants need to be aware of the extent and nature of methods used by price compilers to take account of such quality changes, if they are to use them properly as deflators. This in turn requires that price compilers keep explanatory notes on such methods used, a policy advocated by chapter 8 in each of the CPI and PPI manuals.

15.77 There are, of course, costs associated with implementing quality adjustment procedures tailored to the specific product groups. What is important for national accountants and price index compilers to appreciate is that quality change is an increasing feature of product markets. The default procedures of dealing with quality change, specifically by treating all replacements as comparable, or dropping varieties from the sample if missing, implicitly incorporate valuations of quality differences. Such valuations are unlikely to be appropriate and improvements can and should be made.

15.78 An unfortunate common procedure to deal with missing values is to carry forward the price from the previous period into the current period. This may well bias the index and is strongly discouraged.

15.79 A brief overview of some of the more common techniques follows. More extensive discussion can be found in all the three price manuals, those for CPI, PPI and XMPI. The techniques can be divided into those that are direct or explicit methods and those that are indirect or implicit.

Direct methods

15.80 In principle, the price relatives that enter into the calculation of inter-temporal price indices should measure pure price changes by comparing the prices of a representative sample of identical goods and services in different time periods. This is called the matched-models method. Price index compilers maintain detailed product descriptions of the items being priced in successive periods to ensure proper matching. When a model is missing because it is obsolete, a problem of quality adjustment arises. A number of methods can be used to take account of the quality change in order to continue the series.

15.81 One possibility is to use the estimated relative costs of production as the basis for estimates of their relative prices and hence their relative qualities. It may often be feasible for producers to provide such estimates. If, however, the new quality feature was available as an option in the

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previous period, but now is a standard feature, the estimate of the valuation of the quality change may be based on the (relative) price of this option.

15.82 An extension of the costs of production approach is known as model pricing. It is often applied to products made to order. A particular case in point is measuring building costs. The characteristics of buildings and other structures are so variable that it may be almost impossible to find identical buildings and structures being produced in successive periods of time. In these circumstances, a small number of hypothetical and relatively simple standard buildings and structures may be specified and their prices estimated in each of the periods. The specifications of these standard buildings or structures are chosen on the advice of construction experts who are also asked to estimate what their prices would be in each of the periods. Model pricing for services is described in *Methodological Guide for Developing Producer Price Indices for Services*. (Eurostat and the Organisation for Economic Co-operation and Development, 2005)

Hedonics

15.83 A more general and powerful method of dealing with changes in quality is to make use of estimates from hedonic regression equations. Hedonic regression equations relate the observed market prices of different models to certain measurable price-determining characteristics. Provided sufficiently many differentiated models are on sale at the same time, the estimated regression equation can be used to determine by how much prices vary in relation to each of the characteristics or to predict the prices of models with different mixes of characteristics that are not actually on sale in the period in question.

15.84 Hedonic regression equations have been estimated for high technology goods such as computers and electronic goods and for services such as air transportation. The technique has also been used for housing by regressing house prices (or rents) on characteristics such as area of floor space, number of rooms or location. The method has been used not only for inter-temporal price measurements but also for international comparisons.

Indirect methods

15.85 When the two qualities are not produced and sold on the market at the same time it becomes necessary to resort to indirect methods of quantifying the change in quality between the old and new qualities. In such cases it is necessary to estimate what would be the relative prices of the old and new models, or qualities, if they were produced and sold on the market at the same time and to use the estimated relative prices to determine measures of the relative qualities.

15.86 When a model is missing a replacement of a comparable quality may be found and the price comparisons continued. If there is no comparable replacement, the price in the missing period may be imputed using the measured price changes of a product group expected to experience similar price changes. Dropping the product from the calculation is equivalent to an imputation that assumes the price change for the missing model would follow those of all goods and services in the index. The assumptions behind such imputations are less soundly based than those behind the more targeted imputation. In either case, items subject to quality change tend to be atypical and unrepresentative, so that assuming that their prices change at the same rate as for goods or services whose characteristics do not change is questionable.

15.87 If the replacement model is not directly comparable in quality, then the price change of the new model may be readily linked to the price series of the old one if the two models are for sale in the market at the same time, in an overlap period. The implicit assumption is that the difference in prices at the time of the overlap link is a good valuation of the difference in quality, an assumption that will not be valid if the overlap period is at an unusual point in time in the model's life cycle, for example when it is about to become obsolete and discontinued or has just been introduced at an unusually high price to obtain temporary monopoly profits in a segmented market.

Rapidly changing differentiated product markets

15.88 Problems of adjusting price changes for changes in quality in product markets with a rapid turnover of differentiated varieties require special consideration. The matched model method breaks down. Models of like quality can only be compared over relatively short periods and are not representative of the overall market. The summation in index number formulae such as the Laspeyres price index in equation (1) is misleading since in period *t* the *n* items produced or consumed may be quite different from those on the market in period 0.

15.89 Price index number compilers use a short-run formulation to ameliorate the difficulties of comparing the prices of like with like when there is a rapid turnover in differentiated goods and services. A Laspeyres price index, for example, comparing prices in period 0 and *t*, is given as:

$$L_P = \frac{\sum_{i=1}^{n} p_i^0 q_i^0 \left(\frac{p_i^{t-1}}{p_i^0}\right)\left(\frac{p_i^t}{p_i^{t-1}}\right)}{\sum_{i=1}^{n} p_i^0 q_i^0} \qquad (17)$$

15.90 If a new type of good, for example a digital camera, is introduced in period *t-1* to replace a non-digital one, then the compiler has only to wait for the good to be on the market for two successive periods before it can be included in the index. This provides a mechanism for changing the representative items to include the new, higher quality, item within a product category that has an assigned weight. Additional weighting information may be required to augment the weighting given to cameras within the wider group. However, a chain formulation in which weights are regularly updated would be a better mechanism to achieve this.

15.91 While a chain index with a short-run formulation such as in equation (17) will ameliorate the measurement problem in markets with a rapid turnover of differentiated varieties, it cannot take account of the effect on the overall price change from period *t-1* to period *t* of the new variety

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introduced in period *t* and of the old model that was dropped in period *t-1*. Two successive price quotes are required to implement the formula in (17) and a chain index. Hedonic indices are a means of incorporating such affects. They can take a number of forms, but essentially the prices and values of price-determining quality characteristics, say the speed, RAM, etc. of different varieties of personal computers are collected in each period. A Paasche-type hedonic imputation (or characteristics) price index would be derived by first estimating a hedonic regression of price on quality variables based on period *t-1* data and then using the estimated coefficients to impute for *t -1* the prices of the varieties available in period *t*, including those not available in *t-1*. Prices for period *t* characteristics valued at period *t* prices can be directly compared with the estimated period *t-1* valuation of period *t* characteristics to yield a Paasche-type price index. A Laspeyres-type hedonic index can be similarly defined using an estimated period *t* regression and constant period *t-1* characteristics set, as can a Fisher-type hedonic index as a geometric mean of the two. An alternative formulation is to pool the two sets of observations in periods 0 and *t* and include a dummy variable in the hedonic regression equation to distinguish observations in one period from those in the other. The coefficient on the dummy variable would be an estimate of the price change between the two periods having controlled for the effect of quality changes.

Further elaboration

15.92 A detailed account of all the methods referred to above is available in chapters 7 and 8 of the CPI and PPI manuals. These chapters include the use of imputations, overlap prices, comparable replacements, non-comparable replacements using estimates from production costs, option costs and hedonic regressions, as well as methods for markets with a rapid turnover of differentiated varieties including short-run relatives, chaining, product augmentation and hedonic indices.

15.93 Further discussion of this topic can also be found in *Handbook on Hedonic Indices and Quality Adjustments in Price Indexes: Special Application to Information Technology Products* (Organisation for Economic Co-operation and Development, 2004).

6. Practical advantages of compiling chain indices

15.94 It has been shown on theoretical grounds that long time series of volume and price indices are best derived by being chained. The question is how often in the time series should a link occur. It has been argued that annual chaining is generally best on theoretical grounds, but what of the practicalities? There are a number of matters to consider, including data requirements, computing requirements, human resource requirements, loss of additivity, revisions and informing users.

a. If annual current values and corresponding volume or price data are available, then annual chaining is possible. No other data are required.

b. The computing requirements of deriving annual chain indices are greater than those for fixed-weighted Laspeyres-type indices and should not be attempted without adequate, tailored software. The complexity of the software needed depends on the formula used and the method of linking. For instance, it is quite simple to develop software to derive annually chained Laspeyres-type quarterly volume measures using the annual overlap method.

c. Experience has shown that if the benefits of chain volume measures, along with the loss of additivity, are carefully explained to users via documentation and seminars before their introduction, chain volume measures are generally accepted. Particular attention should be given to informing the key users, including economic journalists, well beforehand.

d. When volume estimates are rebased, say every five or ten years, then it is typically the case that the growth rates are revised. If price and volume relativities have been changing rapidly, then the changes in the growth rates can be dramatic. Such is usually the case for any aggregate in which computers have a significant share. With annual chaining history is only “rewritten” a little each year, not in one large jump every five or ten years. Not surprisingly, the sort of big revisions associated with chaining only every five or ten years can have a detrimental effect on user confidence in the national accounts, not least because users learn they can expect similar revisions in the future. Annual chaining not only measures changes better, it is likely to increase confidence in the resulting national accounts volume indices.

C. Derivation of volume measures in the national accounts

1. Introduction

15.95 This section is concerned with the application of the theory described in section B to the practice of deriving volume measures of parts of the SNA. The parts concerned are primarily the components of the goods and services account. Ideally this should be done within the context of supply and use tables, as explained below. Just as flows of capital formation can be expressed in volume terms, so can stocks of non-produced assets. It is not considered possible to separate all income flows into price and volume components but some limited measures of real income are possible, as also explained below.

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15.96 The ideal way of producing volume estimates of macroeconomic aggregates is to work at a very detailed level, deflating each component by a strictly appropriate price index. There are cases, though, where this approach is not possible; either appropriate price indices do not exist, or there may be inconsistencies in the current value data or the price indices, that make the results of deflation questionable. In such cases, alternative approaches must be considered including the possibility of projecting (or extrapolating) forward estimates for earlier years or using alternative indicators of the volume growth in a particular case.

15.97 Once a set of volume measures is available for a given period, it needs to be presented with data for other periods in time series form. This is when chaining should be introduced for data derived by deflation of individual components. As recommended in section B, this should ideally be done annually using price indices of the previous year but if this is not possible, chaining over a longer period should be adopted. Major changes in economic structure, such as the impact of rapid fluctuations in oil prices on an oil exporting economy indicate that using the same base year before and after the change is likely to give quite misleading indications of the evolution of the economy. Chaining becomes essential rather than just desirable in such cases.

Terminology for volume estimates

15.98 When time series are constructed by dividing the current values for each year at the most detailed level possible by fixed base year Laspeyres price indices, it is appropriate to describe the resulting series as being at the constant prices of the base year. (This is because as long as the work is done at a sufficiently detailed level, the result approximates using a Paasche price index.) However, when each year's value is deflated by a price index with a different base year, it is no longer strictly correct to describe the resulting time series in this way. More accurate terms are "chain volume series", "chain volume measure" or "chain volume index" if the series is expressed in index number form. If it is desirable to specify the reference year in the term, then "chain volume series in reference year [currency units]" may be used.

15.99 The use of the term "at constant prices" is also inappropriate for series that are linked less frequently than annually and to volume series based on the use of Fisher or Törnqvist formulae, whose price configurations are not constant over the duration of the series. For such series the terms "volume series" or "volume index" are appropriate to describe a series or index.

15.100 The change of terminology also reflects the loss of additivity of the resulting time series since only series expressed in the same set of prices throughout, for example by using Laspeyres indices, are additive.

1. Price deflation vs. quantity revaluation

15.101 Volume and price indices can only be derived for variables that have price and quantity elements. All transactions involving the exchange of goods and services and the levels of stocks of non-financial assets have this characteristic but income flows and financial assets and liabilities do not. Some balancing items have the characteristic but others do not and so they need to be considered individually.

15.102 While both volume and price measures are of major importance in the national accounts, the principal focus of users is on the growth rates of volume measures, rather than prices. The compilation of the national accounts in volume and current value terms reflects this priority, with the price aggregates being derived implicitly, by dividing the current values by the corresponding volumes.

15.103 When independent, reliable and comprehensive data are available at current values it is generally not necessary to construct volume measures by aggregating quantity relatives. In most cases it is preferable and more practicable to use price indices to deflate current value data. Even for cases like electricity where the volume measure seems to be easily available, a direct volume measure is inappropriate because of the treatment of prices applying in different markets as explained in paragraphs 15.69 to 15.75. A change in the composition of the type of user leads to a change in the price and volume of electricity in the SNA even though the physical measure of electricity distributed may not have changed.

15.104 As explained in section B, price information is easier to collect and aggregate than volume information because all prices are expressed in a common unit whereas volumes come in a multitude of units. Further, price relatives for a representative sample of goods and services can be used as typical for all goods and services in the same group in a way that volume measures would not be representative. More importantly, the volume changes associated with new and disappearing products can be properly reflected when current values are deflated by price indices as described in section B.

15.105 For some products, for example closely specified agricultural products or minerals, it may be that the current value data have been constructed by multiplying a volume measure by an appropriate price. These are instances when there is no aggregation problem across the group of products and adjustments for quality differences are more easily and more satisfactorily made to the volume measures directly. While some such products may be of significant value in some countries, it will be a small number of the total number of products that can best be treated in this way.

15.106 To obtain a Laspeyres volume measure the appropriate price index used to deflate the current value is a Paasche index and vice versa. However, the available price indices are nearly always constructed using the Laspeyres or Lowe formulae, because construction of a Paasche price index has exactly the same data requirements as the direct derivation of a Laspeyres volume index and faces the same problems. If robust current value data and Laspeyres price indices are available at a sufficiently detailed level then Paasche volume indices, at the detailed level, can be aggregated using the Laspeyres formula to obtain an approximation of a true Laspeyres volume measure of the aggregate.

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15.107 A Fisher volume index can be obtained either by taking the geometric mean of Laspeyres and Paasche volume indices or by deflating an index of the current values by a Fisher price index.

2. Available price indices

15.108 There are four major types of price index available to derive volume measures in the national accounts: consumer price indices (CPIs), producer price indices (PPIs), export price indices (XPIs) and import price indices (MPIs). CPIs are measures of purchasers' prices and PPIs are measures of basic prices. XPIs are measures of FOB prices; MPIs may measure FOB or CIF prices.

15.109 There are two defining aspects of recording transactions: timing and valuation. It is therefore critical that the price indices and the current values they are used to deflate correspond in both these aspects, as well as scope. The four types of price indices are usually available monthly and so quarterly and annual deflators can be obtained for flow and stock variables by averaging the monthly indices appropriately to centre the average at the desired valuation point. For flow variables this is usually the mid-point of the period, while for stock variables it is usually, but not always, the end of the period. For flow variables, the average price of the period should reflect known variations within the period. This is particularly important when there is a strong seasonal pattern, large irregular movements in certain months or hyperinflation. When none of these factors is present, the average price will be close to the observed price at the middle of the time period. The fact that this is frequently the case does not imply that the mid-period price is always the conceptually correct one to take, however.

3. The supply and use tables as the basis for volume measures of GDP

15.110 Chapter 14 describes the supply and use tables. It explains how the supply table itemizes the products each industry produces which are then identified in the use table where the allocation of each product between intermediate consumption and final demand is spelled out. Compiling supply and use tables at current values ensures consistency in the different measures of GDP. More powerfully, compiling supply and use tables in volume terms ensures that both the volumes and prices in the SNA are consistent. In principle, tables at current values and in volume terms should be compiled at the same time in order to make the best use of all the information available to the compiler.

15.111 It is often the case that not all the detailed data required for compiling supply and use tables are available each period and estimates have to be made to fill the empty cells. For example, detailed data for intermediate consumption by product by industry are often collected infrequently. It is generally better to make an initial assumption of a constant composition of intermediate inputs over time in volume terms than in current values. Furthermore, adjustments to the raw and estimated data can be greatly assisted by evaluating growth rates in prices and volumes from the previous or following period. For these reasons it is recommended that supply and use tables should be compiled at current values and in volume terms at the same time and balanced simultaneously.

15.112 In order to derive a set of supply and use tables in volume terms that are additive, the appropriate way to proceed is first to express the table in the prices of the previous year, that is, as Laspeyres volume indices linking the previous year to the current year, referenced to the values in the previous year. In order to obtain annual chain Fisher volume measures, it also necessary to derive supply and use tables of the previous year in the prices of the current year. Such values are in effect backward-looking Laspeyres indices referenced to the prices of the current year. Paasche volume indices are obtained by taking the inverse of the backward-looking Laspeyres indices. Fisher volume indices can then be derived as the geometric mean of the Laspeyres and Paasche volume indices between two adjacent years.

4. Volume measures of the output estimate of GDP

Market output

15.113 In principle, PPIs can be compiled for all market output and then they can be used to deflate current values to obtain volume estimates.

15.114 In practice, there are some products for which it is very difficult to derive price indices and special steps must be taken to derive the corresponding volume measures. A particular case is those of margin industries including financial services. Output of a margin industry is usually calculated as the margin rate times the value of a transaction. To determine a volume figure the base year rate is applied to the value of the transaction suitably deflated to base year values. In the case of FISIM, the reference rate and the rates of bank interest are used in conjunction with figures of loans and deposits deflated by the general price increase since the base year.

15.115 In other cases where there is no suitable deflator to apply to a current value, volume indices may be derived by extrapolating the current values in the base period by suitable indicators.

Non-market output of government and NPISHs

15.116 The current value of the output of non-market goods and services produced by government units or NPISHs is estimated on the basis of the sum of costs incurred in their production, as explained in chapter 6. This output consists of individual goods and services delivered to households and collective services provided to the community as a whole. The fact that such output is valued on the basis of the value of inputs needed to produce them does not mean that it cannot be distinguished from the inputs used to produce it. In particular, the change in the volume of output can be different from the change in the volume of inputs. Changes in productivity may occur in all fields of production, including the production of non-market services.

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15.117 In practice, there are three possible methods of compiling volume estimates of the output of non-market goods and services. The first is to derive a pseudo output price index such that when it is compared to the aggregate input price index the difference reflects the productivity growth thought to be occurring in the production process. Pseudo output price indices can be derived in various ways, such as by adjusting the input price index according to the observed productivity growth of a related production process or by basing the growth of the pseudo output price index on the observed output price indices of similar products. However, such data are rarely available for the goods and services produced by government and NPISHs.

15.118 The second approach, the "output volume method," is recommended for individual services, in particular, health and education. It is based on the calculation of a volume indicator of output using adequately weighted measures of output of the various categories of non-market goods and services produced. These measures of output should fully reflect changes in both quantity and quality.

15.119 The third approach, called the "input method", may be used for collective services such as defence for which the "output volume method" is hardly applicable because there are, in general, no adequate quality-adjusted quantity measures of output. The "input method" consists of measuring changes in output by changes in the weighted sum of volume measures of all the inputs. The latter should fully reflect both changes in quantity and quality. They are generally best derived by deflating the various input costs by corresponding constant-quality price indices, or when such price indices are unavailable, using volume indicators that reflect input volume change (for example, number of hours worked by employees).

15.120 It is useful at this stage to define the terms input, activity, output and outcome. Taking health services as an example, input is defined as the labour input of medical and non-medical staff, the drugs, the electricity and other inputs purchased and the consumption of fixed capital of the equipment and buildings used. These resources are used in the activity of primary care and in hospital activities, such as a general practitioner making an examination, the carrying out of a heart operation and other activities designed to benefit the individual patient. The benefits to the patient constitute the output associated with these input activities. Finally there is the health outcome, which may depend on a number of factors apart from the output of health care, such as whether or not the person gives up smoking.

15.121 The measurement of the volume of output of non-market individual services should avoid two pitfalls. The first of these is that it should not be restricted to reflect the inputs or the activity of the unit producing the services. Inputs are not an appropriate measure and while activities may be the only available indicator and hence have to be used, they too are an intermediate variable. What should be measured is the service rendered to the customer. The second risk is that if outcome is defined in terms of the welfare objectives of the non-market service (for example, changes in the quality of health for the measurement of the health service, or changes in the quality of education for the measurement of the education service) the change in the volume of the output of the non-market unit cannot be reflected by the change in the indicators of outcome. This is because indicators of outcome can be affected by other aspects that are not directly related to the activity of the non-market services. For example, in the case of health, it is well-known that there are many factors other than the output of the non-market health units, such as sanitation, housing, nutrition, education, consumption of tobacco, alcohol and drugs, pollution, whose collective impact on the health of the community may be far greater than that of the provision of health services. Similarly, the output of education services is quite different from the level of knowledge or skills possessed by members of the community. Education services consist principally of teaching provided by schools, colleges, universities to the pupils and students who consume such services. The level of knowledge or skills in the community depends in addition on other factors, such as the amount of study or effort made by consumers of education services and their attitudes and motivation.

15.122 In the light of these observations, the "output volume method" is the recommended method for compiling indicators of volume change of non-market services. The method is based on quantity indicators, adequately quality-adjusted, weighted together using average cost weights. Two criteria should be respected to compile adequate indicators of volume change. In the first place, the quantities and costs used should reflect the full range of services for the functional area under review and cost weights should be updated regularly. If part of the costs of the functional area is not covered by the quantity indicator, it should not be assumed that the uncovered part follows the changes of the part that is covered. If no direct output volume method is applicable for this part, an input method should be used for it. Secondly, quantity indicators should be adjusted for quality change. For example, services should be sufficiently differentiated with the aim of arriving at categories that can be regarded as homogeneous. An aspect of quality change is then captured by changes in the proportions of different categories if the weights assigned to each category are frequently updated. In addition, the quantity indicator of each category can be augmented by an explicit quality adjustment factor. One way of identifying explicit quality adjustment factors is by reviewing the effects that the service has on measures of outcome.

15.123 It is recommended these volume indicators be tested for a substantial period of time with the aid of experts in the domain prior to their incorporation in the national accounts. Expert advice is particularly relevant in the areas of health and education, which usually dominate the provision of individual services. Further, the consequences of the estimates including the implications for productivity measures should be fully assessed before adoption. Unless and until the results of such investigations are satisfactory, it might be advisable to use the second best method, the "input method".

15.124 Measuring changes in the volume of collective services is generally more difficult than measuring the volume changes in individual services because the former are hard to define and to observe. One reason is that many collective services are preventative in nature, protecting households or other institutional units from acts of violence including acts of war, or protecting them from other hazards, such as

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road accidents, pollution, fire, theft or avoidable diseases are concepts that are difficult to translate into quantitative measures. This is an area in which further research is needed.

15.125 When it is not possible to avoid using an input measure as a proxy for an output measure, the input measure should be a comprehensive one, it should not be confined to labour inputs but cover all inputs. In addition, explanatory information should accompany the national estimates that draw users' attention to the methods of measurement.

Output for own final use

15.126 Output for own final use falls into two categories, goods produced and consumed by households and fixed assets produced for own use. Included in the above are changes in inventories of finished goods and work-in-progress.

15.127 For most output for own final use the use of pseudo output price indices is an effective, low-cost option. For goods produced and consumed by households, CPIs are likely to be available for similar goods. (However, for agricultural output grown and consumed by households, the price index used should not include any margins or taxes not actually incurred.) Similarly, there are likely to be output price indices available for fixed assets such as equipment, buildings and structures produced for own use as capital formation. For some types of fixed asset produced on own account there may be no output price indices available for similar products and different strategies may need to be considered. This is discussed further in the section on gross fixed capital formation.

Intermediate consumption

15.128 As noted earlier, the most robust way of estimating intermediate consumption in volume terms is within the framework of a supply and use table in volume terms where information on volume growth rates as well as price information may be used.

15.129 Countries that compile PPIs generally do so for outputs, though countries with developed statistical systems may also compile input PPIs. Such input PPIs are directly applicable to the deflation of intermediate consumption.

15.130 If input PPIs are not compiled, output PPIs, MPIs and, to a limited extent, CPIs may be used instead. Intermediate consumption is valued at purchasers' prices, while output PPIs are valued at basic prices. There is thus a margin between the valuation of goods used as intermediate consumption at purchasers' prices and output PPIs, which is accounted for by transportation costs (unless the producer provides these services without a separate invoice), possible insurance costs, wholesale and retail trade margins and taxes less subsidies on products. The size of this margin will depend on circumstances. Often trade margins on goods for intermediate consumption are much smaller than for final consumption and the taxes may be smaller under a VAT system. For services used as intermediate consumption, the difference in valuation usually consists of only taxes less subsidies on products.

15.131 Chapter 14 describes how the intermediate consumption part of the use matrix can be partitioned to show the domestic inputs at basic prices, imports, margins and taxes separately. If this information is available, the quality of the resulting deflation exercise will be improved since it will not be necessary to use the assumption that import, tax and margin proportions apply uniformly across the elements of the rows of the use matrix.

Gross domestic product and gross value added

15.132 When gross domestic product (GDP) is derived by summing final domestic expenditures and exports and subtracting imports, or by subtracting intermediate consumption from output and adding taxes less subsidies on products, volume measures of GDP can be obtained provided that the volumes being aggregated are additive, (that is, are based on the Laspeyres formula).

15.133 The gross value added of an establishment, enterprise, industry or sector is measured by the amount by which the value of the outputs produced by that establishment, enterprise, industry or sector exceeds the value of the intermediate inputs consumed. This may be written as:

$$\sum PQ - \sum pq \qquad (18a)$$

where the Q's refer to outputs, P's their basic prices, q's to intermediate inputs and p's their purchasers' prices. Value added in year t at prices of year t is given by:

$$\sum P^t Q^t - \sum p^t q^t \qquad (18b)$$

while value added in year t at the prices of the base year, 0, is given by:

$$\sum P^0 Q^t - \sum p^0 q^t \qquad (18c)$$

This measure of value added is generally described as being obtained by "double deflation" as it can be obtained by deflating the current value of output by an appropriate (Paasche-type) price index and by similarly deflating the current value of intermediate consumption.

15.134 While the double deflation method is theoretically sound, the resulting estimates are subject to the errors of measurement in the volume estimates of both output and intermediate consumption. This may be especially true if output PPIs are applied to inputs, many of which are imported. Because value added is the relatively small difference between two much larger figures, it is extremely sensitive to error. It is therefore advisable to compare the growth rates of the price and volume measures of value added over recent years with the corresponding growth rates of output and intermediate inputs and, if possible, with volume estimates of inputs of labour and capital services to check for plausibility.

15.135 Because of the possible problems in trying to estimate value added using the double deflation approach, it is also common to estimate the volume movements of value added directly using only one time series, that is a "single

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indicator" method instead of double deflation. One such single indicator method is to extrapolate value added in proportion to the volume changes in the corresponding levels of output.

15.136 The choice to be made between the use of a single indicator method (which may yield biased results) or a double deflation method (which may yield volatile results) must be based on judgement. The same choice need not be made for all industry groups. Further, the single indicator method may be used for quarterly figures until the year is complete and better double deflation estimates are available.

15.137 In certain non-market service industries, it may be necessary to estimate movements in the volume of value added on the basis of the estimated volume changes of the inputs into the industries. The inputs may be total inputs, labour inputs on their own or intermediate inputs on their own. For example, it is not uncommon to find the movement of the implicit volume of value added estimated by means of changes in compensation of employees at constant wage rates, or even simply by changes in numbers employed, in both market and non-market service industries. (There is extensive work being carried out to improve these working assumptions by trying to measure the outputs of government-provided health and education more objectively.)

15.138 Compilers of data may be forced to adopt such expedients, even when there is no good reason to assume that labour productivity remains unchanged in the short- or long-term. Sometimes, volume changes for intermediate inputs may be used, for example, short-term movements in value added in real terms for the construction industry may be estimated from changes in the volume of building materials consumed such as cement, bricks, timber, etc. The use of indicators of this kind may be the only way in which to estimate short-term movements in output or value added, but they are not acceptable over long time periods.

5. Volume measures of the expenditure estimate of GDP

15.139 Each of the components of the expenditure estimate of GDP should be expressed in volume terms. The main approaches to deriving these estimates are described in turn below.

Household final consumption expenditure

15.140 Household consumption expenditure should be deflated at as detailed a degree as possible. In general this will involve making use of CPIs though care is needed to ensure that the coverage of the CPI being used matches the category of consumption expenditure being deflated. Even where detailed estimates of consumption expenditure are not compiled from household surveys and other primary sources, having an estimate of household consumption expenditure by type of product from a supply and use table for deflation will significantly improve the estimate of consumption expenditure in volume terms as compared with the single deflation of a total figure only.

15.141 A major component where CPIs are unlikely to be available is the measure of the rental services of owner-occupied dwellings. Three alternative approaches are outlined in chapters 10 and 23 of the CPI manual, but only the use-based approach is recommended for measuring the consumption of housing services in the national accounts. This approach can take either a user-cost formulation that attempts to measure the changes in the cost to owner-occupiers of using the dwelling, or a rental-equivalence formulation based on how much owner-occupiers would have to pay to rent their dwellings. The latter method is more generally adopted for CPIs.

Final consumption expenditure by government and NPISHs

15.142 The final consumption expenditure of general government and NPISHs consists of their non-market output less any revenue from incidental sales plus the value of goods and services purchased from market producers for onwards transmission to individual households at prices that are not economically significant less any partial payments. (The derivation of this identity is discussed in chapter 9.)

15.143 Each of these items should be expressed in volume terms separately. The problem of measuring non-market output in volume terms is discussed above. For goods and services transferred to households, the price indices used should be those paid for the goods less the proportion that households pay. If the proportion of the price paid by government (or NPISHs) alters from one year to another, this is seen as a volume change in expenditure on the part of both general government (or NPISHs) and households.

Gross fixed capital formation

15.144 The availability of appropriate price indices for gross fixed capital formation varies considerably between different types of asset.

15.145 There are often CPIs for new dwellings and PPIs for new buildings and structures. The costs of ownership transfer should be deflated separately. The current value and volume estimates are usually derived from separate estimates of the constituent parts, legal fees, transport and installation costs etc.

15.146 For standard products used as capital formation, PPIs are likely to be available but much capital formation is specific to the purchaser and appropriate indices may have to be developed using the best information available.

15.147 Price indices for equipment vary considerably in their growth rates. For example, price indices for computer equipment have fallen rapidly year after year while price indices for transport equipment have tended to increase. It is important in such cases that the different types of equipment are deflated separately using the matching price indices (or, equivalently, an appropriately weighted Paasche price index is used to deflate the aggregate).

15.148 Intellectual property products are generally not well covered by available price indices. There are several reasons for this. One is that many intellectual products are

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produced for own use and there may be no observed market prices. Another is that intellectual property products are very heterogeneous. However, these are not insurmountable difficulties and there are strategies for addressing them. As examples, the two major items in this category, software and databases and research and experimental development, are considered.

15.149 When deriving volume estimates of the capital formation of software and databases it is advisable to decompose software into three components: packaged (or off-the-shelf), custom-made and own account and to deflate them and databases separately. There are several reasons for doing this.

a. The three components of software and databases vary in the extent to which price data are available to compile price indices.

b. It is likely that their prices and volumes grow at different rates, particularly between packaged software, the other two software components and databases.

c. Despite the previous point, price indices for packaged software may be used to construct price indices for the other two software components if more appropriate price indices are unavailable.

d. Volume estimates of the items are useful indicators in their own right.

15.150 Packaged software is purchased on a very large scale, generally via licences-to-use and there is an abundance of price data available. The challenge is to construct price indices free of the effects of changing specifications and any other aspects of quality change.

15.151 Custom-made software is also sold on the market, but each custom-made software product is a one-off, which presents an obvious problem for compiling price indices. Although each custom-made product is different, different products may share common components, or a strategy used to develop one product may be able to be used for another. This not only suggests a possible way of compiling a price index, but also suggests means by which productivity gains could be made that would put downward pressure on prices. In section B the use of model pricing was outlined for measuring price changes of custom-made buildings. A similar approach may be applied to custom-made software.

15.152 Methods for compiling price indices for heterogeneous groups of products and products whose specifications are changing rapidly are described in the *Handbook on Hedonic Indices and Quality Adjustments* and in *Producer Price Index Manual: Theory and Practice*, (the International Labour Organization, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, Economic Commission for Europe and the World Bank, 2004).

15.153 A substantial proportion of software in gross fixed capital formation is undertaken on own account. Hence, it is not possible to derive a true output price index for such software. It is then a matter of choosing between a pseudo output price index and an input price index, obtained by weighting together price indices of the inputs. As already noted, input volume estimates used as a proxy for output do not reflect any productivity growth and so this is not recommended. In the absence of a better alternative, the most obvious option is to use the price index for custom-made software.

15.154 Databases are generally heterogeneous products with a small market since most databases are made for in-house purposes. For own-account software, it is difficult, if not impossible, to develop a true output price index and once again the choice is between a pseudo output price index and an input price index though a pseudo output index may be difficult to envisage.

15.155 Research and experimental development (R&D) is another activity that is often undertaken on own account. However, given the heterogeneous nature of R&D, the choice for deflation lies between deriving pseudo output price indices and using input price indices.

Changes in inventories

15.156 Although changes in inventories may be small relative to other components of GDP, the fact that their relative size might change quite significantly from one period to the next means that they can make a significant contribution to changes in the size of GDP particularly in the quarterly national accounts. For this reason, the calculation of changes in inventories in volume terms is particularly important. However, it is also a challenging task. As noted in paragraph 15.62, because changes in inventories can take positive, negative or zero values, a chain index should not be derived directly. Chain volume estimates of changes in inventories should be derived by first deriving chain volume estimates of the opening and closing stocks of inventories and then differencing them.

15.157 Volume estimation should be undertaken at a detailed level for different types of inventories, (work-in-progress, finished goods, materials and supplies, goods for resale). Deflation of stocks of inventories must be related to the composition of those inventories in terms of products rather than to the industry holding those inventories. PPIs, MPIs, CPIs and labour cost indices are all commonly used in deriving deflators, with adjustments to the appropriate valuation basis. It is important to understand how enterprises value their inventories as this can provide information on not only the type of products but also the average length of time over which goods are kept in inventories.

15.158 When goods are sent abroad for processing without a change of ownership, it must be remembered that some inventories may be held outside the national territory but national prices should be applied to them to derive their corresponding volumes.

Acquisition less disposal of valuables

15.159 National statistical offices generally do not compile specific price indices for valuables. The major constituents should be deflated using the most suitable price indices available.

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Exports and imports

15.160 Exports and imports consist of both goods and services. For both exports and imports, goods and services are expressed in volume terms using quite different deflators because of the very different sources available for goods and services. New initiatives are under way to improve price indices for external trade in services that should lead to improved data in this area.

15.161 The valuation of imports and exports of goods is discussed in chapter 14. In principle, they should be valued when change of ownership between a resident unit and a non-resident owner takes place and include or exclude transportation costs according to whether the supplier does not or does include transportation to the purchaser in the price charged. In practice, however, many countries are dependent for data on imports and exports of goods on customs declarations that value imports on a CIF basis but exports on a FOB basis. This assumes that change of ownership always takes place at the border of the exporting country. For balance of payments purposes, imports of goods should be converted to a FOB basis also but this is usually done at an aggregate level and may only be disaggregated in the supply and use context if at all.

15.162 Given the existence of detailed XPI and MPI for goods, it should be a simple matter to deflate the current value estimates of exports and imports of goods at as detailed a level as practical in order to approximate the use of Laspeyres volume or Paasche price indices. In order to compile detailed volume estimates of imports of goods in the supply and use tables either the CIF estimates should be put onto a FOB basis or the MPIs need to be adjusted to a CIF basis. The usual working assumption is that CIF and FOB approximate purchasers' and basic prices respectively but as explained in chapter 14, the adequacy of the approximation depends on circumstances surrounding transport margins.

15.163 XPIs and MPIs are compiled by three general methods the nature of which is largely dependent on the source data used. The first and predominant method, at least in terms of the number of countries using it, is unit value indices compiled from detailed import and export merchandise trade data derived from administrative customs documents. As pointed out in section B, unit value indices are not price indices since their changes may be due to price and (compositional) quantity changes. However, they are used by many countries as surrogates for price indices. The second method is to compile price indices using data from surveyed establishments on the prices of representative items exported and imported. The surveyed prices will be of items that are defined according to detailed specifications so that the change in price of the same item specification can be measured over time. The third method is a hybrid approach that involves compiling establishment survey-based price indices for some product groups and customs-based unit value indices for others.

15.164 The case for unit value indices derived from merchandise trade figures is based on the relatively low cost of such data. Their use as deflators requires some caution as they have been shown to be subject to bias when compared with price indices. The bias in unit value indices is mainly due to changes in the mix of the heterogeneous items recorded in customs documents, but also to the often poor quality of recorded data on quantities. The former is particularly important in modern product markets given the increasing differentiation of products. Unit value indices may suffer further in recent times due to an increasing lack of comprehensiveness of the source data with increasing proportions of trade being in services and by e-commerce and hence not covered by merchandise trade data. Further, countries in customs and monetary unions are unlikely to have intra-union trade data as a by-product of customs documentation. Finally, some trade may not be covered by customs controls, such as electricity, gas and water, or be of "unique" goods, such as ships and large machinery, with profound measurement problems for unit values.

15.165 As noted above, current data sources for price indices for international trade in services are less comprehensive than in other areas. If MPIs and XPIs are available for exports and imports of services they can be readily used to derive the required volume estimates. If they are not, volume estimates of exports of services can be mostly derived using an assortment of PPIs and CPIs. For example, volume estimates of freight transport services could be derived using PPIs according to the form of transport, while volume estimates of accommodation services could be derived using the appropriate CPIs. If MPIs are not available for imports of services then price indices of the countries exporting the services, adjusted for changes in the exchange rate, may have to be used.

15.166 It must be remembered that if imports of goods are valued including transport services, then these transport services should be excluded from total imports of services.

6. Volumes and prices for stocks of fixed assets and consumption of fixed capital

15.167 Consider first a single type of asset. The stock of this type of asset consists of a number of items, typically of different vintages, that are valued and aggregated with a consistent set of prices. "Consistent" is to be understood here meaning the prices relate to the same period or point in time and being based on the same price concept, such as purchasers' prices. Measuring stocks at historical prices, that is, by adding up quantities that have been valued with prices of different periods is therefore an inconsistent valuation. It is sometimes found in enterprise accounts but does not constitute an economically meaningful measure in the context of the SNA.

15.168 The price vector used to value the quantities of assets has to refer to a point in time (beginning or end of period) when the values of stocks are compiled for the opening or closing balance sheets. For other purposes, quantities of assets may be valued with a price vector that refers to the average of an accounting period. For example, measures of consumption of fixed capital may be derived by subtracting the closing stock of assets from the opening stock plus gross capital formation as long as average-period prices are used for each component in order to eliminate holding gains and losses (and assuming no other volume changes in assets).

15.169 The process by which many capital stock measures are constructed is the perpetual inventory method (PIM). For a

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given type of asset, time series of gross fixed capital formation are deflated by means of the purchasers' price index of the same asset type, so that the quantities of assets are expressed in volume terms of a particular reference period. These time series in volume terms are then aggregated to yield a stock measure, where account is taken of retirement, efficiency losses or consumption of fixed capital, depending on the nature of the stock measure constructed. The resulting stock measure is thus expressed in volume terms of the reference period chosen. This reference period may be the current period and stock measures valued in this way have often been labelled "current price capital stocks". However, this is not entirely accurate; as the description of the PIM showed, deflation is needed to arrive at these measures. Thus, they constitute a special case of a constant price valuation, namely valuation at the price vector of the current period.

15.170 Even when the PIM is not applied, for example in the case of direct surveys of assets, the valuation of different vintages of a particular asset should not use book values that reflect historical prices. Consistent valuation requires that older vintages are valued by the prices of assets of specified ages at the point in time to which the survey refers.

15.171 The next step is to aggregate the movements in capital stocks of individual asset types in volume terms. The use of linked or chain indices, as discussed earlier, is appropriate when building up a series that extends to the distant past since the current period price configuration will not remain representative.

15.172 Further details on the PIM, on the different types of capital stocks and their measurement are provided in chapter 20 and in *Measuring Capital*.

7. Components of value added

15.173 The price and volume measures considered up to this point relate mainly to flows of goods and services produced as outputs from processes of production. However, it is possible to decompose some other flows directly into their own price and volume components.

Compensation of employees

15.174 The quantity unit for compensation of employees may be considered to be an hour's work of a given type and level of skill. As with goods and services, different qualities of work must be recognized and quantity relatives calculated for each separate type of work. The price associated with each type of work is the compensation paid per hour which may vary considerably between different types of work. A volume measure of work done may be calculated as an average of the quantity relatives for different kinds of work weighted by the relative values of compensation of employees in the previous year or a fixed base year. Alternatively, a "price" index may be calculated for work by calculating a weighted average of the proportionate changes in hourly rates of compensation for different types of work, again using relative compensation of employees as weights. If a Laspeyres-type volume measure is calculated indirectly by deflating the compensation of employees at current values by an index of hourly rates of compensation, the latter should be a Paasche-type index.

Taxes and subsidies on products

15.175 Taxes on products are of two kinds, specific taxes linked to the volume of the product and *ad valorem* taxes levied on the value of the product. A measure of the tax volume of the former can be derived by applying the base year rate of the specific taxes to suitably deflated current value figures of the items bearing the specific tax and for the latter by applying the base year ad valorem rates to current values of items subject to ad valorem taxes deflated by appropriate prices. It is possible to derive a ratio of the tax data in current values and in volume terms but it is difficult to interpret this as a price index since it reflects changing tax rates and changing composition of the purchases of items subject to tax. The calculation for subsidies is carried out in an analogous manner.

15.176 There is more discussion on this in paragraphs 14.148 to 14.152.

Net operating surplus and net mixed income

15.177 When GDP is determined as the difference between output and intermediate consumption plus taxes less subsidies on production, gross value added is derived as an accounting residual. This is so in both current values and volume terms. In order for there to be an identity between different estimates of GDP in volume terms, it is not possible to give a price and volume dimension to gross value added. Rather the residual item is described as being "in real terms". If volume estimates of consumption of fixed capital and compensation of employees are available, net operating surplus and net mixed income can be derived but only in real terms and without a volume and price dimension. Thus it is not possible to derive an independent measure of GDP from the income approach since one item is always derived residually.

15.178 The limit to a set of integrated price and volume measures within the accounting framework of the SNA is effectively reached with net operating surplus. It is conceptually impossible to factor all the flows in the income accounts of the SNA, including current transfers, into their own price and volume components into unequivocal price and volume components. However, any income flow can be deflated by a price index for a numeraire set of goods and services to measure the increase or decrease of the purchasing power of the income over the numeraire but this is quite different from decomposing a flow into its own price and volume components. A particular instance where this is common is in the calculation of the terms of trade effect on real income as described in section D.

8. Quarterly and annual estimates

15.179 In principle, the same methods used to derive annual volume estimates should be used to derive quarterly volume estimates. Guidelines on data sources and methods for compiling price and volume quarterly estimates are given in chapters 3 and 9 of the *Quarterly National Accounts Manual*. The main considerations are those

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described in paragraphs 15.45 to 15.50. In practice, annual data are generally more comprehensive and accurate than quarterly data. Although there are important exceptions, such as exports and imports of goods, the overall situation is one of a much richer and more accurate, albeit less timely, set of annual data than quarterly data. For this reason, a sound approach is to compile balanced annual supply and use tables expressed in current values and in the prices of the previous year and to derive quarterly estimates that are consistent with them. This approach lends itself to the compilation of annually chained quarterly Laspeyres volume measures, although it can be adapted to the compilation of annually chained quarterly Fisher measures, too.

9. Summary recommendations

15.180 The recommendations reached above on expressing national accounts in volume terms may be summarized as follows:

a. Volume estimates of transactions in goods and services are best compiled in a supply and use framework, preferably in conjunction with, and at the same time as, the current value estimates. This implies working at as detailed a level of products as resources permit.

b. In general, but not always, it is best to derive volume estimates by deflating the current value with an appropriate price index, rather than constructing the volume estimates directly. It is therefore very important to have a comprehensive suite of price indices available.

c. The price indices used as deflators should match the values being deflated as closely as possible in terms of scope, valuation and timing.

d. If it is not practical to derive estimates of value added in real terms from a supply and use framework and either the volume estimates of output and intermediate consumption are not robust or the latter are not available then satisfactory estimates can often be obtained using an indicator of output, at least in the short term. For quarterly data this is the preferred approach, albeit with the estimates benchmarked to annual data. An output indicator derived by deflation is generally preferred to one derived by quantity extrapolation.

e. Estimates of output and value added in volume and real terms should only be derived using inputs as a last resort since they do not reflect any productivity change.

f. The preferred measure of year-to-year movements of GDP volume is a Fisher volume index; changes over longer periods being obtained by chaining, that is, by cumulating the year-to-year movements.

g. The preferred measure of year-to-year inflation for GDP and other aggregates is, therefore, a Fisher price index; price changes over long periods being obtained by chaining the year-to-year price movements, or implicitly by dividing the Fisher chain volume index into an index of the current value series.

h. Chain indices that use Laspeyres volume indices to measure year-to-year movements in the volume of GDP and the associated implicit Paasche price indices to measure year-to-year inflation provide acceptable alternatives to Fisher indices.

i. Chain indices for aggregates cannot be additively consistent with their components whichever formula is used, but this need not prevent time series of values being compiled by extrapolating base year values by the appropriate chain indices.

j. A sound approach to deriving quarterly current value and volume estimates is to benchmark them to annual estimates compiled in a supply and use framework. This approach lends itself to the construction of annually chained quarterly volume measures using either the Fisher or Laspeyres formulae.

D. Measures of real income for the total economy

1. The concept of real income

15.181 Many flows in the SNA, such as cash transfers, do not have price and quantity dimensions of their own and cannot, therefore, be decomposed in the same way as flows related to goods and services. While such flows cannot be measured in volume terms they can nevertheless be measured “in real terms” by deflating their values with price indices in order to measure their real purchasing power over some selected basket of goods and services that serves as the numeraire.

15.182 It is possible by use of a numeraire to deflate any income flow in the accounts and even a balancing item such as saving may be deflated by a price index in order to measure the purchasing power of the item in question over a designated numeraire set of goods and services. By comparing the deflated value of the income with the actual value of the income in the base year, it is possible to determine by how much the purchasing power of the income has increased or decreased. Income deflated in this way is generally described as “real income”.

15.183 Despite the terminology used, “real” incomes are artificial constructs that are dependent on two points of reference.

a. Real incomes are measured with reference to the price level in some selected reference year; they vary depending upon the choice of reference year.

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b. Real incomes measure changes in purchasing power over some selected numeraire; they vary according to the choice of numeraire.

15.184 As there may often be no obvious or uncontroversial choice of numeraire there has always been some reluctance to show real incomes in national accounts on the grounds that the choice of numeraire should be left to the user of the statistics and not the compiler. However, when major changes in prices occur, it can be argued that compilers of statistics are under an obligation to present at least some measures of real income. Not all users of the accounts have the opportunity, inclination or expertise to calculate the real incomes which may be most suited to their needs. Moreover, there is a demand from many users for multipurpose measures of real income, at least at the level of the economy as a whole and the purpose of this section is to indicate how such measures may be compiled.

2. Trading gains and losses from changes in the terms of trade

15.185 In a closed economy without exports or imports, GDP is equal to the sum of final consumption plus capital formation. This sum is described as domestic final expenditures. GDP is also a measure of the income generated in the economy by production. Although income cannot be expressed as the product of prices and volumes, if GDP can be deflated, then in effect this must also be a measure of income in real terms. However, with the inclusion of imports and exports, GDP is no longer identical to domestic final expenditure and deflation of GDP must allow for the deflation of imports and exports as well as of domestic final expenditures. Even if imports and exports are equal in current values, they usually have different prices so there is an impact on real income measures of import and export prices. This is generally done by considering the terms of trade and calculating what is known as the trading gains and losses from changes in the terms of trade.

15.186 Further, the total real income that residents derive from domestic production depends also on the rate at which exports may be traded against imports from the rest of the world.

15.187 ***The terms of trade are defined as the ratio of the price of exports to the price of imports.*** If the prices of a country's exports rise faster (or fall more slowly) than the prices of its imports (that is, if its terms of trade improve) fewer exports are needed to pay for a given volume of imports so that at a given level of domestic production goods and services can be reallocated from exports to consumption or capital formation. Thus, an improvement in the terms of trade makes it possible for an increased volume of goods and services to be purchased by residents out of the incomes generated by a given level of domestic production.

15.188 ***Real gross domestic income (real GDI) measures the purchasing power of the total incomes generated by domestic production***. It is a concept that exists in real terms only. When the terms of trade change there may be a significant divergence between the movements of GDP in volume terms and real GDI. The difference between the change in GDP in volume terms and real GDI is generally described as the "trading gain" (or loss) or, to turn this round, ***the trading gain or loss from changes in the terms of trade is the difference between real GDI and GDP in volume terms.*** The differences between movements in GDP in volume terms and real GDI are not always small. If imports and exports are large relative to GDP and if the commodity composition of the goods and services that make up imports and exports is very different, the scope for potential trading gains and losses may be large. This may happen, for example, when the exports of a country consist mainly of a small number of primary products, such as cocoa, sugar or oil, while its imports consist mainly of manufactured products. Trading gains or losses, T, are usually measured by the following expression:

$$T = \frac{X - M}{P} - \left\{\frac{X}{P_x} - \frac{M}{P_m}\right\} \qquad (19)$$

where

X = exports at current values

M = imports at current values

P_x = the price index for exports

P_m = the price index for imports

P = a price index based on some selected numeraire.

P_x, P_m and P all equal 1 in the base year. The term in brackets measures the trade balance calculated at the export and import prices of the reference year whereas the first term measures the actual current trade balance deflated by the numeraire price index. It is perfectly possible for one to have a different sign from the other.

15.189 There is one important choice to be made in the measurement of trading gains or losses, the selection of the price index P with which to deflate the current trade balance. There is a large but inconclusive literature on this topic, but one point on which there is general agreement is that the choice of P can sometimes make a substantial difference to the results. Thus, the measurement of real GDI can sometimes be sensitive to the choice of P and this has prevented a consensus being reached on this issue.

15.190 It is not necessary to try to summarize here all the various arguments in favour of one deflator rather than another, but it is useful to indicate the main alternatives that have been advocated for P. They can be grouped into three classes, as follows.

a. One possibility is to deflate the current balance, X-M, either by the import price index (which has been strongly advocated) or by the export price index, with some authorities arguing that the choice between P_m and P_x should depend on whether the current trade balance is negative or positive.

b. The second possibility is to deflate the current balance by an average of P_m and P_x various different kinds of averages have been suggested, simple arithmetic or

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harmonic averages, or more complex trade weighted averages.

c. The third possibility is to deflate the current balance by some general price index not derived from foreign trade; for example, the price index for gross domestic final expenditure, or the consumer price index.

15.191 The failure to agree on a single deflator reflects the fact that no one deflator is optimal in all circumstances. The choice of deflator may depend on factors such as whether the current balance of trade is in surplus or deficit, the size of imports and exports in relation to GDP, etc. On the other hand, there is general agreement that it is highly desirable and, for some countries vitally important, to calculate the trading gains and losses resulting from changes in the terms of trade. In order to resolve this deadlock it is recommended to proceed as follows:

a. Trading gains or losses, as defined above, should be treated as an integral part of the SNA;

b. The choice of appropriate deflator for the current trade balances should be left to the statistical authorities in a country, taking account of the particular circumstances of that country;

c. If the statistical authorities within a country are uncertain what is the most appropriate general deflator P to be used, some average of the import and export price indices should be used, the simplest and most transparent average being an unweighted arithmetic average of the import and export price indices. (This is referred to in the specialist literature on the subject as the Geary method.)

15.192 These proposals are intended to ensure that the failure to agree on a common deflator does not prevent aggregate real income measures from being calculated. Some measure of the trading gain should always be calculated even if the same type of deflator is not employed by all countries. When there is uncertainty about the choice of deflator, an average of the import and the export price indices is likely to be suitable.

3. The interrelationship between volume measures of GDP and real income aggregates

15.193 The usual way to calculate real income figures is to start from real GDI and then follow the normal sequence of income aggregates, but with every intervening adjustment deflated to real terms. This is illustrated as follows:

a. Gross domestic product in volume terms;

plus the trading gain or loss resulting from changes in the terms of trade;

b. *equals* real gross domestic income;

plus real primary incomes receivable from abroad;

minus real primary incomes payable abroad;

c. *equals* real gross national income;

plus real current transfers receivable from abroad;

minus real current transfers payable abroad;

d. *equals* real gross national disposable income;

minus consumption of fixed capital in volume terms;

e. *equals* real net national disposable income.

15.194 The transition from (a) to (b) is the trading gain from changes in the terms of trade explained immediately above. The steps needed in order to move from (b) to (d) above involve the deflation of flows between resident and non-resident institutional units, namely, primary incomes and current transfers receivable from abroad and payable to abroad. There may be no automatic choice of price deflator, but it is recommended that the purchasing power of these flows should be expressed in terms of a broadly based numeraire, specifically the set of goods and services that make up gross domestic final expenditure. This price index should, of course, be defined consistently with the volume and price indices for GDP.

15.195 Each step in the process should first be calculated for adjacent years in additive volume terms and longer series derived as chain indices.

15.196 A possible alternative approach is to move from GDP in volume terms to net domestic final expenditure in volume terms and then make a single adjustment for the impact on purchasing power of the current external balance using the deflator for net final domestic expenditure to reduce the current external balance to real terms. The advantage of this alternative is a single numeraire, the set of goods and services making up net domestic final expenditures being used throughout. It may be easier, therefore, to grasp the significance of real net national disposable income as this deflator is explicit.

15.197 However, the alternative framework measures the trading gain or loss by using the deflator for net domestic final expenditures as the general deflator P, for the trading gain or loss from changes in the terms of trade whereas it can be argued that P ought always to be based on flows which enter into foreign trade. On balance, therefore, the original framework presented above is to be preferred.

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E. International price and volume comparisons

1. Introduction

15.198 Users want to compare GDP and its components not only over time for a given country or countries in analyzing economic growth, for example, but also across countries for a given time period in analyzing relative economic size. A commonly used method of making such comparisons is to adjust national accounts values to a common currency using exchange rates, which has the advantage that the data are readily available and completely up to date. This is adequate if users need a ranking of a country's relative spending power on the world market. However, it is not adequate for comparisons of productivity and standards of living because it does not adjust for the differences in price levels between countries and thus does not give a measure of countries' relative sizes in the volume of goods and services they produce.

15.199 Purchasing power parities (PPPs) are used in producing a reliable set of estimates of the levels of activity between countries, expressed in a common currency. ***A purchasing power parity (PPP) is defined as the number of units of B's currency that are needed in B to purchase the same quantity of individual good or service as one unit of A's currency will purchase in A.*** Typically, a PPP for a country is expressed in terms of the currency of a base country, with the US dollar commonly being used. PPPs are thus weighted averages of the relative prices, quoted in national currency, of comparable items between countries. Used as deflators, they enable cross-country comparisons of GDP and its expenditure components.

15.200 This section first examines the index number issues in aggregate comparisons of prices and volumes across countries. The ICP produces internationally comparable economic aggregates in volume terms as well as PPPs and price level indices (PLIs). Established in 1968, the ICP has grown to cover all regions of the world and for the 2005 round involved 107 countries. The results were combined with the OECD/Eurostat PPP program for 43 countries, bringing the total to 150 countries.

15.201 Compiling PPP-based data is a costly and time-consuming exercise, so it is not possible to make such comparisons as a matter of course. Worldwide coordination is required to collect the data and compile the PPP-based estimates. However, national accountants in participating countries need to understand the basic principles of the comparison and the practical demands that are made on them for data to compile PPP indices and thus GDP volume comparisons. This material is the subject of the last part of this section.

2. Index number issues

15.202 The theory of index numbers developed in a time series context cannot be applied mechanically to international comparisons simply by replacing the term "period" by the term "country." International comparisons differ in a number of respects.

a. Time series are ordered by the date of the observation, but countries have no such a priori ordering. In consequence there is no predetermined way to order countries when compiling chain indices.

b. For international price comparisons different price collectors will be reporting on the prices of the items in different countries. There thus is a need for flexible but detailed structured product descriptions (SPDs) for each item so that only the prices of like items are compared, either by comparing the prices of exactly the same item specification drawn from the SPD in both countries, or by adjusting the prices of different specifications drawn from the SPD for quality differences.

c. International comparisons are conducted on a less regular basis, in part because they present a large scale coordination challenge, involving the statistical offices of all participating countries as well as international organizations.

15.203 At the heart of the PPPs are price comparisons of identical or closely similar product specifications. The 2005 ICP round used SPDs to define these specifications and to ensure the quality of the detailed price comparisons. For each item there is a specification describing the technical characteristics of the item in detail so a price collector can precisely identify it in the local market. Besides the technical characteristics, the specification also includes other variables that need to be considered when pricing the item, such as the terms of sales, accessories and transportation and installation costs. The database formed from these structured descriptions and the prices collected for them permit more precise matching of items between countries.

Representativity versus comparability

15.204 Two critical criteria in selecting products to be priced for calculating PPPs are "representativity" and "comparability". Representative products are those products that are frequently purchased by resident households and are likely to be widely available throughout a country. Representativity is an important criterion in the ICP because the price levels of non-representative products are generally higher than those of representative products. Therefore, if one country prices representative products while another prices non-representative products in the same expenditure category, then the price comparisons between the countries will be distorted. On the other hand, comparability relates to the physical characteristics of a product. Products are considered to be comparable if their physical characteristics, such as size and quality, and economic characteristics, such as whether candles are used as a primary source of light or are primarily decorative, are identical.

15.205 In practice, difficult trade-offs are involved in selecting products that are both representative and comparable to use in calculating PPPs. The product lists for calculating PPPs are developed in a way that balances the competing aims of within-country representativity and cross-country comparability. In this respect, they are generally quite

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different from the products that would be priced by any individual country to compile its price indices (such as the consumer price index or any of a range of producer price indices) and which are used in producing the deflators used to calculate volume estimates in the time series national accounts. In the case of time series within a country, representativity is the key criterion in selecting the products to be priced while comparability with other countries is unimportant. Once a representative product is selected for pricing, the important issue is to price the same product in subsequent periods so that price changes in the product can be measured over time. For the ICP, representativity is required only at a point in time and not over time.

Aggregation

15.206 PPPs are calculated and aggregated in two stages: estimation of PPPs at the level of basic headings and aggregation across basic heading PPPs to form higher-level aggregates. The estimation of basic heading level PPPs is based on price ratios of individual products in different countries. Typically no information about quantities or expenditures is available within a basic heading and, thus, the individual price ratios cannot be explicitly weighted when deriving PPPs for the whole basic heading. Two aggregation methods dominate PPP calculations at this level, the EKS method (described below) and the Country Product Dummy (CPD) method. A description of these methods can be found in chapter 11 of the *2005 ICP Methodological Handbook*. Weights are of crucial importance at the second stage when the basic heading PPPs are aggregated up to GDP. The main approaches used in the aggregation are summarized in the paragraphs below.

Binary comparisons

15.207 As outlined in section C, the monetary value of GDP, or one of its components, (I_V) reflects the combined differences of both price and quantities, that is: $L_P \times P_Q = I_V$ or $L_Q \times P_P = I_V$. Price and volume indices may be compiled between pairs of countries using the same kinds of index number formula as those used to measure changes between time periods. A Laspeyres-type price index for country B compared with country A is defined as:

$$L_P = \sum_{i=1}^{n} \left(\frac{p_i^B}{p_i^A} \right) s_i^A \equiv \frac{\sum_{i=1}^{n} p_i^B q_i^A}{\sum_{i=1}^{n} p_i^A q_i^A} \qquad (20a)$$

and a Paasche-type index as:

$$P_P = \left[\sum_{i=1}^{n} \left(\frac{p_i^A}{p_i^B} \right)^{-1} s_i^B \right]^{-1} \equiv \frac{\sum_{i=1}^{n} p_i^B q_i^B}{\sum_{i=1}^{n} p_i^A q_i^B} \qquad (20b)$$

where the weights s_i^A and s_i^B are component shares of GDP at current values of countries A and B.

15.208 Given the complementary relationships between Laspeyres and Paasche price and volume indices noted earlier, it follows that a Laspeyres-type volume index for B compared with A can be derived by deflating the ratio of the values in B to A, each expressed in their own currencies, by the Paasche-type price index (20b). A Paasche-type volume index is similarly derived by deflating the ratio of values of B to A by a Laspeyres-type price index (20a).

15.209 The differences between the patterns of relative prices and quantities for two different countries tend to be relatively large, compared with those between time periods for the same country. The resulting large spread between the Laspeyres- and Paasche-type intercountry price and volume indices in turn argues for an index number formula, such as Fisher, that makes symmetric use of both country's price and quantity information.

Multilateral comparisons

15.210 The need for multilateral international comparisons may arise, for example, to determine GDP aggregates for blocks of more than two countries or rankings of the volumes of GDP, or per capita GDP, for all the countries in a block. It is desirable that such rankings are transitive.

Transitivity

15.211 Consider a group of *m* countries. As binary comparisons of volumes and prices may be made between any pair of countries, the total number of possible binary comparisons is equal to $m(m-1)/2$. Let the price, or volume, index for country *j* based on country *i* be written as ${}_iI_j$. A set of indices is said to be transitive when the following condition holds for every pair of indices in the set:

$${}_iI_j \times {}_jI_k = {}_iI_k \qquad (21)$$

This condition implies that the direct (binary) index for country *k* based on country *i* is equal to the indirect index obtained by multiplying the direct (binary) index for country *j* based on country *i* by the direct (binary) index for country *k* based on country *j*. If the entire set of indices is transitive, the indirect indices connecting pairs of countries are always equal to the corresponding direct indices. In practice, none of the standard index formulae in common use, such as Laspeyres, Paasche or Fisher, is transitive.

15.212 The objective is to find a multilateral method that generates a transitive set of price and volume measures while at the same time assigning equal weight to all countries. There are four quite different approaches that may be used. The first approach achieves transitivity by using the average prices within the block to calculate the multilateral volume indices. The second approach starts from the binary comparisons between all possible pairs of countries and transforms them in such a way as to impose transitivity. The third method uses regression techniques to estimate missing prices by using price relatives for other products on a country-by-country basis. The fourth method is a multilateral chaining method based on linking bilateral comparisons such that countries that are most similar in their price structures are linked first.

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The block approach

15.213 The most widely used form of the block approach uses the average prices of the block to revalue quantities in all countries in the block. This automatically ensures transitivity. The volume index for country B relative to country A is defined in the first expression in equation (20) as:

$$GK_Q = \frac{\sum_{i=1}^{n} \overline{p}_i q_i^B}{\sum_{i=1}^{n} \overline{p}_i q_i^A} = \frac{\sum_{i=1}^{n} \overline{p}_i q_i^C}{\sum_{i=1}^{n} \overline{p}_i q_i^A} \times \frac{\sum_{i=1}^{n} \overline{p}_i q_i^B}{\sum_{i=1}^{n} \overline{p}_i q_i^C} \qquad (22)$$

and can be seen to be transitive. The average price $\overline{p}_i$ for each individual good or service is defined as its total value in the block, expressed in some common currency, divided by its total quantity:

$$\overline{p}_i = \frac{\sum_{j=1}^{m} c^j p_i^j q_i^j}{\sum_{j=1}^{m} q_i^j} \text{ where } \sum_{j=1}^{m} q^j = \sum_{j=1}^{m} \frac{v_i^j}{p_i^j} \qquad (23)$$

and the summation is over the *m* different countries in the block. The term c^j in expression (23) is a currency converter which could be either a market exchange rate or a PPP used to convert each country's expenditure on item i, $v_i = p_i q_i$ into the common currency.

15.214 The most common block method is the Geary Khamis (GK) method in which the currency converters used in (23) are the PPPs implied by the volume indices defined by (20). In this method, the average prices and PPPs are interdependent being defined by an underlying set of simultaneous equations. In practice, they can be derived iteratively, initially using exchange rates as currency converters for average prices, for example. The resulting volume indices are then used to derive the implied set of PPPs, which are themselves used in turn to calculate a second set of average prices, volume indices and PPPs, etc.

15.215 The advantages of a block method such as the GK method include:

a. The block of countries is recognized as an entity in itself;

b. The use of a single vector of prices ensures transitivity and the volume measures are additively consistent and can be presented in value terms using the average prices of the block (it is possible to present the results for a group of countries in the form of a table with countries in the columns and the final expenditure components in the rows, in which the values add up in the columns as well as across the rows); and

c. It is possible to compare ratios, such as the shares of GDP devoted to gross fixed capital formation, because the same vector of prices is used for all countries.

15.216 However, comparisons between any two countries, based on the multilateral block results, may not be optimally defined. It was shown in the description on transitivity that best practice price and volume comparisons between countries A and B should make symmetric use of information on their prices and quantities. If A's relative prices are higher than average and B's are lower, the use of average prices decreases A's expenditures expressed in average international prices and increases those of B relative to a country whose prices are close to the international average. Such a disparity is often noted in the case of services between developed and developing countries. Consequently, when using the GK method, PPP-based expenditures are generally overstated for poor countries.

The binary approach

15.217 An alternative approach to the calculation of a set of multilateral volume measures and PPPs is to start from the binary comparisons between all possible *m*(*m-1*)/2 pairs of countries. If each binary comparison is considered in isolation, the preferred measure is likely to be a Fisher index.

15.218 Fisher indices are not transitive but it is possible to derive from them a set of *m-1* transitive indices that resemble the original Fisher indices as closely as possible, using the least squares criterion. Minimizing the deviations between the original Fisher indices and the desired transitive indices leads to the so-called EKS formula, proposed independently by Elteto, Koves and Szulc.

15.219 The EKS index between countries *i* and *k* is the geometric average of the direct index between *i* and *k* and every possible indirect index connecting countries *i* and *k*, in which the direct index is given twice the weight of each indirect index. Transitivity is achieved by involving every other country in the block in the EKS index for any given pair of countries.

15.220 The EKS index:

a. provides the best possible transitive measure for a single aggregate between a pair of countries, in much the same way as a chain Fisher index may provide the best possible measure of the movement of a single aggregate over time;

b. gives equal weights to the two countries being compared; and

c. is not affected by the relative sizes of the countries, a desirable attribute.

However, the consequences are similar to those for chain indices in a time series context. It is not possible to convert the EKS volume indices for an aggregate and its components into a set of additively consistent values. This is in contrast to the GK method.

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Ring comparisons

15.221 The outline of the above methods assumes that there is one set of comparisons comprising all the countries in a block. As the number of countries participating increases, it becomes difficult to administer them as a single group. Moreover, it is difficult to find items that are both nationally representative and globally comparable at the same time for countries far apart both geographically and in their level of development. There are thus advantages to a regionalized approach to the compilation of PPPs. Product specifications are prepared for each region and independent sets of PPPs prepared for countries on a region by region basis.

15.222 While this approach probably improves the quality of PPPs at the regional level, there is still the need to combine the regions to obtain a global comparison. Traditionally, a "bridge country" was chosen to provide the link between regions. The bridge country participated in the price surveys of more than one region. The ring approach extends this idea and identifies a subset of countries in each region to act as "ring countries". These countries comprise a synthetic "region" that intersects with all of the regions whose comparisons are to be linked together.

15.223 The method chosen depends on a number of factors including the purpose of the analysis, level of aggregation, sparseness of data, whether the aggregation is within regions, across ring countries, or for the whole data set and the importance attributed to additivity and symmetric treatment of countries.

3. Practical considerations for national accountants

PPPs and the national accounts

15.224 One of most important uses of PPPs is to calculate comparable estimates of GDP and its major components, expressed in a common currency where the effects of differences in price levels between countries are removed. The national accounts are integral to PPP estimates in two ways. In the first place, the national accounts provide the weights that are used to aggregate prices from a detailed level to broader aggregates, up to GDP itself. Secondly, the national accounts provide the values that are "deflated" by the PPPs to provide the volumes (also referred to as "real expenditures") expressed in a common currency that enable GDP and its expenditure components to be compared between countries.

15.225 The PPP exercise also produces comparative price level indices (PLI). A PLI is the ratio of the PPP for a country relative to the official exchange rate, both measured with respect to a reference currency. PLIs are generally expressed on a base of 100, with the base being either a single reference country or a regional average.

15.226 If a country has a PLI less than 100, then its price level is lower than the numeraire country (or region). Similarly, any pair of countries can be compared directly. If one has a PLI less than the other, then the country with the lower PLI would be considered "cheap" by the other country, regardless of whether its PLI is above or below 100.

15.227 In practice, PPPs do not change rapidly over time and so a large change in a country's PLI is usually due to a large change in exchange rates.

15.228 It is important that the volumes in the ICP not be confused with the time series volumes described earlier in this chapter because they are different measures, although there are some similarities in that they are both designed to measure values that have had the direct effects of price differences removed from them. In a time series of volumes, the effects of price changes from one period to another are removed to produce the volume measures from which rates of economic growth are calculated. In the case of an intercountry comparison, which is the basis for PPP-based volume measures, the effects of differences due to exchange rates and those due to different price levels within each country are removed from the national accounts values to provide a comparison between the volumes in the countries concerned.

15.229 The lowest level for which PPPs can be compared across all countries involved in a comparison is referred to as the "basic heading" and it is also the lowest level for which national accounts values are required as weights. In effect, the national accounts values provide the weights to aggregate the basic heading level data to broader national accounting aggregates, including GDP itself. The basic heading is also the level at which product specifications are determined, with a number of products representative of the expenditure within each basic heading being specified for pricing.

15.230 Expenditure-based estimates of GDP have been used in most PPP-based comparisons during the past half-century or so because the prices for final expenditures are more readily observable than those for outputs and inputs, which would be required for a comparison of the production-based estimates of GDP. Consistency in the national accounts is critical in producing comparable estimates across countries so the SNA has played an important part in PPP-based comparisons by providing the framework for obtaining consistent estimates of GDP and its major aggregates.

15.231 The ICP is the broadest-based project to produce PPPs; about 150 countries participated worldwide in the 2005 round of the ICP. The volume estimates produced from the 2005 ICP present a snapshot of the relationships between countries from all over the world, expressed in a common currency. The ICP is a very expensive and resource-consuming project and so it provides benchmarks at infrequent intervals. As a result, PPP benchmarks, such as the one from the 2005 ICP, have to be extrapolated using time series from the national accounts of the countries involved. It is interesting to compare the outcomes of an extrapolation with the benchmarks from two sets of PPPs compiled several years apart. In practice, the extrapolated series do not tie in exactly with the benchmarks and there are several reasons for the differences that arise. An important one is the issue of the consistency between the prices used in the time series national accounts and those used in calculating PPPs as explained in the section on

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representativity and comparability earlier. Further, the price and volume structure may change significantly over time in a way not picked up in the extrapolation techniques.

Why ICP growth rates differ from national growth rates

15.232 The method commonly used to extrapolate PPPs from their benchmark year to another year is to use the ratio of the national accounts deflators from each country compared with a numeraire country (generally the United States of America) to move each country's PPPs forward from the benchmark. The PPPs derived are then applied to the relevant national accounts component to obtain volumes expressed in a common currency for the year in question.

15.233 Theoretically, the best means of extrapolating PPPs from a benchmark year would be to use time series of prices at the individual product level from each country in the ICP to extrapolate the prices of the individual products included in the ICP benchmark. In practice, it is not possible to use this type of procedure in extrapolating PPP benchmarks because the detailed price data needed are not available in all the countries. Therefore, an approach based on extrapolating at a macro level (for GDP or for a handful of components of GDP) is generally adopted. Leaving aside the data problems involved in collecting consistent data from all the countries involved, a major conceptual question arises with this process because it can be demonstrated mathematically that it is impossible to maintain consistency across both time and space. In other words, extrapolating PPPs using time series of prices at a broad level such as GDP will not result in a match with the benchmark PPP-based estimates even if all the data are perfectly consistent.

15.234 One of the reasons for differences between GDP time series and PPP benchmark comparisons stems from the definition of a product. As explained in paragraphs 15.66 to 15.67, location is an essential product characteristic in the national accounts whereas the PPP comparisons use average prices of the whole country. Another problem is that the weighting patterns underlying the deflators in the time series national accounts will differ from those in the PPP benchmarks over time. In addition, as noted above, the products priced for the PPPs will differ from those underlying the time series because of the requirements in spatial price indices for representativity within each country and comparability between countries, while in time series the main requirement is for consistency over time. Generally, many more products will be priced for a country's price indices than it is possible to price for calculating PPPs. Finally and often most critically, the prices underlying the deflators in the national accounts are adjusted to remove changes in quality over time and the methods of making such quality adjustments can differ significantly between countries. In particular, the extent of using hedonic methods for adjusting products whose characteristics change rapidly varies significantly from country to country. Electronic products (such as computers) feature prominently in hedonic quality adjustment, although some countries also use hedonics to quality adjust products such as clothing and housing. Comparing price changes in a country that uses hedonics in quality adjusting the price indices underlying its national accounts deflators with those in one that does not do so will lead to potentially large inconsistencies between the benchmarks and the extrapolated series.

15.235 Possibly the single biggest factor that affects the difference between extrapolated GDP series and PPP benchmark results is due to exports and imports. GDP volume measures in the national accounts are unaffected by changes in terms of trade whereas they influence real GDP in spatial comparisons directly. For example, an increase in energy prices results in an increase in nominal GDP. In a spatial comparison, the outcome will be an increase in GDP volumes for energy exporting countries relative to other countries because the net trade PPPs are based on exchange rates, which do not respond to a change in the terms of trade to a significant extent in the short term. The result is that the increase in the terms of trade is treated as a volume effect in the PPP-based benchmark. On the other hand, in the national accounts of energy exporting countries, GDP volumes remain unchanged if the same amount of energy is exported and so the increase in the terms of trade is treated as a price effect, which is observed in the GDP deflator used as the price extrapolator.

Non-market services

15.236 Another area that leads to consistency problems between countries' PPP-based volumes is the group of so-called "comparison-resistant services". They are predominantly (although not exclusively) non-market services, with government services being a major part of the non-market services that have to be priced for PPP projects. The main problems in pricing non-market services relate to the quality of the services being produced and the productivity of the labour used in producing them. One of the conventions used in producing the estimates for the government sector in most countries' national accounts is that the value of output is measured as the sum of the labour and material inputs used in producing the service(s), which involves an assumption that an increase in costs translates into an equivalent increase in output. In addition, an assumption that is commonly made in the national accounts is that the productivity of the labour involved in producing such services does not change over time either. A similar assumption, that productivity is identical in all the countries in a comparison, generally has to be made between countries in calculating PPPs. It is a reasonable assumption when countries at roughly the same level of economic development are involved in the PPP comparison. However, when countries at very different levels of economic development are being compared then the validity of the assumption breaks down.

15.237 The choices faced by the compilers of PPPs are either to assume that productivity levels are identical across countries, even when they are at very different stages of economic development, or to adjust the non-market services estimates in some way to account for productivity differences. Apart from the problems involved in determining an appropriate conceptual approach to adjust for productivity differences between disparate economies, obtaining the data required to make such adjustments also proves problematical particularly when the method involves adjustments based on relative levels of capital intensity in the countries involved. Despite the problems, it

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is sometimes necessary to make productivity adjustments for non-market services because the problems involved in doing so are rather less than the consequences of assuming equal productivity in all the countries in a comparison.

Conclusion

15.238 PPP-based comparisons of activity levels between countries are an important use of national accounts. Despite the conceptual and empirical difficulties, PPP-based volumes provide a much firmer basis for international comparisons than the commonly used alternative of converting national accounts aggregates to a common currency using exchange rates.

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Chapter 16: Summarizing and integrating the accounts

A. Introduction

16.1 This chapter provides a synthesis of the sequence of accounts presented in chapters 6 to 13 and shows how they relate to the tables in chapter 2. It shows how the most common aggregates in the SNA, GDP, NDP and GNI are related to the balancing items in the various accounts. It shows the impact on national aggregates of transactions undertaken between a resident unit and one resident in the rest of the world. It describes the articulation of the accumulation accounts.

16.2 The chapter lays the groundwork for greater elaboration of the accounts, in both manners of presentation and further analysis that form the subject matter of later chapters.

B. Integrating the accounts

16.3 The tables presented in the previous chapters use a format very common in published tables; the items representing resources are shown in the right-hand side of the table and the items representing uses in the left-hand side of the table. This format is flexible because it allows a multiple number of columns to be shown for both parts of the table and even for the two parts to be shown on different pages if the columns are sufficiently numerous. However, there is another format for the tables that is particularly useful for explanatory purposes, the T account.

16.4 In a T account, only one set of descriptive headings (stubs) is shown in the middle of the table with values representing resources in columns to the right and values representing uses in columns to the left. An example of a T account is given in table 16.1. The rows in the table show the rows from tables 6.1, 7.1, 7.2, 8.1 and 9.1 at a high level of aggregation. Data for the individual sector accounts are not shown but the total for the economy as well as for the rest of the world and the total of both these are shown. In addition, the column for the goods and services account is retained.

1. Summarizing the current accounts

16.5 The current accounts included in table 16.1 consist of the production account and accounts showing the primary distribution of income, the secondary distribution of income and the use of income. In addition to these accounts, table 16.1 begins with imports and exports of goods and services, the entries from the rest of the world account that show the value of goods and services that reach the national economy from the rest of the world and those that are produced in the national economy but are provided to the rest of the world.

The production account

16.6 The immediately following rows show the main entries from the production account, output and taxes less subsidies on the resource side and intermediate consumption on the use side. The balancing item for the production account, value added, appears next, also on the use side as the closing item of the production account. Value added is the basic building block for determining GDP.

The generation of income account

16.7 The next few rows correspond to the generation of income account. This is the first part of the primary distribution of income account. Value added, the balancing item from the production account, appears as the only entry on the resources side of the account. The entries on the left-hand side of the account under uses show how much of value added is generated by labour in the form of compensation of employees and how much of the value of output is payable to government in the form of taxes on products less subsidies on products not already included in the value of output. The balancing items, operating surplus and mixed income, represent the contribution of capital to the generation of value added.

The allocation of primary income account

16.8 In the allocation of primary income account, these contributions to value added appear as resources of the relevant sectors; compensation of employees to households, taxes less subsidies to government and operating surplus and mixed income to the sectors containing the relevant production units. In addition, however, the allocation of primary income account shows

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Table 16.1:Summary of the current accounts in the sequence of accounts

Uses				Transactions and balancing items	Resources			
Total economy	Rest of the world	Goods and services	Total		Total economy	Rest of the world	Goods and services	Total
		499	499	Imports of goods and services		499		499
		392	392	Imports of goods		392		392
		107	107	Imports of services		107		107
	540		540	Exports of goods and services			540	540
	462		462	Exports of goods			462	462
	78		78	Exports of services			78	78
				Production account				
		3 604	3 604	Output	3 604			3 604
		3 077	3 077	Market output	3 077			3 077
		147	147	Output for own final use	147			147
		380	380	Non-market output	380			380
1 883			1 883	Intermediate consumption			1 883	1 883
		141	141	Taxes on products	141			141
		- 8	- 8	Subsidies on products (-)	- 8			- 8
1 854			1 854	Value added, gross / Gross domestic product				
222			222	Consumption of fixed capital				
1 632			1 632	*Value added, net / Net domestic product*				
	- 41		- 41	*External balance of goods and services*				
				Generation of income account				
				Value added, gross / Gross domestic product	1 854			1 854
				Value added, net / Net domestic product	1 632			1 632
1 150			1 150	Compensation of employees				
235			235	Taxes on production and imports				
141			141	Taxes on products				
94			94	Other taxes on production				
- 44			- 44	Subsidies				
- 8			- 8	Subsidies on products				
- 36			- 36	Other subsidies on production				
452			452	Operating surplus, gross				
61			61	Mixed income, gross				
214				Consumption of fixed capital on gross operating surplus				
8				Consumption of fixed capital on gross mixed income				
238			238	*Operating surplus, net*				
53			53	*Mixed income, net*				
				Allocation of primary income account				
				Operating surplus, gross	452			452
				Mixed income, gross	61			61
				Operating surplus, net	238			238
				Mixed income, net	53			53
	6		6	Compensation of employees	1 154	2		1 156
			0	Taxes on production and imports	235			235
			0	Subsidies	- 44			- 44
391	44		435	Property income	397	38		435
1 864			1 864	Balance of primary incomes, gross / National income, gross				
1 642			1 642	Balance of primary income, net / National income, net				
				Secondary distribution of income account				
				Balance of primary incomes, gross / National income, gross	1 864			1 864
				Balance of primary income, net / National income, net	1 642			1 642
1 212	17		1 229	Current transfers	1 174	55		1 229
212	1		213	Current taxes on income, wealth, etc.	213	0		213
333	0		333	Net social contributions	333	0		333
384	0		384	Social benefits other than social transfers in kind	384	0		384
283	16		299	Other current transfers	244	55		299
1 826			1 826	Disposable income, gross				
1 604			1 604	*Disposable income, net*				
				Use of disposable income account				
				Disposable income, gross	1 826			1 826
				Disposable income, net	1 604			1 604
1 399			1 399	Final consumption expenditure			1 399	1 399
11	0		11	Adjustment for the change in pension entitlements	11	0		11
427			427	Saving, gross				
205			205	*Saving, net*				
	- 13		- 13	*Current external balance*				

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Table 16.2:Summary of the accumulation accounts and balance sheets

Changes in assets					Changes in liabilities and net worth			
Total economy	Rest of the world	Goods and services	Total	Transactions and balancing items	Total economy	Rest of the world	Goods and services	Total
				Capital account				
				Saving, net	205			205
				Current external balance		- 13		- 13
414			414	Gross capital formation			414	414
192			192	Net capital formation			192	192
376			376	Gross fixed capital formation			376	376
- 222			- 222	Consumption of fixed capital			- 222	- 222
				Gross fixed capital formation by type of asset				
28			28	Changes in inventories			28	28
10			10	Acquisitions less disposals of valuables			10	10
0			0	Acquisitions less disposals of non-produced assets			0	0
				Capital transfers, receivable	62	4		66
				Capital transfers, payable	- 65	- 1		- 66
				Changes in net worth due to saving and capital transfers	202	- 10		192
10	- 10		0	*Net lending (+) / net borrowing (–)*				
				Financial account				
				Net lending (+) / net borrowing (–)	10	- 10		0
436	47		483	Net acquisition of liabilities	426	57		483
- 1	1		0	Monetary gold and SDRs				
89	11		100	Currency and deposits	102	- 2		100
86	9		95	Debt securities	74	21		95
78	4		82	Loans	47	35		82
107	12		119	Equity and investment fund shares	105	14		119
48	0		48	Insurance, pension and standardized guarantee schemes	48	0		48
14	0		14	Financial derivatives and employee stock options	11	3		14
15	10		25	Other accounts receivable/payable	39	- 14		25
				Other changes in the volume of assets account				
13			13	Total other changes in volume	3			3
- 7			- 7	Produced non-financial assets				
17			17	Non-produced non-financial assets				
3			3	Financial assets	3			3
				Changes in net worth due to other changes in volume of assets	10			
				Revaluation account				
				Nominal holding gains and losses				
280			280	Non-financial assets				
84	7		91	Financial assets/liabilities	76	15		91
				Changes in net worth due to nominal holding gains/losses	288	- 8		280
				Neutral holding gains and losses				
198			198	Non-financial assets				
136	12		148	Financial assets/liabilities	126	22		148
				Changes in net worth due to neutral holding gains/losses	208	- 10		214
				Real holding gains and losses				
82			82	Non-financial assets				
- 52	- 5		- 57	Financial assets/liabilities	- 50	- 7		- 57
				Changes in net worth due to real holding gains/losses	80	2		66
				Stocks and changes in assets				
				Opening balance sheet				
4 621			4 621	Non-financial assets				
8 231	805		9 036	Financial assets/liabilities	7 762	1 274		9 036
				Net worth	5 090	- 469		4 621
				Total changes in assets and liabilities				
482			482	Non-financial assets				
523	54		577	Financial assets/liabilities	505	72		577
				Changes in net worth, total	500	- 18		482
				Saving and capital transfers	202	- 10		192
				Other changes in volume of assets	10			10
				Nominal holding gains/losses	288	- 8		280
				Neutral holding gains/losses	208	- 10		198
				Real holding gains/losses	80	2		82
				Closing balance sheet				
5 103			5 103	Non-financial assets				
8 754	859		9 613	Financial assets/liabilities	8 267	1 346		9 613
				Net worth	5 590	- 487		5 103

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how much of each of these three items is payable to non-resident units and where comparable items generated in non-resident units are payable to resident sectors.

16.9 In the course of production, producers may have made use of financial and non-produced assets belonging to other units. The payments for the use of these assets are shown as property income. Property income may be payable by residents or non-residents and may be receivable by residents or non-residents. Once the values for three of them are known, the value of the last is necessarily determined. For example, property income receivable by residents must be equal to property income payable by both residents and non-residents less property income receivable by non-residents. Thus property income receivable by both residents and non-residents (shown under resources) must be equal to property income payable by both residents and non-residents (shown under uses).

16.10 Value added as a resource plus the resource entries of compensation of employees, operating surplus, mixed income and property income, less the corresponding entries for these items as uses leads to the balance of primary incomes. This is the balancing item for the allocation of primary income account shown as a use, and the first item, a resource, of the secondary distribution of income account.

16.11 From the balance of primary incomes, another key aggregate of the SNA, national income, is derived. Value added is determined by the criterion of residence; all resident units and only resident units contribute to the total. For the balance of primary income, however, the focus changes not just from production to income but to the residence of the units receiving the income generated by production rather than the residence of the producing units themselves. Further discussion of national income appears below in connection with the discussion of the rest of the world account.

The secondary distribution of income account

16.12 The secondary distribution of income account shows how primary income is transformed to disposable income by the payment and receipt of current transfers. Various factors stimulate redistribution of income between sectors of the economy. One of these is the role of government in levying current taxes on income and wealth; one is the role played by social insurance schemes in redistributing contributions by current workers to retirees; another is the role of insurance in providing a mechanism whereby small regular payments by many units are channelled to a few units suffering predefined sorts of losses. Among other types of current transfers, the role of purely voluntary transfers is of increasing interest. Such transfers may provide the main source of finance for NPISHs, in the form of international cooperation between governments, or may be between resident and non-resident households in the form of workers' remittances.

16.13 Current transfers payable by resident and non-resident units must be equal to current transfers receivable by both resident and non-resident units, and thus total uses and resources are equal as is the case for property income.

16.14 Disposable income is an important balancing item in the accounts since it shows how much can be consumed without the need to run down assets or incur liabilities. It thus corresponds to the economic theoretical concept of income.

The use of income accounts

16.15 The use of disposable income account shows how much disposable income is in fact used for consumption and how much is saved. When looking at the sector accounts, the adjustment for the change in pension entitlements has to be made to ensure that these form part of the saving of households and not of pension funds. However, in the aggregate only flows relating to pension entitlements involving non-resident employees or resident employees of non-resident enterprises appear.

16.16 Table 16.1 does not include the redistribution of income in kind account and the use of adjusted disposable income account but these could be inserted either in place of, or as a complement to, the use of disposable income account.

2. Summarizing the accumulation accounts

16.17 Table 16.2 presents a summary of the accumulation accounts and balance sheets with the same degree of detail as used for the current accounts in table 16.1. In this case, the titles given to the right- and left-hand columns are changed; the columns to the right are described as changes in liabilities and net worth, and those to the left show changes in assets.

The capital account

16.18 The first items appearing on the right-hand side of the capital account are saving and the current external balance. Also appearing as resources are capital transfers receivable. By convention, capital transfers payable also appear under resources but with a negative sign. For the economy as a whole, including transactions with the rest of the world, capital transfers receivable and payable exactly offset one another in the same way that property income and current transfers do. However, this equality is not generally true for the total economy excluding the rest of the world nor for individual sectors within it.

16.19 Together, saving plus capital transfers (net) show how much is available within the economy to acquire non-financial capital, primarily capital formation but also non-produced non-financial assets. This total is shown as a special aggregate called changes in net worth due to saving and capital transfers. It is not a balancing item but has the same characteristic of being an analytical construct of particular interest.

16.20 The uses shown in the capital account are the acquisition of produced and non-produced non-financial assets. The balancing item of the capital account is net borrowing or lending. When there is net lending, it shows the extent to which the sum of saving and capital transfers is actually used to finance the acquisition of non-financial assets and how much is lent to the rest of the world. When there is net borrowing, saving plus capital transfers are insufficient to

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finance all the acquisition of non-financial assets and borrowing from the rest of the world is necessary.

The financial account

16.21 The financial account shows exactly how net lending or borrowing takes place by showing all the transactions in financial instruments. Transactions in financial assets shown as changes in assets exactly balance the amounts shown as changes in liabilities and net worth because when all transactions of resident units with either other resident units or non-resident units are taken into account, there can be no net lending or borrowing left unexplained.

16.22 Because the financial account does not introduce any new balancing items and only explains how net lending or net borrowing is effected, and because it requires quite different data sources and understanding of the data sources, this account is not always compiled by national accountants. However, without the financial account, the compiler cannot be certain that the estimates for the other accounts are fully consistent and complete. Just as the national accountant must have an understanding of the balance of payments system and ensure that the transactions relating to the rest of the world are fully captured in the accounts, so there is a need to appreciate the implications of systems of monetary and financial statistics. Two later chapters, chapters 26 and 27, discuss the relationships with these other statistical systems in more detail.

3. The goods and services account

16.23 Throughout the sequence of accounts, each transaction line is balanced. For the distributive and redistributive transactions, this is automatically the case if the data are fully reconciled since whatever is shown as payable by one unit must be shown as receivable by another. However this is not obviously the case for the transactions relating to goods and services. In order to preserve the balancing nature of the accounts, a column headed “goods and services” is included on each side of the accounts. In every case where there is a transaction relating to goods and services, an entry in the goods and services column on the other side of the account is made.

16.24 Ultimately the entries on the left-hand side of the account show the value of all goods and services supplied to the economy, either as production or imports, plus the taxes on products less subsidies paid on them. On the right-hand side of the account, the use of the goods and services is shown, as intermediate or final consumption, capital formation or exports.

16.25 Clearly, ex post the total amount of goods and services supplied to the economy must be equal to the total use made of those goods and services. Setting the entries in the left-hand goods and services column equal to those in the right-hand side column gives the familiar goods and services account, described in chapter 14:

Output + imports + taxes less subsidies on products
= intermediate consumption + final consumption + exports + capital formation

16.26 The equation reflects the notion that goods and services produced in the current period are used either to generate more goods and services in the current period (intermediate consumption) or to generate more goods and services in future periods (capital formation) or to satisfy human wants immediately (final consumption). However, because no economy is entirely closed, it is necessary to allow for those goods and services supplied from outside the economy (imports) and those goods and services used by other economies (exports).

16.27 This identity comprises the goods and services account. ***The goods and services account shows the balance between the total goods and services supplied as resources to the economy as output and imports (including the value of taxes less subsidies on products not already included in the valuation of output) and the use of the same goods and services as intermediate consumption, final consumption, capital formation and exports.***

4. The accounts for the rest of the world

16.28 The entries in the integrated accounts for the rest of the world correspond to the entries in the balance of payments as laid out in *BPM6*. Table 16.3 shows the entries for the rest of the world in the structure of the balance of payments accounts.

16.29 There are three current accounts; one for goods and services, one for primary income and one for secondary income. Each of these has a balancing item but, unlike the accounts in the SNA, the balancing items do not carry down from one account to the next. However, other balancing items that do match those in the SNA are allowed for. Thus the external balance of goods, services and primary income is the sum of the [external] balance of goods and services and the [external] balance of primary incomes and corresponds to the balance of primary income for the total economy. When this item is added to the external balance of secondary income, the current external balance is derived which corresponds to saving for the total economy.

16.30 In the capital account of the rest of the world, the only entries are for capital transfers receivable from and payable to the rest of the world and acquisition less disposals of non-produced non-financial assets involving non-resident units. These give the capital external balance. When this is added to the current external balance, the result is net lending to or borrowing from the rest of the world.

5. Integration of stock and flow data

Linking the opening and closing balance sheets

16.31 The balance sheets are an integral part of the SNA. An understanding of the articulation of the balance sheets with the flows relating to assets in the capital, financial and other changes in assets accounts is fundamental to understanding the role capital accumulation plays in the SNA.

16.32 The basic accounting identity linking the opening and the closing balance sheet values for a single type of asset can be summarized as follows:

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The value of the stock of a specific type of asset in the opening balance sheet valued at the prices prevailing at the date the balance sheet refers to;

plus the total value of the assets acquired, less the total value of those disposed of (including consumption of fixed capital where appropriate), in transactions that take place within the accounting period;

plus the value of other positive or negative changes in the volume of the assets held (for example, as a result of the discovery of a subsoil resource or the destruction of assets as a result of war or a natural disaster);

plus the value of the positive or negative nominal holding gains accruing during the period resulting from a change in the price of the asset;

equals the value of the stock of the asset in the closing balance sheet valued at the prices prevailing at the date the balance sheet refers to.

16.33 The value of the non-financial assets acquired, less the total value of those disposed of, in transactions that take place within the accounting period is recorded in the capital account and the value of transactions in financial assets and liabilities in the financial account. The value of other positive or negative changes in the volume of the assets held is recorded in the other changes in the volume of assets account. The value of the positive or negative nominal holding gains accruing during the period resulting from a change in the price of the asset is recorded in the revaluation account. This means that the value of each entry in the closing balance sheet can, in principle, be constructed by taking the value in the opening balance sheet and adding to it the entries relating to the same asset in each of the four accumulation accounts.

16.34 A nominal holding gain may be decomposed into a neutral holding gain and a real holding gain. The nominal holding gain indicates by how much the value of an asset has increased over the period. The neutral holding gain indicates the increase that would have been necessary for the asset to exactly maintain its purchasing power over the period. If the nominal holding gain is larger than the neutral holding gain, the owner of the asset has a real holding gain (equal to the difference between the nominal and neutral holding gains). If the nominal holding gain is less than the neutral holding gain, then the owner suffers a real holding loss.

16.35 The identity linking the opening and closing balance sheets and the accumulation account is valid even in the case of assets that are held only temporarily within the accounting period and that do not appear in either the opening or the closing balance sheets. For example, an asset may be acquired in a period, increase in price due to a holding gain and then suffer some destruction before being sold again before the end of the period.

16.36 The nominal holding gains and losses shown in the revaluation account include both realized and unrealized holding gains and losses but the realized holding gains and losses are incorporated in the value of transactions of the assets, leaving only the unrealized holding gains and losses in the closing balance sheet.

Table 16.3:Entries for the rest of the world using the *BPM6* structure of accounts

Uses		Resources
Rest of the world	Transactions and balancing items	Rest of the world
	Goods and services account	
	Imports of goods and services	499
540	Exports of goods and services	
- 41	*External balance of goods and services*	
	Primary income account	
6	Compensation of employees	2
	Taxes on production and imports	
	Subsidies	
44	Property income	38
- 10	*External balance of primary income*	
- 51	*External balance of goods, services and primary income*	
	Secondary income account	
17	Current transfers	55
38	*External balance of secondary income*	
	Adjustment for the changes in pension entitlements	
- 13	*Current external balance*	
	Capital account	
	Acquisitions less disposals of non-produced assets	
	Capital transfers, receivable	4
	Capital transfers, payable	- 1
3	*External capital account balance*	
- 10	*Net lending (+) / net borrowing (–)*	

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16.37 The link between the balance sheet and flow accounts in respect of financial assets and liabilities is often recognized and presented. Less attention has been focused on the links for non-financial assets though, as chapter 20 on capital services makes clear, it is no less important, especially as regards an understanding of productivity growth in the economy.

Net worth

16.38 The balancing item on a balance sheet is equal to the sum of all the assets less all the liabilities and is called net worth. The change in net worth between the opening and closing balance sheet can be shown to be composed of three items.

a. The first of these is the change in net worth due to saving and capital transfers. This comes from the capital account and is the item shown as the total of resources on that account.

b. The second item is the change in net worth due to other changes in the volume of assets and is the sum of all the entries for assets in the other changes in the volume of assets account less all the entries for liabilities.

c. The third item is the change in net worth due to nominal holding gains and losses. This is the sum of the entries for nominal holding gains and losses for all assets recorded in the revaluation account less the entries for nominal holding gains and losses on all liabilities. This can be broken down into the change in net worth due to neutral holding gains and losses and the change in net worth due to real holding gains and losses in an obvious manner.

Asset accounts

16.39 The identity linking opening and closing balance sheets holds for assets in total, for every separate class of asset and indeed for every individual asset. An asset account describes the changes in the stock of an asset or class of assets from one balance sheet to the next, itemizing which changes are due to capital transactions, which to financial transactions and which to other changes in volume and revaluation. Asset accounts are described in chapter 13.

6. Consolidating the accounts

16.40 Although it is not usual to present the accounts in a fully consolidated form, it is useful from a pedagogical point of view to consider what results from a full consolidation of the accounts.

Consolidating the current accounts

16.41 All the items in table 16.1 relating to the distribution and redistribution of income appear on both sides of the account. Their inclusion permits the derivation of significant balancing items but it is also possible to consider what entries are left if they are eliminated by consolidation. In fact what remains are the entries in the goods and services columns plus the entries for saving and the current external balance. This result can be seen from the following:

a. Resources

· Imports 499;

· Output 3 604;

· Taxes on products 141;

· Subsidies on products -8;

· Total 4 236;

b. Uses

· Exports 540;

· Intermediate consumption 1 883;

· Final consumption 1 399

· Saving 427;

· Current external balance -13;

· Total 4 236.

16.42 The current external balance (-13) is equal to the external balance of goods and services (-41) plus the flows of income coming from the rest of the world (28). If imports, exports and the external balance of goods and services are removed from the consolidation just described, the following result can be derived:

Output 3 604

plus taxes on products 141

minus subsidies on products 8

minus intermediate consumption 1 883

(result 1 854)

equals

final consumption 1 399

plus saving 427

plus income from the rest of the world 28.

16.43 The first part of this identity is the definition of income generated in the economy. If the income from the rest of the world is regarded as an analogue to saving generated within the domestic economy, this identity can be seen as the simple economic concept that income is equal to consumption plus saving.

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Consolidating the accumulation accounts

16.44 When the capital and financial accounts are consolidated, all the entries in the financial account are eliminated and the entries for net lending or borrowing that appear in each account cancel. All that is left is:

capital formation (414)

plus the acquisition less disposals of non-produced assets (0)

equals

saving (427)

plus the current external balance (-13).

Consolidating the rest of the world account

16.45 Looking only at the capital and financial account of the rest of the world:

the current external balance (-13)

plus capital transfers receivable (4)

minus capital transfers payable (1)

equals net lending or borrowing (-10).

16.46 Combining this identity with the previous one reduces to:

Capital formation (414)

plus the acquisition less disposals of non-produced assets (0)

equals

saving (427)

plus net lending or borrowing to the rest of the world (-10)

minus capital transfers payable to the rest of the world (4).

plus capital transfers receivable from the rest of the world (1).

In other words investment is equal to saving generated from within the total economy or drawn in from the rest of the world.

C. The macroeconomic aggregates in the SNA

1. The GDP identities

16.47 Rearranging the order of items appearing in the goods and services account leads to the most familiar definitions of GDP:

Output (3 604)

minus intermediate consumption (1 883)

plus taxes less subsidies on products (141 - 8)

equals

final consumption (1 399)

plus capital formation (414)

plus exports (540)

minus imports (499)

equals GDP (1 854).

There are thus two separate ways in which GDP can be defined:

a. ***the production measure of gross domestic product (GDP) is derived as the value of output less intermediate consumption plus any taxes less subsidies on products not already included in the value of output,***

b. the expenditure measure of gross domestic product (GDP) is derived as the sum of expenditure on final consumption plus gross capital formation plus exports less imports.

16.48 The production measure of GDP can also be expressed as value added adjusted to ensure all taxes less subsidies on products are included. As described in chapter 7, value added can be viewed as the elements comprising income: compensation of employees, operating surplus, mixed income and other taxes less subsidies on production. If separate estimates are available of these components, then a third way of compiling GDP is possible, that is, from the income side. Because other taxes less subsidies on production are included in value added and taxes less subsidies on products are to be included also, the two tax items can be replaced by the term that is the sum of them both, taxes less subsidies on production and imports.

GDP (1 854)

equals

compensation of employees (1 150)

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plus gross operating surplus (452)

plus gross mixed income (61)

plus taxes less subsidies on production and imports (191).

The third way in which GDP can be defined is thus

c. the income measure of gross domestic product (GDP) is derived as compensation of employees plus gross operating surplus plus gross mixed incomes plus taxes less subsidies on both production and imports.

2. A note on the valuation of output

16.49 In chapter 6, it is explained that the preferred measurement of output in the system is basic prices. At basic prices, the value of output excludes all taxes on products and includes all subsidies on products. It includes all other taxes on production and excludes all other subsidies on production. However, the data sources in some countries may not permit this valuation to be followed. In this case, output will be valued at producers' prices. All taxes on both products and production (possibly excluding any VAT type taxes) will be included in the value of output and all subsidies on both products and production will be excluded.

16.50 For this reason, the definition of GDP from the production side given above includes the phrase "plus any taxes less subsidies on products not already included in the value of output". When output is valued at producers' prices, there will be no further taxes on products to add in (except possibly VAT type taxes); they will be already included in the measure of output (and similarly subsidies on products will already be deducted). In this case, GDP may be defined as ***the production measure of gross domestic product (GDP) is derived as the value of output at producers' prices less intermediate consumption.*** When output is measured at basic prices (as preferred in the SNA and as followed in the numerical example) the definition can be rephrased as ***the production measure of gross domestic product (GDP) is derived as the value of output at basic prices less intermediate consumption plus taxes less subsidies on products.***

3. Gross and net domestic product

16.51 While the third definition of GDP is correct both economically and statistically, it is held not to be the best measure of income. Income is usually defined as the amount that can be consumed while keeping the level of capital intact. (For further discussion on this see the introduction to chapter 8.) It is for this reason that the item consumption of fixed capital is so important in the accounts and appears in every account as the difference between balancing items on a gross and net basis. To measure domestic production on a net basis, it is necessary:

a. to deduct consumption of fixed capital from the production measure of GDP,

b. to replace gross capital formation by net capital formation in the expenditure measure of GDP,

c. to replace gross operating surplus by net operating surplus and gross mixed income by net mixed income in the income measure of GDP.

16.52 Each deduction from GDP is equivalent because the difference between gross and net capital formation is the consumption of fixed capital as is the difference between the sum of operating surplus and mixed income on a gross basis as opposed to a net basis. Thus, ***net domestic product (NDP) is defined as gross domestic product (GDP) less the consumption of fixed capital.***

NDP (1 632)

equals

GDP (1 854)

minus consumption of fixed capital (222).

4. Gross and net national income

16.53 In some countries, border or seasonal workers may have a significant effect on the amount of compensation of employees that is either payable abroad or receivable from abroad. Compensation earned abroad but repatriated to the country where the employee is resident (as opposed to where he or she works) adds to the income of households available for consumption. The concept of national income as opposed to domestic production is thus another key aggregate of the SNA. As well as labour income from abroad in the form of compensation of employees, income earned abroad on capital, especially financial capital, in the form of property income, is included in national income as well as any taxes on products payable by non-residents. Similar payments flowing out of the total economy to the rest of the world have to be deducted from GDP to reach national income.

16.54 ***Gross national income (GNI) is defined as GDP plus compensation of employees receivable from abroad plus property income receivable from abroad plus taxes less subsidies on production receivable from abroad less compensation of employees payable abroad less property income payable abroad and less taxes plus subsidies on production payable abroad.*** In the terms of an equation,

GNI (1 864)

equals

GDP (1 854)

plus compensation of employees receivable from abroad (6)

plus property income receivable from abroad (44)

plus taxes less subsidies on production and imports receivable from abroad (0)

minus compensation of employees payable abroad (2)

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minus property income payable abroad (38)

minus taxes less subsidies on production and imports payable abroad (0).

16.55 As mentioned above, an income concept is better measured after deducting consumption of fixed capital so ***Net national income (NNI) is defined as GNI less the consumption of fixed capital***.

NNI (1 642)

equals

GNI (1 864)

minus consumption of fixed capital (222).

5. National disposable income

16.56 A further step in examining the impact of the rest of the world on the national economy is to consider current transfers receivable from abroad and those payable abroad. Transfers receivable from abroad include remittances from nationals working abroad for long enough (more than one year) to be treated as resident elsewhere. However, like compensation of employees payable from abroad, these transfers from non-residents can have a major impact on the resources available to the national economy. Overseas assistance, other than development assistance for capital projects, is also shown here. As before, transfers payable abroad must be deducted in moving from national income to national disposable income.

16.57 National disposable income, more often than domestic product and national income, is usually shown on a net basis. ***Net national disposable income (NNDI) is defined as net national income (NNI) plus current transfers receivable from abroad less current transfers payable abroad.*** In equation terms,

NNDI (1 604)

equals

NNI (1 642)

plus current transfers receivable from abroad (17)

minus current transfers payable abroad (55).

D. An example set of integrated economic accounts

16.58 The T accounts shown in table 16.1 and 16.2 can be extended to cover all the sectors of the economy and as much detail as required in the accounts. Such an extended presentation is referred to as a set of integrated economic accounts. An example is tables 16.4 and 16.5 which show, simultaneously, the general accounting structure of the SNA and present a set of data for the individual institutional sectors, the economy as a whole and the rest of the world.

16.59 The table brings together in one presentation:

the institutional sector accounts,

the rest of the world accounts, and

the goods and services account.

16.60 In order to simplify this table while still having it comprehensive, classifications of sectors, transactions and other flows, assets and liabilities are at the highest level of aggregation compatible with understanding the structure of the SNA. However, columns and rows can be subdivided to introduce subsectors or more detailed classifications of transactions and other flows, assets and liabilities.

1. Institutional sector accounts

Current accounts

16.61 As an example of the institutional sectors current accounts, consider the column for non-financial corporations.

16.62 The *production account* shows output (2 808) on the right-hand side, intermediate consumption (1 477) and value added (1 331 gross, 1 174 net, the difference referring to consumption of fixed capital (157), on the left-hand side). Value added, the balancing item of the production account, appears again in the same row as a resource of the *generation of income account.*

16.63 The uses of the *generation of income account* (compensation of employees (986) and other taxes (88) less subsidies on production (35)) are shown on the left-hand side, the balancing item being net operating surplus (135), which appears again as a resource of the *allocation of primary income account*.

16.64 In the *allocation of primary income account*, property income receivable (96), along with operating surplus is recorded on the right-hand side, and property income payable (134) is recorded on the left-hand side. The balancing item is the net balance of primary incomes (97), which appears again as a resource of the *secondary distribution of income account.* The *secondary distribution of income account* shows current transfers, payable (98) and receivable (72), leading to the balancing item of net

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disposable income (71). This item, which can also be described as the undistributed income of non-financial corporations, appears as a resource in the *use of income account.*

16.65 The only transaction appearing in the *use of income account* for the corporations sectors is an entry for the change in pension entitlements. In this case the entry has a value of zero so the balancing item of the use of income account, saving, has the same value as disposable income.

16.66 The accounts for other institutional sectors may be read the same way, the relevant transactions varying according to the sector involved.

The use of income account

16.67 The presentation of the two ways in which disposable income is associated with final consumption, one taking account of the redistribution of income in kind leading to actual consumption and the other showing final consumption expenditure to disposable income directly, is simplified in table 16.4. The redistribution of income in kind account and the use of adjusted disposable income account are merged with the use of income account as follows. Disposable income, net, is 317 for general government, 37 for NPISHs and 1 219 for households. Final consumption expenditure is 352 for government, 32 for NPISHs and 1 015 for households. Total consumption expenditure is 1 399. Saving is given by disposable income less final consumption expenditure.

The accumulation accounts

16.68 The accumulation accounts follow the sequence of current accounts for the institutional sectors. For example, net saving of households is 192. Households receive 23 and pay 5 as capital transfers. Thus the value of the changes in their net worth due to saving and capital transfers is 210. Households have 48 as gross fixed capital formation (25 as net fixed capital formation after deduction of consumption of fixed capital (23)), changes in inventories of 2 and acquisitions less disposals of valuables of 5. Their acquisitions less disposals of non-produced non-financial assets (land) are 4. The net lending of households is 174. They incur financial liabilities (net) of 15 and acquire financial assets (net) of 189. Other changes in volume of assets are 2. The value of the assets held by households increases by 96 due to changes in the prices of both non-financial assets (80) and financial assets (16); there are no nominal gains or losses on their liabilities, which means that all their liabilities are denominated in monetary terms and probably in the national currency of the economy in question.

The balance sheets

16.69 The balance sheets are also part of the integrated economic accounts. In order to see the relationships between the accumulation accounts and balance sheets, take general government as the example. The opening assets are 1 185 (789 non-financial assets and 396 financial assets) and the opening liabilities 687, net worth thus being 498. The total value of non-financial assets increases by 57, which results from all changes in these assets recorded in the accumulation accounts, gross fixed capital formation (35), consumption of fixed capital (-27), acquisitions less disposals of valuables (3), acquisitions less disposals of non-produced non-financial assets (2), other volume changes (0) and nominal holding gains (44). Financial assets decrease by 9 (net disposal of financial assets, 10, other volume changes, 0, nominal holding gains, 1). On the right-hand side, liabilities increase by 102, which results again from all changes in liabilities recorded in the accumulation accounts (net incurrence of liabilities (93), other volume changes (2), revaluation of liabilities (7)). So the closing assets are 1 233 (846 + 387) and the closing liabilities are 789; closing net worth (444) shows a decrease over the year of 54. The sources of this change in net worth are summarized on the right-hand side of the account showing the change in balance sheets, changes in net worth due to saving and capital transfers (-90, see also the right-hand side of the capital account), to other changes in volume of assets (-2, see also the right-hand side of the other changes in volume of assets account), and to nominal holding gains or losses (38, see also the right-hand side of the revaluation account).

2. The rest of the world account

16.70 As explained earlier, the rest of the world accounts are presented from the viewpoint of the rest of the world. Imports of goods and services (499) are a resource for the rest of the world, even though they represent an outflow from the national economy and exports (540) are a use of the rest of the world. Thus imports appear on the right-hand side of the table and exports on the left. The external account of goods and services is shown at the same level as the production account for institutional sectors. The external balance of goods and services is -41. With a positive sign, it is a surplus of the rest of the world (a deficit of the nation) and vice versa.

16.71 As explained in connection with table 16.3, the external balance on primary income is -10 and on secondary income is 38, giving a current external balance of -13.

16.72 Transactions of the accumulation accounts appear in the columns for the rest of the world when relevant (mainly capital transfers and financial transactions). The rest of the world columns show the assets and liabilities position of the rest of the world vis-à-vis the nation (external assets and liabilities account). The row “changes in net worth due to saving and capital transfers” corresponds, for the rest of the world, to the current external balance and capital transfers.

3. The goods and services account

16.73 In the integrated economic accounts, the goods and services account is shown in a column, not in a row. It reflects the various transactions in goods and services that appear in the accounts of the institutional sectors. Intermediate consumption and final consumption appear as uses in the institutional accounts on the left-hand side of the accounts. For the goods and services account, they appear in the right-hand side column, even though the right-hand side is generally reserved for resources and consumption is a use. This device of using the opposite side of the account from

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Table 16.4:Summary current account with sector details – uses

Uses

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Imports of goods and services								499	499
Imports of goods								392	392
Imports of services								107	107
Exports of goods and services							540		540
Exports of goods							462		462
Exports of services							78		78
Production account									
Output								3 604	3 604
Market output								3 077	3 077
Output for own final use								147	147
Non-market output								380	380
Intermediate consumption	1 477	52	222	115	17	1 883			1 883
Taxes on products								141	141
Subsidies on products (-)								- 8	- 8
Value added, gross / Gross domestic product	1 331	94	126	155	15	1 854			1 854
Consumption of fixed capital	157	12	27	23	3	222			222
Value added, net / Net domestic product	1 174	82	99	132	12	1 632			1 632
External balance of goods and services							- 41		- 41
Generation of income account									
Compensation of employees	986	44	98	11	11	1 150			1 150
Taxes on production and imports						235			235
Taxes on products						141			141
Other taxes on production	88	4	1	0	1	94			94
Subsidies						- 44			- 44
Subsidies on products						- 8			- 8
Other subsidies on production	- 35	0	0	- 1	0	- 36			- 36
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Consumption of fixed capital on gross operating surplus	157	12	27	15	3	214			
Consumption of fixed capital on gross mixed income				8		8			
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Allocation of primary income account									
Compensation of employees							6		6
Taxes on production and imports									0
Subsidies									0
Property income	134	168	42	41	6	391	44		435
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642
Secondary distribution of income account									
Current transfers	98	277	248	582	7	1 212	17		1 229
Current taxes on income, wealth, etc.	24	10	0	178	0	212	1		213
Net social contributions				333		333	0		333
Social benefits other than social transfers in kind	62	205	112	0	5	384	0		384
Social assistance benefits in cash			52			52			52
Other current transfers	12	62	136	71	2	283	16		299
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604
Use of disposable income account									
Final consumption expenditure			352	1 015	32	1 399			1 399
Adjustment for the change in pension entitlements	0	11	0		0	11	0		11
Saving, gross	228	14	- 35	215	5	427			427
Saving, net	71	2	- 62	192	2	205			205
Current external balance							- 13		- 13

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Table 16.4 (cont):Summary current account with sector details – resources

Resources

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Imports of goods and services							499		499
Imports of goods							392		392
Imports of services							107		107
Exports of goods and services								540	540
Exports of goods								462	462
Exports of services								78	78
Production account									
Output	2 808	146	348	270	32	3 604			3 604
Market output	2 808	146	0	123	0	3 077			3 077
Output for own final use	0	0	0	147	0	147			147
Non-market output			348		32	380			380
Intermediate consumption								1 883	1 883
Taxes on products						141			141
Subsidies on products (-)						- 8			- 8
Generation of income account									
Value added, gross / Gross domestic product	1 331	94	126	155	15	1 854			1 854
Value added, net / Net domestic product	1 174	82	99	132	12	1 632			1 632
Compensation of employees									
Taxes on production and imports									
Taxes on products									
Other taxes on production									
Subsidies									
Subsidies on products									
Other subsidies on production									
Allocation of primary income account									
Operating surplus, gross	292	46	27	84	3	452			452
Mixed income, gross				61		61			61
Operating surplus, net	135	34	0	69	0	238			238
Mixed income, net				53		53			53
Compensation of employees				1 154		1 154	2		1 156
Taxes on production and imports			235			235			235
Subsidies			- 44			- 44			- 44
Property income	96	149	22	123	7	397	38		435
									0
									0
Secondary distribution of income account									
Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642
Current transfers	72	275	367	420	40	1 174	55		1 229
Current taxes on income, wealth, etc.			213			213	0		213
Net social contributions	66	213	50	0	4	333	0		333
Social benefits other than social transfers in kind				384		384	0		384
Social assistance benefits in cash				52		52			52
Other current transfers	6	62	104	36	36	244	55		299
Use of disposable income account									
Disposable income, gross	228	25	317	1 219	37	1 826			1 826
Disposable income, net	71	13	290	1 196	34	1 604			1 604
Final consumption expenditure								1 399	1 399
Adjustment for the change in pension entitlements				11		11	0		11

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Table 16.5: Summary of the accumulation accounts and balance sheets with sector details – assets and changes in assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Capital account									
Gross capital formation	308	8	38	55	5	414			414
Net capital formation	151	- 4	11	32	2	192			192
Gross fixed capital formation	280	8	35	48	5	376			376
Consumption of fixed capital	- 157	- 12	- 27	- 23	- 3	- 222			- 222
Gross fixed capital formation by type of asset									
Changes in inventories	26	0	0	2	0	28			28
Acquisitions less disposals of valuables	2	0	3	5	0	10			10
Acquisitions less disposals of non-produced assets	- 7	0	2	4	1	0			0
Capital transfers, receivable									
Capital transfers, payable									
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0
Financial account									
Net acquisition of financial assets	83	172	- 10	189	2	436	47		483
Monetary gold and SDRs		- 1				- 1	1		0
Currency and deposits	39	10	- 26	64	2	89	11		100
Debt securities	7	66	4	10	- 1	86	9		95
Loans	19	53	3	3	0	78	4		82
Equity and investment fund shares	10	28	3	66	0	107	12		119
Insurance, pension and standardized guarantee schemes	1	7	1	39	0	48	0		48
Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
Other accounts receivable/payable	4	1	5	4	1	15	10		25
Other changes in the volume of assets account									
Total other changes in volume	14	- 1	0	0	0	13			13
Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
Non-produced non-financial assets	14	0	3	0	0	17			17
Financial assets	2	1	0	0	0	3			3
Revaluation account									
Nominal holding gains and losses									
Non-financial assets	144	4	44	80	8	280			280
Financial assets/liabilities	8	57	1	16	2	84	7		91
Neutral holding gains and losses									
Non-financial assets	101	3	32	56	6	198			198
Financial assets/liabilities	18	71	8	36	3	136	12		148
Real holding gains and losses									
Non-financial assets	43	1	12	24	2	82			82
Financial assets/liabilities	- 10	- 14	- 7	- 20	- 1	- 52	- 5		- 57
Stocks and changes in assets									
Opening balance sheet									
Non-financial assets	2 151	93	789	1 429	159	4 621			4 621
Financial assets/liabilities	982	3 421	396	3 260	172	8 231	805		9 036
Total changes in assets and liabilities									
Non-financial assets	300	- 2	57	116	11	482			482
Financial assets/liabilities	93	230	- 9	205	4	523	54		577
Closing balance sheet									
Non-financial assets	2 451	91	846	1 545	170	5 103			5 103
Financial assets/liabilities	1 075	3 651	387	3 465	176	8 754	859		9 613

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Table 16.5 (cont): Summary of the accumulation accounts and balance sheets with sector details – liabilities, net worth and changes in them

Changes in liabilities and net worth

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Capital account									
Saving, net	71	2	- 62	192	2	205			205
Current external balance							- 13		- 13
Gross capital formation								414	414
Net capital formation								192	192
Gross fixed capital formation								376	376
Consumption of fixed capital								- 222	- 222
Gross fixed capital formation by type of asset									
Changes in inventories								28	28
Acquisitions less disposals of valuables								10	10
Acquisitions less disposals of non-produced assets								0	0
Capital transfers, receivable	33	0	6	23	0	62	4		66
Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1		- 66
Changes in net worth due to saving and capital transfers	88	- 5	- 90	210	- 1	202	- 10		192
Financial account									
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0
Net acquisition of liabilities	139	173	93	15	6	426	57		483
Monetary gold and SDRs									
Currency and deposits		65	37			102	- 2		100
Debt securities	6	30	38	0	0	74	21		95
Loans	21	0	9	11	6	47	35		82
Equity and investment fund shares	83	22				105	14		119
Insurance, pension and standardized guarantee schemes		48	0			48	0		48
Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
Other accounts receivable/payable	26	0	9	4		39	- 14		25
Other changes in the volume of assets account									
Total other changes in volume	0	0	2	1	0	3			3
Produced non-financial assets									
Non-produced non-financial assets									
Financial assets	0	0	2	1	0	3			3
Changes in net worth due to other changes in volume of assets	14	- 1	- 2	- 1	0	10			
Revaluation account									
Nominal holding gains and losses									
Non-financial assets									
Financial assets/liabilities	18	51	7	0	0	76	15		91
Changes in net worth due to nominal holding gains/losses	134	10	38	96	10	288	- 8		280
Neutral holding gains and losses									
Non-financial assets									
Financial assets/liabilities	37	68	13	5	3	126	22		148
Changes in net worth due to neutral holding gains/losses	82	6	27	87	6	208	- 10		214
Real holding gains and losses									
Non-financial assets									
Financial assets/liabilities	- 19	- 17	- 6	- 5	- 3	- 50	- 7		- 57
Changes in net worth due to real holding gains/losses	52	4	11	9	4	80	2		66
Stocks and changes in liabilities and net worth									
Opening balance sheet									
Non-financial assets									
Financial assets/liabilities	3 221	3 544	687	189	121	7 762	1 274		9 036
Net worth	- 88	- 30	498	4 500	210	5 090	- 469		4 621
Total changes in assets and liabilities									
Non-financial assets									
Financial assets/liabilities	157	224	102	16	6	505	72		577
Changes in net worth, total	236	4	- 54	305	9	500	- 18		482
Saving and capital transfers	88	- 5	- 90	210	- 1	202	- 10		192
Other changes in volume of assets	14	- 1	- 2	- 1	0	10			10
Nominal holding gains/losses	134	10	38	96	10	288	- 8		280
Neutral holding gains/losses	82	6	27	87	6	208	- 10		198
Real holding gains/losses	52	4	11	9	4	80	2		82
Closing balance sheet									
Non-financial assets									
Financial assets/liabilities	3 378	3 768	789	205	127	8 267	1 346		9 613
Net worth	148	- 26	444	4 805	219	5 590	- 487		5 103

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normal gives a balance for the row for each of the items appearing in the goods and services account. On the resources side of the table, the figures appearing in the column for goods and services are the counterparts of the uses made by the various sectors and the rest of the world: exports (540), intermediate consumption (1 883), final consumption expenditure or actual final consumption (1 399), gross fixed capital formation (376), changes in inventories (28) and acquisitions less disposals of valuables (10). On the use side of the table, the figures in the column for goods and services are the counterparts of the resources of the various sectors and the rest of the world: imports (499) and output (3 604). On the same side taxes less subsidies on products (133) are shown directly in the column for goods and services. They are a component of the value of the supply of goods and services that has no counterpart in the value of the output of any institutional sector.

4. The total economy column

16.74 The columns for the total economy remain to be explained. Except for taxes less subsidies on products and gross and net domestic product, the figures in these columns are simply the sum of the corresponding figures for the institutional sectors. The production account for the total economy includes, as resources, output (that is, the total output of the economy (3 604)) and taxes less subsidies on products (133), the latter being the counterpart of the figure appearing on the left-hand side in the column for goods and services. The uses side of the production account for the total economy shows intermediate consumption (1 883) and domestic product at market prices (1 854 gross, 1 632 net). The latter is the sum of value added of the various sectors and taxes less subsidies on products. Domestic product then appears on the right-hand side as a resource of the generation of income account for the total economy. Taxes less subsidies on products are shown again on the left-hand side in the column for total economy and on the right-hand side as a resource of government (and the rest of the world if relevant). This double routing of taxes less subsidies on products is made in order to get domestic product, gross and net, directly in the overall accounts, as explained above.

16.75 The other items in the columns for the total economy are self-explanatory. Net national income at market prices (1 642) is shown directly as the sum of balance of primary incomes of the various sectors; national disposable income, national saving, etc. are also obtained directly.

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Chapter 17: Cross-cutting and other special issues

Part 1: The treatment of insurance

A. Introduction

17.1 At its simplest, an insurance policy is an agreement between an insurance corporation and another institutional unit, called the policyholder. Under the agreement, the policyholder makes a payment (a premium) to the insurance corporation and, if or when a specified event occurs, the insurance corporation makes a payment (claim) to the policyholder. In this way, the policyholder protects itself against certain forms of risk; by pooling the risks the insurance corporation aims to receive more from the receipt of premiums than it has to pay out as claims. However, simply recording the actual premiums and claims paid in the accounts of the SNA would not reflect the links between premiums and claims. Instead, some actual transactions are partitioned and others are imputed in order to bring out the underlying economic processes actually taking place.

17.2 The most common form of insurance is called direct insurance whereby the policy is issued by an insurance corporation to another type of institutional unit but an important form of insurance is provided by one insurance corporation to another insurance corporation. This sort of insurance is called reinsurance.

17.3 This part of chapter 17 is concerned with direct insurance and reinsurance. It attempts to bring together all the entries in the accounts connected with insurance and explain their interconnection. Part 2 deals with pension and non-pension benefits under social insurance schemes.

17.4 Defining some of the terms peculiar to the insurance industry is a helpful preliminary to further discussion. For direct insurance, the term premiums is used for payment to the insurance corporation; payments by the insurance corporation are called claims in the case of non-life policies and benefits in the case of life policies. ***The actual premium is the amount payable to the direct insurer or reinsurer to secure insurance cover for a specific event over a stated time period.*** Actual premiums are measured by the amounts payable after all allowances, discounts or bonuses are taken into account. Cover is frequently provided for one year at a time with the premium due to be paid at the outset though cover may be provided for shorter (or longer) periods and the premium may be payable in instalments, for example monthly.

17.5 ***The premium earned is the part of the actual premium that relates to cover provided in the accounting period.*** For example, if an annual policy with a premium of 120 units comes into force on April 1 and accounts are being prepared for a calendar year, the premium earned in the calendar year is 90. ***The unearned premium is the amount of the actual premium received that relates to the period past the accounting point.*** In the example just given, at the end of the accounting period there will be an unearned premium of 30, intended to provide cover for the first three months of the next year. ***A claim (benefit) is the amount payable to the policyholder by the direct insurer or reinsurer in respect of an event covered by the policy occurring in the period for which the policy is valid.*** Claims generally become due when the event occurs, even if the payment is made some time later. (The exception to the general rule is described in section C.) Claims that become due are described as claims incurred. In some contested cases the delay between the occurrence of the event giving rise to the claim and the settlement of the claim may be several years. ***Claims outstanding cover claims that have not been reported, have been reported but are not yet settled or have been both reported and settled but not yet paid.***

1. Direct insurance

17.6 There are two types of direct insurance, life and non-life insurance***. Life insurance is an activity whereby a policyholder makes regular payments to an insurer in return for which the insurer guarantees to provide the policyholder (or in some cases another nominated person) with an agreed sum, or an annuity, at a given date or earlier if the policyholder dies beforehand.*** The sum payable under the policy (benefit) may be fixed or may vary to reflect the income earned from the investment of premiums during the period for which the policy operates. For policies with varying returns, the terms "with-profits" life insurance or endowment policy are generally used. Although the date and sum may be variable, a claim is always paid in respect of a life policy***. Non-life insurance is an activity similar to life insurance except that it covers all other risks, accidents, sickness, fire, etc.*** A policy that provides a benefit in the case of death within a given period but in no other circumstances, usually called term insurance, is regarded as non-life insurance because, as with other non-life insurance, a claim is payable only if a specified contingency occurs and not otherwise. In practice, because of the way in which insurance corporations keep their accounts, it may not always be possible to separate

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term insurance from other life insurance. In these circumstances, term insurance may have to be treated in the same way as life insurance for purely practical reasons.

17.7 What life and non-life insurance have in common is that they both involve spreading risk. Insurers receive many (relatively) small regular payments of premiums from policyholders and pay much larger sums to claimants when the contingencies covered by the policy occur. For non-life insurance, the risks are spread over the whole population that takes out the insurance policies. For example, an insurance corporation determines the premiums charged for vehicle insurance in a year by relating them to the amount of claims it expects to pay on vehicle insurance in the same year. Typically, the number of claimants is much smaller than the number of policyholders. For an individual non-life policyholder there is no relationship between the premiums paid and the claims received, even in the long run, but the insurance corporation establishes such a relationship for every class of non-life insurance on a yearly basis. For life insurance, a relationship between premiums and claims over time is important both to the policyholders and to the insurance corporation. For someone taking out a life policy, the benefits to be received are expected to be at least as great as the premiums paid up until the benefit is due and can be seen as a form of saving. The insurance corporation must combine this aspect of a single policy with the actuarial calculations about the insured population concerning life expectancy (including the risks of fatal accidents) when determining the relationship between the levels of premiums and benefits. Further, in the interval between the receipt of premiums and the payment of benefits, the insurance corporation earns income from investing the premiums received. This income also affects the levels of premiums and benefits set by the insurance corporations.

17.8 Despite the similarity of the activity of life and non-life insurance, there are significant differences between them that lead to different types of entries in the accounts of the SNA. Non-life insurance consists of redistribution in the current period between all policyholders and a few claimants. Life insurance mainly redistributes premiums paid over a period of time as benefits paid later to the same policyholder. Essentially life insurance premiums and benefits are financial transactions and not current transactions.

17.9 One way in which a regular income stream can be obtained in return for an upfront payment of a lump sum is via an annuity. Annuities are usually offered by life insurance corporations and so a discussion of the recording for annuities in the SNA is given at the end of this part.

2. Reinsurance

17.10 Just as an individual institutional unit protects itself against the financial consequences of loss or damage, so an insurance corporation may also protect itself against an unexpectedly large number of claims, or exceptionally heavy claims, by taking out a reinsurance policy with another insurance corporation. All insurance corporations may take out some form of reinsurance but there tend to be a few large corporations that specialize in issuing reinsurance policies. Because these corporations are concentrated in a few financial centres, many of the flows associated with reinsurance involve transactions with the rest of the world. It is common for reinsurers to take out reinsurance policies with other insurance corporations to spread their risks further. This sort of reinsurance is called retrocession.

17.11 Reinsurance policies are most common for non-life policies but may also apply to life insurance policies. There are two types of reinsurance, proportionate reinsurance and excess of loss reinsurance. Under a proportionate reinsurance contract, the reinsurer accepts an agreed proportion of the risks; this proportion of the premiums is “ceded” to the reinsurer who then meets the same proportion of the claims. In this case, any reinsurance commission paid by the reinsurer to the policyholder (either a direct insurer or another reinsurer) is treated as a reduction in reinsurance premiums payable. In excess of loss reinsurance, the reinsurer undertakes to pay all losses over a given threshold. If there are no or few claims above the threshold, the reinsurer may pass a share of his profits to the direct insurer. By convention, profit-sharing is treated as a current transfer from the reinsurer to the direct insurer in a way similar to the payment of claims.

3. The units involved

17.12 The institutional units involved in direct insurance and reinsurance are pre-eminently insurance corporations. In principle it is possible for another type of enterprise to carry out insurance as a non-principal activity, but usually the legal regulations surrounding the conduct of insurance mean that a separate set of accounts covering all aspects of the insurance activity must be kept; thus in the SNA a separate institutional unit, classified to the insurance corporations and pension funds subsector, is identifiable. Sometimes government may conduct other insurance activities, but again it is likely that a separate unit can be identified. Having noted that exceptionally other sectors may be involved, in what follows it is assumed that all insurance is carried out by insurance corporations, either resident or non-resident.

B. Output of direct insurance

17.13 Under a non-life insurance policy, the insurance company accepts a premium from a client and holds it until a claim is made or the period of the insurance expires. In the meantime, the insurance company invests the premium and the investment income is an extra source of funds from which to meet any claim due. The investment income represents income foregone by the client and so is treated as an implicit supplement to the actual premium. The insurance company sets the level of the actual premiums to be such that the sum of the actual premiums plus the

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investment income earned on them less the expected claim will leave a margin that the insurance company can retain; this margin represents the output of the insurance company. Within the SNA, the output of the insurance industry is determined in a manner intended to mimic the premium setting policies of the insurance corporations. To that end, four separate items need to be defined. These are premiums earned, premium supplements, claims (or benefits) incurred and reserves. Each of these is discussed in turn before discussing the measurement of output for direct non-life insurance, direct life insurance and reinsurance respectively.

1. Premiums earned

17.14 As explained in section A, an important distinction is made between actual premiums, which are payable for cover in a given period and premiums earned that are the proportion of actual premiums, relating to the accounting period in question rather than to the period covered by the insurance policy.

2. Premium supplements

17.15 For life insurance in particular, but also to a lesser extent for non-life insurance, the total amount of claims payable in a given period often exceeds the premiums receivable. The insurance corporation can accept this because the contingencies covered by the policies do not occur, even for the whole population covered, at the same time as the premiums are paid. Premiums are usually paid regularly, often at the start of an insurance period, whereas claims fall due later, in the case of life insurance often many years later. In the time between the premium being paid and the claim being payable, the sum involved is at the disposal of the insurance corporation to invest and earn income from it. These amounts are called reserves. The income earned on the reserves allows the insurance corporations to charge lower premiums than would be the case otherwise. An adequate measure of the service provided must take account of the size of this income as well as the relative size of premiums and claims.

17.16 The income concerned comes from the investment of the reserves of the insurance corporations, which represent liabilities towards the policyholders. For non-life insurance, even though a premium may be payable at the start of a period of cover, the premiums are only earned on a continuous basis as the period passes. At any point before the end of the cover, the insurance corporation holds an amount due to the policyholder relating to services and possible claims to be provided in the future. This is a form of credit extended by the policyholder to the insurance corporation described as unearned premiums. Similarly, although claims become due for payment by the insurance corporation when the contingency specified in the policy eventuates, they may not be actually payable until some time later, often because of negotiation about the amounts due. This is another similar form of credit, described as reserves against claims outstanding.

17.17 Similar reserves exist for life insurance but in addition there are two other elements of insurance reserves, actuarial reserves for life insurance and reserves for with-profit insurance. They represent amounts set aside for payments of benefits in future. Usually the reserves are invested in financial assets and the income is in the form of investment income (interest and dividends). Sometimes, however, they may be used to generate net operating surplus either in a separate establishment or as a secondary activity. The most common example is from real estate.

17.18 It is common with life insurance policies for amounts to be explicitly attributed by the insurance corporation to the policyholders in each year. These sums are often described as bonuses. The sums involved are not actually paid to the policyholders but the liabilities of the insurance corporation towards the policyholders increase by this amount. This amount is shown as investment income attributed to the policyholders. The fact that some of it may derive from holding gains does not change this designation; as far as the policyholders are concerned it is the return for making the financial asset available to the insurance corporation. In addition, all the income from the investment of non-life reserves and any excess of income from the investment of life reserves over any amounts explicitly attributed to the policyholders, are shown as investment income attributed to policyholders, regardless of the source of the income.

17.19 All investment income attributed to policyholders, whether explicitly by the insurance corporation or implicitly within the SNA, is shown as payable to the policyholders in the distribution of primary income account. For non-life insurance, the same amount is then repaid to the insurance corporation as premium supplements in the secondary distribution of income account. For life insurance, premiums and premium supplements as well as benefits are shown in the financial account.

17.20 For direct non-life insurance, the investment income attributed to the policyholders should, in principle, be made according to the proportion of reserves attributed to the different classes of insurance and policyholders. In practice, the usual method is to distribute the investment income in proportion to the actual premiums payable. For direct life insurance, all policyholders are individuals and so the investment income is attributed to households (possibly including some non-resident households).

3. Claims and benefits

Non-life insurance claims

17.21 The level of claims made on non-life insurance policies varies from year to year and there may be exceptional events that cause a particularly high level of claims. However, the concept of insurance service is the service of providing cover against risk; production occurs continuously and not simply when the risk occurs. As such, its measurement should not be affected by the volatility of the occurrence of the risk. Neither the volume nor the price of insurance services is directly affected by the volatility of claims. The insurance company sets the level of premiums on the basis of its own estimation of the likelihood of claims. For this reason, the formula used in the SNA for the calculation of output should use not actual claims but a figure based on past experience and future expectations. The term “adjusted claims” is used to describe the level of claims used in determining the value of output.

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17.22 The figure for adjusted claims may be derived statistically in an expectations approach based on previous experience of the level of claims. In considering the past history of claims payable, however, allowance must be made for the share of these claims that are met under the terms of the direct insurer's reinsurance policy (if any). For example, when the direct insurer has an excess of loss reinsurance, he sets the level of premiums to cover losses up to the maximum loss covered by his reinsurance policy plus the reinsurance premium he must pay. Under a proportionate reinsurance policy, he sets his premiums to cover the proportion of claims he has to pay plus the reinsurance premium.

17.23 Alternatively, an approach using information from the accounts of the insurance corporation may be adopted. These may include an equalization provision, which is an adjustment to reflect the variations in claims from one year to another. Whichever method is used, therefore, the adjusted claim figure approximates the expected level of claims.

Life insurance benefits

17.24 Life insurance benefits are the amounts payable under the policy in the accounting period in question. No adjustment for unexpected volatility is necessary in the case of life insurance.

4. Reserves

17.25 The concept of reserves used in the formula for deriving the value of insurance output corresponds to the definition of non-life insurance technical reserves and life insurance and annuities entitlements as defined in chapter 13. These cover provisions for unearned premiums, for unexpired risks, claims outstanding and reserves for bonuses and rebates, the latter applying in the main to life insurance only. The coverage of unearned premiums and claims outstanding is given in section A.

5. Defining insurance output

Non-life insurance

17.26 The output of the insurance corporation represents the service provided to the policyholders. The output of direct non-life insurance is based on the principle of adding premiums and premium supplements and deducting adjusted claims incurred.

17.27 If an expectations approach is being used, the formula to calculate output takes the following form:

Actual premiums earned;

plus premium supplements;

minus adjusted claims incurred;

where adjusted claims are estimated from past experience. In such a case, conceptually premium supplements should also be estimated on the basis of past experience. However, since premium supplements are less volatile than claims, in practice no such adjustment may be necessary. If a statistical basis is to be used for estimating output, it is advisable to use information broken down by "line of business", that is for motor insurance, buildings insurance, etc. separately.

17.28 Alternatively, an accounting approach may be used whereby output is calculated as:

Actual premiums earned;

plus premium supplements;

minus adjusted claims incurred;

where adjusted claims are determined by using claims due plus the changes in equalization provisions and, if necessary, changes to own funds.

17.29 If the necessary accounting data are not available and the historical statistical data are not sufficient to allow reasonable average estimates of output to be made, the output of non-life insurance may be estimated as the sum of costs (including intermediate costs, labour and capital costs) plus an allowance for "normal profit". However, since any reasonable estimate for "normal profit" is likely to involve expected claims, this option is hardly different from the expectations approach.

Life insurance

17.30 The output of direct life insurance is calculated separately as:

Actual premiums earned;

plus premium supplements;

minus benefits due;

minus increases (plus decreases) in actuarial reserves and reserves for with-profits insurance.

17.31 If adequate data are not available for the calculation of life insurance according to this formula, an approach based on the sum of costs, similar to that described for non-life insurance, may be used. As for non-life insurance, an allowance for normal profits must be included.

Reinsurance

17.32 The formula to calculate the output of reinsurance services is exactly analogous to those for direct insurance. However, because the primary motivation of reinsurance is to limit the direct insurer's exposure to risk, a reinsurer deals with exceptionally large claims as a matter of normal business. For this reason, and because the market for reinsurance is concentrated in relatively few large firms worldwide, it is less likely that the reinsurer will experience an unexpectedly large loss than a direct insurer does, especially in the case of excess of loss reinsurance.

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17.33 The output of reinsurance is measured in a way similar to that for direct non-life insurance. However, there are some payments peculiar to reinsurance. These are commissions payable to the direct insurer under proportionate reinsurance and profit sharing in excess of loss reinsurance. Once these are taken into account the output of reinsurance can be calculated as:

Total actual premiums earned less commissions payable;

plus premium supplements;

minus both adjusted claims incurred and profit sharing.

C. All the transactions associated with non-life insurance

17.34 This section describes the full set of entries needed in the accounts to record all the implications of a non-life insurance policy. Policies may be taken out by corporations, government units, NPISHs, households and units in the rest of the world. However, when a policy taken out by a member of a household qualifies as social insurance, the entries required are as described in part 2 of this chapter on social insurance and not as described here.

1. Net premiums and consumption of insurance services

17.35 The actual premiums payable and the premium supplements are shown in the SNA divided between two types of transactions. The first is the value of the output of insurance, which is shown as either consumption or export of insurance services. The second is net premiums earned by the insurance corporations. ***Net premiums are defined as actual premiums plus premium supplements less the insurance service charge payable by the policyholders.*** Because of the way in which the value of the service output is defined, net premiums for non-life insurance are equal in total to adjusted, and not actual, claims. Any variation between adjusted and actual claims represents a transfer between the policyholders and the insurance corporation. Over time, a transfer in one direction is offset by one in the other.

17.36 Insurance services are consumed by those sectors (and the rest of the world) that pay premiums. Estimates of the value of consumption by sector are usually made by allocating the total value of the service in proportion to the actual premiums payable. Estimates of net premiums are then made by deducting the consumption of services from the total actual premiums payable plus the value of the premium supplements. (Because premium supplements are also allocated in proportion to actual premiums, the net premiums are also in effect allocated in the same proportions as the actual premiums.)

2. Recording non-life insurance claims

17.37 The time of recording claims incurred is generally in the period in which the event to which the claim relates took place. This principle is applied even when, in the case of disputed claims, the settlement may take place years after the event concerned. An exception is made in cases where the possibility of making a claim is recognized only long after the event has happened. For example, an important series of claims were recognized only when exposure to asbestos was established as a cause of serious illness and was judged to give rise to claims under an insurance policy valid at the time of the exposure. In such cases the claim is recorded at the time that the insurance company accepts the liability. This may not be the same time as when the size of the claim is agreed on or when the claim is paid.

17.38 Because the formula for output uses adjusted claims and not actual claims, only when the actual claims happen to be the same value as expected claims will net premiums and claims be equal in a given period. They should however be approximately equal over a period of years excluding a year in which a disaster is recorded.

17.39 Claims are normally recorded as current transfers payable by the insurance corporation to the policyholder. In some circumstances, an insurance corporation may set the level of premiums so low that they are not expected to cover costs and the predicted level of claims. This may happen when the surplus from one line of business, for example home insurance, is being used to cross-subsidise another line of business, for example, vehicle insurance.

17.40 There is one case where claims may be recorded as capital transfers rather than current transfers and that is in the wake of a major catastrophe. The criteria for when the effects of a catastrophe should be treated like this must be determined according to national circumstances but these may involve the number of policyholders affected and the amount of the damage done. The rationale for recording the claims as capital transfers in this case comes from the fact that many of the claims will relate to destruction or serious damage to assets such as dwellings, buildings and structures. Damage corresponding to a normal level of claims is covered by, for example, consumption of fixed capital or losses from inventories. These losses are thus captured as current expenditure elsewhere in the system. However, major losses in the wake of a catastrophe are recorded as the result of unforeseen events in the other changes in assets accounts and omitted from current expenditures. The recommendation is thus to record claims as current or capital transfers analogously.

17.41 It is recommended that following a catastrophe, the total value of the claims related to the catastrophe should be recorded as a capital transfer from the insurance corporation to the policyholders. Information on the level of claims to be met under insurance policies should be obtained from the insurance industry. If the insurance industry cannot provide this information, one approach to estimating the level of the catastrophe-related claims is to

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take the difference between the adjusted claims and the actual claims in the period of the catastrophe.

17.42 A consequence of recording such claims as capital transfers means that the disposable income of households and other policyholders does not increase counter-intuitively as would be the case if the claims were recorded, as normal, as current transfers. The net worth of the policyholders will show the effects of both the destruction of assets (as an other volume change) and an increase (initially) in financial assets from the capital transfers. This recording is consistent with the recording of assistance by government of an NPISH to cover some or all of the costs of repairing or replacing the assets of those affected by the catastrophe who are not covered by an insurance policy.

3. Insurance services provided to and from the rest of the world

17.43 Resident insurance corporations frequently provide insurance cover to households and enterprises in the rest of the world, and resident households and enterprises may purchase cover from insurance corporations in the rest of the world. The investment income attributed by resident insurance corporations to policyholders includes an allocation to policyholders in the rest of the world. These non-resident policyholders then also pay premium supplements to the resident insurance corporation. This information should be available for resident insurers and should be included in the rest of the world account.

17.44 Similar considerations also apply to the treatment of resident enterprises and households taking out policies with non-resident insurers. They receive imputed investment income from abroad and pay premiums and supplements to abroad. Estimation of the size of these flows is more difficult, especially when there is no resident insurer of the same type against which to make comparisons. However, very often the country providing the service will be known and it may be possible to use counterpart data to make estimates for the national economy. The level of transactions by residents should be known and the ratio of premium supplements to actual premiums in the economy providing the services could be used to estimate the investment income receivable and premium supplements payable.

4. The accounting entries

17.45 Altogether six pairs of transactions need to be recorded in respect of non-life insurance that is not part of social insurance; two pairs relating to the measurement of the production and consumption of the insurance service, three pairs relating to redistribution and one in the financial account. Under exceptional circumstances, a seventh transaction relating to redistribution may be recorded in the capital account. The value of the output of the activity, the investment income to be attributed to the policyholders and the value of the service charge are calculated specifically for other non-life insurance in the manner described above.

17.46 The production and consumption transactions are as follows:

a. Since all such activity by resident institutional units is undertaken by insurance corporations, the output is recorded in the production account of insurance corporations;

b. The service may be consumed by any of the sectors of the economy or by the rest of the world; the value of the service is payable to insurance corporations. Payments by non-financial corporations, financial corporations, general government or non-profit institutions constitute intermediate consumption, recorded in their production account. Insurance clearly associated with the productive activity of a household unincorporated enterprise is also recorded as intermediate consumption in the production account of households. Other insurance payments by households are part of final consumption expenditure, recorded in the use of income account. Payments by the rest of the world are recorded as exports in the external account of goods and services.

Table 17.1:Accounts for non-life insurance - uses

Uses

	Corporations	Insurance corporations	Households	Other sectors	Total economy
Production account					
Intermediate consumption	1.0		3.0		4.0
Output					
Allocation of primary income account					
Investment income attributable to non-life insurance policy holders		6.0			6.0
Secondary distribution of income account					
Net non-life insurance premiums	8.0		31.0	6.0	45.0
Non-life insurance claims		45.0			45.0
Use of income account					
Final consumption expenditure	0.0		2.0	0.0	2.0
Financial account					
Non-life insurance technical reserves	0.0		3.0	0.0	3.0
of which unearned premiums	0.0		1.0	0.0	1.0
claims outstanding	0.0		2.0	0.0	2.0

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17.47 The redistributive transactions cover investment income attributed to policyholders in respect of non-life insurance, net non-life insurance premiums, and insurance claims:

a. Investment income attributed to policyholders in respect of non-life insurance is recorded as payable by insurance corporations. It is recorded as receivable by all sectors and the rest of the world. Both payables and receivables are recorded in the allocation of primary income account.

b. Net non-life insurance premiums are calculated as premiums earned plus premium supplements (equal to the investment income attributed to policyholders) less the value of the services consumed. These net premiums are payable by all sectors of the economy or the rest of the world and receivable by insurance corporations.

c. Insurance claims incurred are payable by insurance corporations and receivable by all sectors of the economy and the rest of the world. Both net premiums and claims are recorded in the secondary distribution of income account.

d. If some claims are to be treated as capital rather than current transfers, these are recorded in the capital account as payable to policyholders by insurance corporations.

17.48 Net non-life insurance premiums should be recorded on the basis of the amounts due to obtain cover in the period of account, not the amounts actually paid in the period. Insurance claims should be recorded as payable on the date of the event concerned occurred, except in the type of case described above when the claim is recorded when the insurance company accepts that a liability exists. An entry in the financial account records any difference between premiums payable and premiums earned and claims due and claims payable.

17.49 By convention, unearned premiums and reserves against outstanding claims are shown as a change in liabilities of insurance corporation (with a negative sign if necessary) and a change in assets of all sectors and the rest of the world.

17.50 An example of these flows is shown in table 17.1.

D. All the transactions associated with life insurance

17.51 This section describes the way in which recording of the entries for life insurance differs from non-life insurance. As for non-life insurance, but more significantly in practice, a life policy that qualifies as social insurance is recorded not as described here but as described in part 2 of the chapter. The major difference between a normal life insurance policy and one qualifying as social insurance is that under the former, the benefits from the policy are treated as mainly rundowns of wealth, recorded in the financial account. For a policy qualifying as social insurance, the benefits (pensions) are recorded as income in the secondary distribution of income account. The reason for the different treatment is that an individual policy other than social insurance is entered into entirely on the initiative of the policyholder. Policies that qualify as social insurance reflect the intervention of a third party, usually the government or the employer, to encourage or oblige the policyholder to make provision for income in retirement. Distinguishing all payments made under social insurance schemes, including those coming from qualifying individual policies, shows how far social policies to ensure income in retirement are successful.

Table 17.1 (cont):Accounts for non-life insurance - resources

					Resources
	Corporations	Insurance corporations	Households	Other sectors	Total economy
Production account					
Intermediate consumption					
Output		6.0			6.0
Allocation of primary income account					
Investment income attributable to non-life insurance policy holders	5.0		1.0		6.0
Secondary distribution of income account					
Net non-life insurance premiums		45.0			45.0
Non-life insurance claims	6.0		35.0	4.0	45.0
Use of income account					
Final consumption expenditure					
Financial account					
Non-life insurance technical reserves		3.0			3.0
of which unearned premiums		1.0			1.0
claims outstanding		2.0			2.0

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17.52 The holder of a life insurance policy is always an individual. (If a company takes out an insurance policy on the life of an employee, this should be treated as term insurance and therefore as non-life insurance in the SNA.) Life insurance transactions therefore take place only between insurance corporations and households, resident and non-resident. The production of the insurance services is matched by the value of the services consumed by households as part of final consumption expenditure and exports. The investment income attributed to insurance policyholders is treated as premium supplements. However, premiums and claims are not shown separately in the case of life insurance and are not treated as current transfers. Rather they constitute components of a net transaction recorded in the financial account, the financial asset involved being life insurance and annuities entitlements.

17.53 Four pairs of transactions are recorded in the accounts; two pairs relate to production and consumption of the insurance service, one pair shows the attribution of investment income to the property holders and one pair shows the change in life insurance and annuities entitlements:

a. The output of the life insurance activity is recorded in the production account for the insurance corporations.

b. The value of the services consumed is recorded as final consumption expenditure payable by households in the use of disposable income account or as payable by the rest of the world (exports to non-resident households). Households may also make payments to non-resident insurers. Such payments are treated as imports of insurance services.

c. Investment income attributed to insurance policyholders in respect of life insurance is recorded in the allocation of primary income account. Bonuses declared in connection with life policies are treated as being distributed to policyholders even if they exceed the investment income earned by the institution declaring the bonus. The investment income is recorded as payable by insurance corporations and receivable by resident households or non-resident households in the rest of the world.

d. In the financial account, the item change in life insurance and annuities entitlements is shown as a change in assets of households and the rest of the world and a change in liabilities of insurance corporations. It is equal to actual premiums plus premium supplements (equal to the investment income attributed to policyholders) less the value of the services consumed and less benefits due.

17.54 An example of these flows is shown in table 17.2.

1. Annuities

17.55 Some life insurance policies yield a lump sum at a given date rather than a stream of payments. The lump sum may be used to purchase an annuity that itself converts a lump sum into a stream of payments. The recording of annuities is described in section F.

E. All transactions associated with reinsurance

17.56 Before discussing how the various elements contributing to the measurement of output of reinsurance are recorded in the SNA, it is necessary to describe how reinsurance is measured and recorded.

17.57 The transactions between the direct insurer and the policyholder are measured as described in the previous section without any reference to the transactions between the direct insurer and the reinsurer. The transactions between the direct insurer and the reinsurer are recorded as an entirely separate set of transactions and no consolidation takes place between the transactions of the direct insurer as issuer of policies to its clients on the one hand and the holder of a policy with the reinsurer on the other.

Table 17.2:Accounts for life insurance - uses

Uses

	Corporations	Insurance corporations	Households	Other sectors	Total economy
Production account					
Output					
Allocation of primary income account					
Investment income attributable to life insurance policy holders		7.0			7.0
Use of income account					
Final consumption expenditure			4.0		4.0
Financial account					
Life insurance and annuity entitlements			22.0		22.0
of which net premiums			113.0		113.0
benefits			-91.0		-91.0

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17.58 The direct policyholder does not know, or need to know, whether the direct insurer involves a reinsurer to protect it against loss on the policy. The direct insurer receives actual premiums from its policyholders. Some of these are ceded to a reinsurer. The premiums are shown as being first payable to the direct insurer and then a lesser premium is payable to the reinsurer. This non-consolidation is sometimes referred to as gross recording on the part of the direct insurer. The alternative (net recording) would be to show part of the direct policyholders' premiums being paid to the direct insurer and part to the reinsurer but this option is not recommended either in commercial accounting or in the SNA.

17.59 The actual premium payable by the direct insurer to the reinsurer is used by the reinsurer to earn investment income. This investment income is treated as investment income payable to the direct insurer and returned to the reinsurer as a premium supplement. Thus a direct insurer pays investment income to its policyholders based on the whole of the premiums earned (or by approximation payable) but also receives investment income from the reinsurer corresponding to the amount of the premiums it has ceded to the reinsurer. The investment income receivable by the direct insurer from the reinsurer may be used to offset some of the investment income payable by the direct insurer to its policyholders but is not recorded explicitly as such.

17.60 As with direct insurance, in exceptional cases for example following a catastrophic natural disaster, some part of reinsurance claims may be recorded as capital transfers rather than as current transfers.

17.61 The whole of the output of the reinsurer represents intermediate consumption of the direct insurer holding the reinsurance policy. As noted above, many reinsurance policies are between insurance corporations resident in different economies. Thus the value of the output in these cases represents imports by the insurance corporation taking out the reinsurance policy and exports by the reinsurance corporation.

17.62 The recording of flows associated with reinsurance resembles the recording for non-life insurance except that the policyholder of a reinsurance policy is always another insurance corporation.

17.63 The production and consumption transactions are as follows:

a. Since all such activity by resident institutional units is undertaken by insurance corporations, the output is recorded in the production account of insurance corporations. Reinsurance services may be, and often are, provided by non-resident units and thus are recorded in imports.

b. The service may only be consumed by another insurance corporation, though this may be a non-resident unit, and is intermediate consumption of that unit unless the policyholder is non-resident in which case it is recorded as exports of the reinsurer.

17.64 The redistributive transactions cover investment income attributed to policyholders in respect of reinsurance, net reinsurance premiums and reinsurance claims:

a. Investment income receivable by reinsurance policyholders is payable by insurance corporations, resident or non-resident, and receivable by similar institutions either resident or non-resident.

b. Net reinsurance premiums are calculated as premiums earned plus premium supplements (equal to the investment income attributed to policyholders) less the value of the services consumed. These net premiums are payable by insurance corporations and receivable by [other] insurance corporations. (Either of the units due to make the payment or to receive it may be non-resident.)

c. Reinsurance claims are payable by insurance corporations and receivable by [other] insurance corporations, either resident or non-resident. Both net premiums and claims are recorded in the secondary distribution of income account.

d. Commissions payable by reinsurers to the insurance corporation as the reinsurance policyholder are treated as reductions in the premiums payable to the reinsurers.

e. Profit sharing payable by the reinsurer to the direct insurer is recorded as a current transfer. (Although they

Table 17.2 (cont):Accounts for life insurance - resources

	Resources				
	Corporations	Insurance corporations	Households	Other sectors	Total economy
Production account					
Output		4.0			4.0
Allocation of primary income account					
Investment income attributable to life insurance policy holders			7.0		7.0
Use of income account					
Final consumption expenditure					
Financial account					
Life insurance and annuity entitlements		22.0			22.0
of which net premiums		113.0			113.0
benefits		-91.0			-91.0

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are recorded differently, both commissions payable and profit sharing serve to reduce the output of the reinsurer.)

f. If some direct insurance claims are treated as capital and not current transfers, any reinsurance claims relating to the same event should also be treated as capital transfers.

17.65 An entry in the financial account records any difference between premiums payable and premiums earned and claims incurred and claims payable.

F. Annuities

17.66 The simplest case of a life insurance policy is one where a stream of payments is made by the policyholder to the insurance corporation over time in return for a single payment received as a claim at some point in the future. With the simplest form of annuity, the equivalent to the policyholder, called the annuitant, pays a single lump sum to the insurance corporation and in return receives a stream of payments either for a nominated period or for the rest of the annuitant's life (or possibly for the rest of the life of both the annuitant and a nominated other person).

17.67 Annuities are organized by insurance corporations and are a means of risk management. The annuitant avoids risk by agreeing to accept a known payment stream (known either in absolute terms or subject to a formula, such as being index-linked) in return for parting with a considerable sum. The insurance corporation takes the risk of making more from investing the sum than is due to the annuitant. The rates of annuities are determined taking life expectancy into account. The insurance corporation has to pay more than originally planned to long-lived annuitants who may receive more than their original payment and the income earned on it. Those who die early receive less, possibly considerably less, and the insurance corporation receives more than expected.

1. How an annuity works

17.68 It is simplest to explain the working of an annuity by means of an example. Suppose an insurance corporation offers an individual payments of 600 for life in return for a lump sum payment of 10 000 and further suppose that the insurance corporation expects the individual concerned to live for 25 years and that the discount rate being used is five per cent. As shown in figure 17.1, the net present value of 600 for 25 years is only 8 700. Thus the remaining 1 300 represents the net present value of the service charges of about 90 per year the insurance corporation expects to make. Thus, whether the annuitant recognizes it or not, the insurance corporation offer of 600 a year is a net figure. The annuitant will actually be entitled to 690 a year but 90 is retained by the insurance corporation as a fee for its services.

17.69 Each year there is investment income payable to the annuitant equal to the unwinding of the discount factor of five percent on the remaining amount held by the insurance corporation. In the first year, the proportion of the investment income relating to the prepaid premium (1 300) is 65 and the remaining 25 of the service charge is met from a drawdown of the value of 1 300 to 1 275. The remaining investment income (435) adds to the value of the net annuity reserve of 8 700. At the end of the first year, therefore, the annuity reserve is 8 535; the original sum of 8 700 plus the interest of 435 and less the payment of 600. The drawdown on the start of year amount of the net annuity reserve is thus 165 and the drawdown on the prepaid premiums is 25.

17.70 This process continues year by year. As time progresses, the drawdown of the remaining reserves is an increasingly larger part of the payments due and the investment income payable a smaller part. In principle, every year the insurance corporation can review its assumptions about the remaining life expectancy of the annuitant and recalculate the amount available as a service charge. (In practice this is likely to be done at intervals and by cohort of annuitants.)

17.71 The detailed numerical example is intended to demonstrate the way an annuity functions but in fact it is not necessary to undertake all these calculations to determine the output of the insurance corporation. The value of output can be determined more simply as the total investment income due to the annuitant (500) less the amount payable to him (600) less the change in the value of the reserves (a reduction of 190), or 90 (500-600-(-190)). This result can be seen to be parallel to the measurement of life insurance except that there is no actual premium element.

2. The output associated with an annuity

17.72 The output of an insurance corporation associated with administering annuities is calculated as:

the investment income attributable to the annuitants.

minus the amount payable to the annuitants (or surviving beneficiaries) under the terms of the annuity;

minus the change in the annuity reserves but excluding the initial payments for new annuities.

The amount of the investment income attributable to the annuitants is equal to the discount factor times the start of year reserves and is independent of actual investment income earned by the insurance corporation. The item is parallel to the concept of premium supplement in the life insurance context.

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3. All the transactions associated with annuities

17.73 There are three sets of transactions recorded for an existing annuity and further entries required for the initiation and termination of an annuity.

a. A service charge associated with the annuity is payable every year. It is recorded as output of the insurance corporation and final consumption expenditure of the household to which the beneficiary belongs. This might be a non-resident household.

b. Investment income equal to the discount factor times the level of annuity reserves at the beginning of the period is recorded in the primary distribution of income account as payable by the insurance corporation and receivable by the household.

c. The change in the value of the reserves for annuities is recorded in the financial account as payable by the household to the insurance corporation.

17.74 When an annuity is initiated, there is a transfer of funds from the household to the insurance corporation. In many cases, however, this may simply be a "rollover" from a lump sum payable by that or another insurance corporation from the maturing of a normal life insurance policy immediately into an annuity. In such a case there is no need to record the payment of the lump sum and the acquisition of the annuity; there will simply be a change from life insurance reserves to annuity reserves in the insurance corporation and pension fund subsector. If an annuity is purchased independently of the maturing of a life insurance policy, this is recorded as a pair of financial transactions between the household and the insurance corporation. The household makes a payment to the insurance corporation and receives in return an asset arising from the terms of the annuity. The insurance corporation receives a financial asset from the household and incurs a liability towards it.

17.75 Annuities are normally terminated by death, at which point any remaining reserves for that annuitant are transferred to the insurance corporation. However, assuming the insurance corporation has predicted life expectancy accurately, for the group of annuitants as a whole, the average funds remaining at death will be zero. If life expectancies change, revisions to the reserves must be made. For annuities in operation, an extension of life expectancies will reduce the amount available to the insurance corporation as a service charge, possibly making this negative. In such a case, the insurance corporation will have to draw on its own funds and hope to build these up again in future by associating higher service charges with new annuities.

Figure 17.1:Example of an annuity

Starting position			
Purchase price of annuity (A)	10 000		
NPV of 600 a year for 25 years at 5% (B)	8 700		
NPV of service charges (C)	1 300		
Annualized rate (600*1300/8700)	90		
First year		Second year	
Investment income (interest) in respect of :		Investment income (interest) in respect of :	
A	500	A	491
B	435	B	427
C	65	C	64
Payments due		Payments due	
A	690	A	690
B	600	B	600
C	90	C	90
Decline in value of stocks		Decline in value of stocks	
A	- 190	A	- 200
B	- 165	B	- 173
C	- 25	C	- 26
End year stocks		End year stocks	
A	9 810	A	9 611
B	8 535	B	8 362
C	1 275	C	1 249
		Etc.	

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Part 2: Social insurance schemes

G. Introduction

17.76 Social insurance schemes are an important way in which individuals who participate in the scheme are paid benefits, described as social benefits, when certain conditions exist that would adversely affect their welfare. Some social benefits, however, are payable independently of participation in a social insurance scheme. It is the conditions under which the benefits are payable that identify a social insurance scheme, not the nature of the benefits in themselves.

17.77 A social insurance scheme is a form of contract and always involves at least one unit other than the beneficiary. The other unit may be an employer, general government or a financial institution (often an insurance corporation) or sometimes a non-profit institution serving households (NPISH).

17.78 The objective of this part of the chapter is to describe how the various sorts of social benefits provided under social insurance schemes are recorded in the SNA. In order to do this, it is necessary to clarify the identifying characteristics of a social insurance scheme, the nature of the other unit involved, the types of benefits payable and the ways in which these are funded.

H. Basic definitions

1. Social benefits

17.79 Social benefits become payable when certain events occur, or certain conditions exist, that may adversely affect the welfare of the households concerned either by imposing additional demands on their resources or reducing their incomes. Social benefits may be provided in cash or in kind. There are a number of circumstances in which social benefits may be payable:

a. The beneficiaries, or their dependants, require medical, dental or other treatment, or hospital, convalescent or long-term care, as a result of sickness, injuries, maternity, chronic invalidity, old age, etc. The social benefits may be provided in kind in the form of treatments or care provided free or at prices that are not economically significant, or by reimbursing expenditures made by households. Social benefits in cash may also be payable to beneficiaries needing health care.

b. The beneficiaries have to support dependants of various kinds: spouses, children, elderly relatives, invalids, etc. The social benefits are usually paid in cash in the form of regular dependants' or family allowances.

c. The beneficiaries suffer a reduction in income as a result of not being able to work, or to work full-time. The social benefits are usually paid in cash regularly for the duration of the condition. In some instances a lump sum may be provided additionally or instead of the regular payment. People may be prevented from working because of:

· voluntary or compulsory retirement;

· involuntary unemployment, including temporary lay-offs and short-time working;

· sickness, accidental injury, the birth of a child, etc., that prevents a person from working, or working full time.

d. The beneficiaries receive payments to compensate for suffering a reduction in income because of the death of the main income earner.

e. The beneficiaries are provided with housing either free or at prices that are not economically significant or by reimbursing expenditure made by households. These are social benefits in kind.

f. The beneficiaries are provided with allowances to cover education expenses incurred on behalf of themselves or their dependants. Occasionally education services may be provided in kind.

17.80 The above are typical circumstances in which social benefits are payable. However, the list is illustrative rather than exhaustive. It is possible, for example, that under some social insurance schemes other benefits may be payable. Conversely, by no means all schemes provide benefits in all the circumstances listed above. In practice, the scope of social insurance schemes is liable to vary significantly from country to country, or from scheme to scheme within the same country.

2. Social benefits provided by general government

17.81 Many social benefits are provided by general government. They may appear in the accounts as payments under social security, social assistance or social transfers in kind.

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17.82 Social security is the name give to the social insurance scheme operated by general government. As will be explained below, in order to receive social security benefits, an individual must participate in a social security scheme.

17.83 Social assistance is not a scheme and thus does not require participation. However, social assistance is frequently restricted to individuals with low incomes, disabilities or other particular characteristics. In some countries, though, a universal pension may be paid without any need for participation in which case it is part of social assistance also. There is a section discussing the difference between social insurance and social assistance at greater length in chapter 8.

17.84 The definition of social benefits includes the possible provision of health and education services. Typically general government makes such services available to all members of the community without requiring participation in a scheme or qualifying requirements. These services are treated as social transfers in kind and not as part of social security or social assistance. Social transfers in kind are also discussed in chapter 8.

17.85 In addition to health and education services provided by general government, such services may also be provided to individuals by NPISHs. These also are treated as social transfers in kind and not as part of social insurance schemes.

3. Social benefits provided by other institutional units

17.86 Social benefits may also be provided by employers to the employees and their dependents or may be provided by other units such as a trades union. All social benefits provided by units other than general government are made under a social insurance scheme.

4. Social insurance schemes

17.87 A social insurance scheme is a form of contractual insurance scheme where the policyholder is obliged or encouraged to insure against certain contingencies by the intervention of a third party. For example, government may oblige all employees to participate in a social security scheme; employers may make it a condition of employment that employees participate in an insurance scheme specified by the employer; an employer may encourage employees to join a scheme by making contributions on behalf of the employee; or a trades union may arrange advantageous insurance cover available only to the members of the trades union. Contributions to social insurance schemes are usually paid by, or on behalf of employees, though under certain conditions non-employed or self-employed persons may also be covered.

17.88 A social insurance scheme is an insurance scheme where the following two conditions are satisfied:

a. the benefits received are conditional on participation in the scheme and constitute social benefits as this term is used in the SNA; and

b. at least one of the three conditions following is met:

- ***Participation in the scheme is obligatory either by law or under the terms and conditions of employment of an employee, or group of employees;***
- ***The scheme is a collective one operated for the benefit of a designated group of workers, whether employed or non-employed, participation being restricted to members of that group;***
- ***An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, whether or not the employee also makes a contribution.***

17.89 Those participating in social insurance schemes make contributions to the schemes (or have contributions made on their behalf) and receive benefits. Contributions and benefits are defined in similar ways to insurance premiums and claims. ***A social insurance contribution is the amount payable to a social insurance scheme in order for a designated beneficiary to be entitled to receive the social benefits covered by the scheme. A social insurance benefit is a social benefit payable because the beneficiary participates in a social insurance scheme and the social risk insured against has occurred.***

17.90 Social security is a form of social insurance scheme. The relative importance of social security relative to other social insurance scheme varies considerably from one country to another depending on institutional arrangements. In some countries, social security may be restricted to basic pension provision of the social safety net variety. In such cases even the pension provision of general government employees may be dealt with other than via social security. At the other extreme, almost all pension provision, including that accruing to employees in private enterprises, may be routed through social security.

17.91 The two classes of social insurance schemes are:

a. Social security,

b. Employment-related social insurance schemes other than social security.

The schemes other than social security may be arranged with an insurance corporation as a group policy or series of policies or they may be managed by an insurance corporation in return for a fee. Alternatively, the schemes may be managed by an employer directly on his own behalf.

Multiemployer schemes

17.92 An insurance corporation may, for a fee, agree not only to manage a pension scheme but to take on the risks associated with it. This is done in the context of performing this service for a number of schemes collectively under what is called a multiemployer scheme. Under many such schemes, the insurance corporation takes over the responsibility of managing the funds at its disposal so as to

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make sufficient funds available to meet pension liabilities and to make a surplus it can retain. If it fails to make sufficient funds available for the pension entitlements, it is then the responsibility of this firm and not the original employers, to make good the difference from its own resources.

17.93 When government takes over the responsibility for providing pensions to large sections of the community, the social security function is in effect filling the role of a multiemployer scheme. Like the insurance corporation, the government then takes on the responsibility for any shortfall in funds to meet the pension liabilities or may be entitled to retain any surplus generated. It is often the case, though, that social security is funded on a pay-as-you-go basis so there is no question of a surplus arising and, if there is a shortfall in resources, government may have powers to change the entitlements not just relating to future employment but for the past also.

5. Individual insurance policies qualifying as social insurance

17.94 Many social insurance schemes are organized collectively for groups of workers so that those participating do not have to take out individual insurance policies in their own names. In such cases, there is no difficulty distinguishing social insurance from insurance taken out on a personal basis. However, some social insurance schemes may permit, or even require, participants to take out policies in their own names. The determinants for the insurance to count as a social insurance policy are that the benefits must be of the social benefit type and an employer makes an actual or imputed contribution to the scheme on behalf of an employee.

17.95 The premiums payable, and claims receivable, under individual policies taken out under a social insurance scheme are recorded as social contributions and social insurance benefits. Contributions to social insurance schemes are frequently paid on a monthly or even more frequent basis as they are often made directly when wages and salaries are payable.

17.96 Most individual policies that qualify as social insurance schemes are likely to be for pension provision but it is possible that they may cover other eventualities, for example to provide income if the policyholder is unable to work for a prolonged period because of ill-health.

17.97 Individual insurance policies that do not qualify as social insurance are described as individual insurance not qualifying as social insurance, or in short as other insurance. They are recorded in the accounts of the SNA as described in part 1 of this chapter.

6. Benefits payable under social insurance schemes

17.98 In the SNA, social insurance benefits and the corresponding contributions are divided between those relating to pensions and those relating to all other forms of benefit. The most important pension benefit covered by social insurance schemes is income in retirement but a number of other contingencies may be covered also. For example, pensions may be payable to widows and widowers or to people who suffer an industrial injury and are no longer able to work. All of these sorts of contingencies that give rise to payments because the main income earner is no longer able, through death or incapacity, to provide an income for himself or herself and dependants are treated as pensions.

17.99 All other benefits are grouped together as non-pension benefits. The distinction between the two is important because the SNA recognizes liabilities for some pensions whether there are actually assets set aside to meet the entitlements or not but recognizes reserves for non-pension benefits only when these actually exist.

I. Accounting for non-pension contributions and benefits

17.100 Non-pension benefits may be payable under social security and under employment–related schemes other than social security. Although in many countries there may in fact be no non-pension benefits, a description is given of how these should be recorded if they exist. For other social insurance schemes, the way of recording varies depending on whether reserves for provision of future benefits are set aside or not. Although in many cases there may be no such reserves and the benefits are paid on a pay-as-you-go basis, a description of the appropriate recording in each case is given.

1. Non-pension benefits payable under social security

17.101 As is typical of social security schemes, there may be contributions payable by both the employer and the employee. The costs of operating social security schemes are treated as part of the normal expenditure of general government and so the accounting for social security operations does not include measures of output.

17.102 In the SNA flows are recorded as follows.

a. Employers' social security contributions are shown as payable by the sector in which the employer is located and receivable by households. The sector of the employer may be any of non-financial corporations, financial corporations, general government (as an employer), employer households, NPISHs or the rest of the world (when a resident works for a non-resident institutional unit). For resident employers the payables are shown in the generation of income account; payables by non-resident employers are shown in the primary distribution of income account for the rest of

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the world. Receivables by resident households are shown in the allocation of primary income account and by non-resident households in the primary distribution of income account for the rest of the world.

b. In the secondary distribution of income account, the sum of employers' social security contributions and social security contributions by households in their capacities as employees is shown as payable by households and receivable by government. Further, social security benefits in cash payable to households are shown as payable by government (or the rest of the world if from a foreign government) and receivable by households.

17.103 An example of these flows is shown in table 17.3.

2. Unfunded non-pension benefits other than from social security

17.104 In the SNA, an employer operating an unfunded scheme is regarded as making an imputed social contribution to the scheme on behalf of the employees. In practice, the value of the employers' and employees' contributions is usually set equal in value to the benefits payable in the period under consideration (plus the cost of operating the scheme as described in the following paragraph). The imputed contribution forms part of the compensation of employees and is also shown as being payable by the employees to the scheme together with any actual payments by the employees. Even though the scheme is unfunded, the employee may still make a contribution; however, it is not uncommon for unfunded schemes to be non-contributory for the employees.

17.105 Even if a scheme is unfunded, there are costs involved in administering it. In principle, output equal to the sum of these costs should be treated as being paid for by the beneficiaries from an imputed element of contributions. The imputed contribution to employees should include these costs as well as the value of the benefits received by employees. A value equal to the amount of the costs of operating the scheme is then recorded in the use of income account as a purchase of a service by the employees from the employer.

17.106 There are two transactions recorded for the production and consumption of the services provided by the employer. Because the scheme is unfunded, there are no investment income flows and no contribution supplements to be recorded. There are two sets of redistributive transactions recorded.

17.107 The production and consumption transactions are as follows.

a. Output of services is imputed in the production account of the employer and the value of the output forms part of the imputed employers' contributions to social insurance incorporated in compensation of employees.

b. Consumption of the service is recorded as household final consumption expenditure in the use of income account for resident households or as exports for non-resident households.

17.108 The redistributive transactions are as follows.

a. Employers' imputed contributions to unfunded social insurance schemes are shown as a payable by the sector in which the employer is located in the generation of income account and a receivable by households in the allocation of primary income account.

b. In the secondary distribution of income account, employers' imputed contributions and any actual contributions by employees are shown as payable by households and receivable by the employer. Further, benefits payable to households by the employer are shown as payable by the employer and receivable by households.

17.109 An example of these flows is shown in table 17.4.

3. Funded social insurance other than pensions

17.110 As noted above, funded schemes for benefits other than pensions are not very common. They may, however, exist in two circumstances. The first is when an employer has a fund for such benefits and accumulates any underspend in one year to pay for possible overspends in future years. Alternatively, an employer may realize that the commitments to make payments in future are such that it is prudent to build reserves to be able to make such payments. An example of such a scheme might be one that provides health cover to present and past employees. Unlike in the case of pensions, estimates of possible future claims on social insurance benefits other than pensions are not necessarily included in the SNA. Liabilities are recorded only when and to the extent that they exist in the employer's accounts.

17.111 Funded social insurance covering benefits other than pensions may be carried out by insurance corporations or by employers on behalf of their employees. The output of this activity is measured in the same way as the output of non-life insurance but the matching consumption of the services is payable only by the households of the beneficiaries. These will be resident households except where a resident producer is liable to pay benefits to a present or former employee who is a non-resident or who has a non-resident family member entitled to the benefits. The investment income attributed to the beneficiaries of the social insurance schemes can only be receivable by the same households.

17.112 Employers' contributions relate only to employees. However, both current and former employees who are now, or may in future be, beneficiaries may make contributions to the scheme and receive investment income from it. This investment income is then treated as contribution supplements payable by those receiving it.

17.113 All contributions to the schemes are recorded as payable by households. These contributions include that part paid by the employer as part of compensation of employees in the

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Table 17.3:Accounts for non-pension benefits paid through social security - uses

Uses

	Social security			Other	Total
	Employer	fund	Households	sectors	economy
Generation of income account					
Employers' actual social security contributions (non-pension)	15.0				15.0
Allocation of primary income account					
Employers' actual social security contributions (non-pension)					
Secondary distribution of income account					
Social security contributions (non-pension)			25.0		25.0
Employers' actual social security contributions (non-pension)			15.0		15.0
Household actual social security contributions (non-pension)			10.0		10.0
Social security non-pension benefits		22.0			22.0

Table 17.4:Accounts for non-pension social insurance benefits from unfunded other employment-related schemes - uses

Uses

	Social				
		insurance		Other	Total
	Employer	fund	Households	sectors	economy
Generation of income account					
Employers' imputed non-pension contributions	9.0				9.0
Allocation of primary income account					
Employers' imputed non-pension contributions					
Secondary distribution of income account					
Household total non-pension contributions			9.0		9.0
Employers' imputed non-pension contributions			9.0		9.0
Unfunded non-pension benefits		9.0			9.0

Table 17.5:Accounts for non-pension social insurance benefits from funded other employment-related schemes - uses

Uses

		Social			
		insurance		Other	Total
	Employer	fund	Households	sectors	economy
Production account					
Output					
Generation of income account					
Employers' actual non-pension contributions	6.0				6.0
Allocation of primary income account					
Employers' actual non-pension contributions					
Investment income				4.0	4.0
Investment income payable on non-pension entitlements		4.0			4.0
Secondary distribution of income account					
Household total non-pension contributions			14.0		14.0
Employers' actual non-pension contributions			6.0		6.0
Household actual non-pension contributions			5.0		5.0
Household non-pension contribution supplements			4.0		4.0
Social insurance scheme service charges			-1.0		-1.0
Funded non-pension benefits		7.0			7.0
Use of income account					
Final consumption expenditure			1.0		1.0
Adjustment for the change in non-pension entitlements		-2.0			-2.0
Saving	-6.0	10.0	0.0	-4.0	0.0
Financial account					
Change in pension entitlements			-2.0		2.0

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Table 17.3 (cont):Accounts for non-pension benefits paid through social security - resources

Resources

	Employer	Social security fund	Households	Other sectors	Total economy
Generation of income account					
Employers' actual social security contributions (non-pension)					
Allocation of primary income account					
Employers' actual social security contributions (non-pension)			15.0		15.0
Secondary distribution of income account					
Social security contributions (non-pension)		25.0			25.0
Employers' actual social security contributions (non-pension)		15.0			15.0
Household actual social security contributions (non-pension)		10.0			10.0
Social security non-pension benefits			22.0		22.0

Table 17.4 (cont):Accounts for non-pension social insurance benefits from unfunded other employment-related schemes - resources

Resources

	Employer	Social insurance fund	Households	Other sectors	Total economy
Generation of income account					
Employers' imputed non-pension contributions					
Allocation of primary income account					
Employers' imputed non-pension contributions			9.0		9.0
Secondary distribution of income account					
Household total non-pension contributions		9.0			9.0
Employers' imputed non-pension contributions		9.0			9.0
Unfunded non-pension benefits			9.0		9.0

Table 17.5 (cont):Accounts for non-pension social insurance benefits from funded other employment-related scheme - resources

Resources

	Employer	Social insurance fund	Households	Other sectors	Total economy
Production account					
Output		1.0			1.0
Generation of income account					
Employers' actual non-pension contributions					
Allocation of primary income account					
Employers' actual non-pension contributions			6.0		6.0
Investment income		4.0			4.0
Investment income payable on non-pension entitlements			4.0		4.0
Secondary distribution of income account					
Household total non-pension contributions		14.0			14.0
Employers' actual non-pension contributions		6.0			6.0
Household actual non-pension contributions		5.0			5.0
Household non-pension contribution supplements		4.0			4.0
Social insurance scheme service charges		-1.0			-1.0
Funded non-pension benefits			7.0		7.0
Use of income account					
Final consumption expenditure					
Adjustment for the change in non-pension entitlements			-2.0		-2.0
Saving					
Financial account					
Change in pension entitlements		-2.0			0.0

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generation of income account as well as contributions paid directly by the employee funded from wages and salaries or by others including former employees. Further, households receive investment income attributable to policyholders in respect of these contributions and this is treated, in total, as contribution supplements. Two items of contributions appear in the secondary distribution of income account. The first, the employers' actual social contributions, is exactly equal in value to the amount receivable by households from the employer in the generation of income account. The second item, called households social contributions, includes the direct payment by households plus the contribution supplements less the service charge payable to the social insurance schemes.

17.114 Eight transactions must be recorded, one each relating to production and consumption of the insurance service, three relating to contributions and benefits, one to the investment income attributable to policyholders and two relating to the difference between contributions and benefits:

a. The activity by resident units is undertaken by insurance corporations or by an employer; the output is recorded in the production account of the insurance corporations or in the sector of the employer as appropriate;

b. Employers' actual social contributions to employment-related social insurance schemes are shown as payable by the sector in which the employer is located in the generation of income account and receivable by households in the allocation of primary income account;

c. Investment income attributed to policyholders (beneficiaries) in respect of these schemes is payable by insurance corporations and employers, and receivable by households. Both payables and receivables are recorded in the allocation of primary income account;

d. Net social contributions are shown in the secondary distribution of income account as payable by households and receivable by insurance corporations or the sector of the employer as appropriate;

e. Employment-related social benefits other than pensions are also shown in the secondary distribution of income account as payable by insurance corporations or the sector of the employer and receivable by households;

f. The value of the service is payable by households as part of final consumption expenditure and is recorded in the use of income account, except for non-resident employee households where it is payable by the rest of the world;

g. The excess of net contributions over benefits represents an increase in the liability of the insurance scheme towards the beneficiaries. This item is shown as an adjustment in the use of income account. As an increase in a liability, it is also shown in the financial account. As noted, the item is likely to occur only rarely and, for pragmatic reasons, changes in such non-pension entitlements may be included with those for pensions.

17.115 An example of these flows is shown in table 17.5.

J. Accounting for pension contributions and pensions

17.116 Pensions are provided to individuals in an economy under one of three mechanisms, via social security, via employment-related schemes other than social security or via social assistance. Together, social security and employment-related pension schemes other than social security constitute social insurance schemes. Although the benefits provided under social assistance and some social insurance schemes may be very similar, the key distinction is that social insurance benefits are only paid if the beneficiary participates in the social insurance scheme, participation being normally evidenced by the beneficiary or another on his behalf having made qualifying contributions. Social assistance is paid without qualifying contributions having been made though means-testing may be applied to applicants.

17.117 The means by which pensions are provided to persons in retirement varies considerable from one country to another. This part of chapter 17 describes the most common forms of pension provision made under social insurance schemes though not all aspects may apply to all countries. Pensions provided under social assistance are not discussed in this chapter but in chapters 8 and 9.

17.118 Social insurance pensions in all countries are provided, if at all, in part by general government and in part by employers. The part provided by general government is called social security and the part by employers is called employment-related schemes other than social security. The division between which pensions are provided by social security and which by other employment-related schemes varies considerably from country to country with the consequence that the coverage and therefore national perceptions of what the term "social security" designates also vary considerably. In order to make clear the recommendations in the SNA, it is necessary to consider the types of coverage provided in different countries.

17.119 The narrowest form of social security pension is very basic. The level may be fixed independently of the size of contributions (though not of the fact that contributions have been made for a given period of time). An employee's right to a pension under social security is often transferable ("portable") from one employer to another, which is an advantage not always applying to other pension provisions, but for many people in low paid jobs, working temporarily or intermittently, it may be the only form of pension provision they can expect to receive.

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17.120 By contrast, in some countries most or all pension provision may be made via social security. In this case, government acts as an intermediary relative to the employer so that once the government has received the contributions to the scheme paid by the employer and the households, the government then takes on the risk of making the eventual payment. Government relieves the employer of the risk that the cost of pensions may be too great for his enterprise to meet and assures the population that pensions will be paid, though it may do so with the qualification that it may alter the amount of pensions payable, even retrospectively, if economic conditions so dictate.

17.121 Pension schemes run by private employers are usually not subject to retrospective adjustments of the amounts payable, but there is a risk that the employer may be unable to pay because he has gone out of business. Increasingly, though, protection for the pension entitlements of individuals is becoming more common. Equally, the pension built up with one employer may not be transferable to a new employer though this too is undergoing change. While social security may be, and very often is, financed on a pay-as-you-go basis, without building up reserves for future liabilities, other employer schemes are increasingly likely to have reserves set aside. Even if there are no reserves, accounting conventions may require them to recognize pension entitlements of present and past employees in their accounts.

17.122 Employment-related pensions, other than the most basic form of social security, are seen as part of the compensation package and negotiations between employees and employers may focus on pension entitlements as much as on current conditions of service and pay scales. Often pensions are provided by private employers from funds that the employers control or contract to a third party such as an insurance corporation. These funds may also provide social benefits other than pensions, for example private medical coverage. It is sometimes possible for a specialized unit to agree to assume responsibility for providing pensions for a number of employers in return for assuming the risk of ensuring adequate funding is available to make the promised pensions. Such an arrangement is called a multiemployer pension scheme.

17.123 As with non-pension social benefits, both current employees and former employees who are current or future beneficiaries may make contributions to the scheme and receive investment income from it. This investment income is then treated as contribution supplements by those receiving it.

1. Social security pensions

17.124 It is common but not essential for both employers and employees to make contributions towards a social security pension. It is also common for the contributions to be compulsory. Social security pensions are frequently funded on a pay-as-you-go basis. The normal assumption in the main accounts of the SNA is that this is how social security pensions are funded. That is the contributions receivable in a period are used to fund the benefits payable in the same period. There is no saving element involved, either for the government operating the scheme or for the individuals participating in it. No liabilities for the scheme are recognized in the main accounts of the SNA although concern is often expressed that benefits may exceed contributions and this situation is likely to worsen in an ageing population. For this reason, estimates of the liabilities of social security as well as any other pension schemes not included in the main accounts are included in a supplementary table described below in section J.

17.125 The recording of the flows for social security pension schemes is simple. Any contribution made by the employer is treated as part of compensation of employees. It is recorded as payable by the employer in the generation of income account and receivable by the employee in the distribution of primary income account. The employee then pays an amount equal to what he receives from the employer together with any contribution he is liable to make on his own behalf to the social security fund. This amount is recorded as payable by households in the secondary distribution of income account and receivable by the government in the same account. Any contributions made by self-employed or non-employed people are also included with the contributions payable by households to government. Social security benefits are also recorded as payable by government and receivable by households in the secondary distribution of income account.

17.126 An example of these flows is shown in table 17.6. It is similar in content to table 17.1 except that table 17.1 relates to non-pension benefits and table 17.6 to pension benefits.

2. Employment-related pension schemes other than social security

17.127 There are two forms of employment-related pension schemes other than social security. One is called a defined contribution scheme, sometimes referred to as a money purchase scheme. (The expression “defined contribution pension scheme” is not intuitive but is widely used in the pension industry.) The other is a defined benefit scheme, sometimes referred to as a final salary scheme, though this term does not accurately describe all defined benefit schemes. Typically both schemes are contributory, often by both the employer and the employee.

17.128 ***A defined contribution scheme is one where the benefits payable to an employee on retirement are defined exclusively in terms of the level of the fund built up from the contributions made over the employee’s working life and the increases in value that result from the investment of these funds by the manager of the scheme.*** The entire risk of the scheme to provide an adequate income in retirement is thus borne by the employee.

17.129 ***A defined benefit scheme is one where the benefits payable to an employee on retirement are determined by the use of a formula, either alone or as a minimum amount payable.*** In this case the risk of the scheme to provide an adequate income in retirement is borne either by the employer or is shared between the employer and employee. In certain cases, the employer’s risk may be borne by the multiemployer scheme that operates the defined benefit pension scheme on behalf of the employer. A scheme that may be defined in terms similar to a defined contribution scheme but with a guaranteed minimum, say,

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or other such hybrid schemes are grouped with defined benefit pension schemes in the SNA.

17.130 For both types of schemes, pension entitlements of the participants are recorded as they build up. In both cases, there is investment income earned on existing entitlements and this is recorded as being distributed to the beneficiaries and reinvested by them in the pension scheme. There are, though, a number of different features of the two schemes, so the transactions relating to each are described in detail separately before turning to other changes in the levels of pension entitlements. The recording of transactions for a defined contribution scheme is less complicated than the defined benefit scheme and is described first.

17.131 For both types of schemes, a pension fund is assumed to exist. For a defined contribution pension scheme, a fund must exist. For a defined benefit pension scheme a fund may exist in reality or it may be a notional fund. If it exists, it may be part of the same institutional unit as the employer, it may be a separate institutional unit (an autonomous pension scheme) or it may be part of another financial institution, either an insurance corporation or a multiemployer pension scheme. In describing the recording of transactions, transactions with the pension fund must be attributed to the sector where the fund is located.

Defined contribution pension schemes

17.132 Recording the transactions related to a defined contribution pension scheme presents no conceptual problems. There are no associated imputations either for the flows concerned or for the values appearing in balance sheets for the pension entitlements of the beneficiaries nor any doubt as to which unit has a liability and which an asset.

Transactions recorded for a defined contribution pension scheme

17.133 The contribution made by an employer to a defined contribution pension scheme on behalf of his employee is treated as part of compensation of employees. It is recorded as payable by the employer in the generation of income account and receivable by the employee in the distribution of primary income account.

17.134 The investment income on the cumulated pension entitlements is also recorded as being distributed to (receivable by) households in the allocation of primary income account and is shown as payable by the pension fund. The investment income includes interest and dividends payable plus the distributed income of collective investment schemes if the pension fund holds shares in them. It is possible that the pension fund may own property and generate net operating surplus on this which is also included along with the investment income as being distributed to the pension beneficiaries. In this case, the term investment income is to be interpreted as being elastic enough to include this source of income if it exists. Holding gains and losses generated by the investment of the cumulated pension entitlements are not included in investment income.

17.135 Part of the income distributed to households is used to meet the costs of operating the pension fund. This cost is shown as the output of the pension fund in the production account and as an element of consumption expenditure by households in the use of income account. The remaining part of the distributed income is treated as pension contribution supplements paid back by households to the pension funds.

17.136 In the secondary distribution of income account, social contributions are shown as payable by households and receivable by the pension fund. The total amount of the social contributions payable is made up of the actual contributions payable by the employers as part of compensation of employees, actual contributions by employees and possibly by other individuals (individuals formerly participating in a scheme, self-employed and non-employed persons as well as retirees) plus the contribution supplements just specified. For clarity, and to enhance the comparison with defined benefit schemes, the supplements are shown at full value in both the allocation of primary income account where they appear as investment income and in the secondary distribution of income account where they appear as contribution supplements. However, the service charge is shown as an offsetting negative element to

Table 17.6:Accounts for pension benefits paid through social security - uses

Uses

	Employer	Social security fund	Households	Other sectors	Total economy
Generation of income account					
Employers' actual social security contributions (pension)	139.0				139.0
Allocation of primary income account					
Employers' actual social security contributions (pension)					
Secondary distribution of income account					
Social security contributions (pension)			226.0		226.0
Employers' actual social security contributions (pension)			139.0		139.0
Household actual social security contributions (pension)			87.0		87.0
Social security pension benefits		210.0			210.0

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total household contributions in the secondary distribution of income account. The total contributions made by households to the pensions scheme are net in the same way that insurance premiums are net, that is to say they are the total of all contributions made less the service charge appearing in the use of income account.

17.137 Those other than employees who contribute to a defined contribution pension scheme may be self-employed persons participating in a defined contribution pension scheme or may be persons not employed who participate in a defined contribution pension scheme by virtue of their profession or former employment status, for example.

17.138 Also in the secondary distribution of income account, the pension benefits payable to households by the pension fund are shown. However, the benefits payable under a defined contribution pension scheme take the form of a lump sum payable at the moment of retirement. It may be a requirement of the scheme that these sums are to be immediately converted to an annuity with the same or another financial institution but this is not a universal requirement. The appropriate recording of the benefits is not to show the benefit as payable immediately on retirement and then, where appropriate, reinvested in terms of an annuity or other forms of financial assets but notionally as a reclassification from life insurance entitlements to annuities entitlements. However, since no distinction is normally made between these two sets of entitlements, no actual classification change will show in the accounts. The recording of annuities is discussed in part 1 of this chapter.

17.139 In the use of income account, there is an entry for the payment of the service provided by the pension fund (equal to the value of the pension fund's output) payable by households to the pension fund.

17.140 In the same account there is an entry showing the increase (or decrease) in pension entitlements caused by the excess (or deficit) of contributions payable less benefits receivable in the secondary distribution of income account. This amount is shown as payable to households by the pension fund. Because much of the increase in the pension entitlement of participants in a defined contribution pension scheme, and thus ultimately the funding for the benefits, come from holding gains that are not included in the contribution supplements of participants in defined contribution pension schemes, the adjustment for the change in pension entitlements for these individuals will frequently be negative.

17.141 The adjustment for the change in pension entitlements that is included in the use of income account as payable by the pension fund to households is shown in the financial account as payable by households to the pension fund. The effect of any transfer of the obligations to meet pension entitlements from a unit in one sector to another are also reflected in the financial account item.

17.142 The other factors affecting the change in the balance sheet entry for the change in pension entitlements are shown in the other changes in assets accounts. In particular, the liabilities of the scheme to the beneficiaries show holding gains or losses in the revaluation account corresponding exactly to those on the assets held by the scheme to meet these obligations. When payments under a defined contribution scheme are made via annuities, other volume changes may need to be recorded as explained in paragraph 17.136.

17.143 Table 17.7 illustrates the entries necessary to record the transaction related to a defined contribution scheme. It is simpler than the corresponding table for a defined benefit scheme, which is described in the following section, because of the absence of any imputed transactions.

Defined benefit pension schemes

Differences between a defined benefit and a defined contribution pension scheme

17.144 The fundamental difference in accounting for a defined benefit pension scheme as compared with a defined contribution pension scheme is that, for the defined benefit pension scheme, the benefit to the employee in the current period is determined in terms of the undertakings made by

Table 17.6 (cont):Accounts for pension benefits paid through social security - resources

	Resources				
	Employer	Social security fund	Households	Other sectors	Total economy
Generation of income account					
Employers' actual social security contributions (pension)					
Allocation of primary income account					
Employers' actual social security contributions (pension)			139.0		139.0
Secondary distribution of income account					
Social security contributions (pension)		226.0			226.0
Employers' actual social security contributions (pension)		139.0			139.0
Household actual social security contributions (pension)		87.0			87.0
Social security pension benefits			210.0		210.0

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the employer about the level of pension ultimately receivable, whereas for the defined contribution pension scheme the benefit to the employee in the current period is determined entirely by the contributions made to the scheme and the investment income and holding gains and losses earned on these and previous contributions. Thus while there is (in principle) exact information available on the benefits for the participant in the defined contribution pension scheme, the benefits for the participants in a defined benefit pension scheme must be estimated. The source of these estimates is the actuarial estimates the employer is faced with in drawing up his own accounts.

17.145 There are four sources of changes in pension entitlements in a defined benefit pension scheme. The first of these, the current service increase, is the increase in entitlement associated with the wages and salaries earned in the current period. The second source, the past service increase, is the increase in the value of the entitlement due to the fact that for all participants in the scheme, retirement (and death) are one year nearer. The third change in the level of entitlement is a decrease due to the payment of benefits to retirees of the scheme. The fourth source of change comes from other factors, factors that are reflected in the other changes in assets account.

17.146 As with a defined contribution pension scheme, both employer and employee may make actual contributions to the scheme in the current period. However, these payments may not be sufficient to meet the increase in the benefits accruing from the current year's employment. Therefore an additional contribution from the employer is imputed to bring equality between the contributions and the increase in current service entitlements. These imputed contributions are usually positive but it is possible for them to be negative if the sum of the contributions received exceeds the increase in current service entitlements. The implications of this case are discussed below when examining the relationship between the employer and the fund.

17.147 At the end of an accounting period, the level of the pension entitlements due to past and present employees can be calculated by estimating the present value of the amounts due to be paid in retirement using actuarial estimates of the expected life length of the beneficiaries. This is the amount that appears in the balance sheet as the liability towards the employees. One element in the increase of this amount year by year is the fact that the present value of the entitlements existing at the beginning of the year and still due at the end of the year have increased because the future is one year nearer and so one fewer discount factor must be used to calculate the present value. It is this unwinding of the discount that accounts for the past service increase in entitlements.

17.148 A further basic difference between a defined benefit pension scheme and a defined contribution pension scheme concerns the payment for the cost of operating the pension scheme. As already noted, under a defined contribution pension scheme all the risk is borne by the beneficiaries. The pension scheme is operated on their behalf and they pay for the cost of it. Since the fund may be operated by a unit other than the employer, it is appropriate to treat the operating cost as part of the investment income that is retained by the fund to meet its costs (and generate a profit). In keeping with accounting for insurance, the investment income is treated as being attributed in full to

Table 17.7:Accounts for pension benefits payable under a defined contribution scheme - uses

Uses					
	Employer	Pension fund	Households	Other sectors	Total economy
Production account					
Output					
Generation of income account					
Employers' actual pension contributions	11.0				11.0
Allocation of primary income account					0.0
Employers' actual pension contributions					0.0
Property income				3.0	3.0
Property income payable on pension entitlements		16.2			16.2
Secondary distribution of income account					0.0
Household total pension contributions			37.3		37.3
Employers' actual pension contributions			11.0		11.0
Household actual pension contributions			11.5		11.5
Household pension contribution supplements			16.2		16.2
pension scheme service charges			-1.4		-1.4
Defined contribution pension benefits		26.0			26.0
Use of income account					0.0
Final consumption expenditure			1.4		1.4
Adjustment for the change in pension entitlements		11.3	0.0		11.3
Saving	-11.0	-11.8	25.8	-3.0	0.0
Changes in assets					
Financial account					
Net borrowing/lending					
Change in pension entitlements			11.3		11.3
Other financial assets	-11.0	-0.5	14.5	-3.0	0.0

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the beneficiaries, part being used to meet the cost and the remainder being reinvested with the fund.

17.149 For a defined benefit pension scheme, the situation is somewhat different. The risk that the fund may be insufficient to meet the promises of entitlement is met in part or in whole by the pension manager (either the employer or a unit that has assumed the risk of meeting the pension obligations) and not by the beneficiaries alone. The fund may be directly controlled by the employer and be part of the same institutional unit or may be purely notional. Even in this case, there are costs associated with operating the scheme. Although these are initially borne by the employer, it is appropriate to regard this as a form of income in kind provided to the employees and for convenience it may be included with the employers' contributions. There is an element of pragmatism in this since this assumes all the costs are borne by current employees and none by retirees. It also assumes that the attribution that must be made in the case of notional schemes can be applied in other circumstances also.

17.150 For a defined benefit scheme, it is unlikely that self- and non-employed persons currently contribute though it is possible if they were previously in employment giving rise to a defined benefit pension and have the right to continue to participate. Those previously in employment (whether currently in receipt of a pension or not) receive investment income and pay contribution supplements.

Transactions recorded for a defined benefit pension scheme

17.151 The initial discussion assumes that the employer retains the whole responsibility for meeting the pension payments. Alternatives involving the use of a multiemployer scheme or where government assumes responsibility on behalf of the employer are discussed subsequently.

17.152 The total contribution made by an employer to a defined benefit pension scheme on behalf of his employee must be sufficient that, together with any actual contribution by the employee and excluding the cost of operating the scheme, it exactly matches the current service increase in the employee's pension entitlements. The contribution by the employer is divided into an actual and an imputed part, the latter being calculated so as to meet the need of an exact match between all contributions to the fund adding to the entitlements of the employee and the current service cost of these entitlements.

17.153 The contribution by the employer should be calculated in relation to the pension entitlement earned in the period regardless of any investment income earned by the scheme in the same period or any overfunding of the scheme. The current period entitlement is part of compensation of employees and not to include the full value of the employer's contribution understates compensation of employees and therefore overstates operating surplus. An extreme case has occurred in the past when the investment of the pension entitlements has done so well that the employer has taken a "contribution holiday", that is he has not made an actual contribution towards new entitlements.

Table 17.7 (cont):Accounts for pension benefits payable under a defined contribution scheme - resources

					Resources
	Employer	Pension fund	Households	Other sectors	Total economy
Production account					
Output		1.4			1.4
Generation of income account					
Employers' actual pension contributions					
Allocation of primary income account					
Employers' actual pension contributions			11.0		11.0
Property income		3.0			3.0
Property income payable on pension entitlements			16.2		16.2
Secondary distribution of income account					
Household total pension contributions		37.3			37.3
Employers' actual pension contributions		11.0			11.0
Household actual pension contributions		11.5			11.5
Household pension contribution supplements		16.2			16.2
pension scheme service charges		-1.4			-1.4
pension benefits			26.0		26.0
Use of income account					
Final consumption expenditure					
Adjustment for the change in pension entitlements			11.3		11.3
Saving					
					Changes in liabilities
Financial account					
Net borrowing/lending	-11.0	-11.8	25.8	-3.0	0.0
Change in pension entitlements		11.3			11.3
Other financial assets					0.0

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It is important that contributions continue to be recorded even in the event of a contributions holiday, the benefit to the employer being regarded as a change in liabilities between the pension fund and the employer. This leaves the net worth of both the same as when contributions are not recorded under a contributions holiday without reducing compensation of employees artificially.

17.154 Under many defined benefit schemes, there is a qualifying period before an employee does in fact become eligible to receive a pension in retirement. Despite this qualifying period, both contributions and entitlements should be recorded from the start of employment adjusted by a factor reflecting the probability that the employee will in fact satisfy the qualifying period.

17.155 The sum of employers' actual and imputed pension contributions is treated as part of compensation of employees. It is recorded as payable by the employer in the generation of income account and receivable by the employee in the allocation of primary income account.

17.156 The increase in the present value of the entitlements of continuing employees and those who no longer contribute but remain eligible for pensions in future (the past service increase) represents the investment income distributed to the employees. No deduction is made for any amount that may be funded from holding gains or that is not actually matched by existing funds. It matches the amount that is unequivocally due to the employee under the prevailing agreements; the means by which the employer may ultimately match this obligation is not relevant for the recording of this as investment income any more than the means by which interest or dividends are actually financed affect their recording as investment income. The investment income is recorded as payable by the pension fund and receivable by households. It is immediately reinvested by the households in the fund and in this guise is described as pension contribution supplements.

17.157 In the secondary distribution of income account, social contributions are shown as payable by households and receivable by the pension fund. The total amount of the social contributions payable is made up of the actual and imputed contributions payable by the employers as part of compensation of employees (excluding the amount of the costs of running the pension scheme), plus actual contributions by employees plus the contribution supplements just specified. As explained in the discussion under defined contribution schemes, the accounts show the full value of the contributions and contribution supplements with an offsetting item representing the service charge payable. The amount actually payable is thus a net contributions figure.

Table 17.8:Accounts for pension benefits payable under a defined benefit scheme - uses

Uses

	Employer	Pension fund	Households	Other sectors	Total economy
Production account					
Output					
Generation of income account					
Employers' actual pension contributions	10.0				10.0
Employers' imputed pension contributions	4.1				4.1
Allocation of primary income account					
Employers' actual pension contributions					
Employers' imputed pension contributions					
Property income				2.2	2.2
Property income payable on pension entitlements		4.0			4.0
Secondary distribution of income account					
Household total pension contributions			19.0		19.0
Employers' actual pension contributions			*10.0*		*10.0*
Employers' imputed pension contributions			*4.1*		*4.1*
Household actual pension contributions			1.5		1.5
Household pension contribution supplements			*4.0*		*4.0*
Pension scheme service charges			*-0.6*		*-0.6*
Pension benefits		16.0			*16.0*
Use of income account					
Final consumption expenditure			0.6		0.6
Adjustment for the change in pension entitlements		3.0			3.0
Saving (actual)	-10.0	-5.3	17.5	-2.2	0.0
Saving (imputed)	-4.1	4.1			0.0

Changes in assets

Financial account					
Net borrowing/lending (actual)					
Net borrowing/lending (imputed)					
Change in pension entitlements			3.0		3.0
Claim of pension fund on pension manager (current service)		4.1			4.1
Other financial assets	-10.0	-2.3	14.5	-2.2	0.0

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17.158 Also in the secondary distribution of income account, the pension benefits payable to households by the pension fund are shown. When the benefits are taken in terms of an annuity, it is the annuity payments that are shown here, not the lump sums payable at the time of retirement. (Unless the demographics of the retirees changes dramatically, the two figures will be very similar in any case.)

17.159 In the use of income account, there is an entry for the payment of the service provided by the pension fund (equal to the value of the pension fund's output plus the output of the enterprises operating annuities bought with pension entitlements) payable by households to the pension fund and recorded as final consumption expenditure.

17.160 Also in the use of income account, there is an entry showing the increase (or decrease) in pension entitlements caused by the excess of contributions payable less benefits receivable in the secondary distribution of income account. This amount is shown as payable to households by the pension fund. In the case of a defined benefit pension scheme, the amount is unlikely to be negative unless it is a scheme for a defunct employer and it is only paying benefits and not receiving new contributions.

17.161 The same amount that is included in the use of income account as the adjustment for the change in pension entitlements is included in the financial account as a claim by households on the pension fund. (The other part of this item reflects any change in responsibility for pension entitlements recorded as part of capital transfers.)The other factors affecting the change in the balance sheet entry for the change in pension entitlements are shown in the other changes in assets accounts and are discussed below in section 4.

Defined benefit pension schemes operated by other than employers

17.162 It is possible that some other organization, such as a trades union, may operate a defined benefit pension scheme for its members that is in all respects parallel to an employer's defined benefit pension scheme. Exactly the same recording is followed as just described except that references to the employer should be understood to refer to the scheme organizer and references to the employee should be understood to refer to the participant in the scheme.

Table 17.8 (cont):Accounts for pension benefits payable under a defined benefit scheme - resources

					Resources
	Employer	Pension fund	Households	Other sectors	Total economy
Production account					
Output		0.6			0.6
Generation of income account					
Employers' actual pension contributions					
Employers' imputed pension contributions					
Allocation of primary income account					
Employers' actual pension contributions			*10.0*		10.0
Employers' imputed pension contributions			*4.1*		*4.1*
Property income		2.2			2.2
Property income payable on pension entitlements			*4.0*		4.0
Secondary distribution of income account					
Household total pension contributions		19.0			19.0
Employers' actual pension contributions		10.0			10.0
Employers' imputed pension contributions		4.1			4.1
Household actual pension contributions		1.5			1.5
Household pension contribution supplements		4.0			4.0
Pension scheme service charges		-0.6			-0.6
Pension benefits			16.0		16.0
Use of income account					
Final consumption expenditure					
Adjustment for the change in pension entitlements			3.0		3.0
Saving (actual)					
Saving (imputed)					
					Changes in liabilities
Financial account					
Net borrowing/lending (actual)	-10.0	-5.3	17.5	-2.2	0.0
Net borrowing/lending (imputed)	-4.1	4.1			0.0
Change in pension entitlements		3.0			3.0
Claim of pension fund on pension manager (current service)	4.1				4.1
Other financial assets					

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The relationship between the employer and the pension fund

17.163 As noted above, an employer may contract with another unit to administer the pension fund and arrange disbursements to the beneficiaries. There are two ways in which this may happen. The operator of the pension fund may simply act as the employer's agent and the responsibility for any shortfall in the fund (or the benefit of any excess) remains with the employer. In this case the unit handling the day to day running of the pension fund is called the pension administrator.

17.164 However, it is not uncommon for a single unit to contract with several employers to manage their pension funds as a multiemployer pension fund. The arrangements are such that the multiemployer pension fund accepts the responsibility for any shortfall in the funds to meet the liabilities in return for the right to keep any excess funds. By pooling the risks over a number of employers the multiemployer fund expects to balance under- and over-funding so as to emerge with an excess over all the funds taken as whole in a similar way that an insurance corporation pools risk for many clients. In such a case, the unit assuming responsibility for meeting the pension obligations becomes the pension manager in place of the employer.

17.165 In the case where the employer retains the liability for any underfunding or the benefit of any overfunding, a claim on (or liability towards) the employer (the pension manager) by the pension fund should be recorded for any deficit or surplus. This claim is equal to the difference between the increase in pension entitlements and the sum of the contributions and contributions supplements in the period, plus the investment income earned on the entitlements, plus the holding gains made on them, less the pensions payable, less the fee charged by the pension administrator. When the amount accruing to the pension fund exceeds the increase in entitlements, there is an amount payable by the pension fund to the employer as pension manager. In this way the net worth of the pension fund remains exactly zero at all times.

17.166 The amount due to the pension manager by the pension fund is where the impact of a contribution holiday shows up since it includes the amount of the employer's contributions that would normally be payable.

A numerical example

Transactions for a defined benefit schemes

17.167 In order to illustrate the recording of transactions connected with a defined benefit pension scheme, table 17.8 shows a numerical example. Figures that are imputed are shown in bold; those that result from re-routing are shown in italics.

17.168 Actuarial calculations show that the increase in pension entitlement coming from current service, that is the pension "earned" in the year in question is 15. Households (the employees) contribute 1.5. The employer therefore is obliged to provide 13.5. In addition the cost of operating the scheme is estimated at 0.6. In total therefore the employer must provide 14.1. He actually contributes 10 so the remaining 4.1 is an imputed contribution. The output of 0.6 is shown in the production account; the contributions by the employer are shown as payable by the employer in the generation of income account and receivable by the households in the allocation of primary income account.

17.169 In the allocation of primary income account, investment income is also shown. The increase in pension entitlement coming from past service, due to the unwinding of the discount factor because retirement is one year nearer, is 4. This is shown as an imputed flow of investment income from the pension fund to households. At the same time, the pension fund actually earns 2.2 from investment income of the funds they manage. At this point, therefore, there is a shortfall of 1.8 in the pension fund resources but it is not shown in the current accounts.

17.170 In the secondary distribution of income accounts, the payments from households to the pension fund are shown. This can be viewed in one of two ways. The sum of the contributions paid by households should be equal to the increase in entitlements coming from current service (15) plus that coming from income on past entitlements (4) or 19 in total. The amounts actually paid are 10 received as the employers' actual contributions, 4.1 as the imputed contributions, 1.5 of the households own contributions, contribution supplements of 4 less the service charge of 0.6; again 19 in total. In the same account pensions of 16 are also shown as payable by the pension fund to households.

17.171 In the use of income account, as well as the purchase of the service charge as part of household final consumption expenditure, the change in pension entitlement is shown as payable by the pension fund to households. In this example, the amount of household contributions of 19 is set against pension benefits of 16. There is thus an increase in pension entitlements of 3 owing to households.

17.172 Households have saving of 17.5 of which 3 is the increase in their pension entitlements. This means that they have acquired other financial assets (or reduced liabilities) by 14.5. This figure is the difference between the benefits received (16) and households' actual contributions of 1.5.

17.173 For pension funds, saving is -1.2 but this can be seen as the composite of the actual and imputed elements. In terms of actual flows, pension funds receive contributions of 10 from employers routed via households, 1.5 from households and pay out benefits of 16. In addition, they receive investment income of 2.2. Their disposable income is thus -2.3. When the change in pension entitlements of 3 is taken into account, saving is -5.3. In addition, employers make an imputed contribution of 4.1. This is routed via households but adds 4.1 to the saving of the pension fund and reduces saving of the employer by the same amount.

17.174 In the financial account of the pension fund, the figure of 4.1, which was the imputed contribution, is shown as the claim of the pension fund on the employer. There is a claim by households on the pension fund of the change in pension entitlements of 3. In addition the pension fund either runs down financial assets or increases liabilities by 2.3, the

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figure corresponding to disposable income excluding the imputed contribution element from the employer.

Defined contribution pension schemes

17.175 Table 17.7 shows the similar flows for a defined contribution scheme. The accounts are simpler, compared to the defined benefit case, because there are no imputed contributions. Further, the investment income payable by the pension fund to households reflects only investment income received by the pension fund and does not involve calculations about increases in entitlement from the operation of a formula.

17.176 The investment of the entitlements of defined contribution pension schemes leads to holding gains (and possibly losses). These come about through the management of the assets held by the fund but an amount exactly equal to the holding gains and losses should be attributed as an increase in the pension entitlement of the beneficiaries. The holding gains appear under entries for the relevant assets in the revaluation account for the pension fund with a matching entry for the increase in the liability of the pension fund towards households.

Other flows for a defined benefit pension scheme

17.177 At first sight it would seem that there are no entries to be made in the other changes in assets accounts for a defined benefit pension scheme since the two components recorded as the pension contributions and investment income are matched exactly to the increase in entitlements. However, because the nature of a defined benefit pension scheme is that the amounts due are determined by a formula, there are other factors that may intervene to change the level of entitlements. These factors include a price escalation clause, changes in the formula used to determine benefits and demographic assumptions about life length. The special case of the impact of promotions on entitlements is discussed separately below.

17.178 A pension fund invests the funds at its disposal. If they work on a fully funded basis, the investment income should be more than enough to cover any price escalation clause in the pension agreement. The excess may also be sufficient to cover some other adjustments to entitlements. However, a major source of revenue comes from holding gains on investments. These were assumed to be sufficient to cover most or all changes in entitlements. It has become clear that many schemes were underfunded in the expectation that holding gains would make up this shortfall also.

17.179 Given these adjustments are funded in large part by holding gains which appear in the revaluation account, it seems reasonable to record the contingencies that they are assumed to cover in the other changes in the volume of assets account except for the price escalation factor which should appear in the revaluation account.

The issue of promotions

17.180 Many defined benefit pension schemes use a formula to set benefits that involves either the final salary or average salary as a key determinant. This implies that any promotion means that the total pension entitlements accrued to date are increased to take account of the new salary level. This is a significant benefit for the individual being promoted but what are the consequences for the employer's pension liabilities?

17.181 The accounting profession uses two actuarial terms that bear on this discussion. The accrued benefit obligation (ABO) records, as it name implies, only the benefits actually accrued to date. It represents the amount the employee could walk away with if he left the firm tomorrow and may be the basis of assessing a person's net worth in the case of a divorce settlement, for example. A projected benefit obligation (PBO) is a more prudent measure of what the eventual level of entitlement is likely to be. For an individual, the PBO makes assumptions about how many future promotions the person is likely to receive and calculates his final salary accordingly. Then, if he has in fact only worked 20 out of an expected 40 years, it halves the final salary and calculates pension entitlement for the individual as if this were his current salary. Where an individual's ABO increases in steps as he is promoted, the PBO increases steadily over time. For the individual, PBO is always higher than ABO until the moment of retirement when the ABO catches up with the PBO.

17.182 It would seem at first sight that the level of pension entitlements for a corporation should be the sum of all the pension entitlements of each of the employees and that therefore the sum of the PBO estimates would be considerably higher than that of the sum of the ABO estimates and would evolve more smoothly over time. However, what is true for the individual is not necessarily true for the cohort of employees. Suppose the employer has five classes of people for whose pensions he is responsible, four grades of employees and one set of retirees, and for simplicity there are the same number of each. Consider the situation where in a year the retirees die; the most senior set of employees retire, the next three sets of employees are all promoted and a new set of employees is recruited at the lowest level. Every current employee is better off after promotion but the overall liability of the employer has not changed. The effect of aggregating ABOs is to smooth the total entitlement and while it will still be lower than the aggregate PBOs, it will not necessarily be more volatile. Indeed it may be more stable.

17.183 While the profile of the ABO of an individual will show step changes when promotions occur, for a cohort of employees, the effect is much smoother. For a cohort of the same age remaining with the corporation for the whole of their working lives, the ABO estimates will be considerably lower than PBO estimates in the early years but the rate of increase of the ABOs will be faster than that of the PBOs so that at the point immediately before retirement, the two sets of estimates will be equal. Merging cohorts of employees with different periods of service with the corporation will bring the ABO estimates for all employees closer to the PBO ones also.

17.184 As long as the grade structure of the corporation stays the same, ABO and PBO will move roughly in step. If the firm expands and takes on many new employees at the lower grades, the PBO will be increase noticeably faster than the ABOs because the PBOs make estimates of how long the

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new employees will stay and how far they will be promoted while the ABOs record simply the pension accrued in their first year. If the firm decides to downsize and reduces the number of their managerial staff, this will reduce the promotion prospects of the employees and a downward revision in PBO will be necessary. Because ABOs reflect simply the "locked-in" pension, this estimate is not affected.

17.185 The question arises, though, of how to record the impact of promotion on the employee if an ABO recording is used. Any version of treating the increase as a form of compensation of employees or investment income falls back into the assumption that the aggregate of entitlements is the sum of the individual entitlements but without looking at other individual impacts on the aggregates such as when someone leaves and loses pension entitlement because not enough time has been served or when someone dies before retirement age. A simpler and adequate solution is to treat the impact of promotions for the unit as a whole as a price change and record the change in the revaluation account.

Table 17.9:Detailed transactions concerning social insurance

	Table number		Employer	Insurance corporation/ Social insurance fund	Households	Other sectors	Total economy
Intermediate consumption			*1*		*3*		*4*
	17.1	Non-life insurance	1		3		4
Output				*-13*			
(Output shown as negative use for compactness)	17.1	Non-life insurance		-6			
	17.2	Life insurance		-4			
	17.5	Other employment-related schemes - funded non-pension benefits		-1			
	17.7	Other employment-related schemes - DC pension benefits		-1.4			
	17.8	Other employment-related schemes - DB pension benefits		-0.6			
Employers' actual social insurance contributions			*181*				*181*
	17.3	Social security non-pension benefits	15				15
	17.5	Other employment-related schemes - funded non-pension benefits	6				6
	17.6	Social security pension benefits	139				139
	17.7	Other employment-related schemes - DC pension benefits	11				11
	17.8	Other employment-related schemes - DB pension benefits	10				10
Employers' imputed social contributions			*13.1*				*13.1*
	17.4	Other employment-related schemes - unfunded non-pension benefit	9				9
	17.8	Other employment-related schemes - DB pension benefits	4.1				4.1
Household actual contributions					*115*		*115*
	17.3	Social security non-pension benefits			10		10
	17.4	Other employment-related schemes - unfunded non-pension benefits					
	17.5	Other employment-related schemes - funded non-pension benefits			5		5
	17.6	Social security pension benefits			87		87
	17.7	Other employment-related schemes - DC pension benefits			11.5		11.5
	17.8	Other employment-related schemes - DB pension benefits			1.5		1.5
Investment income				*37.2*			*37.2*
	17.1	Non-life insurance		6			6
	17.2	Life insurance		7			7
	17.5	Other employment-related schemes - funded non-pension benefits		4			4
	17.7	Other employment-related schemes - DC pension benefits		16.2			16.2
	17.8	Other employment-related schemes - DB pension benefits		4			4
Insurance service charges paid by households					*6*		*6*
	17.1	Non-life insurance			2		2
	17.2	Life insurance			4		4
Social insurance scheme service charge					3		3
	17.5	Other employment-related schemes - funded non-pension benefits			1		1
	17.6	Social security pension benefits					
	17.7	Other employment-related schemes - DC pension benefits			1.4		1.4
	17.8	Other employment-related schemes - DB pension benefits			0.6		0.6
Social insurance benefits				*290*			*290*
	17.3	Social security non-pension benefits		22			22
	17.4	Other employment-related schemes - unfunded non-pension benefit		9			9
	17.5	Other employment-related schemes - funded non-pension benefits		7			7
	17.6	Social security pension benefits		210			210
	17.7	Other employment-related schemes - DC pension benefits		26			26
	17.8	Other employment-related schemes - DB pension benefits		16			16
Adjustment for the change in pension entitlements				*-2*	*14.3*		*12.3*
	17.5	Other employment-related schemes - funded non-pension benefits		-2			-2
	17.7	Other employment-related schemes - DC pension benefits			11.3		11.3
	17.8	Other employment-related schemes - DB pension benefits			3		3
Claim by pension fund on pension manager				*4.1*			*4.1*
	17.8	Other employment-related schemes - DB pension benefits		4.1			4.1

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17.186 If the PBO method of recording entitlements is chosen as the preferred valuation, an adjustment in the other changes in volume of assets account is needed only if the structure of the enterprise changes so the chances of promotion change. On the other hand, the regular estimates of the employer's contributions to social insurance schemes included in compensation of employees will be systematically higher than those made under an ABO regime because the increase in pension entitlement that determines the size of the contributions will be based on a notional salary calculated on a PBO basis rather than the actual one.

3. Transferring pension entitlements

17.187 One characteristic of the changing environment of pensions is the increasing possibility of having "portable pensions". Until recently it was often the case that a person leaving one employer had his pension frozen at that point and had to start a new pension with the new employer. It is becoming more common now for a person moving jobs to be able to convert the pension entitlement with the former employer to one with the new employer. When this happens, the pension entitlement of the household concerned is unaffected but there is a transaction between the two pension funds as the new one assumes the liability of the former. In addition there will be a counterpart transaction in some assets to match these liabilities. If the new employer is running a scheme that is actually unfunded, he may receive cash from the former employer. If this cash is then used by the employer for purposes other than the pension fund, his liability to the fund increases and his use of the cash appears as net borrowing.

17.188 If government assumes the responsibility for pension provision for the employees of a non-government unit through an explicit transaction, a pension liability should be recorded in the balance sheet of government. If the government does not receive matching assets in return, the difference between the increase in the government's liability and the assets received is shown as a capital transfer to the non-government employer. There is further discussion of this type of arrangement in chapter 22.

17.189 Another way in which pension entitlements may be transferred between funds is when one corporation takes over another. If the pension fund is a separate institutional unit, all that changes is control of the pension fund. If there is no separate institutional unit, assuming the takeover does not change the terms of the pension plan for existing participants, the corporation being taken over passes both the pension liabilities and the corresponding assets to the new owner.

4. A note on the tables

17.190 For cross-reference with tables in other chapters, table 17.9 shows the itemized components of transactions pertaining to social and other insurance in tables 17.1 to 17.8 inclusive.

K. The special case of government providing pensions via social security

17.191 In recognition of the fact that social security is normally financed on a pay-as-you-go basis, entitlements accruing under social security (both pensions and other social benefits) are not normally shown in the SNA. If all countries had similar benefits provided under social security and under private schemes, international comparisons would be relatively straightforward. However, as pointed out at the beginning of this part, this is far from being the case and national perceptions of exactly what is covered by social security vary considerably.

17.192 There are two problems with simply suggesting that entitlements from social security should be shown in the SNA. The first is that reliable estimates of the entitlements may not be readily available whereas it is increasingly the case that such estimates exist for private schemes. Secondly, there is an argument that such estimates are of limited usefulness where government has the possibility of changing the basis on which entitlements are determined in order to keep the entitlements within the bounds of what is budgetarily feasible. However, the consequence of simply accepting that entitlements for private schemes are shown and for social security are not is that some countries would include the greater part of pension entitlements in the accounts and some would show almost none.

17.193 In recognition of this dilemma, some flexibility regarding the recording of pension entitlements of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government's own employees) is provided. Given the different institutional arrangements in countries, only some of these pension entitlements may be recorded within the main sequence of accounts (here referred to as the "core accounts"). In addition, however, a further table is to be presented that provides information disclosing the proportion of pension provision covered in the core accounts with some approximate estimates for the remaining schemes. It is a requirement, though, that a set of criteria be provided to explain the distinction between those schemes carried forward to the core accounts and those recorded only in the supplementary table.

17.194 The sort of criteria that might be considered are the following: The closer a government employer pension scheme is to the prevailing social security scheme, the less likely it is to appear in the core accounts; the less the benefits are tailored to the specific characteristics of the individual and the more they are applicable to the population at large, the less likely it is to appear in the core accounts; the greater the ability of government to alter the benefit formula, the less likely it is to appear in the core accounts. However, none of these criteria alone is

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necessarily decisive in determining whether the scheme is treated in the core accounts or not.

17.195 By making this supplementary table and annotation a standard requirement for international reporting, analysts have the possibility of ensuring that cross country comparisons are not unduly clouded by the institutional variations from country to country. Further work on refining the criteria for the distinction between the pension schemes fully recorded in the core accounts and those where the entitlements are shown only in the supplementary table is to be part of the SNA research agenda.

17.196 The supplementary table is shown in table 17.10. As well as the possibility of including less robust estimates for countries with large social security sectors, the possibility will also exist of working back to a narrower coverage of private pensions for all countries being analysed.

Table 17.10:A supplementary table showing the extent of pension schemes included and excluded from the SNA sequence of accounts

		Liabilities appear in the core national accounts								Liabilities do not appear in the core national accounts	
		Non-general government			General government						
						General government employee defined benefit schemes					
Row number	Position / transaction / other flow	Defined contribution schemes	Defined benefit schemes	Total	Defined contribution schemes	In the financial corporations sector	In the general government sector	In the general government sector	Social security pension schemes	Total pension schemes	Pension entitlements of resident households
	Column number	A	B	C	D	E	F	G	H	I	J
	Opening balance sheet										
1	Pension entitlements										
	Transactions										
2	Social contributions relating to pension schemes										
2.1	Employer actual social contributions										
2.2	Employer imputed social contributions										
2.3	Household actual social contributions										
2.4	Household social contribution supplements										
3	Other (actuarial) accumulation of pension entitlements in social security funds										
4	Pension benefits										
5	Adjustment to the change in pension entitlements										
6	Change in pension entitlements due to transfers of entitlements										
7	Changes in entitlements due to negotiated changes in scheme structure										
	Other economic flows										
8	Revaluations										
9	Other changes in volume										
	Closing balance sheet										
10	Pension entitlements										
	Related indicators										
	Output										
	Assets held by pension schemes at end-year										

Empty cells show where entries appear in the main ("core") accounts. Black cells show where no entry is appropriate. Grey cells show where information is provided in the supplementary table only.

Row 2 is the sum of rows 2.1 to 2.4

Row 3 is the analogue of employer's imputed contributions in the case where government has assumed the ultimate responsibility for any shortfall in pension provision

Row 5 is the sum of rows 2 and 3 less 4

More information on the components underlying rows 8 and 9 to be shown in a further supplementary table to allow an assessment of the degree of uncertainty in these estimates.

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17.197 As noted above, providing detail on defined contribution schemes is relatively straightforward since full accounts must be available and no actuarial estimation is involved. Most of these are in the corporations sectors (column A) but it is possible that some government employees may be covered by them (column D). All defined contribution pension schemes should be included in the core accounts. Estimates for all defined benefit pension schemes outside social security should also be included (column B).

17.198 Government schemes for their own employees where separate accounting information, distinct from social security, is shown in the main accounts appear in columns E and F. Column E shows schemes managed by an insurance corporation and column F those managed by government itself. Any government schemes for their own employees distinct from social security that do not appear in the main accounts, are shown in column G. The sum of columns E, F and G therefore show the total responsibility of government for pension provision for their own employees. (Column F shows that part of all defined benefit schemes of government that are retained within the government accounts as distinct from being moved into separate units or managed for government by another institutional unit. Column H relates to social security schemes. Column C shows the total of all non-government schemes and column I the total of all schemes including social security.

17.199 For the most part, the beneficiaries of pension schemes are likely to be resident households. In some countries, though, the number of non-resident households receiving pension benefits may be significant. In this case, column J should be added indicating the amount of the total that concerns non-resident households.

17.200 Some of the entries in the rows of columns G and H, specifically the actual contributions made by both employers and employees, appear in the core accounts, even though the entitlements and change in entitlements do not. Other entries in the columns for G and H shown only in the supplementary table are shaded in the table and explained below.

17.201 The imputed contribution by employers for those government schemes for which entitlements appear in column G but not in the core accounts requires special consideration. In the core accounts, this item is calculated, by convention, as equal to the difference between current benefits payable and actual contributions payable (by both employees and employers). In the supplementary table, this is replaced by the amount needed to ensure the total contributions, actual and imputed, by both employers and employees, covers both the increase in pension entitlements from current service and the costs of operating the scheme.

17.202 An item calculated on the same basis in respect of social security is shown in row 3 as “other (actuarial) accumulation of pension entitlements in social security funds”. The distinction from employers’ imputed social contributions is deliberate and is intended to emphasize the probable fragility of these estimates.

17.203 Items for household social contribution supplements and the other changes in entitlements are shown on the same bases as for private schemes.

17.204 Changes in pension entitlements are recorded as transactions in the following cases:

a. If the pension scheme is included in the core accounts, and the employer manager agrees a change in the terms of pension entitlements via negotiation with the affected employees, this change should be recorded as a transaction in the core accounts.

b. If the pension scheme is not recorded in the core accounts, and the employer manager agrees a change in the terms of pension entitlements via negotiation with the affected employees, this change should be recorded as a transaction in the supplementary table.

c. In the case of social security, if changes in entitlements are agreed in parliament, this is also recorded as if it is negotiated.

17.205 Changes in pension entitlements that are imposed without negotiation are recorded as other changes in the volume of assets

17.206 The difference in the type of recording is one of principle but it is recognized that the distinction between what is negotiated and what is imposed without negotiation will be difficult to determine in practice with different situations prevailing in different countries.

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Part 3: The treatment of standardized guarantees in the SNA

L. Types of guarantees

17.207 A loan guarantee is normally an arrangement whereby one party, the guarantor, undertakes to a lender that if a borrower defaults, the guarantor will make good the loss the lender would otherwise suffer. Often a fee is payable for the provision of a guarantee though the form of this varies. Sometimes the guarantor will acquire some rights over the defaulting borrower. Similar guarantees may be offered in respect of other financial instruments, including deposits. This section refers to similar guarantees of all financial instruments.

17.208 Guarantees have a significant impact on the behaviour of economic agents, both by influencing their decisions on production, income, investment or saving and by modifying the lending and borrowing conditions on financial markets. Some borrowers might have no access to loans or be willing to make deposits in the absence of guarantees, while others might not benefit from comparatively low interest rates. Guarantees are particularly significant for the general government sector and for the public sector as government activities are often linked to the issuance or activation of guarantees.

17.209 Three classes of guarantees are recognized. No special treatment is proposed for guarantees in the form of manufacturers' warrantees or other form of guarantee. (The cost of replacing defective merchandise is an intermediate cost of the manufacturer.)

17.210 The first class of guarantees is composed of those guarantees provided by means of a financial derivative, such as a credit default swap. These derivatives are actively traded on financial markets. The derivative is based on the risk of default of a reference instrument and so is not actually linked to an individual loan or bond. Incorporating the transactions connected with establishing this sort of financial derivative is discussed in chapter 11.

17.211 The second class of guarantees, standardized guarantees, is composed of the sorts of guarantees that are issued in large numbers, usually for fairly small amounts, along identical lines. There are three parties involved in these arrangements, the debtor, the creditor and the guarantor. Either the debtor or creditor may contract with the guarantor to repay the creditor if the debtor defaults. The classic examples are export credit guarantees and student loan guarantees. Government guarantees of other financial instruments such as loans and some other debt securities in return for a fee are other examples. Here, although it is not possible to establish the likelihood of any one debtor defaulting, it is not only possible but standard practice to estimate how many out of a batch of similar debts will default. If the guarantor is working on purely commercial lines, he will expect all the fees paid, plus the investment income earned on the fees and any reserves, to cover the expected defaults along with the costs and leave a profit. This is exactly the same paradigm as operates for non-life insurance and a similar treatment is adopted for these guarantees, described as "standardized guarantees". This involves including transactions and balance sheet items parallel to those for non-life insurance, including the generation of output and payments of a fee supplement and a service fee by those taking out the guarantees.

17.212 The third class of guarantees, described as one-off guarantees, consists of those where the loan or the security is so particular that it is not possible for the degree of risk associated with the debt to be calculated with any degree of accuracy. In most cases, the granting of a one-off guarantee is considered a contingency and is not recorded as a financial asset/liability. (As an exception, one-off guarantees granted by governments to corporations in certain well-defined financially distressed situations and with a very high likelihood to be called are treated as if these guarantees are called when the financial distress is recognized.) If a fee is charged, this is recorded as a payment for a service at the time of payment. If a call is made under a guarantee, a capital transfer is recorded from the guarantor to the guarantee holder at the time of default or, in cases where the guarantor obtains an effective claim on the guarantee holder, a financial transaction (including increases in equity participation) is recorded.

17.213 Standardized guarantees are to be distinguished from one-off guarantees based on two criteria:

a. They are characterized by often repeated transactions with similar features and pooling of risks;

b. Guarantors are able to estimate the average loss based on available statistics by using a probability-weighted concept.

One-off guarantees are, on the contrary, individual, and guarantors are not able to make a reliable estimate of the risk of calls.

17.214 Financial derivatives are described in chapter 11. The treatment of standardized guarantees follows.

1. Standardized guarantee schemes

17.215 Standardized guarantees may be provided by a financial institution, including but not confined to insurance corporations. They may also be provided by government units. It is possible but unlikely that non-financial corporations may provide these sorts of guarantees; it is most unlikely that they would be provided by any unit to a non-resident unit. As indicated above, standardized guarantee schemes have much in common with non-life insurance. In the general case, similar recording is recommended as described below.

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17.216 When a unit offers standardized guarantees, it accepts fees and incurs liabilities to meet the call on the guarantee. The value of the liabilities in the accounts of the guarantor is equal to the present value of the expected calls under existing guarantees, net of any recoveries the guarantor expects to receive from the defaulting borrowers. The liability is entitled provisions for calls under standardized guarantees.

17.217 A guarantee may cover a multiyear period. A fee may be payable annually or upfront. In principle the fee should represent charges earned in each year the guarantee holds with the liability decreasing as the period gets shorter and so the same sort of recording should be followed here as for annuities with the fee paid earned as the future liability decreases. In practice, some units operating guarantees may have data only on a cash basis. This is inaccurate for an individual guarantee but the nature of the standardized guarantee scheme is that there are many guarantees of the same type, though not all for exactly the same time period nor all starting and finishing on the same dates. Unless there is reason to suppose that there is a major change in the nature of the guarantee holders over time, using cash based data should not introduce significant error.

17.218 Altogether six sets of transactions need to be recorded in respect of standardized guarantee schemes; two relating to the measurement of the production and consumption of the guarantee service, three relating to redistribution and one in the financial account. The value of the output of the activity, the investment income to be attributed to the guarantee holder (whether creditor or debtor) and the value of the service charge are calculated in the manner described above for non-life insurance with the concepts of fees replacing premiums and calls under a standardized guarantee scheme replacing claims.

17.219 The production and consumption transactions are as follows:

a. The output is recorded in the production account of the sector or subsector to which the guarantor belongs.

b. The service may be paid for by either the borrower or the lender of the debt being guaranteed. When non-financial corporations, financial corporations, general government or non-profit institutions pay fees to obtain this sort of guarantee, the fees constitute intermediate consumption, recorded in their production account. Any fees for such guarantees payable by households are part of final consumption expenditure, recorded in the use of income accounts.

17.220 The redistributive transactions cover investment income attributed to guarantee holders in respect of standardized guarantee schemes, net fees, and calls under standardized guarantee schemes.

a. Investment income attributed to guarantee holders in respect of standardized guarantee schemes is recorded as payable by the guarantor. It is recorded as receivable by the unit paying the fee. Both payables and receivables are recorded in the allocation of primary income account.

b. Net fees are calculated as fees receivable plus fee supplements (equal to the investment income attributed to the unit paying the fee for the guarantee) less the value of the services consumed. These net fees are payable by all sectors of the economy and receivable by the sector of the guarantor.

c. Calls under standardized guarantee schemes are payable by the guarantor and receivable by the lender of the debt under guarantee, regardless of whether the fee was paid by the lender or the borrower. Both net fees and calls are recorded in the secondary distribution of income account.

17.221 In the financial account, an entry shows the difference between payment of fees for new guarantees and calls made under existing guarantees.

2. Guarantees provided by government

17.222 Governments often offer guarantees for specific policy purposes. Export credit guarantees are one example. The guarantees may be issued by a government unit that can be treated as a separate institutional unit. When this is so, the normal rules for the allocation of government units to either publicly controlled corporations or as part of general government apply. If a guarantee unit charges fees that are economically significant (in this case this may be equivalent to saying that most of the calls plus the administrative costs are covered by the fees charged), then this is a market activity. It should be treated as a financial corporation and transactions should be recorded as described above. If the fees cover most but not all the costs, the recording is still as above. The loss made by the agency offering the guarantees may be covered by government on a regular or intermittent basis but this is not passed on to those seeking the guarantees as a subsidy. Regular payments are recorded as a subsidy to the agency and intermittent payments, covering cumulated losses, are recorded as capital transfers only when such payments are made.

17.223 In general, when a government unit provides standardized guarantees without fees or at such low rates that the fees are significantly less than the calls and administrative costs, the unit should be treated as a non-market producer within general government. However, if government recognizes the probability of having to finance some of the calls under the guarantee scheme to the extent of including a provision in its accounts, a transfer of this size from government to the units concerned and a liability of this amount (under provisions for calls under standardized guarantees) should be recorded.

3. Balance sheet implications

17.224 Conceptually the total value on the balance sheet of the instruments under guarantee should be reduced by the extent of provisions for standardized guarantees which are estimates of the amount of debt that will be in default. In practice, this amount is not likely to be significant compared with the total value of the instrument concerned.

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Part 4: The recording of flows associated with financial assets and liabilities

M. Introduction

17.225 The objective of this part of chapter 17 is to show, for each category of financial assets and liabilities, how and where changes in their values are recorded in the SNA and to show when some part of the transaction relating to a financial instrument is treated not as changing the value of the instrument itself but as a measure of the output of financial institutions. Before describing these flows in detail in the next section, it is helpful first to recall the characteristics of financial institutions, the type of flows that are associated with providing financial services as well as the sort of income and holding gains and losses associated with holding financial assets and liabilities.

1. The characteristics of financial institutions

17.226 Within the SNA, the term corporations is used to describe institutional units providing both financial and non-financial services. These are divided into two institutional

Figure 17.2:Indications of the flows associated with different financial instruments

	Services appearing in the production account		Property income appearing in the distribution of primary income account				Revaluation account
Financial instrument	Buy/sell margin	Margin on interest	Interest	Dividends	Withdrawals from incomes of quasi-corporations	Investment income attributed to collective investment fund share holders	Holding gains and losses
Monetary gold and SDRs							
Gold bullion							x
Unallocated gold accounts			x				x
SDRs		x	x				x
Curency and deposits							
Currency							
Domestic							
Foreign							x
Transferable deposits							
In domestic currency		x	x				
In foreign currency		x	x				x
Inter-bank deposits		(x)	x				
Other deposits							
In domestic currency		x	x				
In foreign currency		x	x				x
Debt securities	x		x				(x)
Loans							
In domestic currency		x	x				
In foreign currency		x	x				x
Equity and investment funds							
Equity							
Listed shares	x			x			x
Unlisted shares	x			x			x
Other equity					x		x
Investment fund shares							
Money market fund shares	x					x	x
Other investment fund shares	x					x	x
Financial derivatives and employee stock options							
Financial derivatives	x						x
Employee stock options							x
Other accounts receivable/payable			(x)				

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sectors; non-financial corporations and financial corporations. Financial corporations are distinguished from non-financial corporations because they play a particular role in the economy. Some facilitate means of payments between other units thus avoiding the need for barter. Some also provide the means whereby units seeking additional funds to finance capital formation, acquire financial assets or even for consumption can utilize the funding set aside by other units as saving. The equation that investment in capital formation must be equal to saving plus net borrowing from the rest of the world is fundamental to the functioning of the economy, the way financial markets work and so to the accounting system itself.

17.227 When considering the financial sector alone or in connection with other statistics such as monetary and financial statistics, it is usual to speak of financial institutions rather than financial corporations. No change in definition or coverage is implied by this change in terminology. When subsectoring the financial sector, as explained in chapter 4, a distinction is made between those financial corporations that are primarily involved in financial intermediation, which are called financial intermediaries, and other financial institutions.

17.228 Financial intermediation is the activity of matching the needs of borrowers with the desires of lenders. It is carried out by financial institutions preparing alternative sets of conditions under which clients can borrow and lend. These conditions allow for variations in the rate of return that may be expected from an investment with, often, higher returns being less certain than lower returns or involving forgoing access to the funds for a longer period. There are now very many, very diverse ways in which money can be borrowed and lent. The act of financial intermediation is thus one of devising financial instruments that encourage those with savings to commit to lend to the financial institutions on the conditions inherent in the instruments so that the financial institutions can then lend the same funds to others as another set of instruments with different conditions. This activity encompasses financial risk management and liquidity transformation.

17.229 All financial intermediation in the SNA is carried out by financial institutions. However, some corporations in the financial sector are not themselves intermediaries but simply provide services auxiliary to financial intermediation. For example, they may provide advice to clients about the terms available for specific types of borrowing and lending, such as a mortgage broker or provide certain sorts of financial resources such as a foreign exchange bureau that exchanges one currency for another. These are the units described as other financial institutions.

17.230 Financial institutions provide services and charge for them. The ways in which they charge, however, are not always obvious. When a bank offers “free banking” it only signifies that there are no explicit fees, not that there are no implicit fees. Fees may be charged indirectly by means of charging those purchasing a financial asset more than the seller of the same asset receives. For example, dealers in foreign exchange typically buy and sell at different rates; the differences between those rates and the mid-point represent service charges paid by the customers.

17.231 Nor is it only the service charge that may have to be measured indirectly. Bills are an offer of a fixed sum at some time in the future and the promise of this payment is sold at a discount. The increase in value between the buying price and the redemption price is treated as interest in the SNA.

17.232 Nor are the terms in use in the financial markets exactly the terms used in the SNA. For example, the money paid by a bank on a deposit is described as interest by the bank but is not the amount recorded as interest in the SNA because the amount paid by the bank is assumed to be a compound payment representing interest as understood in the SNA less the service charges levied on the depositor for the costs of operating the account. In the SNA, the terms bank interest and SNA interest are used when it is necessary to distinguish the two concepts. Unless it is qualified as bank interest, the term interest in the SNA is to be taken as referring to SNA interest.

2. Charging for financial services

17.233 As noted above, the way in which financial institutions charge for the services they provide is not always as evident as the way in which charges are made for most goods and services. Several kinds of financial institutions do make explicit fees for the services they render. Other financial institutions may make implicit charges, either alone or in conjunction with explicit fees.

17.234 Explicit fees should always be recorded as payable by the unit to whom the services are rendered to the institution performing the service. If the services are rendered to a corporation or to government, the costs will form part of intermediate consumption. If they are rendered to households they will be treated as final consumption unless the financial service is performed in relation to an unincorporated enterprise, including the owning and occupying of a dwelling. Within the SNA, financial services are not incorporated into the value of any financial asset even if their incurrence is necessary for the acquisition of the asset. (This is in contrast with the treatment on non-financial assets where the costs of acquiring the asset are included in the value of the asset appearing on the balance sheet.) Nor do explicit fees affect the value at which transactions in financial assets actually take place in the market.

17.235 Implicit charges for financial services have to be measured indirectly. The charges may be simply the difference between the buying and mid-price and between the mid-price and selling price as in the example of foreign exchange quoted above. (Each service should be calculated at the time of the transaction concerned so that holding gains and losses occurring between the time of the purchase and sale are not treated as services.) Other implicit charges may be combined with other transactions (or other flows) on a particular financial instrument. The service charge associated with borrowing and lending is one such example where it is combined with interest. As noted in chapter 6 when the output of financial services is discussed, ignoring the implicit charges for financial services may lead to understating the output of the industry and sector.

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3. Investment income associated with financial instruments

17.236 Most financial instruments give rise to investment income. Debt instruments such as Special Drawing Rights (SDRs) on the IMF, loans, most debt securities, deposits and some unallocated gold accounts where the amount is repaid according to a fixed formula give rise to interest. Equity and investment fund shares give rise to dividends or other distributions from corporate income. As far as possible, there should be no interest arising on other accounts receivable or payable since the amounts outstanding that give rise to interest payments should be classified as loans. In practice this might not always be possible in which case there will be some amounts of interest shown under this instrument also. Except for other accounts receivable or payable, only gold bullion, currency, non-interest bearing deposits, financial derivatives and employee stock options never give rise to investment income.

4. Holding gains and losses on financial instruments

17.237 In the normal course of events, loans and deposits denominated in domestic currency do not give rise to nominal holding gains though there will always be real holding losses for the asset holder in the presence of inflation. Securities denominated in domestic currency where the income is in the form of coupons only may be subject to holding gains and losses. These occur because when the interest rate varies, the present value of the future coupon payments and redemption values change and this is reflected in the market price.

17.238 For equity and investment fund shares other than money market fund shares, nominal holding gains are common and may be substantial. Indeed, the most frequent reason for acquiring these instruments is in order to benefit from the holding gains that arise from holding them.

N. Recording flows in financial instruments

17.239 As explained above, both service charges and investment income flows may be combined with the costs of acquiring and disposing of financial assets and liabilities. This section of the chapter, therefore, examines each class of instrument in turn to identify what flows should be recorded in each case. Explicit fees are not covered in this section since even if they apply, their value is additional to the value at which financial assets change hands. There are thus three types of flows of relevance in this section; the implicit fees made by financial institutions, different income flows and holding gains and losses. A summary of the types of flows that relate to each instrument is given in figure 17.3. Implicit fees are subdivided between those that appear as a margin between the buying and selling price and those that represent a margin on interest paid and received (FISIM). All income flows are investment income and these flows are divided between interest, dividends, withdrawals from quasi-corporations and investment income attributed to investment fund shareholders. Only the instruments relating to insurance, pension and standardized guarantee schemes are excluded as the treatment of these schemes is described in detail in other parts of this chapter.

1. Monetary gold

17.240 Monetary gold (including allocated gold accounts) consists of two subcategories, physical gold bullion and unallocated gold accounts, both of which are held by the monetary authorities (or other units authorized by them) as part of reserves. Although it may not be possible to publish these two subcategories separately for reasons of confidentiality, it is important to understand the different considerations that apply to each of them.

17.241 Gold bullion takes the form of coins, ingots, or bars with a purity of at least 995 parts per thousand. Gold held as a valuable by commercial banks or as inventories by some specialized industries, for example jewellers, may be indistinguishable from gold bullion or may be of a lower quality. Physical gold, excluding gold bullion included in monetary gold, whether gold bullion or not, can be referred to as commodity gold (since it is traded on commodity markets).

17.242 Gold bullion may be sold by one monetary authority to another in another country. In such a case the exchange is recorded as an exchange of financial assets only. In all other cases, the gold is reclassified as commodity gold and thus a valuable held by the monetary authority (and is no longer part of reserves) and is then sold as commodity gold. The reclassification is recorded in the other changes in the volume of assets account as demonetization of gold. If the gold is sold abroad it will feature in exports and imports of the countries concerned. When commodity gold is sold, there may be a trade margin attached to it. When a monetary authority acquires monetary gold a reverse path is followed. The gold is acquired initially as commodity gold either from a domestic unit or from abroad and is subsequently reclassified to monetary gold as monetization in the other changes in the volume of assets account.

17.243 There is no interest earned on gold bullion held as a valuable but it is subject to nominal and real holding gains and losses as the gold price changes. Interest can be payable when one monetary authority lends gold bullion held as reserves to another monetary authority.

17.244 Unallocated gold accounts are treated as foreign currency deposits unless they are held by the monetary authorities as part of foreign reserves. Unlike gold bullion, unallocated gold accounts have counterpart liabilities. Because the unallocated gold accounts classified as monetary gold must be held as part of foreign reserves, the counterpart liability is necessarily held abroad. The counterpart liability will not be treated as part of monetary gold in the counterpart country. (Assets held abroad as part of foreign reserves are generally not identified as such within the liabilities of the

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partner country.) If a monetary authority acquires an unallocated gold account to be treated as reserves, it is recorded first as an acquisition of a foreign currency deposit and then reclassified to monetary gold as a change of classification in the other changes in the volume of assets account. Removing an unallocated gold account from reserves is recorded as, first, a change in classification from monetary gold to a foreign currency deposit and then as a disposal of the deposit.

17.245 Unallocated gold accounts attract interest and a service charge and are also subject to nominal and real holding gains and losses as the gold price alters.

2. SDRs

17.246 SDRs are allocated to the countries and authorities participating in the SDR Department of the IMF. Countries must be members of the IMF; other participants include a number of central banks, intergovernmental monetary institutions and development institutions. Participants may hold more or fewer SDRs than their allocation as a result of transactions in SDRs between participants. SDRs attract interest but no service charge as interest paid by participants holding more than their allocation exactly matches the interest owing to participants holding less than their allocation. Data on the interest rates payable are available regularly from the IMF. Since the value of the SDR is based on a basket of four key currencies, the value of SDRs is always subject to nominal and real holding gains and losses. From time to time, new allocations of SDRs may be made; when this occurs the allocation is recorded as a transaction.

3. Currency

17.247 Notes and coins are the simplest financial asset to record since for domestic currency, no service charges, investment income or nominal holding gains and losses are recorded. Under inflation, though, the holder of notes and coins suffers real holding losses. The cost of producing the physical notes and coins is recorded as government expenditure and not netted against the receipts from issuing the currency.

17.248 Foreign currency should be recorded in the national balance sheets converted to a value in domestic currency using the exchange rate relevant for the date of the balance sheet. This value is subject to nominal and real holding gains and losses as the exchange rate of the foreign currency relative to domestic currency alters. As noted above, there is usually a service charge associated with acquiring or disposing of foreign currency.

4. Deposits and loans

17.249 In the 1993 SNA, the acronym FISIM (Financial Intermediation Services Indirectly Measured) was used for indirect service charges on deposits and loans, No explicit mention was made of other indirect charges for financial intermediation except in the case of insurance. Although the update recognizes other indirectly measured service charges associated with financial intermediation, it is convenient to continue to use the familiar expression, FISIM, for its traditional meaning, that is, for financial intermediation associated with loans and deposits held with financial intermediaries.

17.250 Paragraphs 6.163 to 6.169 describe the basic principle of FISIM and explain the need to make the distinction, referred to above, between interest as understood by the banks holding deposits and issuing loans and the investment income flows recorded in the SNA. One (or possibly more) reference rate(s) should be applied to the level of loans and deposits to determine the SNA interest flows to be recorded. The difference between these flows and bank interest are recorded as service charges payable to the banks by the units holding the deposits or loans. This applies to both resident and non-resident units and to deposits and loans held with resident and non-resident units. For clarity, the term bank interest is used to indicate the apparent interest as quoted by a financial intermediary to their customer; the term SNA interest is used for the amount recorded in the SNA as interest, that is the level of loans and deposits multiplied by the reference rate chosen. For deposits with banks, the service charge is equal to SNA interest less bank interest; for loans the service charge is equal to bank interest less SNA interest. At a minimum, it is probable that different reference rates should be used for every currency in which non-resident loans and deposits are denominated.

17.251 No exclusion is made for lending of own funds. Although the act of lending, and the charging of SNA interest is not a productive activity, there is a service charge associated with lending. A person borrowing from a bank is unaware whether the amounts borrowed are of intermediated funds or come from the bank's own funds and no difference in the service charges applied should be made. Similarly, if a person borrows from a money lender, there is a service charge payable. (Often, in fact, the service charge is very large, reflecting the much higher risk of default faced by the money lender. A noteworthy feature of some microfinance schemes is that, because defaults are uncommon, the charges are modest.)

17.252 It is not always simple to determine whether positions between banks should be classified as deposits or loans. In a complete flow of funds presentation, this should be resolved but in the absence of a flow of funds analysis, inter-bank positions may be shown under currency and deposits. By convention they are shown under deposits. It is assumed that the inter-bank rate at which banks borrow and lend to one another is usually such as to meet the criteria for a reference rate. (In some cases it may be appropriate to use the inter-bank rate as the reference rate.) For this reason, it may often be appropriate to assume that there is no FISIM associated with inter-bank lending and borrowing within the national economy.

17.253 The outstanding balance on a credit card or on an account with a retailer is often subject to interest. These outstanding balances should be classified as loans, not other accounts receivable or payable. FISIM is calculated on them if the unit providing the loan is classified as a financial institution.

17.254 Repurchase agreements are classified as giving rise to deposits or loans depending on whether they are or are not

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included in the national measure of broad money. They thus give rise to interest that may have a FISIM component. In addition, they have fees associated with their initiation.

17.255 There are no nominal holding gains and losses on deposits and loans expressed in domestic currency (whether these are held by residents or non-residents). With any inflation at all, there will be real holding losses on assets denominated in domestic currency. There may be nominal and real holding gains and losses on deposits and loans denominated in other currencies or held as unallocated gold accounts (or similar accounts in other precious metals).

17.256 Any charges made by a financial institution for operating a bank account, a fee for cashing a cheque or for withdrawing money from an automatic teller machine are all treated as explicit fees.

17.257 The special case of non-performing loans and how they should be treated in the SNA is discussed in chapter 13.

5. Debt securities

17.258 In terms of recording the associated flows, there are three types of debt securities. The first is where the amount payable at the end of the period for which the security exists is the same as the initial amount paid for the security but there are associated "coupons" that entitle the holder to payments of interest, at fixed or variable rates, at intervals during the life of the instrument. The second type of security is one where no intermediate payments are made but the issue price is lower than the redemption price. The issue price is equal to the redemption price discounted to the date of issue at the appropriate rate of interest that could be earned on a deposit of similar characteristics. The increase in value of the security during its life is treated as interest accruing to the holder of the security that is "reinvested" in the security to increase its value. The third type of security is a hybrid of the two other forms; the initial value is less than the redemption value but there are also attached coupons. In certain circumstances, if the coupons represent a rate of interest higher than that prevailing in the market for similar securities at time of issue, the security may be offered at a price higher than the redemption price.

Service charges associated with securities

17.259 For securities, the interest calculated according to the coupon or as the increase in value of the security is recorded in the SNA as such without adjustment for a service charge. However, there is a service charge associated with the acquisition of a security on initiation and with the disposal and acquisition of a security at any point during its life. These service charges are identified as being the difference between the buying (bid) and selling (ask or offer) price quoted for each security and the mid-price. The bid and offer prices should be those applicable to the individual buyer and seller since these may vary according to the quantity being transacted or other factors.

17.260 Suppose an instrument is bought for 102 and subsequently sold for 118 even though there has been no change in the rate of interest (and hence of the value of the instrument due to holding gains and losses). At first sight, it seems that interest of 16 should be recorded. However, suppose the mid-price on purchase was 100 and on sale was 120. The correct recording would be to show interest of 20 payable by the issuer of the security to the holder with a purchase of services of 4 payable by the holder to the dealer in securities. Ignoring the bid-ask spread understates interest and ignores the services provided by the financial intermediaries that buy and sell securities.

Interest on discounted securities

17.261 There are two ways in which the value of a discounted security can be determined during its life when the prevailing interest rate is different from the rate prevailing when the security was initiated. The debtor approach is the perspective of the unit issuing the security and the creditor approach is the perspective of the unit holding the security. The first option, called the debtor approach, is to continue to use the rate prevailing on initiation throughout the instrument's life. The alternative, the creditor approach, is to use the current rate to estimate the value of interest between any two points in the instrument's life.

17.262 Suppose an instrument is offered at 90 with a redemption value of 100. If the discount (interest) rate does not change during its life, interest will accrue steadily throughout. Suppose, though, that the interest rate falls when the instrument has reached a value of 95. Because the redemption value is now discounted by a smaller factor, the value of the security increases, say to 97. Both the creditor and debtor approach would record interest of 5 in the period before the interest rate fall. Under the creditor approach, this increase in value of 2 from 95 to 97 is treated as a holding gain and only the subsequent rise to the redemption value of 100 is treated as interest. Thus over the whole life of the instrument it has given rise to interest of 8 and a holding gain of 2.

17.263 In the SNA, the debtor approach is used. Under this approach, the interest accruing in the period before the interest rise is still 5 but so is the interest in the period after the interest rate rise. Adding this level of interest to the value of 97 when the rise occurred would give a value of 102 at the redemption date. Since this value is too high, a holding loss of 2 has to be recorded. Thus over the whole life of the instrument there is interest of 10 with an initial holding gain of 2 (when the interest rate changed) offset by the later holding loss of 2. The holding loss occurs steadily over the period between when the holding gain was recorded and the redemption period. The rationale for using the debtor approach is that the debtor, the issuer of the security, is not liable to make the payment until the security matures and from his perspective it is appropriate to treat the total amount of interest as accruing steadily over the life of the security.

Determining interest flows on bills and bonds

Interest on bills and similar instruments

17.264 Bills are short-term securities that give the holder (creditor) the unconditional right to receive a stated fixed sum on a specified date. They are issued and traded in organized

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markets at a discount that depends on current market short-term interest rates and the time to maturity. Most bills mature after a period ranging from one month to one year.

17.265 As the bill approaches maturity, its market value increases because there is less discounting applied to it. This increase in value, in common with the increase in the value of any asset due to the unwinding of a discount factor, is treated as income in the SNA. For financial assets, the income is recorded as interest.

17.266 Let the price paid for a bill at its time of issue and after excluding the service charge be L; this represents the amount of funds that the purchaser (creditor) provides to the issuer (debtor) and measures the value of the initial liability incurred by the issuer. Let the face value of the bill be F: this represents the sum including the service charge paid to the holder of the bill (the creditor) when it matures. The difference, F-L, or discount on the bill, measures the interest payable over the life of the bill.

17.267 Bills are traded on money markets at values that gradually rise to reflect the interest accruing on the bills as they approach maturity. The increase in the value of a bill due to the accumulation of accrued interest does not constitute a holding gain because it is due to an increase in the principal outstanding and not to a change in the price of the asset.

Interest on bonds and debentures

17.268 Bonds and debentures are long-term securities that give the holder the unconditional right to:

a. A fixed or contractually determined variable money income in the form of coupon payments; or

b. A stated fixed sum on a specified date or dates when the security is redeemed; or

c. Both (a) and (b). Most bonds fall into this category.

17.269 When a bond is issued at a discount, the difference between the face value, or redemption price, and the issue price constitutes interest that accrues over the life of the bond, in the same way as for a bill. However, as accounts are compiled for time periods that are typically much shorter than the life of the bond, the interest must be distributed over those periods. The way in which this may be done is explained below.

Zero-coupon bonds

17.270 Zero-coupon bonds are long-term securities that are similar to bills. They do not entitle their holders to any fixed or variable money income but only to receive a stated fixed sum as repayment of principal and accrued interest on a specified date or dates. When they are issued they are usually sold at a price that is substantially lower than the price at which they are redeemed on maturity. Let *L* equal the issue price and *F* the redemption price, so *F-L* is the value of the interest receivable and payable over the life of the bond. This interest has to be distributed over the years to its maturity. One possible method is to assume that interest at a rate of *r* is credited at the end of each year at an annual rate that is constant over the life of the bond, so that the final value $F=L(1+r)^n$.

17.271 The interest rate, r, is given by the following expression $r=(F/L)^{1/n}-1$ where n is the number of years from the time of issue to maturity. The interest accruing during the course of year t is then given by $rL(1+r)^{t-1}$ where t = 1 at the end of the first year.

17.272 The interest accruing each year is effectively reinvested in the bond by its holder. Thus, counterpart entries equal to the value of the accrued interest must be recorded in the financial account as the acquisition of more bond by the holder (creditor) and as a further issue of more bond by the issuer (debtor).

Other bonds, including deep-discounted bonds

17.273 Most bonds pay a fixed or variable money income and may also be issued at a discount or, possibly, a premium. In such cases, the interest receivable by the holders of the bonds has two components:

a. The amount of the money income receivable from coupon payments each period; plus

b. The amount of interest accruing each period attributable to the difference between the redemption price and the issue price.

The second component is calculated in the same way as for zero-coupon bonds, as described above. In the case of deep-discounted bonds, most of the interest accruing is attributable to the difference between the redemption price and the issue price. At the other extreme, some bonds offer an income stream in perpetuity and are never redeemed.

Index-linked securities

17.274 Index-linked securities are financial instruments for which the amounts of the coupon payments (interest) or the principal outstanding or both are linked to a general price index, a specific price index, the price of a commodity or an exchange rate index. Different treatments are recommended for the recording of transactions depending on the type of index used to uprate the level of principal to which the interest is linked and on the currency in which the interest and principal are denominated.

17.275 The indexation mechanism links the amount to be paid at maturity or coupon payments or both to indicators agreed by the parties. The values of the indicators are not known in advance. For debt securities with indexation of the amount to be paid at maturity, they may be known only at the time of redemption. As a result, interest flows before redemption cannot be determined with certainty. For estimating interest accruals before the values of the reference indicators are known, some proxy measures have to be used. In this regard, it is useful to distinguish the following three arrangements:

a. indexation of coupon payments only with no indexation of amount to be paid at maturity,

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b. indexation of the amount to be paid at maturity with no indexation of coupon payments, and

c. indexation of both the amount to be paid at maturity and coupon payments.

The principles described below for index-linked debt securities apply to all index-linked debt instruments.

17.276 When only coupon payments are index-linked, the full amount resulting from indexation is treated as interest accruing during the period covered by the coupon. It is most likely that by the time data are compiled for a reporting period, the date for the coupon payment would have been passed and hence the value of the index is known. When the date for the coupon payment has not been passed, the movement in the index during that part of the reporting period covered by the coupon can be used to calculate the interest accrual.

17.277 When the amount to be paid at maturity is index-linked, the calculation of interest accruals becomes uncertain because the redemption value is unknown; in some cases the maturity time may be several years in the future. Two approaches can be followed to determine the interest accrual in each accounting period.

a. Interest accruing in an accounting period due to the indexation of the amount to be paid at maturity may be calculated as the change in the value of this amount outstanding between the end and beginning of the accounting period due to the movement in the relevant index.

b. Interest accruals may be determined by fixing the rate of accrual at the time of issue. Accordingly, interest is the difference between the issue price and the market expectation, at inception, of all payments that the debtor will have to make; this amount is recorded as interest accruing over the life of the instrument. This approach records as income the yield-to-maturity at issuance, which incorporates the results of the indexation that are foreseen at the moment the instrument was created. Any deviation of the underlying index from the originally expected path leads to holding gains or losses which will not normally cancel out over the life of the instrument.

17.278 While the first approach (using the movement in the index) has the advantage of simplicity, interest includes all changes and fluctuations in the value of the amount to be paid at maturity in each accounting period due to the movement in the relevant index. If there is a large fluctuation in the index, this approach may yield negative interest in some periods even though market interest rates at the time of issue and current period may be positive. Also, fluctuations behave like holding gains and losses. The second approach (fixing the rate at the time of issue) avoids such problems, but the actual future cash flows may differ from the initially expected cash flows unless ex ante market expectations are exactly met. This means that interest for the life of the instrument may not be equal to the difference between the issue price and redemption value.

17.279 The first approach works well when a broad-based indexation of the amount to be paid at maturity is used (for example a consumer price index) as such indexation is expected to change relatively smoothly over time. However, the first approach may give counter-intuitive results when the indexation of the amount to be paid at maturity combines motives for both interest income and holding gains (for example, a commodity price, stock prices, or gold prices). Therefore, when indexation includes a holding gain motive, typically indexation based on a single, narrowly defined item, the second approach is preferred, otherwise the first approach should be used for the measurement of interest accrual.

17.280 When both the amount to be paid at maturity and coupon payments are indexed to a broad-based reference item, interest accruals during an accounting period can be calculated by summing two elements: the amount resulting from the indexation of the coupon payment (as described in paragraph 17.276), that is attributable to the accounting period, and the change in the value of the amount outstanding between the end and beginning of the accounting period due to the movement in the relevant index (as described in paragraph 17.277(a)). When both the amount to be paid at maturity and coupon payments are indexed to a narrow index that includes a holding gain motive, interest accruals for any accounting period can be determined by fixing the yield-to-maturity at issuance as explained in paragraph 17.277(b).

17.281 Debt instruments with both the amount to be paid at maturity and coupon payments indexed to foreign currency are treated as though they are denominated in that foreign currency; interest, other economic flows and stock levels for these instruments should be calculated using the same principles that apply to foreign currency denominated instruments. Interest should accrue throughout the period using the foreign currency as the currency of denomination and converted into the domestic currency using mid-point market exchange rates. Similarly, the amount outstanding should be valued using the foreign currency as the unit of account with the end of period exchange rate used to determine the domestic currency value of the entire debt instrument (including any accrued interest) in the international investment position. Changes in market values of debt securities due to exchange rate movements or interest rate changes are treated as revaluations.

17.282 As with other securities, the interest accruing as a result of indexation is effectively reinvested in the security and these additions to the value of the security must be recorded in the financial accounts of the holder and issuer.

6. Equity and investment fund shares

17.283 The financial service charges levied on transactions in equity and investment fund shares are calculated in the same away as for debt securities as the difference between the financial intermediary's selling price and the mid-price and between the mid-price and the intermediary's buying price. They are treated as explicit fees.

17.284 The investment income from corporate equity takes the form of distributed income of corporations. For corporations, the distributed income is in the form of

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dividends. For quasi-corporations, the investment income is withdrawals from income of quasi-corporations. As noted in chapter 7, dividends or other withdrawals from corporate income are recorded as investment income at the time the shares start to be quoted ex dividend. A different recording is made for extraordinarily large dividends that are out of line with recent experience on the amount of income available for distribution to the owners of the corporation. Any excess distribution is to be recorded as a withdrawal of equity (recorded in the financial account) and not as part of investment income. Chapter 22 discusses the case of exceptional dividends of public corporations.

17.285 For foreign direct investment enterprises, there will also be investment income in the form of reinvested earnings.

17.286 For investment funds, the income element comes in the form of investment income disbursements to collective investment fund shareholders. In the SNA, the full value of the investment income earned is shown as being distributed to the shareholder in the allocation of primary income account with reinvestment recorded in the financial account. However, if an investment fund is also a foreign direct investment enterprise, the reinvested earnings are recorded before the remaining investment income is distributed to investment fund share holders.

17.287 As noted earlier, there may be considerable holding gains and losses, both nominal and real on equity and investment fund shares.

17.288 The entries in the financial accounts relating to acquisitions of equity conceptually contain two distinct types of transactions. One is the exchange of equity and investment fund shares between institutional units. Because the transactions are valued at mid-price, total acquisitions must be equal to total disposals. The net effect, therefore, is to show the change in composition of the holders of shares by institutional sector and with the rest of the world. The second type of transactions included in the financial account is the receipt of any reinvestment of earnings and the counterpart of the outflow recorded under investment income payable by corporations. In calculating the revaluation element between opening and closing balance sheet, care must be taken to exclude the reinvestment of earnings term.

7. Financial derivatives

17.289 Arranging a financial derivative may involve a set-up fee which should be shown as an explicit fee charged by the financial institution concerned and payable by the holder of the financial derivative. For some financial derivatives, especially options based products, a financial institution may act as a market maker and sell the products with a margin between the bid and offer price. This margin is treated as a service charge as with other financial instruments.

17.290 The initial value of a forward-type financial derivative is zero but it acquires a value as soon as there is a change in the circumstances that the financial derivative is designed to provide financial protection against. At this point, a financial asset and matching liability are recognized and recorded as a transaction in financial derivatives in the financial account. Subsequent changes in value are recorded in the revaluation account. If the value becomes negative, it becomes a liability for the holder rather than an asset and an asset rather than a liability for the seller.

17.291 At inception, options have a positive value normally equal to the premium paid to establish them. This is recorded as a transaction in financial derivatives in the financial account. Thereafter, any change in value is recorded in the revaluation account. Options are always an asset for the purchaser and a liability for the seller.

17.292 There is no investment income accruing on a financial derivative.

8. Employee stock options

17.293 As explained in chapter 7, the granting of an employee stock option may form a part of compensation of employees. All issues relating to employee stock options are discussed in part 6 of this chapter.

9. Other accounts receivable or payable

17.294 Other accounts receivable or payable are essentially accrual adjustments typified by trade credit and advances. Trade credit refers to the case where goods and services have been delivered but payment has not yet been received. Advances refer to payment for work-in-progress for which prepayment has been made but the products are not yet delivered. The means of financing payment, such as the use of credit cards, is not included here; the balance on the cards is treated as a loan and payments such as interest or overdue fees are recorded as for loans.

17.295 Other accounts receivable or payable denominated in domestic currency can have no nominal holding gains and losses but may have real ones. Any items denominated in foreign currency may have both nominal and real holding gains and losses.

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Part 5: Contracts, leases and licences

O. Introduction

17.296 Many transactions that take place in the economy and are recorded in the SNA are specified in terms of a contract between two institutional units. The majority of contracts are such that one unit provides a good, service or asset to the other unit for an agreed payment at an agreed time (possibly immediately after agreeing on the price). Such contracts may be written and legally binding or may be informal or even only implicit. If a unit accepts the estimate provided by a builder for the cost of specified work, the contract is written and may well be legally binding. If a book is ordered from a bookshop but there is a delay in delivery, there is an informal contract between the book shop and the customer but it is unlikely to be enforceable by either side. Whenever a customer asks how much a given service will cost, whether it is a haircut, the delivery of a heavy product or entry to a cinema, accepting the service at the quoted price is in effect an implicit contract. However, all these contracts are simply agreements about the terms under which goods, services and assets are provided to the customer along with the legal ownership of the item. The only extent to which these contracts feature in the SNA is that they determine the point at which the transaction is to be recorded in the accounts. This is the time at which the ownership of the good, service or asset changes. For services, this is always when the service is delivered and for goods it may coincide with the time of delivery. However, the time of recording is never determined by the time when payment is made. Any difference between the time of payment and time of change of ownership gives rise to an entry in the financial account under other accounts receivable or payable.

17.297 However, there are other contracts and legal agreements variously described as leases and licences (or permits) where the terms of the agreement may affect the time of recording of transactions made under the agreement as well as the classification of payments and the ownership of the item subject to the agreement. The purpose of this part of the chapter is to provide guidance on how transactions made under these more complex arrangements are to be recorded in the SNA.

17.298 The first item for discussion concerns the different sorts of leases recognized in the SNA. The next topic for discussion is the treatment of permits to use natural resources. This is of particular importance when it is government that claims ownership of the resource on behalf of the community at large but can apply to privately owned resources also. This leads naturally into a discussion of the treatment of assets where more than one unit has a claim to ownership, or the benefits of ownership accrue to more than one unit.

17.299 Some contracts are not connected with the use of assets. The first contracts for discussion are licences (or permits) given to undertake particular activities independently of any assets that may be used in the activity. Here there are different treatments when the permits are issued by government and when they are given by other institutional units. The next point for consideration is when a contract can constitute an asset in itself, independently of the subject of the contract. Finally, a number of clarifications are made concerning the timing and nature of payments made under a contract.

P. Leases

17.300 Three types of leases are recognized in the SNA; operating leases, financial leases and resource leases. Each of these leases relates to the use of a non-financial asset. Fundamental to the distinction between the different sorts of leases is the difference between legal and economic ownership. This distinction is elaborated in chapter 3. The legal owner of an asset is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the asset. By contrast, the economic owner of an asset is entitled to claim the benefits associated with the use of the asset in the course of an economic activity by virtue of accepting the associated risks. The legal owner is often the economic owner also. When they are different, the legal owner has divested itself of the risks in return for agreed payments from the economic owner.

1. Operating leases

17.301 ***An operating lease is one where the legal owner is also the economic owner and accepts the operating risks and receives the economic benefits from the asset by using it in a productive activity.*** One indicator of an operating lease is that it is the responsibility of the legal owner to provide any necessary repair and maintenance of the asset. Under an operating lease the asset remains on the balance sheet of the lessor.

17.302 The payments made under an operating lease are referred to as rentals and are recorded as payments for a service. The character of operating leases may most easily be described in relation to equipment since operating leases often concern vehicles, cranes, drills etc. In general, though, any sort of non-financial asset, an intellectual property product or a non-financial asset may be subject to an operating

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lease. The service provided by the lessor goes beyond the mere provision of the asset. It includes other elements such as convenience and security, which can be important from the user's point of view. In the case of equipment, the lessor, or owner of the equipment, normally maintains a stock of equipment in good working order that can be hired on demand or at short notice. The lessor must normally be a specialist in the operation of the equipment, a factor that may be important in the case of highly complicated equipment, such as computers, where the lessee and his employees may not have the necessary expertise or facilities to service the equipment properly themselves. The lessor may also undertake to replace the equipment in the event of a serious or prolonged breakdown. In the case of a building, the lessor is responsible for the structural integrity of the building, so would be responsible in the case of damage due to a natural disaster, for example, and is usually responsible for ensuring that elevators, heating and ventilation systems function adequately.

17.303 Operating leasing developed originally to meet the needs of users who require certain types of equipment only intermittently. Many operating leases are still for short periods though the lessee may renew the rental when the period expires and the same user may hire the same piece of equipment on several occasions. However, with the evolution of increasingly complicated types of machinery, especially in the electronics field, the servicing and backup facilities provided by a lessor are important factors that may influence a user to rent. Other factors that may persuade users to rent over long periods rather than purchase are the consequences for the enterprise's balance sheet, cash flow or tax liability.

2. Financial leases

17.304 ***A financial lease is one where the lessor as legal owner of an asset passes the economic ownership to the lessee who then accepts the operating risks and receives the economic benefits from using the asset in a productive activity.*** In return, the lessor accepts another package of risks and rewards from the lessee. It is frequently the case that the lessor, though the legal owner of the asset, never takes physical delivery of the asset but consents to its delivery directly to the lessee. One indicator of a financial lease is that it is the responsibility of the economic owner to provide any necessary repair and maintenance of the asset. Under a financial lease, the legal owner is shown as issuing a loan to the lessee with which the lessee acquires the asset. Thereafter the asset is shown on the balance sheet of the lessee and not the lessor; the corresponding loan is shown as an asset of the lessor and a liability of the lessee. Payments under the financial lease are treated not as rentals but as the payment of interest and repayment of principal. If the lessor is a financial institution, part of the payment is also treated as a service charge (FISIM).

17.305 Very often the nature of the asset subject to a financial lease may be quite distinct from the assets used by the lessor in his productive activity, for example a commercial airliner legally owned by a bank but leased to an airline. It would make no economic sense to show either the aircraft or its consumption of fixed capital in the accounts of the bank or to omit them from the accounts of the airline. The device of a financial lease avoids this undesirable form of recording the ownership of the aircraft and the decline in its value while keeping the net worth of both parties correct throughout the length of the lease.

17.306 It is common for a financial lease to be for the whole of the life of the asset, but this need not necessarily be so. When the lease is for the whole of the life of the asset, the value of the imputed loan will correspond to the present value of the payments to be made under the lease agreement. This value will cover the cost of the asset and include a fee charged by the lessor. Payments made regularly to the lessor should be shown as a payment of interest, possibly a payment for a service and a repayment of capital. If the terms of the agreement do not specify how these three items are to be identified, the repayment of principal should correspond to the decline in the value of the asset (the consumption of fixed capital), the interest payment to the return to capital on the asset and the service charge to the difference between the total amount payable and these two elements.

17.307 When the lease is for less than the whole life of the asset, the value of the loan should still be estimated as the value of the asset plus the value of the service charges to be made under the terms of the lease. At the end of the lease, the asset will appear on the balance sheet of the lessee and its value will be equal to the value of the loan owed to the lessor at that time. At that point the asset could be returned to the lessor to cancel the loan or a new arrangement, including the outright purchase of the asset, may be reached between the lessor and lessee. Because a financial lease requires the lessee to acquire substantively all the risks and rewards associated with the asset, if the lease is for less than the expected life of the asset, the lease usually specifies the value to the lessor at the end of the lease or the terms under which the lease can be renewed. Any variation in the price of the asset from the value in the lease agreement is borne by the lessee.

17.308 Although a financial lease will typically be for several years, the duration of the lease does not determine whether the lease is to be regarded as an operating or financial lease. In some cases a large complex such as an airport or even a building may be leased for short periods, perhaps only one year at a time, but on condition that the lessee takes all responsibility for the asset, including all maintenance and cover for exceptional damage, for example. Even though the lease period is short, and even though the lessor may not be a financial institution, if the lessee must accept all the risks associated with the use of the asset in production as well as the rewards, the lease is treated as a financial and not an operating lease and the asset appears on the balance sheet of the lessee with a corresponding loan extended from the lessor to the lessee.

17.309 As a consequence, any corporation that specializes in this sort of leasing, even though it may be called a property company or aircraft leasing company, should be treated as a financial corporation offering loans to the units leasing assets from them. If the lessor is not a financial corporation, the payments are split into repayments of principal and interest only; if the lessor is a financial corporation, the interest is split into SNA interest and a service charge (FISIM).

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3. Resource leases

17.310 ***A resource lease is an agreement whereby the legal owner of a natural resource that the SNA treats as having an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent.*** The resource continues to be recorded on the balance sheet of the lessor even though it is used by the lessee. By convention, no decline in value of a natural resource is recorded in the SNA as a transaction similar to consumption of fixed capital.

17.311 The classic case of an asset subject to a resource lease is land but natural resources are also generally treated in this way. An exception, when a long-term lease of land may be taken as the sale of the land is described in paragraph 17.328.

17.312 Payments due under a resource lease, and only such payments, are recorded as rent in the SNA. There is further discussion of leases on natural resources in the following section.

Q. Licences and permits to use a natural resource

17.313 As noted above, in many countries permits to use natural resources are generally issued by government since government claims ownership of the resources on behalf of the community at large. However, the same treatments apply if the resources are privately owned.

17.314 There are basically three different sets of conditions that may apply to the use of a natural resource. The owner may permit the resource to be used to extinction. The owner may allow the resource to be used for an extended period of time in such a way that in effect the user controls the use of the resource during this time with little if any intervention from the legal owner. The third option is that the owner can extend or withhold permission to continued use of the asset from one year to the next.

17.315 The first option results in the sale (or possibly an expropriation) of the asset. The second option leads to the creation of an asset for the user, distinct from the resource itself but where the value of the resource and the asset allowing use of it are linked. The third option comes back to the treatment of the use as a resource lease. The difference in treatment between the second and third options was articulated in the context of the case of a mobile phone licence and that recommendation (see SNA News and Notes Volume 14, (United Nations, 2002)) is recapitulated before seeing how each of the three options relates to different types of natural resources.

1. The “mobile phone” treatment of licences or permits to use a natural resource

17.316 The case arose in 2000 when the sale of licences to use radio spectra for third generation mobile phones brought a flurry of interest from companies wanting to have exclusive access to the spectra and who in consequence were prepared to bid (often by auction) extremely large sums for the access rights to the spectra.

17.317 Eight conclusions were agreed in respect of the mobile phone licences. Allowing for updated terminology, these were:

a. The spectrum constitutes a natural resource.

b. The licence to use the spectrum constitutes an asset described as a permission to use a natural resource which is a subset of the general asset class of contracts, leases and licences.

c. Typically licence payments are neither taxes nor purchases of the spectrum itself.

d. Land, mineral deposits and the spectrum are similar types of assets and so are leases and licences based on the use of those assets.

e. There is no single, universal and clear-cut criterion to distinguish between rent and asset sale; a range of criteria needs considering.

f. Most cases examined point to treating licence payments as the purchase of an asset, not rent.

g. The value of the licence and the value of the spectrum move symmetrically.

h. Further elaboration will be useful in future.

17.318 The considerations referred to under conclusion (e) were six in number and are reproduced below.

a. *Costs and benefits assumed by licensee:* the more of the risks and benefits associated with the right to use an asset are incurred by the licensee, the more likely the classification of a transaction as the sale of an asset as opposed to rent. Thus, preagreement on the value of payments (whether by lump sum or by instalments) effectively transfers all economic risks and benefits to the licensee and so point to the sale of an asset. If, on the other hand, the value of payment is made contingent on the results from using the licence, risks and benefits are only partially transferred to the licensee and the situation is more readily characterized as payment of rent. In the case of mobile phone licences, the total amount payable has often been pre-agreed. An additional indication of the degree to which commercial risks have been passed to the licensee is to examine the hypothetical case where a licensee goes

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bankrupt. If, in such a case, the licensor reimburses none of the upfront payment made by the licensee, this would constitute a strong case against a characterization of the transaction as rent, as apparently the licensee has incurred all the commercial risks involved.

b. *Upfront payment or instalment:* as with other indicators, the mode of payment is in itself not conclusive for a characterization as asset or rent payment. Generally, the means of paying for a licence is a financial issue and as such not a relevant factor in determining whether or not it is an asset. However, business practice shows that upfront payments of rent for long periods (15-25 years in the case of mobile phone licences) are highly unusual and this favours an interpretation as sale of an asset.

c. *Length of the licence:* licences granted for long periods suggest a treatment as the sale of an asset, for shorter periods a treatment as payments for rent. The time frame involved in mobile phone licensing (15-25 years) is considered rather unusual as a period for which to conclude a fixed payment of rent and therefore a further indication favouring an interpretation as sale of an asset.

d. *Actual or de facto transferability:* the possibility to sell the licence is a strong indication of ownership and if transferability exists, this is considered a strong condition to characterize the licensing act as the sale of third-party property rights. In practice, mobile phone licences are often transferable either directly (by the enterprise selling the licence to another enterprise) or indirectly (through the enterprise being acquired through a takeover).

e. *Cancellation possibility:* the stronger the restrictions on the issuer's capacity to cancel the licence at its discretion, the stronger the case for treatment as a sale of an asset. Conversely, when licences can easily be cancelled at the discretion of the issuer, ownership over benefits and risks has not been fully transferred to the licensee and the transaction qualifies more readily as rent.

f. *Conception in the business world and international accounting standards:* businesses, in accordance with international accounting standards, often treat a licence to use the spectrum as an asset. Again, in itself this does not lead to treatment as an asset in the national accounts, and there are other areas where companies choose to present figures in their accounts in ways that are not consistent with the national accounts. But the treatment of the acquisition of mobile phone licences as capital investment in company accounts provides an added incentive to treat them in a similar way in the national accounts.

17.319 Not all these considerations have to be satisfied to characterize the licence as a sale of an asset nor does a simple majority of them being satisfied do so. However, in order to qualify as a rental agreement, at least some of the following sorts of conditions should hold.

a. The contract is of *short-term duration*, or renegotiable at short-term intervals. Such contracts do not provide the lessee with a benefit when market prices for the leased asset go up in the way that a fixed, long-term contract would. Such benefits are holding gains that typically accrue to owners of assets.

b. The contract is *non-transferable.* Non-transferability is a strong but not a sufficient criterion for the treatment of licence payments as rent, because, although it precludes the lessee from cashing in on holding gains, it does not preclude the lessee from reaping comparable economic benefits (for example, using the licence in their business).

c. The contract contains *detailed stipulations* on how the lessee should make use of the asset. Such stipulations are often seen in cases of rent of land, in which the owner wishes to retain a control over the usage of the land. In the case of licences, examples of such stipulations would be that the contract states what regions or types of customers should be served, or that it sets limits on the prices that the lessee may charge.

d. The contract includes conditions that give the lessor the *unilateral right to terminate* the lease without compensation, for instance for underuse of the underlying asset by the lessee.

e. The contract requires *payments over the duration of the contract, rather than a large upfront payment.* Although this condition is essentially financial in character and thus cannot be decisive on the type of the lease, it may indicate a degree of control for the lessor to direct the use of the spectrum. The case for a treatment as rent is further supported if the payments are related to the revenue the lessee derives from the licence.

17.320 These two sets of considerations can be seen as a more specific parallel to the distinction of economic ownership from legal ownership used in distinguishing between an operating and financial lease as described above. The conditions for treatment of the payment as the acquisition of an asset and for treatment as payment of rent are indicative rather than prescriptive. A decision on the appropriate treatment when some of the conditions are not met will necessitate consideration of how to record those conditions not met. For example, if on balance the decision is to treat the payment as rent but a large upfront payment was made, this should be treated as a prepayment to be recorded on an accrual basis. However, if the recipient is not willing to consider a refund if the contract is suspended, accrual recording is difficult. This is one reason why upfront payments are often indicative of the sale of an asset rather than the payment of rent.

17.321 The application of these principles to the main forms of natural resources is described below, beginning with radio spectra.

2. Radio spectra

17.322 Payment for a mobile phone licence constitutes the sale of an asset, not payment for rent, when the licensee acquires

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effective economic ownership rights over the use of the spectrum. To decide whether ownership is effectively transferred or not, the six criteria quoted above are to be considered.

17.323 When sale of an asset applies and when the life span of the licence and of the spectrum coincide, the payment for a licence is treated as the sale of the spectrum itself. The latter situation applies always when licences are granted indefinitely.

17.324 When sale of an asset applies, and when the life span of the licence is different from the life span of the spectrum, the payment for a licence is treated as the sale of a permit to use a natural resource by the legal owner (licensor) to the economic owner (licensee).

17.325 When the licence agreement is treated as the sale of an asset in its own right, its value is established at the time of its sale. It declines with the expiration of the period of validity to fall to a value of zero at the point of the expiry of the licence. Symmetrically, the value of the spectrum to the lessor falls when the licence acquires a value and is progressively re-established as the licence expires. This is consistent with a potential further sale of the right to use the spectrum for another period. This procedure also ensures a neutral effect on the net worth of the overall economy during the life of the licence.

3. Land

17.326 Land may be sold outright when the legal ownership is transferred from one institutional unit to another. (Land may not be recorded as being sold to a non-resident unit. In such cases a notional resident unit is created that holds title to the land; the non-resident unit then owns the equity of the notional resident unit.)

17.327 The type of asset most frequently subject to a resource lease is land. Tenant farmers usually pay regular rent to their landlord. A resource lease on land may be considered as a sale of the land if the lease satisfies most or all of the same criteria as those listed for payments for a mobile phone licence to be considered a sale of an asset. When the land is leased in other circumstances, the payments are recorded as rent under a resource lease agreement.

17.328 In some jurisdictions, the land under buildings remains in the legal ownership of a landlord other than the owner of the buildings. If regular payments are made to the landlord, these are recorded as rent. However, it is sometimes the case that, even though the land legally belongs to another unit, the right to occupy it for an extended period is paid for in a single upfront payment often when the building is acquired. As explained in the previous section, this suggests recording the payment as the acquisition of the asset. In such a case, when the building changes ownership, the purchase price includes an element representing the present value of future rent payments. In such a case, the land is recorded in the SNA as if the ownership is transferred along with the building above the land. If, at the end of the land lease, a further payment is liable for extension of the lease for another long-term period, this should be recorded as capital formation and an acquisition of an asset in a manner similar to costs of ownership transfer on purchase and sale of an asset.

4. Timber

17.329 If a unit is given permission to clear fell an area of natural forest, or to fell at its discretion without any restriction in perpetuity, the payments made to the owner constitute the sale of an asset. (The sale of forested land may be recorded as the sale of the timber and the land separately, depending on the intended use of each.)

17.330 The option to have a lease permitting felling at the lessee's discretion but subject to the restoration of the land, in an acceptable forested state, at some time in the future is improbable. It is more common for timber felling to be allowed under strict limits with a fee payable per unit volume of timber felled (stumpage). The limits are usually such that the harvest of timber is sustainable and so the payments are recorded as rent in the case of a natural forest.

17.331 Forests may also be produced assets, in which case the extraction of timber is treated as the sale of a product.

17.332 Illegal logging across national borders is prevalent in some countries. In such cases the quantity of timber extracted should be recorded as uncompensated seizure of a natural resource or cultivated asset, as the case may be.

5. Fish

17.333 Natural stocks of fish with an economic value are an asset and the same considerations apply to them as to other natural resources. It is not realistic to consider that permission would be given to exhaust fish stocks but illegal fishing may either reduce the stock below the point of sustainability or exhaust them altogether. In these cases, uncompensated seizure of the stock should be recorded.

17.334 Fishing quotas may be allocated in perpetuity or for extended periods to particular institutional units, for example, where fishing is an established way of life and there may be little alternative economic employment. In such circumstances the quotas may be transferable and if so, there may be a well developed market in them. Fishing quotas may therefore be considered as permits to use a natural resource that are transferable. They are thus assets in the SNA.

17.335 An alternative regime is to issue a permit for a strictly limited period of time, less than a year, to a nominated institutional unit, often a non-resident. This is a common practice in some islands in the South Pacific, for example. In these cases the revenue from the licences should be recorded as rent as under a resource lease.

17.336 A licence for recreational fishing has long been considered, by convention, as payment of a tax. This treatment is not changed by the wider considerations for commercial fishing.

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6. Water

17.337 A body of water with an economic value can be sold in its entirety either as part of the land that surrounds it or as a separate entity.

17.338 As is the case for fish, it is unlikely that economic ownership would be ceded under a long lease with no preconditions on the quantity and state in which a similar amount of water should be returned to the owner. However, it is possible that surface water could be leased under a long lease for recreational purposes, say. The treatment of such leases should be as for land.

17.339 Of increasing concern is the extraction of water from water bodies. Regular payments for the extraction of water (as opposed to the delivery of it) should be treated as rent.

7. Mineral resources

17.340 Mineral resources differ from land, timber and fish in that although they also constitute a natural resource, there is no way of using them sustainably. All extraction necessarily reduces the amount of the resource available for the future. This consideration necessitates a slightly different set of recommendations for how transactions relating to their use should be recorded.

17.341 When a unit owning a mineral resource cedes all rights over it to another unit, this constitutes the sale of the resource. Like land, mineral resources can only be owned by resident units; if necessary a notional resident unit must be established to preserve this convention.

17.342 When a unit extracts a mineral resource under an agreement where the payments made each year are dependent on the amount extracted, the payments (sometimes described as royalties) are recorded as rent.

17.343 The owner (in many but not all circumstances government) does not have a productive activity associated with the extraction and yet the wealth represented by the resource declines as extraction takes place. In effect, the wealth is being liquidated with the rent payments covering both a return to the asset and compensation for the decline in wealth. Although the decline in wealth is caused by the extractor, even if the resource were shown on the balance sheet of the extractor, the rundown in wealth would not be reflected in the extractor's production account because it is a non-produced asset and thus not subject to consumption of fixed capital. (The SEEA 2003 describes a form of satellite account where such a deduction from national income can be made for minerals as well as for other natural resources used unsustainably.) For these reasons, simple recording of payments each year from the extractor to the owner as rent and changes in the size and value of the resource as other changes in the asset accounts of the legal owner is recommended.

R. Sharing assets

17.344 There are two ways in which assets may be shared. The asset may be wholly owned by two or more units, each at different points in time. Alternatively, the risks of and benefits from the asset may be shared by two or more units at a single point in time. The two cases require different treatments.

17.345 Within the SNA, even though the asset may be owned by different units at different times, when a balance sheet is drawn up, the whole of the value of the asset is attributed to one unit. For an asset subject to an operating lease, there is no ambiguity. The legal owner is also the economic owner and is the unit that shows the asset on its balance sheet. For an asset subject to a financial lease, the unit showing the asset on its balance sheet is the economic owner. The value of the asset is the present value of the future payments due to the legal owner plus the value of the asset at the end of the lease as specified in the lease agreement. This is consistent with the views that the value of the asset represents the stream of future benefits coming from the asset and the economic owner is the unit entitled to receive these benefits in return for accepting the risks associated with using the asset in production. For an asset subject to a resource lease, the value is shown on the balance sheet of the legal owner.

17.346 When licences to use natural resources such as radio spectra, land, timber and fish satisfy the "mobile phone" criteria, a separate asset, described as a permit to use a natural resource, is established. These assets are part of the subclass of contracts, leases and licences. They are then shown on the balance sheet of the licensee.

17.347 Sharing the risks and rewards of an asset between different units at a point in time is unusual. The most common occurrence is that a single unit undertakes the activity in which the asset is used and that unit shares the returns among the owners in the form of distributed property income. However, occasionally it is possible such a single unit does not exist and it is not meaningful to try to create it statistically. This is most common when the participating units are resident in different economies, as may be the case with an airline, or in the case of some unincorporated joint ventures (UJVs). The terms under which UJVs are established are diverse but one form allows that all members share the assets equally. In such cases, the SNA records the assets shared between the owners in proportion to their ownership shares.

17.348 In some joint ventures, one party may contribute an asset as its share of the costs. If this happens, an injection of capital equal to the value of the asset should be recorded followed by the purchase of the asset in question with the ownership of the asset then shared by all parties to the arrangement.

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S. Permits to undertake a specific activity

17.349 In addition to licences and leases to use an asset as described in the previous sections, permission may be granted to engage in a particular activity, quite independently of any assets involved in the activity. Thus permission to extract minerals in return for the payment of rent, for example, is not covered by this type of permit. The permits are not dependent on a qualifying criterion (such as passing an examination to qualify for permission to drive a car) but are designed to limit the number of individual units entitled to engage in the activity. Such permits may be issued by government or by private institutional units and different treatments apply to the two cases.

1. Permits issued by government

17.350 When governments restrict the number of cars entitled to operate as taxis or limit the number of casinos permitted by issuing licences, for example, they are in effect creating monopoly profits for the approved operators and recovering some of the profits as the fee. In the SNA these fees are recorded as taxes, specifically as other taxes on production. This principle applies to all cases where government issues licences to limit the number of units operating in a particular field where the limit is fixed arbitrarily and is not dependent only on qualifying criteria.

17.351 In principle, if the licence is valid for several years, the payment should be recorded on an accrual basis with an other account receivable or payable entry for the amount of the licence fee covering future years. However, if government does not recognize a liability to repay the licensee in the case of a cancellation, the whole of the fee payable is recorded at the time it is paid.

17.352 The incentive to acquire such a licence is that the licensee believes that he will thereby acquire the right to make monopoly profits at least equal to the amount he paid for the licence. This stream of future income is treated as an asset if the licensee can realize this by on-selling the asset. The type of asset is described as a permit to undertake a specific activity. The value of the asset is determined by the value at which it can be sold or, if no such figure is available, is estimated as the present value of the future stream of monopoly profits. If the payment for the licence is being recorded by government on an accrual basis, the licensee has an asset in his balance sheet under accounts receivable or payable equal to the value of the future payments and so the value of the licence itself should cover simply the excess of the monopoly profits over the cost. If the licence is on-sold, the new owner assumes the right to receive a refund from the government if the licence is cancelled as well as the right to earn the monopoly profits. If the licence was recorded as a single tax payment, the value of the asset is determined by the value at which it can be sold or, if no such figure is available, is estimated as the value of all the future monopoly profits without deduction. The asset first appears in the other changes in the volume of assets account and changes in value, both up and down, are recorded in the revaluation account.

An example

17.353 Suppose a unit, A, contracts with government to buy a permit to operate a casino for 3 years at a total cost of 12. He expects to make monopoly profits of 7 per year because the permit excludes many other casinos from operating. The government may or may not be prepared to make a refund if A relinquished the permit. A may utilize the permit for the whole of the 3 years for which it is valid or he may sell it to unit B at the end of year 1. The recordings under these four possibilities are examined below.

Case 1: Government does not offer a refund and A keeps the permit for 3 years

17.354 At the start of year 1, A pays tax of 12 and has an asset worth 21 initially. By the end of the year, the value of the asset has reduced by 7 as an other volume change, because one of the three years for which the permit was initially valid has expired. At this point the asset is contributing 14 to his net worth. By the end of the second year he writes off another 7 as an other volume change, leaving a contribution to net worth of 7. By the end of the third year the asset is worth zero.

Case 2: Government does not offer a refund and A sells the permit to B after one year

17.355 At the start of year 1, A pays tax of 12 and has an asset worth 21 initially. By the end of the year the value of the asset has reduced by 7 as an other volume change, because one of the three years for which the permit was initially valid has expired. At this point he values the asset at 14. However, B is only prepared to pay 13 for the asset and A accepts this. A therefore reduces the value of the asset by 1 as a revaluation change. B then acquires the asset and reduces its value by 6.5 in the other change in volume of assets account in each of the two following years.

Case 3: Government does offer a refund and A keeps the permit for 3 years

17.356 At the start of year 1, A makes a payment of 12 to government but this is recorded as a payment of tax of 4 during the year and at the end of the year government has an account payable to A of 8. The value of the permit to A is only the excess of the monopoly profit over the total amount that A will have to pay to government. This starts at 9 (the difference between 7 and 4 for three years) but by the end of year 1 is worth only 6. At the end of the year A's net worth includes an account receivable from government of 8 and 6 as the remaining value of the permit. The total is 14 as in case 1. During the second year, A's account receivable from government is reduced by 4 which is used to pay the tax due in year 2. In that year the value of the permit also reduced by 3 from 6 to 3. At the end of the year, A's net worth includes an account payable from government of 4 and a permit worth 3, total 7 as in case 1. At the end of year 3, both the account payable and the value of the permit are reduced to zero.

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Case 4: Government does offer a refund and A sells the permit to B after one year

17.357 At the start of year 1, A makes a payment of 12 to government but this is recorded as a payment of tax of 4 during the year and at the end of the year government has an account payable to A of 8. The value of the permit to A is only the excess of the monopoly profit over the account payable. This starts at 9 (the difference between 7 and 4 for three years) but by the end of the year is worth only 6. At the end of the year A's net worth includes an account receivable from government of 8 and 6 as the remaining value of the permit. The total is 14 as in case 1. As in case 2, A has to reduce the value of his permit (in this case from 6 to 5) when he appears to sell the asset to B for 13. In fact, the account payable from government of 8 is transferred to B and the asset is sold for 5. B's net worth is unchanged. He has paid A 13 but received the account payable of 8 and an asset valued at 5 in return. In year 2, the account payable is reduced by 4 and a tax payment of 4 is recorded and the permit declines in value from 5 to 2.5.

Government permits as assets

17.358 A permit issued by government to undertake a specific activity may be treated as an asset only when all the following conditions are satisfied:

a. The activity concerned does not utilize an asset belonging to government; if it does the permission to use the asset is treated as an operating lease, a financial lease, a resource lease or possibly the acquisition of an asset representing permission to use the asset at the discretion of the licensee over an extended period;

b. The permit is not issued subject to a qualifying criterion; such permits are treated as either taxes or payments for services;

c. The number of permits is limited and so allows the holder to make monopoly profits when undertaking the activity concerned;

d. The permit holder must be legally and practically able to sell the permit to a third party.

17.359 Even if all these conditions are satisfied, if in practice the permits are not on-sold, it is not relevant to record the permits as assets. If any of the conditions is not satisfied, the payments are treated as taxes without the creation of an asset in the category of contracts, leases and licences. (There may be an account payable as shown in cases 3 and 4 of the example.)

2. Permits issued by other units

17.360 It is less common for units other than government to be able to limit the participation in a given activity. One instance may be when it is either compulsory or desirable to belong to a professional association but in this case there is seldom a limit on numbers participating. Another example could be where the owner of property limits the numbers of units allowed to operate on his property for example a hotel with a policy of only allowing one taxi firm to pick up guests. In these sorts of cases, the permits are treated as payments for services. In principle the payment should be recorded on an accrual basis throughout the period for which the permit is valid. There is no reason in principle why such permits could not be treated as assets if they were marketable though this may not be a common situation.

Non-government permits as assets

17.361 A permit issued by a unit other than government to undertake a specific activity may be treated as an asset only when all the following conditions are satisfied:

a. The activity concerned does not utilize an asset belonging to the permit-issuer; if it does the permission to use the asset is treated as an operating lease, a financial lease or a resource lease;

b. The number of permits is limited and so allows the holder to make monopoly profits when undertaking the activity concerned;

c. The permit holder must be legally and practically able to sell the permit to a third party.

17.362 Even if all these conditions are satisfied, if in practice the permits are not on-sold, it is not relevant to record the permits as assets. If any of the conditions is not satisfied, the payments are recorded as payments for a service.

3. Permits to use natural resources as sinks

17.363 Governments are increasingly turning to the issuing of emission permits as a means of controlling total emissions. These permits do not involve the use of a natural asset (there is no value placed on the atmosphere so it cannot be considered to be an economic asset) and are therefore classified as taxes even though the permitted "activity" is one of creating an externality. It is inherent in the concept that the permits will be tradeable and that there will be an active market in them. The permits therefore constitute assets and should be valued at the market price for which they can be sold.

17.364 The case of payments for discharging water may be considered as an example of the different possible ways of treating the payments.

17.365 If a payment to discharge water is a fine intended to inhibit discharge, it should be treated as a fine.

17.366 If a limited number of permits is issued with the intent to restrict discharges, the payment should be treated as a tax if the medium into which the water is discharged is not regarded as an asset in the SNA.

17.367 If the discharge medium is an asset and the necessary conditions are met concerning the terms on which the discharge is permitted, then the payment for the permit should be treated in the same way as the payment for a licence to use the radio spectrum for mobile phones. If the charge is linked to remedial action, the payment is a payment for a service unless the amount levied is out of all

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proportion to the costs involved in subsequent water treatment in which case the payment should be treated as a tax.

T. Contracts for future production

17.368 Although human capital is not recognized as an asset in the SNA, there are cases where a contract that entitles the holder to limit the ability of a named individual to work for others may be regarded as an asset. The most prolific and lucrative contracts may be for sports players where, for example, a football club can "sell" a player to another. In fact they are not selling the person, they are selling the exclusive right to have that person work for them. Similar contracts exist for the rights to publish literary works or musical performances. All such contracts are treated as assets of the type entitlement to goods and services on an exclusive basis within the asset class of contracts, leases and licences.

17.369 It is possible to imagine that similar contracts may exist for the production of goods in future. An examination of the practice of purchasing the options of future aircraft production revealed, however, that in this case there is no transferable asset and a change of mind on the part of the potential purchaser or failure to deliver on the part of the supplier is settled by a change in the arrangements between the two parties and does not lead to the sale of the option to a third party. If an instance arises where the option to purchase goods is treated in the same way as a contract for a named individual's performance, the same classification would apply.

U. Leases as assets

17.370 As stated at the beginning of this part, contracts underlie many transactions recorded in the SNA and it is important to understand what the implications are for the time of recording and classification of transactions arising from a contract. It has been noted that permits or licences to use natural resources may constitute an asset as may permits to undertake specific activities and contracts for future production. There is one other condition that may lead to a contract being considered as an asset, which is another circumstance when the contract is transferable to a third party (that is a unit other than the two specified in the original contract).

17.371 Suppose a lease on an apartment agreed some time ago specifies the rental at 100 per month but if the same apartment were to be leased currently it would fetch 120 per month. From the lessor's point of view, the apartment is "encumbered" by the existing lease, that is, it carries a penalty (in this case of 20 per month) because of the existence of the lease. The encumbered value of the apartment is based on the present value of future rental payments taking the existence of the lease into account, that is, the future income stream is 100 for as long as the lease lasts and 120 thereafter (ignoring any allowance for inflation). The unencumbered value of the apartment is a present value based on an income stream of 120 per month from the current period forward. The value to be entered in the landlord's balance sheet is the encumbered value. If he wishes to sell the apartment and the existing tenant had the right to remain at the agreed rental, the encumbered value is all the landlord (lessor) could hope to realize. If he wished to realize the unencumbered value he would have to pay the tenant the difference between the unencumbered value and the encumbered value to be free of the lease. This amount, the encumbrance, can in some circumstances be treated as an asset of the tenant. The circumstances are that it is both legally possible and is practicable for the tenant to sublet the apartment to a third party. Because of the difficulty of identifying when such assets may exist, it is recommended that in practice these assets be recorded only when there is evidence that they have been realized.

17.372 It is possible that the encumbered value of the apartment may be higher than the unencumbered value if rentals have fallen since the lease was agreed. In this case it is the landlord that benefits from the discrepancy between the contract price and the market price because the value of the apartment in his balance sheet is still the encumbered value. If the tenant wishes to cancel the lease, he may have to pay the landlord the difference between the encumbered value and the unencumbered value. Only in the exceptional case where the tenant pays a third party to assume the lease at the price specified in the lease, does this payment represent realizing an asset of negative value to the tenant. Once the lease expires or is cancelled, the value of the apartment returns to its unencumbered value.

17.373 Assets reflecting such third-party property rights are always transitory. They exist only for the length of the lease and where there is a difference between the encumbered and unencumbered values. As each year passes, they reduce in value because the period during which the difference exists is reduced but may increase if the new rental price increases.

17.374 The market price of the rental of an apartment is the price actually paid by the existing tenant. If, in this example, the original tenant remains in situ and pays 100 per month, this is the market price despite the fact that a new lease would fetch a rental of 120. Only if the original tenant sublets the

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apartment for 120 would the market price be recorded as 120. Of this, 100 will be paid to the landlord and 20 to the original tenant.

17.375 The example above shows when a marketable operating lease may acquire a value as an asset. Permits to use natural resources and contracts for future production may also give rise to these sorts of third-party property rights assets. So may permits to undertake specific activities even though the original payment was treated as a tax if payable to government. Financial leases do not give rise to these sorts of assets. If the value of the asset being leased increases by more than the payments due under the financial lease, the lessee always has the option of selling the asset, repaying the loan and keeping the difference.

Marketable operating leases as assets

17.376 A marketable operating lease may be treated as an asset only when the two following conditions are satisfied:

a. The lease specifies a predetermined price for the use of an asset that differs from the price the asset could be leased for at the current time, and

b. The lessee is able legally and practically to realize this price difference by subcontracting the lease to a third party.

17.377 In practice, it is recommended that such assets should be recorded only when the lessee does actually exercise his right to realize the price difference.

V. Other considerations

1. Time-share arrangements

17.378 One way of sharing an asset offering accommodation is by means of a "time-share" arrangement. The same expression, though, may be used for a number of different arrangements.

17.379 One arrangement is similar to purchasing a house except that "ownership" is restricted to a particular period each year but in perpetuity. Exactly the same physical space is available to the owner each year. Another arrangement guarantees accommodation at a given time each year but not necessarily in the same physical space. Other arrangements consist of buying "points" in a scheme that the owner can use to purchase accommodation at different locations and times subject to availability.

17.380 All time-share arrangements have a unit that is responsible for upkeep, maintenance, insurance and so on but there are variations in whether this unit is the ultimate owner of the complex and the subscribers are lessees or whether the unit acts as agent for the group of owners or subscribers. Similarly there are variations in whether the owner or subscriber may sell or bequeath his ownership to another unit permanently and whether they can sublet occasionally.

17.381 The issue of whether participation in the time-share scheme gives rise to an asset will depend on the answers to these sorts of questions. If the owner has a nominated space, available in perpetuity, is eligible to act as part of the management committee for the scheme, can sell or bequeath the allocation at will, then the holding is most likely to be an asset of the same type as a house. If the owner has a fixed agreement to have some form of accommodation available at a given period for a fixed length of time, it is likely that this represents a prepaid lease but one that could be sublet occasionally or sold for the rest of the period of the lease as a transferable operating lease. A participant in a points-based scheme may have only an account receivable by way of an asset.

17.382 Where time-share arrangements are significant, the conditions pertaining to them should be examined in the light of the general principles described in this section to determine how to record the transactions involved and classify the assets.

2. Lost deposits

17.383 Under any form of contract, it is possible that one party makes a payment and the other does not deliver the goods, services or assets promised in the contract. In many cases this gives rise to an account payable or receivable that the first party may reclaim from the second. In some circumstances this may not be possible. For example, cheap airline tickets are often offered on a non-refundable basis. The fact that prepayments are non-refundable is part of the business plan of the company concerned. Their output should be measured as the value of sales without reduction for the payments by clients who did not avail themselves of the services to which they were entitled. Volume measures of output will depend on the services actually delivered and the impact of the non-refundable deposits will show up as a price effect. It will also be reflected in the consumption expenditure figures of those paying for services they did not in the end take delivery of.

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Part 6: Employee stock options

W. Introduction

17.384 A particular form of income in kind is the practice of an employer giving an employee the option to buy stocks (shares) at some future date. The ESO is similar to a financial derivative and the employee may not exercise the option, either because the share price is now lower than the price at which he can exercise the option or because he has left the employ of that employer and so forfeits his option. The following is a description of how stock options are valued, taking into account the probability that not all the options are exercised.

1. Terminology

17.385 Typically an employer informs his employees of the decision to make a stock option available at a given price (the strike price or exercise price) after a certain time under certain conditions (for example, that the employee is still in the enterprise's employ, or conditional on the performance of the enterprise). The time of recording of the employee stock option in the national accounts has to be carefully specified. The "grant date" is when the option is provided to the employee, the "vesting date" is the earliest date when the option can be exercised, the "exercise date" is when the option is actually exercised (or lapses). In some countries the permissible length of time between vesting and exercise date is quite long; in others it is very short.

2. Valuation

17.386 IASB accounting recommendations are that the enterprise derives a fair value for the options at grant date by taking the strike price of the shares at that time multiplied by the number of options expected to be exercisable at vesting date divided by the number of service years expected to be provided until the vesting date. This fair value is applied to the number of service years provided in each year to derive the cost to the firm in the year. The fair value per service year is adjusted if the assumptions about the number of options to be exercised alter.

17.387 In the SNA, if there is neither an observable market price nor an estimate made by the corporation in line with the recommendations just given, the valuation of the options may be estimated using a stock options pricing model. These models aim to capture two effects in the value of the option. The first effect is a projection of the amount by which the market price of the shares in question will exceed the strike price at the vesting date. The second effect allows for the expectation that the price will rise further between the vesting date and exercise date.

3. ESOs as a financial asset

17.388 Before the option is exercised, the arrangement between the employer and employee has the nature of a financial derivative and is shown as such in the financial accounts of both parties. It is sometimes possible for these options to be traded or the employer may buy back the options for cash instead of issuing shares. It is possible that multinational corporations may offer employees in one economy options on shares of their parent company in another country.

4. Recording ESOs in the account of the SNA

17.389 An estimate of the value of the ESO should be made at grant date. This amount should be included as part of compensation of employees spread over the period between the grant date and vesting date, if possible. If this is not possible, the value of the option should be recorded at vesting date.

17.390 The costs of administering ESOs are borne by the employer and are treated as part of intermediate consumption just as any other administrative functions associated with compensation of employees.

17.391 Although the value of the stock option is treated as income, there is no investment income associated with ESOs.

17.392 In the financial account, the acquisition of ESOs by households matches the corresponding part of compensation of employees with a matching liability of the employer.

17.393 In principle, any change in value between the grant date and vesting date should be treated as part of compensation of employees while any change in value between vesting date and exercise date is not treated as compensation of employees but as a holding gain or loss. In practice, it is most unlikely that estimates of the costs of ESOs to the employers are revised between grant date and exercise date. For pragmatic reasons, therefore, the whole of the increase between grant date and exercise date is treated as a holding gain or loss. An increase in value of the share price above the strike price is a holding gain for the employee and a holding loss for the employer and vice versa.

17.394 When an ESO is exercised, the entry in the balance sheet disappears to be replaced by the value of the stocks (shares) acquired. This change in classification takes place via transactions in the financial account and not via the other changes in the volume of assets account.

5. Variations in the use of ESOs

17.395 There are two consequences of the treatment of employee stock options to be incorporated into the accounts on the grounds of consistency. One relates to other means of rewarding employees that are related to shares in the

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company. The other relates to the use of stock options to meet expenses other than compensation of employees.

17.396 The first consequence is for variations on the basic employee stock option model. A firm may contribute its own shares to the pension fund. This variation is usually called an employee share plan or a stock ownership plan. Under the 1993 SNA, these shares would not have been recognized as claims by households because such funding was not “arm’s length”. With the change to recording pension entitlements rather than the existing assets to meet them, this objection to recording in the same manner as the IASB recommends disappears and should be followed.

17.397 Another variation on the use of stock options to reward employees is the offer to employees to purchase shares at advantageous rates under an employee share (stock) purchase plan. Employees are not obliged to accept the offer, but if they do the discount in the share value should be treated as part of compensation of employment. Similarly, if employees receive a benefit relating to the change in a company’s shares but not shares themselves, this payment should be treated as part of compensation of employees.

17.398 The second consequence is the possibility that the enterprise pays for goods and services by means of stock options as well as offering these as part of the compensation package to employees. When this happens, the value of the stock option should be estimated if at all possible by the value of goods and services received in exchange. If this is not possible, then similar valuation methods should be used as in the case of employee stock options. The options should be recorded as a form of trade credit between the issuers and the supplier of the goods and services in the financial account. Such arrangements are usually referred to as share (stock) appreciation rights. For simplicity within the SNA, the term employee stock options (ESOs) is used to include stock appreciation rights.

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Chapter 18: Elaborating and presenting the accounts

A. Introduction

18.1 The preceding chapters explain both the accounting concepts of the SNA and the form of the sequence of accounts. This chapter, and those that follow, describe how to build on this information to use the SNA in a way best suited to serve the needs of users and illustrate the interaction of the SNA with other international statistical standards.

18.2 The present chapter is concerned with a number of issues of particular concern to those responsible for the maintenance of the national accounts data base and the presentation of the accounts in the most suitable form for different sorts of analysis. In particular it addresses:

a. how to deal with revisions and discrepancies in the data and the trade-off between timeliness and accuracy,

b. which accounts to present in volume terms,

c. the role of data more frequent than annual,

d. regional accounts, and

e. what sort of detail might be included in publications.

18.3 Although no table in previous chapters has illustrated it, the prime use of the SNA is in a time series context so that users of the accounts can assess how the economy is evolving and developing over time. National accountants, like other statisticians, are regularly under pressure to produce estimates of the accounts as quickly as possible. Inevitably there is a tension between timeliness and accuracy since more comprehensive and robust data usually take longer to process than short-term indicators. Producing accounts as quickly as possible with the best information available at that time inevitably means that revisions to the initial estimates will be necessary. The publication of revisions to series is not a sign of weakness in the statistical system, rather it should be seen as a sign of the degree of confidence that the statistician has in both the original estimates and the later revisions. Some of the poorest quality national accounts are those that have remained unchanged for many years. Aspects associated with publishing time series, and the need to revise them, are discussed in section B.

18.4 Chapter 15 describes the theory of the price indices that can be used to deflate some aspects of national accounts from current values to estimates in volume terms. Section C describes briefly which parts of the accounts it is useful to express in this way.

18.5 Annual series are adequate to identify long-term shifts in the economy but to assess what is happening in the short term, higher frequency national accounts fill a key role in between short-term indicators and fully elaborated annual accounts. Discussing such accounts requires a manual in itself but an indication of some of the key issues is given in section D.

18.6 Another dimension of the accounts is that of regional accounts, where a region may be either a subdivision of a country or an economic region covering several economies. A brief mention of some aspects of regional accounting is given in section E.

18.7 The SNA is meant to be presented flexibly in order to respond most appropriately to local circumstances. Section F illustrates some ways in which key aspects of the accounts might be presented. It is important to stress that the tables in this section are not intended to be taken as strict guidelines but simply as indications of the sorts of details that might be condensed or expanded in different circumstances in order to highlight different aspects of the economy.

B. Time series, revisions and discrepancies

1. Time series

18.8 The tables in this manual are designed to be expository and therefore feature data only for a single time period. In practice it is time series of the aggregates that explain the movement of economic variables that are of most interest to analysts. The style of tables used in chapters 6 to 13 is well suited to time series presentations since the number of columns may be extended as necessary to accommodate increasingly long time series. For example, instead of one

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table with one column for each of the five institutional sectors, one for the total economy and one for the rest of the world, it is straightforward to have seven tables, one for each of the columns but for multiple years.

18.9 The length of time series shown will depend on a number of factors. For some purposes, in particular for macroeconomic modelling, as long a run as possible may be interesting and some countries have series going back for over fifty years. However, most printed tables show no more than the ten to fifteen most recent years, with earlier data available only electronically. Usually more attention is given to ensuring the data for the recent past are as complete and accurate as possible with earlier years receiving less detailed attention. It is desirable, however, at a minimum to provide a link to earlier series so the long-term evolution of the economy can be examined.

18.10 There may be factors that imply that long time series are mainly of academic interest. For example, the change from command economy to market economy that took place in eastern Europe in the early 1990s resulted in such a fundamental change in the nature of economic activity that time series for a period from the late 1980s to the early 1990s are of limited analytical interest. In this case the political changes overshadowed the economic consequences. In all countries, the evolution of the economy over a long period in response to innovations in products, marketing mechanisms and changing import patterns means that comparisons over very many years need to be interpreted carefully.

2. Revisions

18.11 One consequence of preparing national accounts on a continuing basis over a number of years is that data sources change and improve. Intermittent sources, such as a survey held only every five years, may become available and indicate that the earlier assumptions based on projecting the previous survey were flawed. In such a case it is not sufficient to simply replace the data for the most recent period (or even from the date of the new survey forward) but to ensure that the whole time series is suitably adjusted in order to portray the best possible evolution of the series in question over as long a period as possible. Failure to do so results in inappropriate discontinuities in the series that can be seriously misleading to analysts unaware that the source of the underlying data has changed.

18.12 This need to revise data brings to the fore the conflict inherent in statistics between making the data as accurate as possible and making them as timely as possible. Users would like data that are both timely and accurate but there are trade-offs between these goals in practice. Each statistical office must make judgements about how to balance these conflicting demands but whatever the ultimate conclusion, time series that are consistent over time and explanations to enable analysts to appreciate the trade-offs the statistical office has to take are essential.

18.13 A set of guidelines on best practice for performing and using the results of revisions analysis and in formulating a revisions policy that effectively supports user needs was prepared by a task force made up of representatives from OECD, Eurostat and several member countries of those organizations. The papers prepared by the task force are available under the title *Guidelines on Revisions Policy and Analysis* (Organisation for Economic Co-operation and Development and Eurostat, 2008).

3. Discrepancies

18.14 Although the SNA ensures there is perfect consistency between the three measures of GDP, this is a conceptual consistency that in general does not emerge naturally from data compilations. This is because of the wide disparity of data sources that must be called on and the fact that any error in any source will lead to a difference between at least two of the GDP measures. In practice it is inevitable that many such data errors will exist and will become apparent in exercises such as the balancing of supply and use tables.

18.15 Just as a statistical office must make choices about the trade-off between timeliness and accuracy, choices must also be made about how to deal with discrepancies. Resources can be invested in improving data surveys, the format of the questionnaire, sampling strategies, processing techniques including the treatment of missing data and so on. However, while ultimately desirable, such an approach is costly and long-term. Even with very sophisticated data collection methods, discrepancies between different estimates will persist due to differences in coverage, valuation and lags in recording. In addition, a statistical office is also dependent to a greater or lesser extent on administrative sources of data and may not be able to ensure these exactly meet the statistician's needs.

18.16 Two approaches are open to a statistical office. The first is to be open about the problem and publish a statistical discrepancy. When this is done, it is usual to attach it to the variant of GDP the office feels is least accurate. The aim is to show users something about the degree of reliability of the published data. For example, the office may feel that the production estimate of GDP is fairly sound but have doubts about some of the expenditure components.

18.17 The alternative is for the office to remove the discrepancy by examining the data in the light of the many accounting constraints in the SNA, making the best judgement possible about where the errors are likely to have arisen and modifying the data accordingly. The supply and use framework, described in chapter 14, is a very powerful tool for doing this sort of work. More information on such balancing techniques can be found in manuals on input-output tables such as those prepared by the UN and Eurostat.

18.18 In practice, some countries may not be able to compile all three measures of GDP. Indeed, it happens that sometimes only the production measure is compiled completely and only certain components of the expenditure measure are available, principally government expenditure, capital formation (perhaps with incomplete information on changes in inventories), exports and imports of goods only. If, in such a case, an estimate of GDP by expenditure is presented where household consumption is derived as a global balancing item, this estimate will cover not only the true but unknown value of household consumption but will also include the net effect of all errors cumulated from all other parts of the estimates.

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18.19 Any errors in the production measure, missing figures for imports and exports of services, or the fact that government expenditure has been recorded on a cash rather than on an accrual basis, will distort the value of household consumption. If, then, the figure for gross operating surplus is derived by subtracting compensation of employees and taxes less subsidies on production from this incorrect figure for GDP, the errors will be carried forward to this aggregate also. The lesson for users looking at accounts with no statistical discrepancy is to be sure to understand how it was eliminated. The lesson for compilers is to study the possibilities of working at more detailed levels to avoid having to make gross assumptions about missing items, especially one as critical to an assessment of living conditions as household consumption.

Discrepancy in net lending or net borrowing

18.20 Often, the compilation process for the financial accounts and balance sheets is sufficiently separate from the rest of the accounts that the figures for net lending or net borrowing derived from each are different in practice even though they are conceptually the same. A discrepancy may indicate an error in the financial account or at any place in the accounts leading up to the balance in the capital account. An examination of the differences sector by sector may help identify the most likely sources of error. For example, a large discrepancy on household net borrowing may mean that some household income is not recorded; a large discrepancy in net lending for non-financial corporations may mean that some expenditure on fixed capital has not been recorded. But each case must be investigated on a case-by-case basis.

C. Accounts in volume terms

18.21 A major purpose in constructing accounts covering a longer period of time is to be able to study the way in which the basic structure of the economy has changed. This can be seen by studying the changing composition of macroeconomic aggregates in current values. To determine growth rates, however, it is necessary to abstract from the effects of price changes. This is done by constructing accounts in volume terms which enable the user to see the changes from one year to the next that would have resulted if there had been no change in prices. Chapter 15 describes in detail the theory and practice underlying the construction of price indices and the construction of volume measures. That chapter also explains the consequences of deriving time series in volume terms using chained indices where some impacts of price changes do affect the volume estimates.

18.22 It is only the elements of the goods and services account and non-financial capital stock for which volume measures are derived. In general, flows of property income, transfers and financial transactions are expressed only in nominal terms. In cases of high inflation, an alternative presentation where even these flows may be adjusted is possible but this is not the norm.

18.23 As well as expressing the elements of the goods and services account in volume terms, the whole supply and use tables can be expressed in volume terms. Compiling such a table ensures not only that goods and services balance when expressed in current values but that the prices used for their deflation are strictly consistent. Conceptually, a production index should be related to a weighted index of the input prices, the weights corresponding to the values of the different input categories. If the prices used to deflate output and those used to deflate intermediate consumption are not consistent, the implicit deflator for value added will be implausible. Discovering such implausibility is an indication that either the current value figures are not well balanced, the prices used are inconsistent or inappropriate, or both.

18.24 It is useful to consider the expenditure components of GDP and the production components of GDP separately first, then to consider the supply and use table and finally the capital stock measures.

1. The expenditure components of GDP

18.25 The measure of GDP easiest to express in volume terms is that of expenditure. As long as appropriate price indices exist, the estimates of household consumption, capital formation, exports and imports can be deflated without much conceptual difficulty. It is desirable to work at as great a degree of detail as possible using the product detail available for each aggregate. Care must be taken, as explained in chapter 15, to ensure that differences in quality are properly accounted for in the price deflators. This is especially important in the case of capital formation where many items such as computers are subject to rapid technological change and many items are customized, for example pieces of heavy machinery built to individual specifications.

18.26 Price indices for services are more difficult to compile than for goods and this is especially so for non-market services. Because the current values of non-market services are usually determined as the sum of costs, the obvious approach is to deflate each of these (including calculating compensation of employees at constant compensation rates). However, this does not allow for any change in the quality of services provided and in particular for the impact of any productivity changes that may have been achieved. In some cases, direct volume measures should be considered as described in the *Handbook on price and volume measures in national accounts* or the handbook *Towards measuring the volume of health and education and services* (Organisation for Economic Co-operation and Development, 2009). Research work is actively in progress to derive volume estimates of output that take account of changes in the quality as well as the quantity of the services provided.

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2. The production components of GDP

18.27 Central to the production measure of GDP is value added, the balancing item in the production account. Statements can be found saying that it is not possible to think of a balancing item having price and volume dimensions. To date the most common practice is to deflate the values of output and intermediate consumption independently, industry by industry, and then derive the difference as value added for each industry. (This is known as the double deflation method.) Different price indices are necessary for two reasons. The first is because the goods and services included in intermediate consumption for any industry are not the same as the output of that industry. The second reason is that intermediate inputs are always measured at purchasers' prices whereas output is measured at either basic prices or producers' prices.

18.28 More recently, though, there is increasing interest in trying to associate movements in value added, after price effects have been eliminated, with changes in labour and capital inputs. A description of the different concepts of productivity can be found in *Measuring Productivity: Measurement of Aggregate and Industry-level Productivity Growth (OECD, 2001)*, hereafter referred to simply as *Measuring Productivity*. The manual discusses the question of whether the estimates of the costs of capital and labour exactly exhaust the estimate of value added coming from direct volume estimates, a subject which is taken up in chapter 20 on capital services.

3. Supply and use tables in volume terms

18.29 The rows of a use table show the way in which the total supply of a product is used for intermediate consumption, final consumption, capital formation and exports. This identity must hold in value terms. If the product in question is one where there is an unambiguous measure of quantity, the identity must also hold in volume terms. If the volume figures are derived by deflating the current values, the identity will only hold with certainty if each use category is deflated using a price index that is strictly appropriate to it.

18.30 It is a good practice to compile supply and use tables in both current values and in volume terms at the same time so that the consistency of all the input data, including price indices, can be investigated together.

4. Capital stock

18.31 Derivation of estimates of the consumption of fixed capital requires estimates of capital stock excluding the effects of price changes, even if there is no thought of estimating capital services or productivity measures. The levels of capital stock are typically derived by cumulating capital formation in successive periods and deducting the amount that has been exhausted. It clearly makes no sense to aggregate estimates of capital formation at the prices actually paid since the effect of rising prices (even prices rising only moderately) will be to overstate the amount of "new" capital relative to "old".

18.32 The preferred technique is to estimate all capital still in stock at the price of a single year and then revalue this to the price prevailing when the balance sheet is to be drawn up, typically the first and last day of the accounting period. This should be done at the most detailed level practicable. More on this can also be found in chapter 20.

D. Quarterly and other high frequency accounts

18.33 One response to the demand for timely data is to compile accounts more frequently than annually. In principle, the SNA can be applied to any length of time period but there are some special considerations that need to be respected for high frequency as opposed to annual accounts. A frequent choice for high frequency data is for quarterly accounts. For greater detail on compiling quarterly accounts, see *Quarterly National Accounts Manual: Concepts, Data Sources and Compilation* or the manual *Handbook on Quarterly National Accounts* (Eurostat, 1999). These manuals discuss in detail issues such as using indicators to extrapolate data and benchmarking quarterly estimates to annual data. What follows here is simply an indication of some of the key considerations that apply to quarterly as opposed to annual accounting. Similar considerations apply to other high frequency accounts.

1. Conceptual issues

Time of recording

18.34 The time of recording principle is the same for quarterly national accounts as for annual accounts. The accounts are to be compiled on an accrual basis and not a cash basis. While there will always be amounts accrued but not yet paid or received, the proportion of these amounts, relative to the total flows in the period, will be larger for a shorter period.

Definitions involving a year or more

18.35 The qualifying criterion for a fixed asset is that it should be used in production for more than one year. For simplicity and consistency between quarterly and annual accounts, this period is maintained even for quarterly accounts.

18.36 Similarly the distinction between short-term and long-term in the classification of financial assets remains one year.

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Seasonality

18.37 One aspect of quarterly accounts is the effect that arises because patterns of supply and demand may change with the season. For example, more electricity may be used in winter to heat buildings than in summer or, conversely, more may be used in summer to cool them. Many agricultural products are more readily available at one time of year rather than another and thus have lower prices then. For these reasons, although the quarterly accounts should first be compiled using the data as observed, it is desirable to calculate quarterly data on a seasonally adjusted basis in order to study the pattern of evolution of the economy abstracting from seasonal effects.

18.38 Many holidays fall at the same time each year leading to a different number of working days in each quarter. Thus it is common to calculate series adjusted for the number of working days in a period. It is thus desirable to adjust high frequency data for both seasonal and working day effects.

2. Data quality

18.39 When compiling quarterly accounts, it is necessary to compare the availability of quarterly data as compared with annual data. Usually there is more information available annually and it is more comprehensive or otherwise better quality than quarterly data. To the extent this is so, the quarterly accounts may be seen as being provisional in some sense and need to be revised when more reliable annual data become available. Simply benchmarking four quarterly observations to the eventual annual figure, though, may give unexpected and implausible changes from the last revised quarter to the next quarter (a "step") unless techniques are used that address this problem. Most commonly used computer programs available to statistical offices automatically adjust to ensure that no such step results.

18.40 Although it is usual to ensure that the sum of data for the four quarters is equal to the annual figures for data before adjustment, forcing this agreement on seasonally adjusted data may be difficult and thus ill-advised if the step problem just referred to is to be avoided.

18.41 Some data values are never available quarterly and quarterly estimates may need to be made by interpolating and projecting annual information. The use of mathematical techniques for deriving data, however, should be kept to a minimum since these are unlikely to pick up the fluctuations in the economy that quarterly accounts are intended to detect. Data values that have been derived by interpolation and projection are also unlikely to have a strong seasonal component so complete accounts with full seasonal variations may not exist.

Inventories

18.42 One possible exception to the general rule that the quality of annual data is superior to quarterly data concerns the measurement of changes in inventories. The level of inventories at the start and end of the period should be deflated and the change in inventories calculated as the difference. Holding gains (or losses) may occur when goods are held in inventories and the shorter the periods over which estimates of changes in inventories excluding holding gains and losses are made, the better those estimates will usually be. (A parallel case is that of shares, for example, where holding gains are eliminated by using data quoted daily or, in some instances, more frequently.) It is simple to think of the situation where the level of inventories is the same at the same date in successive years (possibly zero) but where there has been considerable movement of goods into and then out of inventory in the intervening period. In such a case, the sum of the quarterly (or even shorter period) estimates of changes in inventories is to be preferred to the annual estimates.

3. Quarterly accounts in volume terms

18.43 Just as the goods and services account in annual accounts can be expressed in volume terms, so can the quarterly goods and services account. Although it is recommended that volume indices be chained, for quarterly accounts it is recommended that volume indices should be chained on only an annual basis to avoid spurious results that could be caused by seasonal effects. The techniques are described in detail in paragraphs 15.45 to 15.50.

4. Coverage of quarterly accounts

18.44 It is possible in principle to compile the whole set of accounts in the SNA, including balance sheets, on a quarterly basis. The most common sets of quarterly accounts, though, are for the goods and services account, the income components of value added, government expenditure, the balance sheet and changes in balance sheets for financial assets and liabilities. The quarterly goods and services account should also be compiled in volume terms.

E. Regional accounts

18.45 Regional accounts are of special importance when there are important disparities between the economic and social development of the various regions of a country.

18.46 A full system of accounts at the regional level implies treating each region as a different economic entity. In this context, transactions with other regions are recorded as if they are external transactions. External transactions of the region have to distinguish between transactions with other regions of the country and transactions with the rest of the world.

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18.47 Three types of institutional units have to be considered in the context of regional accounts.

a. There are regional units, the centre of predominant economic interest of each of which is in one region and most of their activities take place in this region. Among regional units are households, corporations whose establishments are all located in the region, local and state governments, at least part of social security and many NPISHs.

b. There are multiregional units, the centre of predominant economic interest of each of which is in more than one region but does not relate to the country overall. Many corporations and a number of NPISHs are in this situation.

c. A small number of units are national units, which means that their centres of predominant economic interest are not located geographically even in the sense of multiregional location. This is usually the case of central government and may be the case for a small number of corporations (probably public), generally in a monopolistic or quasi-monopolistic situation, such as the national railway corporation or the national electricity corporation.

18.48 Assigning transactions of the regional units to a specific region does not raise any conceptual problem. Assigning the transactions of multiregional units between various regions raises more difficulties. When considering deliveries between units of the same enterprise in different regions, it is necessary to apply the recommendation in paragraph 6.104 about intra-enterprise deliveries. Such deliveries are recorded only when the receiving unit assumes responsibility for making the decisions about the level of supply and prices at which their output is delivered to the market. When this is not the case, the receiving unit is regarded as providing only a processing service to the sending unit.

18.49 Further, some of the transactions of multiregional units simply cannot be allocated between the different regions in which they operate. This is the case for most property income and financial transactions. Thus the only balancing items of multiregional units that can be determined at the regional level are value added and operating surplus. These difficulties are parallel to those that arise when trying to construct accounts for industries where different types of activities are undertaken in separate establishments of the same enterprise.

18.50 Assigning the transactions of national institutional units by region raises even more complex issues to the point where the usefulness of attempting to do so may be questioned. While sales of electricity and railway services or compensation of employees paid by central government may be assigned to regions, interest on the public debt payable by central government or national corporations cannot be geographically located. Consequently, a reasonable solution is to introduce a kind of national "quasi-region", not allocated as such between the regions and being treated as an extra region. This national "quasi-region" may include the head offices of enterprises that have establishments located in, and assigned to, the regions.

18.51 These conceptual difficulties partly explain why no country establishes the complete SNA accounts for every region. In most cases regional accounts are limited to recording production activities (with conceptual problems arising for locating some of them, such as transportation and communication) by industry and more complete accounts for institutional sectors composed of regional units, such as households and local and state government. Establishing accounts for goods and services and input-output tables by region does not raise insoluble conceptual issues, though it involves treating deliveries to and from other regions as exports and imports. However, the practical difficulties of doing so are very considerable in the absence of a sophisticated system of transport statistics.

18.52 It should also be noted that in large countries there may be significant variation in prices of the same products across different regions. A full investigation of the impact of price variation on regional production and expenditure could involve the construction of a type of PPP exercise to be able to estimate the difference in purchasing power in different regions.

Table 18.1:High-level SNA/*ISIC* aggregation (A*10)

	ISIC Rev. 4 sections	Description
1	A	Agriculture, forestry and fishing
2	B, C, D and E	Manufacturing, mining and quarrying and other industry
2a	C	*of which*: manufacturing
3	F	Construction
4	G, H and I	Wholesale and retail trade, transportation and storage, accommodation and food service activities
5	J	Information and communication
6	K	Financial and insurance activities
7	L	Real estate activities
8	M and N	Professional, scientific, technical, administration and support service activities
9	O, P, and Q	Public administration, defence, education, human health and social work activities
10	R, S, T and U	Other services

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18.53 Nonetheless, regional accounts, even with the limitations mentioned above, are a very useful tool for economic policy. Partial regional accounts may be inserted in a set of regional statistical indicators on labour participation, unemployment, poverty, etc. The greater the contrast between the regions in a country, the more useful is such a system of regional indicators, including value added per capita, household disposable income and household consumption per capita. It is for countries themselves to devise their own regional accounts and statistical indicators, taking into consideration their specific

Table 18.2: Industry level headings for a country with a large subsistence economy

ISIC, Rev. 4			Description
Sections	Divisions	Groups	
			Monetary
A			**Agriculture, forestry and fishing**
	01		Crop and animal production, hunting and related service activities
			Cash crops
			Food crops
		014	Animal production
	02		Forestry and logging
	03		Fishing and aquaculture
B			**Mining and quarrying**
C			**Manufacturing**
			Formal
			Informal
D and E			**Electricity, gas, steam and air conditioning supply; and Water supply; sewerage, waste management and remediation activities**
F			**Construction**
G			**Wholesale and retail trade; repair of motor vehicles and motorcycles**
			Formal
			Informal
I			**Accommodation and food service activities**
H			**Transportation and storage**
		491	Transport via railways
		492	Other land transport
		511, 512, 493, 521, 522	Air transport, transport via pipeline and warehousing and support activities for transportation
	53, 60 and 61		Postal and courier activities; programming and broadcasting activities; and telecommunications
J to U			**Other services**
	84		Public administration and defence; compulsory social security
	85		Education
	86, 87 and 88		Human health and social work activities
	68		Real estate activities
			Miscellaneous
			Total Monetary
			Non-Monetary
A			**Agriculture, forestry and fishing**
	01		Crop and animal production, hunting and related service activities
			Food crops
		014	Animal production
	02		Forestry and logging
	03		Fishing and aquaculture
F			**Construction**
	68		Imputed rental of owner-occupied dwellings
			Other non-monetary activities
			Total Non-Monetary
			Total value added at basic prices
			Taxes less subsidies on products and imports
			Gross domestic product

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circumstances, data systems and resources that might be devoted to this work.

18.54 There are two manuals giving more detail on regional accounts; *Regional accounts methods - Gross value-added and gross fixed capital formation by activity Eurostat, 1995)* and *Regional accounts methods – Households Accounts* (Eurostat 1996).

F. Presentational issues

18.55 Although it is possible, as already noted, to introduce more detail into the integrated economic accounts by introducing more columns for subsectors and more rows for disaggregations of transactions, this may quickly result in a very complicated and unmanageable table. For this reason, more detailed analysis of production and transactions in goods and services, financial transactions and detailed balance sheets, as well as analysis by purpose are shown in other types of tables. Some of these alternatives are described in following chapters. This section focuses on the presentation of the main macroeconomic aggregates with supporting detail.

18.56 It is fundamental to an understanding of the SNA to grasp the three different ways of compiling GDP, from the production, expenditure and income approaches. However, the definitions in chapter 16 concentrate on the different types of flows at the most aggregate level to make the distinction between the three approaches as clear as possible. In practice when presenting the results to users, some more detail is necessary. The amount and kind of detail can vary from country to country but there are some broad guidelines that tend to be used by international organizations when producing tables for several countries at the same time.

1. Production measures of GDP

18.57 For the production measure, it is usually appropriate to give some level of industry detail. *ISIC*, Rev. 4 provides a top-level of 21 sections and a second level of 88 divisions. For national accounts summary data presentations, a high-level aggregation of 10 categories and an intermediate-level aggregation of 38 categories have been developed that are suitable for SNA data reporting from a wide range of countries. The structure of these two SNA/*ISIC* aggregations, which are denoted as A*10 and A*38, respectively, is described in more detail in *ISIC*, Rev 4, paragraphs 199 to 212. Table 18.1 shows the high-level (A*10) aggregation of industries.

Key industries

18.58 It is quite common in some countries to show very summary data for a range of industries with a breakdown by agriculture (*ISIC* section A), industry (*ISIC* sections B to F of which manufacturing, *ISIC* section C, is shown separately) and services (*ISIC* sections G to U). In countries where there are a small number of key industries, it may be useful to break some of these headings down further and to merge others. For example, it may be useful for an insight into the working of the economy to distinguish agriculture

Table 18.3: GDP by expenditure

GDP: expenditure approach
Final consumption expenditure
Household final consumption expenditure
Possibly include summary detail by product or COICOP
Final consumption expenditure of NPISHs
Government final consumption expenditure
Individual consumption expenditure
Collective consumption expenditure
of which Actual individual consumption expenditure
Gross capital formation
Gross fixed capital formation, total
Possibly include summary detail according to the asset classification of capital formation
Changes in inventories
Acquisitions less disposals of valuables
External balance of goods and services
Exports of goods and services
Exports of goods
Exports of services
Imports of goods and services
Imports of goods
Imports of services
Statistical discrepancy
Gross domestic product

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undertaken on a commercial scale to produce cash crops for export from small-scale informal agricultural activities or to distinguish the assembly of electronic goods. Equally in some countries it may be sufficient to merge some service groups. However, it is good practice to follow the basic ordering adopted by *ISIC* whatever the level of detail shown.

18.59 In countries with a large subsistence economy, it may be desirable to show whether the production is monetary or non-monetary. Table 18.2 shows how the main *ISIC* industries can be elaborated to make this distinction. Depending on circumstances, a subset of these headings (or possibly with extra disaggregation if appropriate) may be a useful way to present information on the production activities in a country.

2. Expenditure measures of GDP

18.60 The most aggregate level of the expenditure measure of GDP is household final consumption expenditure, general government final consumption expenditure, gross capital formation, exports of goods and services and imports of goods and services. (Often in such an abbreviated presentation the item for household final consumption expenditure includes that for NPISHs also.) An example of a somewhat more detailed table is shown in table 18.3. The possibility to include details by product or by COICOP groups is shown in the table. Similarly (though not shown), details of products or COPNI, COFOG groups could be included under other headings as appropriate.

3. Income aggregates

18.61 There is much less standardization in the presentation of income measures of GDP. Some presentations concentrate on showing compensation of employees and operating surplus (and mixed income) by the same industry breakdown as is shown for the output measure of GDP. Other presentations give the different components of compensation of employees (wages and salaries, and employers' social contributions), as well as the different types of taxes and subsidies levied on production. As already pointed out, income should, properly speaking, be measured net of consumption of fixed capital and thus show the composition of NDP, not GDP. The size of NNI relative to NDP is also of interest to analysts and should be shown.

18.62 Again national needs should be taken into account when determining the presentation of the accounts. In a country where income in kind or subsistence income is significant, a breakdown of compensation of employees that includes these items should be considered.

4. Accounts in volume terms

18.63 Accounts in volume terms may be presented in a number of ways that are not necessarily mutually exclusive. It is possible to present them in level terms so that for one year (the reference year) the figures in current prices and in volume terms will be identical. A consequence of this is that if, as recommended in the SNA, volume estimates are derived by means of chain-linking, then the aggregates may not be equal to the sum of the components for years other than the reference year. One alternative is to present the volume estimates in index number form. The year that previously was the same in level terms becomes 100 for both the aggregates and the components. This procedure makes changes easier to recognize but users can still calculate the level figures if desired by applying the base year level values to the volume indicators. However, this alternative is inappropriate for aggregates that can take zero or negative values, such as changes in inventories. A third alternative is to show the volume indicators only in terms of growth rates from either the previous year or from a base year. However, rounding problems suggest this may be an additional form of presentation rather than the only one. (See paragraph 15.63 for more on measuring the contributions of chain-linked indices to growth.)

5. Quarterly accounts

18.64 As noted in the discussion on quarterly accounts above, quarterly estimates should be presented on both a seasonally adjusted and an unadjusted basis. Often they will be presented in current prices and as volume series also.

6. Sector accounts

18.65 The rationale for making institutional sectors such an important part of the SNA is the key role that they play in understanding how economic developments affect one or another groups of units in the economy. An account for each sector can be examined on its own, much as is suggested in following chapters, but some features of the accounts are only apparent from a presentation where all the sector accounts are available together. For example, an examination of property income flows shows which sectors pay interest and which receive it, what proportion of dividends are received by pension funds and whether rent is paid predominantly by households or not. The secondary distribution of income account allows a comparison to be made between the amount of current taxes on income, wealth, etc. paid by corporations as compared with households, which sectors pay insurance premiums and which receive the claims and how important other current transfers are in the economy.

18.66 The chapters that discuss the interpretation of the sector accounts also consider matters of presentation as do the chapters showing the links with other statistical systems, notably the links to government finance statistics, external transactions and monetary and financial statistics. In all cases, though, attention should be paid to presenting the accounts in a manner most useful to the readers of the publication for which a presentation is being designed. This may well vary from one type of publication to another and flexibility in approach is essential to enable the readers to make best use of the data being presented.

7. Integrated accumulation accounts

18.67 Chapter 13 explains the articulation of the accumulation accounts for both non-financial and financial assets. The links between opening and closing balance sheets for non-financial assets are essential for the derivation of consumption of fixed capital and for measures of capital services and productivity as explained in chapter 20. Very

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often, though, the basic data on which such estimates are made are not published on a regular basis or even at all. Despite their obvious importance, even stocks of residential dwellings are not publicly available for more than a handful of countries.

18.68 For financial assets and liabilities, the situation is somewhat better and indeed in some cases the flow data are derived from opening and closing balance sheet data. Although these data are regularly published, when available, the tables are not always linked to the regular national accounts publication and so users are not always aware of the essential connection between the financial part of the accounts and the rest.

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Chapter 19: Population and labour inputs

A. Introduction

19.1 Economic activity is essentially human activity and yet the sequence of accounts does not refer to persons except indirectly. All individuals that make up households (the population) are only identified in so far as they engage in consumption expenditure. Those individuals that are employees feature only as the recipients of compensation with no indication about whether there are a few very well paid employees or many very poorly paid (though in fact there are some of each and many in between). The purpose of this chapter is to show how data for population and labour can be used in conjunction with key entries in the sequence of accounts to show how much the average citizen benefits from economic activity and how much the average worker contributes to output. An indication of the first is given by measuring GDP per capita and of the second by estimating labour productivity. As well as being of interest in themselves, these figures are interesting in comparison with similar data in different time periods and in different countries.

19.2 This chapter considers total population, labour inputs and labour productivity only. Chapter 24 considers different types of households. The extension of productivity to include the impact of capital is covered briefly in chapter 20 and more extensively in other publications such as *Measuring Productivity*.

19.3 The SNA requires a definition of population to express GDP and consumption aggregates in per capita terms. In effect, expressing the volume of GDP (or of household final consumption expenditure) in per capita terms "standardizes" the volumes by adjusting for the size of countries based on their populations. Per capita volumes of major aggregates are often used as a measure of the relative standard of living in countries, despite the misgivings of some social analysts about the adequacy of this measure. Even though the per capita volumes of GDP have some shortcomings, it is clear there is a strong correlation between a country's per capita volume of GDP and its standard of living.

19.4 Labour input variables are necessary to examine productivity. Changes in productivity over time are an important indicator of the efficiency of economic production. Likewise, differences in the level of productivity in a country compared with similar countries provide a useful indicator of the relative efficiency of the country's production processes. Productivity can be measured in different ways, with the simplest being labour productivity, typically measured as the volume of GDP per hour worked. More complicated productivity measures, such as multifactor productivity (sometimes called total factor productivity) also require a measure of labour inputs, along with capital inputs, to obtain an overall input measure to divide into the GDP volume.

1. International standards on labour force statistics

19.5 Clearly, if a ratio is to be formed between measures of output and labour input, the concept of labour used must match the coverage of production in the SNA. The relevant standards on the labour force are maintained by the International Labour Organization (ILO). The ILO standards are contained in "resolutions", which are adopted by sessions of the International Conference of Labour Statisticians (ICLS). The resolution of 2008 confirms that the ***economically active population is defined in terms of individuals willing to supply labour to undertake an activity included in the SNA production boundary.***

19.6 Not everyone who is economically active works for a resident institutional unit. It is therefore particularly important that the concept of residence underlying the population estimates be consistent with that for labour force estimates and that the residence of individuals included in employment estimates are consistent with the criterion of resident institutional unit in the SNA.

2. The structure of the chapter

19.7 The topic of population and the derivations of per capita figures for aggregates such as GDP are the subject of section B. Section C starts by describing how the total population can be divided into those in the labour force and those not in the labour force and the adjustments made to population totals to allow for residents working abroad and non-residents working in the national economy. It also describes how various categories of the labour force are defined and discusses some boundary issues.

19.8 Section D discusses how simple head counts of employed persons can be improved for use in productivity measures by different means of standardization. The derivation of labour productivity measures is the topic of section E and the chapter closes with a brief discussion of data sources in section F.

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B. Population

19.9 Annual population estimates derive from less frequent population censuses. Censuses usually count the number of people present on a specified night or the number of people who usually live in a dwelling, even if they are not present when the census is enumerated. However, a census is often conducted only every five or ten years and sometimes less frequently. In years between censuses, updated information on the population of a country is provided by drawing on information on births and deaths and on net migration.

19.10 ***The population of a country is most simply defined as all those persons who are usually resident in the country***. In this definition, the SNA and *BPM6* concept of residence is used, that is persons are resident in the country where they have the strongest links thereby establishing a centre of predominant economic interest. Generally, the criterion would be based on their country of residence for one year or more. In most cases, the concept of residence is straightforward, being based on the dwelling a person occupies on a permanent basis, although there are some borderline cases discussed further in chapter 26.

19.11 Generally, persons who are resident in a country for one year or more, regardless of their citizenship, should be included in the population measure. An exception is foreign diplomatic personnel and defence personnel, together with their families, who should be included as part of the population of their home country. The "one-year rule" means that usual residents who are living abroad for less than one year are included in the population but foreign visitors (for example, holidaymakers) who are in the country for less than one year are excluded from the measured population. Further elaboration on the application on the residence criterion in special cases is given in paragraphs 4.10 to 4.15

1. Per capita estimates of volume growth

19.12 The growth rate in the volume of GDP is one of the key economic indicators provided by the national accounts. Such growth rates can be compared directly between countries because they are expressed in common units (percentage changes) and are not affected by the currency in which the GDP estimates are expressed. However, part of each country's growth in GDP volumes is attributable to changes in population and so it is useful to "standardize" percentage growth rates by calculating per capita growth rates. For example, if a country's population is increasing more rapidly than its GDP volume growth then the per capita output is falling. On the other hand, a country with a very low growth in GDP volume but with a declining population will show an increase in per capita output.

19.13 As noted in the introduction, there are some shortcomings of per capita figures. Just two examples can be given to illustrate this. An economy with larger household sizes may have equivalent benefits from proportionately smaller expenditure on housing and other items covering all household members than a country with smaller household sizes. Giving the same weight to a small child and an adult in a physically demanding job may also give misleading information on the adequacy of food consumption.

19.14 Per capita growth rates in real national income or in real actual consumption generally provide a better measure of the changes in the average "welfare" of a country's population than the changes in GDP volumes. GDP is a measure of production within a country but the inflows or outflows of income from or to the rest of the world can have a significant effect on both the level and growth rates in real national income per capita. Similarly, the level and growth rates in GDP volumes can differ significantly from those in the final consumption of households because of the varying shares across countries of capital formation and net exports within GDP.

2. Absolute levels of GDP per capita

19.15 As described in chapter 15, the International Comparison Program (ICP) makes estimates of absolute levels of GDP and GDP per capita across countries in order to try to establish a relative level of prosperity. These estimates involve measures of GDP, purchasing power parities (PPPs) and the same population estimates previously described as being used for volume growth measures.

C. Measuring the labour force

19.16 Not all individuals included in the population are engaged in production. Some are too young, some too old and some may simply choose not to work. Others may usually work but be temporarily not working because of illness, lack of employment or being on holiday, for example. A first step in moving from population data to data for employment, is thus to define what is meant by the labour force.

19.17 ***The labour force consists of those who are actively prepared to make their labour available during any particular reference period for producing goods and services that are included within the production boundary of the SNA.*** The labour force is further divided into those who are employed and those who are unemployed. Thus the population of the country can be subdivided into three categories; employed, unemployed and not in the labour force. A person's status depends on their activity (or lack of it) during a particular reference period (usually a week).

19.18 Because the labour force is defined with reference to a short period, the number of persons in the labour force at any time may be smaller than the economically active population. For example, seasonal workers may be

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included in the economically active population but not in the labour force at certain times of year.

19.19 The labour force consists of four groups of persons; residents who are employees of resident institutional units, residents who are employees of non-resident institutional units, unemployed residents and self-employed persons. (A self-employed person is necessarily associated with a resident household. If such a person provides goods and services abroad, these are recorded as exports.) ***Employment in the SNA is defined as all persons, both employees and self-employed persons, engaged in some productive activity that falls within the production boundary of the SNA and that is undertaken by a resident institutional unit.***

1. Employees

19.20 ***Employees are persons who, by agreement, work for a resident institutional unit and receive remuneration for their labour***. Their remuneration is recorded in the SNA as compensation of employees. The relationship of employer to employee exists when there is an agreement, which may be formal or informal, between the employer and a person, normally entered into voluntarily by both parties, whereby the person works for the employer in return for remuneration in cash or in kind. There is no requirement that the employer should declare the agreement to any official authority for the status of employee to apply.

19.21 Employees include but are not confined to the following categories:

a. persons (manual and non-manual workers, management personnel, domestic staff, people carrying out remunerated productive activity under employment programs) engaged by an employer under a contract of employment;

b. civil servants and other government employees whose terms and conditions of employment are laid down by public law;

c. the armed forces, consisting of those who have enlisted for both long and short engagements and also conscripts (including conscripts working for civil purposes);

d. ministers of religion, if they are paid directly by general government or a non-profit institution;

e. owners of corporations and quasi-corporations if they work in these enterprises;

f. students who have a formal commitment whereby they contribute some of their own labour as an input into an enterprise's process of production in return for remuneration and (or) education services;

g. disabled workers, provided that the formal or informal relationship of employer to employee exists;

h. persons employed by temporary employment agencies, who are to be included in the industry of the agency which employs them, and not in the industry of the enterprise for which they actually work.

19.22 An outworker is a person who agrees to work for a particular enterprise or to supply a certain quantity of goods and services to a particular enterprise by prior arrangement or contract with that enterprise, but whose place of work is not within it. An outworker is treated as an employee if there is an explicit agreement that the outworker is remunerated on the basis of the work done, that is the amount of labour contributed as an input into some process of production. There is further discussion of the classification of outworkers in paragraphs 7.34 to 7.38.

19.23 Persons temporarily not at work are also considered as employees provided they have a formal job attachment. This formal attachment should be determined according to one or more of the following criteria:

a. the continued receipt of wage or salary;

b. an assurance of return to work following the end of the contingency, or an agreement as to the date of return;

c. the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs.

Persons included in the above classification are those temporarily not at work because of illness or injury, holiday or vacation, strike or lockout, educational or training leave, parental leave, reduction in economic activity, temporary disorganization or suspension of work due to such reasons as bad weather, mechanical or electrical breakdown, or shortage of raw materials or fuels, or other temporary absence with or without leave. For some purposes, it may be useful to distinguish employees temporarily not at work if this is possible.

19.24 Managers of corporations (or quasi-corporations) are treated in the SNA as employees but the ILO classification regards them as self-employed.

2. Self-employed persons

19.25 ***Self-employed persons are persons who are the sole or joint owners of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations.*** Persons who work in unincorporated enterprises are classed as self-employed persons if they are not in paid employment that constitutes their principal source of income; in that latter case, they are classified as employees. They may be temporarily not at work during the reference period for any specific reason. The compensation for self-employment is included in mixed income because it is not possible to observe separately the return to labour from the return to any capital used in the unincorporated enterprise. (For some analytical purposes it may be useful to estimate a breakdown. See paragraphs 20.49 to 20.50)

19.26 Self-employed persons also include the following categories:

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a. contributing family workers working in unincorporated enterprises;

b. outworkers whose income is a function of the value of the outputs from some process of production for which they are responsible, however much or little work was put in;

c. workers engaged in production undertaken entirely for their own final consumption or own capital formation, either individually or collectively. (An example of the last is communal construction.)

19.27 Contributing family workers are sometimes called unpaid workers but there are other unpaid, or voluntary, workers.

19.28 In ILO statistics, self-employed persons include those working in enterprises that are legally unincorporated even if there is sufficient information available for them to be treated as quasi-corporations in the SNA. In the SNA the remuneration of these people is included in compensation of employees rather than in mixed income. Among others, this may include members of producers' cooperatives.

3. Unemployment

19.29 To complete the picture of the labour force, it is necessary to mention unemployment because the labour force is divided between employed persons (that is, employees plus self-employed persons) plus those who are unemployed. An unemployed person is one who is not an employee or self-employed but available for work and actively seeking work. The concept of unemployed persons is not required in the national accounts because the unemployed do not contribute to production but their numbers are necessary to make the conceptual transition from the employed population to the economically active population.

4. Boundary problems

Jobs and employees

19.30 Individuals may have more than one source of income from employment because they work for more than one employer or, in addition to working for one or more employers, they work on their own account as self-employed. The agreement between an employee and the employer defines a job and each self-employed person has a job. The number of jobs in the economy thus exceeds the number of persons employed to the extent that some employees have more than one job. An individual with more than one job may do these successively as when the person works for part of the week in one job and the rest of the week in another or in parallel as when the person has an evening job as well as a daytime job. In some cases, too, a single job may be shared by two persons.

19.31 Employers may not be aware of, and in any case are not asked to provide information on, secondary jobs undertaken by their employees. When employers supply information on the number of employees, they actually provide information on the number of jobs they provide. Care has to be taken that the number of jobs does not include vacancies when numbers of jobs are used for number of employees. The distinction between number of jobs and number of employees is one issue that has to be carefully addressed in productivity statistics.

Residence

19.32 Population numbers are dependent on the residence of individuals but employees do not have to be resident in the economy where they work. The results of the activity of producer units can be compared with employment only if the latter includes both the residents and the non-residents who work for resident producer units. Employment mainly consists of resident employees working for resident institutional units and self-employed persons. However, it also includes the following categories where there might be a question about whether they are considered resident or not:

a. non-resident border workers (sometimes called frontier workers), that is, persons who cross the border each day to work as employees in the economic territory;

b. non-resident seasonal workers, that is, persons who move into the economic territory and stay there for less than one year in order to work in industries which periodically require additional labour;

c. members of the country's armed forces stationed in the rest of the world;

d. nationals who are on the staff of national scientific bases established outside the geographic territory of the country;

e. nationals who are on the staff of diplomatic missions abroad;

f. members of the crews of fishing boats, other ships, aircraft and floating platforms operated by resident units;

g. employees of general government bodies situated outside the geographic territory, for example embassies;

h. students undertaking employment are included or not according to their classification as resident or non-resident as explained in chapter 26.

19.33 On the other hand, the following residents, though employees, are excluded from employment in residential institutional units (and hence from measures of employment as used in the context of the SNA):

a. residents who are border workers or seasonal workers, that is, who work as employees in another economic territory;

b. nationals who are members of the crews of fishing boats, other ships, aircraft and floating platforms operated by non-resident units;

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c. residents who are employees of foreign government agencies located on the geographic territory of the country;

d. the personnel of international civilian organizations located within the geographic territory of the country (including local employees directly recruited);

e. members of the armed forces working with international military organizations located on the geographic territory of the country;

f. nationals working in foreign scientific bases established in the economic territory.

19.34 Labour force statistics may be based on either household surveys (when all residents should be covered) or from establishment surveys (when the focus is on employment in resident institutional units). However, some further adjustments are required to ensure the coverage of employment on an SNA basis is complete:

a. conscripted members of the armed forces are generally not included in establishment surveys and may not be captured in household surveys but conscripts are regarded as being employees of general government in the SNA;

b. resident workers living in an institutional household (such as a religious institution or a prison) are generally not included in either household surveys or establishment surveys but the workers are included in SNA employment;

c. resident workers under the age limit defined for measurement of the labour force who work for resident institutional units are included in SNA employment.

5. The non-observed economy

19.35 National accountants are particularly concerned about ensuring that the whole of economic activity within the SNA production boundary is measured comprehensively. This is often referred to as the "exhaustiveness" of the coverage of the national accounts. In practice, it means ensuring that the value of production activities that are illegal or hidden (that is, the "underground economy" or the "hidden economy") as well as those that are simply described as informal is included in the accounts. In principle, for the SNA, the remuneration of all these workers should be included in either compensation of employees or mixed income. Therefore, when looking at comparisons between labour statistics and output, it is important the persons concerned should be included in labour statistics also.

6. Labour in NPISHs

19.36 The output of NPISHs is supplied free or at prices that are not economically significant so it is valued by the costs of production. One of these costs is compensation of employees. It is important that these employees be recorded in the employment measures used in deriving productivity changes. However, NPISHs often have volunteer workers so the treatment of these deserves special attention.

7. Volunteer labour

19.37 A distinction can be made between those who have an agreement to provide labour for token remuneration or only income in kind, those for whom there is explicitly no remuneration and those where there is apparently no remuneration but the workers benefit directly from the output to which they contribute. In ILO statistics, all three types of worker are included in the economically active population as employees.

19.38 In the SNA, the remuneration of those working for token amounts or only income in kind is measured by these costs. No imputation for an additional element of remuneration is included. For example, if doctors or teachers work for only food and lodging, the value of this as income in kind is the only salary imputed to them. Such instances may arise in religious institutions or in the wake of natural disasters. If the unit employing these staff is responsible for whatever little remuneration is received, the staff are classed as employees.

19.39 If staff are purely voluntary, with no remuneration at all, not even in kind, but working within a recognized institutional unit, then these individuals are still regarded as being employed in SNA terms but there is no entry for compensation of employees (or mixed income) for them. (Individuals providing services to groups of other individuals, such as coaching a children's football team, without any associated infrastructure are not regarded as employed but rather engaging in a leisure pursuit, however worthy their efforts might be.)

19.40 If family members contribute to the output of an unincorporated enterprise, the estimate of mixed income is supposed to include an element of remuneration for them and thus they are all treated as being in the economically active population from an SNA point of view. In ILO statistics such workers will not be included in the economically active population if they are under age. (The lower limits for working age will depend on national conditions.)

19.41 By convention, no labour services are attributed to the services provided by owner-occupied dwellings (see paragraphs 24.50 to 24.58). In contrast, if a group of individuals agrees to construct a building or structure, for example a school or a well, these individuals are regarded as being in the labour force and receive mixed income for their efforts. Because it is difficult to value such projects, unless a direct comparison can be made with a similar building, the value of construction should be based on the costs incurred. Labour is a significant input into construction projects, so its value must be included as part of the total costs using wage rates paid for similar kinds of work on local labour markets (see paragraphs 6.127 and 7.30). This income is then used to acquire the result of their efforts which may subsequently be handed over to a third party for maintenance. The latter action is recorded as a capital transfer in kind.

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D. Standardized measures of labour inputs

19.42 A crude estimate of the labour inputs required for productivity measures is provided by the numbers of persons employed. Using this as a starting point, the labour input measures can then be adjusted to provide various degrees of sophistication. Examples in increasing order of being difficult to measure are full-time equivalents, total actual hours worked and quality-adjusted labour inputs based on models. Each of these is discussed in turn below.

1. Employment measured on a full-time equivalent basis

19.43 ***Full-time equivalent employment is the number of full-time equivalent jobs, defined as total hours actually worked by all employed persons divided by the average number of hours actually worked in full-time jobs.***

19.44 The definition does not necessarily describe how the concept is estimated. The method sometimes used, of simply counting all part-time jobs as half a full-time job, is the crudest possible way of making an estimate. Since the length of a full-time job has changed through time and differs between industries, more sophisticated methods are preferred, such as one that establishes the average proportion and average working time of less than full-week, full-time jobs in each job group separately.

19.45 The SNA does not recommend full-time equivalent employment as the preferred measure of labour inputs. However, if the data are good enough to permit an estimation of total hours actually worked, full-time equivalent employment should also appear in association with the national accounts. One reason is that this facilitates international comparisons with countries which can only estimate full-time equivalent employment. However, with the move by the ILO to recommend recording total hours actually worked as the preferred measure of labour input, the use of full-time equivalents is likely to be gradually phased out.

19.46 As just noted, the number of full-time equivalent employees is based on the number of hours worked, on average, in a full-time job. If the number of hours in a full-time job falls because of an increase in annual leave entitlements or public holidays, say, there may be little or no change in full-time equivalents even though the total number of hours actually worked has declined. A similar effect may be caused by an increasing incidence of sick leave. The estimate of the number of hours in a full-time job is therefore adjusted for the average amount of sick leave taken in the reference period as well as for annual leave taken.

2. Hours worked

19.47 Even with such adjustments made to full-time equivalent numbers, the preference is for total hours actually worked to be used in productivity estimates.

19.48 In practice, total hours actually worked and annual (full-time) hours actually worked may have to be estimated. In many countries, especially for monthly paid employee jobs, only normal hours or hours usually worked, any paid overtime, plus annual and holiday leave entitlements can be ascertained. It may be impossible to estimate the deduction to be made for the average level of absence from work due to illness from either total hours actually worked or annual (full-time) hours actually worked. This error will not affect full-time equivalent employment if sickness rates in part-time jobs are the same as in full-time jobs.

19.49 If the reference weeks used in the surveys that provide the data are not fully representative, the best available information on variations throughout the year should be used in estimating data for the year as a whole.

Defining hours actually worked

19.50 For the purposes of the SNA, working time is defined as the time spent in undertaking activities that contribute to the production of goods and services within the SNA production boundary. Seven concepts of working time are defined in the resolution concerning the measurement of working time adopted by the 18th ICLS, in December 2008:

a. hours actually worked,

b. hours paid for,

c. normal hours of work,

d. contractual hours of work,

e. hours usually worked,

f. overtime hours of work and

g. absence from work hours.

19.51 The most important measure for the SNA, and the one most relevant for use in measuring productivity, is hours actually worked. This concept covers

a. direct hours, the time spent carrying out the tasks and duties of a job in any location regardless of the amount of time agreed contractually between employer and employee,

b. related hours, including time on call, travelling on work assignments, training and other tasks itemized in the resolution,

c. down time, covering periods when a person is available for work but cannot because of temporary interruptions of a technical, material or economic nature

d. resting time such as short periods of rest, for refreshment, etc.

19.52 Hours worked excludes

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a. all types of leave (annual, public holidays, sick leave, parental leave civic duty etc.),

b. commuting time when no productive work is done,

c. education other than training,

d. meal breaks and other longer periods of rest while travelling on business.

19.53 More exhaustive definitions of these criteria can be found in the ICLS resolution.

19.54 The truism, for employee jobs, that hours worked equal hours paid less hours paid but not worked, plus hours worked but not paid, is a useful one, since many establishment surveys record hours paid, not hours worked, so that hours worked have to be estimated for each job group, using whatever information is available about paid leave, etc.

3. Quality-adjusted labour input

19.55 Using total hours actually worked as the input measure for calculating labour productivity changes over time implicitly assumes that each hour worked is of the same quality (that is, there are no differences in the qualifications and skill levels of the labour employed). In other words, each hour worked by a highly skilled person, such as a brain surgeon, is assumed to produce the same quantity and quality of output as each hour worked by an unskilled worker. It is possible to produce a quality-adjusted measure of the labour inputs that takes account of changes in the mix of workers over time by weighting together indicators of quality for different grades of workers. (The term quality-adjusted is used as being parallel to the idea of quality-adjusted price indices but it could also be seen as an adjustment for the change in the composition of the workers involved.)

19.56 The quality indicators used can relate to variables such as academic qualifications, trade qualifications, experience (typically based on age of the worker), industry of employment and so on. The various indicators are weighted together using average hourly wages for a worker falling into each category. The premise behind this approach is that workers are hired only until their marginal price (that is, their wages, including on-costs) is less than the marginal revenue expected to result from their production. The index formula used can be a fixed-weight (Laspeyres) formula or a more sophisticated formula such as the Tornqvist, which takes account of changing weights by using weights from each of the periods in the analysis.

19.57 Calculating a quality-adjusted labour input measure using this approach is very data intensive and only those countries that have highly developed statistical systems are likely to have the detailed data required.

4. Employee labour input at constant compensation

19.58 Total hours actually worked and full-time equivalent employment are both physical measures of labour input. Output too can usually be measured in physical terms, such as tonnes or cubic metres, but this is not done in the national accounts, because the basic value per tonne or cubic metre varies so much between products that these physical measures lack general economic significance. But compensation per hour or per full-time year of work varies enormously too. Physical measures of labour input are only valid if the mix of different kinds of labour is much the same in the different countries or at the different times examined.

19.59 Since output is measured both at current prices and in volume terms, it is natural to do the same with labour inputs as well as with intermediate inputs. However, the remuneration of the self-employed is included in mixed income and cannot be unambiguously identified separately. For this reason, the labour input of employees only is shown at constant compensation.

19.60 The measurement of employee labour inputs at current prices and in volume terms is symmetrical with the measurement of output and subject to the following caveats.

a. Market prices and market compensation are assumed to measure the relative economic importance of different goods, services and jobs; the advantages and disadvantages of this assumption are the same for inputs as for outputs.

b. Though the volume measure and constant compensation concepts are defined as revaluations of quantities at base period prices or compensation levels, they can be estimated in practice as the sum, over all groups, of values at current prices or compensation levels, each divided by an appropriate wage index.

c. These group indices are estimates, calculated for a representative sample of jobs or of goods or services, with weights reflecting the relative importance of each of the subgroups represented by a selected and specified job, or by a selected and specified good or service. In other words, a compensation index is constructed like a price index.

19.61 While the value of employee labour input at constant compensation can be estimated by deflating current values, as mentioned above, the data may also permit the direct approach of multiplying the current number of jobs in each job group by the base-period average annual compensation for jobs in that job group.

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E. Estimating labour productivity

1. Labour productivity and MFP

19.62 Volumes of output per hour worked (or per person employed) are described as measures of labour productivity. However, this is a somewhat unsophisticated measure because changes in this measure can reflect a number of factors other than just the number of hours of labour employed. In particular, increases in the amount of capital used can affect this ratio as can changes in the composition of the labour force over time.

19.63 Measures of capital productivity, calculated by dividing the volume of output by an index of capital services provided, suffer from similar drawbacks since they do not capture the effects of the amount of labour employed and the efficiency and composition of the capital inputs.

19.64 A measure that takes account of the contributions of both labour and capital to growth in output is multifactor productivity (MFP), which is sometimes referred to as total factor productivity (TFP). The advantage of using MFP as the measure of productivity is that it includes effects not included in the labour and capital inputs. This topic is discussed further in chapter 20 and in *Measuring Capital.*

19.65 The productivity model can be extended to include other factors such as the energy and materials used in production. This can be extended to producing productivity estimates at the most detailed level of the input-output tables. An example of such work can be found in the EU-KLEMS project. EU-KLEMS was initially a statistical and analytical research project focussing on the analysis of productivity and growth accounting in the European Union at the industry level. More information on it can be found on the project site http://www.euklems.net/. The work is being adopted officially.

2. Employment estimates for productivity estimation

19.66 As explained in section D, neither the number of employees, nor even full-time equivalent employees are ideal measures for use in productivity studies. Total hours actually worked is preferred by many because it is a reasonable compromise between these cruder measures and data-intensive measures that adjust for differences in the qualifications, skill levels and composition of labour.

19.67 Whichever labour measure is used in calculating productivity, it is very important to ensure that the coverage of the labour data is consistent with that of the national accounts. In other words, the labour inputs must be estimated within the same production boundary and using the same criteria for residence that are used in the national accounts. Typically, the topics that cause most difficulty are residence (particularly with border workers), defence force and diplomatic personnel (who are commonly not covered by the labour force surveys often used to provide the basic data) and obtaining details of unpaid hours (for example, unpaid overtime) or of some self employment (for example, contributing family workers).

19.68 Increasingly, analysts are interested in measuring productivity on an industry basis as well as for the economy as a whole. Calculating industry employment and working time by industry adds an additional degree of difficulty to the estimation process. Among other advantages, using hours worked overcomes the problems involved in measuring employment by industry when a worker has two or more jobs, not in the same industry.

19.69 In particular, the national accounting data come from surveys of establishments while the employment estimates are generally obtained using household surveys. It is often difficult to correctly match the data classified by industry from these separate sources. Similar difficulties potentially affect regional estimates, with the concept of residence having to be applied at a regional level rather than at the country level.

19.70 Labour productivity, including industry productivity, and MFP are all valid measures of an economy's performance. From a practical viewpoint, it is important to ensure that the employment and hours worked underlying these sets of estimates are consistent with each other as well as with output measures when calculating the productivity estimates.

3. Data consistency

19.71 Examining the relative productivity performance of different industries is of interest to many analysts. In practice, the labour input estimates for the whole economy can be estimated either "bottom up" or "top down". In the former case, the totals for the economy as a whole will be completely consistent with the industry estimates because they are summed to derive the total labour estimates. However, in the case of a top-down approach, a range of different data sources may be used to obtain the disaggregation by industry. In such cases, it is important to ensure that the sum of the industry estimates is consistent with the national totals.

19.72 Classifying employment by industry is not always straightforward. The main issue is to ensure that the employment estimates for each industry are as consistent as possible with the national accounts values and volumes so that the productivity estimates are reliable. One particular problem that arises is where staff are recruited via an external recruitment agency. Maintaining consistency with the industry output means that employment should be classified to the industry of the establishment that legally employs the workers. In practice, this will be the establishment that pays the employee's wages and any associated social contributions, which will usually be the employment agency and so the employees will be classified to industry class 7491 *Labour recruitment and provision of personnel.* The output of this industry includes the revenue derived from the activity of hiring out staff to those establishments that need the staff; generally, those establishments will be in other industries. The establishments using these staff pay the employment agency and then the employment agency pays the staff so the payments by the "using" establishments will be

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recorded as part of intermediate input for the using industry.

19.73 Ideally, for productivity purposes both the output attributable to these staff and the hours they work would be recorded in the industry in which they are actually working rather than in the industry "Labour recruitment and provision of personnel". However, in practice, it is unlikely that the data can be collected to enable the output and hours worked to be classified this way. It may be useful for some purposes for the staff hired out by employment agencies to be allocated to the industries that actually use the staff. However, any such allocation should be presented in a supplementary table and not in the main accounts.

4. International comparisons

19.74 Productivity growth is often expressed in percentage terms and comparisons across countries made in terms of these percentages. Assuming similar methods have been used to compile the estimates for the countries being compared, and that they have roughly comparable levels of productivity, this sort of comparison is interesting and much simpler than the alternative of comparing levels. Measuring the relative levels of production (for example, the volume of GDP or of GDP per capita) or productivity between countries is more complicated because it is necessary to convert the national accounts data to a common currency. The best means of doing so is to calculate purchasing power parities (PPPs), which measure the rate of currency conversion that would be required to equalize the prices of a common basket of goods and services between the countries concerned. In practice, PPPs adjust for differences in price levels between countries as well as differences in exchange rates (see section E of chapter 15).

19.75 International comparisons of productivity below the level of GDP, such as by industry, are problematical. PPPs are calculated using the expenditure-based estimates of GDP so there are no PPPs for the individual industries that contribute to GDP. Therefore, it is necessary to make an assumption that the PPP for a single aggregate such as GDP is applicable to all industries. Examining the differences in the PPPs for the various expenditure components shows they can vary significantly so this is unlikely to be a very good assumption. Making robust international comparisons of productivity at disaggregated levels is thus a very demanding exercise.

F. A note on source data

19.76 Broadly speaking, there are three types of data sources for employment data. These might be used singly or in combination especially when the periodicity of each differs. The usual caveats that the quality of a survey depends on the sample size, survey design, response rate and reference period obviously apply to the surveys used for employment data as for other surveys. So do the steps that need to be taken to allow for non-response and misreporting.

19.77 The three data sources are:

a. household surveys, such as a labour force survey;

b. establishment surveys;

c. administrative data (for example, employment associated with a payroll tax).

Population census data may also be available infrequently.

19.78 The employment estimates from a household survey typically count the number of people who have jobs and, perhaps, the number of hours they work. If the labour input measure being used is the number of jobs in the country then the household survey will provide an underestimate to the extent that some people work in more than one job, unless the survey collects information on multiple job holding. On the other hand, if the household survey collects details relating to the hours worked in all the jobs in which each person is employed then it should provide a good estimate of employment for the economy as whole.

19.79 Establishment surveys tend to have some shortcomings when used as a source of employment data. In the first place, it is difficult to ensure that the survey frame on which they are based is completely up to date because of the lags inherent in the sources used to update the frame (for example, registration of new establishments with the appropriate authorities). Even if the lags in updating the survey frame are consistent, their impact on the employment estimates will vary with the peaks and troughs in the business cycle. Secondly, it is often difficult to collect data for self-employed persons, particularly if they are operating an unincorporated establishment. There may be genuine confusion with enterprises regarding casual workers as providers of services rather than employees. Further, there may be some cases of deliberately underreporting the numbers of employees.

19.80 Administrative data provide a useful source of employment data for the national accounts but may need to be used with caution and in connection with other sources. Even when they have reasonably full coverage (for example, establishment tax data) the data may not be available until well after the reference year and provide only a snapshot of employment in that year rather than the average for the year. A source such as payroll tax data is often affected by having exemptions for smaller establishments (including unincorporated enterprises), which reduces the completeness of the data. In such cases, the coverage of establishments is likely to vary by industry because of the concentration of smaller establishments in industries such as agriculture, construction and retailing.

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19.81 The problems connected with handling border workers in the national accounts have been described in the section on residence. As far as data sources are concerned, household surveys are likely to include employed persons in the country in which they are surveyed (that is, their country of residence) unless the survey contains specific questions to identify and exclude such workers.

19.82 Employed persons who have more than one job during a reference week can only be classified by industry and by status in employment through the application of some essentially arbitrary criterion as to which of their jobs is the most important one. On the practical plane, while household surveys can provide data about either or both of employed persons and jobs, establishment surveys only provide data about jobs.

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Chapter 20: Capital services and the national accounts

A. Introduction

20.1 This chapter differs in content and style from those describing the accounts of the SNA. Its aim is to show how a link can be made between the value of assets used in production and the gross operating surplus generated. This link has been elaborated over a period of about fifty years in a body of knowledge described as the theory of capital services. However, it is only fairly recently that a few statistical offices have incorporated the ideas from the theory into the measurement of stocks of those assets used in production. Because there is evidence that this approach leads to improved measures of capital stock, it is proposed that, for those offices interested, a table supplementary to the standard accounts could be prepared to display the implicit services provided by non-financial assets. The contribution of labour input to production is recognized in compensation of employees. By also associating estimates of capital services with the standard breakdown of value added, the contributions of both labour and capital to production can be portrayed in a form ready for use in the analysis of productivity in a way entirely consistent with the accounts of the SNA.

20.2 The rest of the introduction gives a very general overview of the ideas involved in linking capital services with national accounts. Section B shows how the measurement of capital stock can be aligned with the notion of the efficiency of an asset as well as its price. This is followed by section C showing how to identify flows of capital services within existing entries in the accounts. Section D shows how consideration of the basic link between asset value and contribution to operating surplus can be exploited to determine the appropriate way to account for costs associated with acquiring and disposing of assets and to place a value on assets where limited market price information is available. Finally, section E discusses a possible format for a supplementary table.

1. The basic ideas of capital services

20.3 Non-financial assets give rise to benefits either from being used in production or simply from being held over a period of time. This chapter concerns those non-financial assets that contribute to production and how this contribution is recorded in the accounts. The assets concerned are fixed assets, inventories, natural resources and those contracts. leases and licences used in production. Valuables give rise to benefits derived from holding them as stores of value rather than using them and so are not covered by this chapter.

20.4 Assets appear on the balance sheet of their economic owner and the changes in value between one balance sheet and the next have to be identified and included in the appropriate account. Changes in the value of assets due to changes in absolute or relative prices appear in the revaluation account. Changes due to unexpected events not reflected in transactions appear in the other changes in the volume of assets account. Every other change in value is treated as a transaction and must be recorded elsewhere in the SNA. If the user of the asset is not the legal owner, two sets of transactions are recorded, those giving rise to payments between the user and the owner and those that show the user receiving the benefits of using the asset. These latter are recorded as internal to the user. If the legal owner of the asset is also the user of the asset, only the internal transactions are recorded.

20.5 Assets used in production have to be paid for but the payment is not deducted from the value of production in the period the asset is acquired but is spread over the whole of the period the asset is in use in production. For fixed assets, this gradual payment for an asset is recorded as consumption of fixed capital, which is the decline in the value of the asset due to its use in production. However, assets are not just a charge on production, they also contribute to the profitability of an enterprise by being the source of operating surplus. It has long been commonplace to recognize that operating surplus is the return to capital used in production but an articulation of how this surplus is generated and how it relates to the value of an asset and the way in which this value changes during a period has not previously been included in the SNA. As noted, this articulation is known as the theory of capital services. This terminology sits a bit uncomfortably with national accountants since the services referred to are not the outputs of production in the way that transportation or education services, for example, are. Nevertheless, the terminology is well established and should not in itself give rise to problems as long as it is remembered that capital services are not produced services. Alternatively, capital services can be thought of as simply the term for the way in which the changes in the value of assets used in production are captured in the production account and the balance sheet.

20.6 Much of the impetus for identifying the entries associated with capital services in the national accounts has come from those interested in the analytical uses that can be made of the information, especially for productivity studies. Because much of this work has been undertaken by researchers, it is perhaps inevitable that the rationale and

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reasoning behind the proposals should have been expressed in a rather academic manner, in particular making extensive use of sometimes rather complex algebra. This chapter takes a different approach. It aims to show that, rather than introducing a new concept into the SNA, capital services can, in theory, be identified within the existing accounts. Further, recognizing this can lead to improvements in the estimates of consumption of fixed capital, which are currently required in the production accounts, and of the values of capital stock, which are required in the balance sheets. The derivation of information analytically useful for productivity studies can thus be seen as a by-product of improved national accounts compilation practices and not an additional exercise. The explanation is done in terms of highly simplified numerical examples but still aims to demonstrate the connection between the concepts referred to in studies referring to capital services and the national accounts approach to the valuation of capital and the derivation of stock levels.

20.7 The explanation given here is to some extent superficial since it is intended to give an overview of the concepts and indicate in general terms why the theory of capital services is relevant to national accountants. For a deeper understanding of the subject, reference should be made to the two OECD manuals on the subject, *Measuring Capital* and *Measuring Productivity* and some of the practical and theoretical work referenced in those manuals.

B. Valuing capital stock

20.8 Estimating the value of capital stock is not a straightforward process. Whereas it is possible to measure all new capital formation undertaken in a year directly and simply aggregate it, estimating the total value of a stock of assets, even of the same basic type, but with differing characteristics and of different ages, is not simple. In theory, if there were perfect second-hand markets for assets of every specification, these observed prices could be used to revalue each asset at the prices prevailing in a given year, but in practice, this sort of information is very seldom available. Thus measures of capital stock must be derived indirectly and this is conventionally done by making assumptions about how the price of an asset declines over time and incorporating this in a model based on the perpetual inventory model (PIM). Basically the PIM writes down the value of all assets existing at the beginning of the year in question by the reduction in their value during the year, eliminates those assets that reach the end of their useful lives in the year and adds the written-down value of assets acquired during the year. This routine is so well established that it is possible to overlook the assumptions it rests on but it is an investigation of these assumptions that reveals the dual benefits of deriving capital service values.

20.9 In the absence of observable prices, the value of an asset may be determined by the present value of its future earnings. Economic theory states that in a well functioning market (suitably defined) even when prices are observable, this identity will hold also. There are thus two sorts of questions that may be posed about the value of an asset; (i) how much would it fetch if sold, and (ii) how much will it contribute to production over its useful life. The first of these is the traditional question asked by national accountants; the second is basic to studies of productivity. However, these two questions are not independent.

1. Knowing the contribution to production

20.10 Suppose an asset will add values of 100, 80, 60, 40 and 20 to production over the next five years. For simplicity assume all products have the same prices and there is no inflation. Assume, further, that the real rate of interest is five per cent per annum for all five years.

20.11 The value of the asset in all five years can be derived using present value techniques as shown in table 20.1. (For simplicity, in this and all the following examples, the values shown are values at the start of the year so that, when discounting, the factor for the whole year is used. This simplification is made only to facilitate exposition; in practice mid-year figures should be used. It should also be noted that the figures in the tables are rounded and therefore may appear not to add exactly. However, a reader who follows the examples in a spreadsheet will achieve exactly the figures shown.)

20.12 The addition to the value of the asset in year 1 from the expected earnings of 80 in year 2 is 76, that is 80 divided by 1.05. (Alternatively, the addition to the value of the asset in year 1 can be viewed as 80 times a discount factor of 0.9524, the reciprocal of 1.05) The addition to the value of the asset in year 2 from earnings in year 3 is 57 (60 divided by 1.05) and in year 1 is 54 (57 divided by 1.05) and so on. When the value of 100 for the earnings in the first year is added to 76, the value of the second year's earnings in the first year, and to 54, the value of the third year's earnings in the first year and to 35 and 16, representing the value of the earnings in years 4 and 5 in the first year, a value of the asset in year 1 of 282 is derived. When the table is complete, the value of the asset in each of the five years is seen to be 282, 191, 116, 59 and 20.

20.13 The decline in value of the asset from year to year can be calculated by deducting each succeeding year's value from the value of the present year. Thus a series of 91, 74, 57, 39 and 20 is derived, a series that sums to 282, the original value of the asset. If the decline in value of the asset (91 in the first year) is deducted from the contribution to production (100 in the first year), the value of income generated in a year results (9 for the first year). To see that this item represents income, consider that the sum of the elements in the first column for years 2 to 5 together (182) represents the value of the same capital stock existing in year 2 but valued in the first year. This value of 182 increases by 9 to 191 between year 1 and year 2. This amount satisfies the criterion for income that it is the amount that the owner of the capital can spend and still be as well off at the end of the period as at the beginning.

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Table 20.1:Example of deriving the value of capital stock from knowledge of its contribution to production

Discount rate 5%

	Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :						
Year 1	100					
Year 2	76	80				
Year 3	54	57	60			
Year 4	35	36	38	40		
Year 5	16	17	18	19	20	
Value in year	282	191	116	59	20	
Value index (year on year)	1.00	0.68	0.61	0.51	0.34	
Decline in value	91	74	57	39	20	282
Income	9	6	3	1	0	18

20.14 Over the five-year period, the value of income is equal to the difference between the sum of the diagonal elements (300) less the amount of the decline in value (282), or to put it another way, there is an identity between the value of income the asset yields and the discounting inherent in establishing its current value.

2. Knowing the value at any time

20.15 Now suppose nothing is known about the contribution of the asset to production but the decline in the value of the asset over the five years, due to ageing, is known. If this is postulated in terms of a value index relative to the preceding year's value, and the initial value is known to be 282, then the entries in table 20.2 can be calculated. By design, a value series consistent with the figures in table 20.1 is assumed. Applying the decline in value of 0.68 to the initial value of 282 gives a value of 191 for year 2; applying the value decline of 0.61 to 191 gives 116 for year 3 and so on. (Alternatively a time series of values could be postulated and applied to the initial value.) From this the declines in value of the asset from year to year can be deduced and seen to be identical with those in table 20.1.

Table 20.2:Example of deriving the value of capital stock from knowledge of its decline in price

Discount rate 5%

	Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :						
Year 1	100					
Year 2	76	80				
Year 3	54	57	60			
Year 4	35	36	38	40		
Year 5	16	17	18	19	20	
Value in year	282	191	116	59	20	
Value index (year on year)	1.00	0.68	0.61	0.51	0.34	
Decline in value	91	74	57	39	20	282
Income	9	6	3	1	0	18

20.16 In general this is as far as the PIM goes. Its twofold purpose is to calculate asset values for the balance sheet and the figures for consumption of fixed capital and these requirements are satisfied at this point. But it is in fact possible to go further. The contribution of the asset to production in the final year (20) is the same as the final year's value. If this is discounted by five per cent, the addition to the value of the asset at the start of year 4 is determined to be 19. Given the value of the asset at the start of year 4 is 59, there must be a figure of 40 contributed to production in that year. Extending this, for year 3 the value of 116 must consist of 18 representing the contribution to production in year 5 of 20 discounted twice, 38 representing the value contributed to production in year 4 of 40 discounted once and so by residual the value contributed to production in year 3 must be 60. In this way all the top, triangular, part of the table can be completed and the values of the amounts of income in a year be derived just as in table 20.1.

3. Age-efficiency and age-price profiles

20.17 Although tables 20.1 and 20.2 start from different assumptions, exactly the same complete table results even though they are filled in a different order in the two cases. Table 20.1 starts from assumptions about the declining contribution to production and derives stock values and the decline in value each year. Table 20.2 starts from assumptions about the decline in value of the stock and derives the contribution to production and the decline in value each year. Both techniques give values of stocks to include in the balance sheets and figures of consumption of fixed capital. The assumptions made in the two cases must be consistent. In fact it can be shown that every pattern of decline in the contribution of an asset to production (usually called the age-efficiency profile) corresponds to one and only one pattern of decline in prices (usually called the age-price profile).

20.18 Given this, it would seem possible to take the information in a set of PIM assumptions and simply derive the contributions to production from these. While it is possible to do this, it is generally held to be preferable to start again by postulating a set of age-efficiency profiles. The reason for this can be illustrated by table 20.3.

Table 20.3:Table 20.2 with a slightly different pattern of price decline

Discount rate 5%

	Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :						
Year 1	80					
Year 2	96	101				
Year 3	75	79	83			
Year 4	24	26	27	28		
Year 5	6	6	6	7	7	
Value in year	282	211	116	35	7	
Value index (year on year)	1.00	0.75	0.55	0.30	0.20	
Decline in value	70	95	81	28	7	282
Income	10	6	2	0	0	18

20.19 Table 20.3 again starts from a series of relative price changes as in table 20.2 but these changes are somewhat different. Instead of a series of 1.00, 0.68, 0.61, 0.51 and 0.34, a series of 1.00, 0.75, 0.55, 0.30 and 0.20 is taken. These changes underestimate the rate of decline in value in the second year and assume a faster rate of decline in later years. At first sight they do not seem unreasonable. However, the effect on the contribution to production is considerable and the resulting series of 80, 101, 83, 28 and 7 is quite implausible. What sort of asset would be over twenty per cent more efficient in its second year than in its first and still more efficient in the third year than in the first before declining quickly thereafter? Yet this pattern of flows is still consistent with an initial value of 282, as in table 20.2 and with cumulative declines in value adding to this amount over five years.

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20.20 These are the reasons why it is argued that making assumptions about efficiency decline is likely to lead to superior results for the value of stocks, their decline in value and the income they generate than making assumptions about the rate of price decline. As a further example of why this may also be easier, consider the case of an asset that contributes the same to production, let us say 100, for each of five years and then stops dead, like a light bulb. It is easy to postulate a constant age-efficiency profile but the corresponding age-price profile is much less intuitively obvious and varies according to the discount factor applied.

20.21 However, while there are good reasons for using age-efficiency profiles as the starting point, where actual information is available on age-price profiles, even partial information, it should be confirmed that the selected age-efficiency profile is consistent with the observed age-price movements.

4. The special case of geometrically declining profiles

20.22 A number of patterns can be postulated for either the age-price or age-efficiency profile. These include straight line depreciation and various non-linear forms discussed in *Measuring Capital.* One of particular interest is that where the price declines geometrically, that is each year the price (when adjusted for inflation) is a fixed proportion, f, of the year before. Because such a series converges to, but never actually reaches, zero, it is difficult to portray it in a table such as those shown above but the interesting characteristic can be derived by means of a little very simple algebra.

20.23 It can be seen from the tables above that the value of an asset at the start of any year, V_t, is equal to the capital services to be rendered in that year, a, plus a discount factor, d, times the value of the asset at the start of the next year, V_{t+1}. Thus

$$V_t = a + d\,V_{t+1}.$$

In the case where $V_{t+1} = f\,V_t$, $V_t = a/(1-df)$.

By analogy, if the value of the capital services rendered by the asset in year t=1 is b, $V_{t+1} = b/(1-df)$. But since $V_{t+1} = fV_t$, it follows that b must be equal to af. Thus we have the case that the shape of the age-price profile and the shape of the age-efficiency profile are exactly the same.

20.24 As noted above, there is one and only one age-price profile corresponding to one age-efficiency profile, so it follows that the geometrically declining profile is the only profile that is the same for both the decline in price and in efficiency. One consequence is that figures for capital stock adjusted for the decline in value are equal to those for capital stock adjusted for the decline in efficiency. This property adds to the reasons that can be advanced for choosing this profile to determine the value of capital stock.

5. Practical considerations

20.25 As noted at the outset of this section, there are many simplifications built into the examples presented, made in order to facilitate the explanation of the basic theory behind the idea of capital services to those new to the idea. *Measuring Capital* should be consulted for a more rigorous discussion and for considerations such as the rationale for choosing one age-price (or age-efficiency) profile rather than another, how to estimate life lengths and retirement patterns of assets and the role of expectations in the calculations.

20.26 The manual also discusses the fact that the return to capital must be sufficient to cover taxes levied on the asset in question, a point that is ignored here also in the name of simplification.

20.27 To be precise, a distinction is made between the interest or discount rate, r, usually assumed to be five per cent in this chapter, and the discount factor which is the reciprocal of (1+ r). When r is 5 percent, the discount factor is 95.24 per cent. When the discount factor is 95.0 per cent, the discount rate is 5.26 per cent.

C. Interpreting the flows

20.28 The tables above generate three time series of particular interest. One is the contribution to production of an asset over time, one is the decline in the value of the asset and one is the income generated by the asset. Obviously the middle term corresponds to consumption of fixed capital as normally understood in the SNA. The contribution of capital to production is what is called gross operating surplus and so the third time series, income, corresponds fittingly to net operating surplus. However, these flows can be described by alternative names also. The diagonal element of the tables, showing the contribution to production, is also known as the value of capital services. The income element is the return to capital. The rate of return on capital is the ratio of income to the value of capital. For tables 20.1 and 20.2, the income flow as a proportion of the next year's capital stock value (that part not used in the current year) is also five per cent, the same as the discount rate. The alternative terminologies are illustrated in table 20.4.

1. Capital services and gross operating surplus

20.29 At this point, the national accountant asks how can gross operating surplus be estimated in this way when it is derived as a balancing item in the generation of income account? There are two possible answers to this question. The first answer is that there is not a complete identity with gross operating surplus but the value of capital services is implicitly within it so may be noted as an "of which" item

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relative to gross operating surplus. Suppose the discount rate chosen is the rate that can be obtained on a bank deposit, say. This determines the amount the user of the asset needs to generate as net operating surplus if the asset is to be cost effective. If the figures for capital services and gross operating surplus are both 100, then the producer has made a reasonable choice of asset; it is earning as much for him as leaving his money in the bank. If he earns a little more than 100, he has done better than leaving the money in the bank. If the national accounts show he has earned 150, say, it may be that the producer has been very lucky indeed, perhaps realizing some monopolistic profits. However, it is also possible that there is some sort of asset he is using that has not been identified in calculating capital services, one possibility being some form of intangible asset. Similarly if the value of gross operating surplus is much lower than the value of capital services estimated, there may be good reason to question the range and valuation of assets assumed to be used in production or the quality of the estimates of gross operating surplus. Thus deriving the value of capital services in this manner is also a valuable tool for checking data quality.

20.30 The alternative to treating capital services as an element of gross operating surplus is to equate gross operating surplus with capital services exactly and to do this by determining a rate of return (discount rate) that brings this about. Many traditional analyses of productivity have used this approach and some cross-country comparisons of productivity depend on this assumption. Other studies, used at the industry level, suggest that the variation in apparent rate of return obtained in this way needs to be used, if at all, with very great caution. There is still robust discussion in academic circles about the preferred way of determining the rate of return, exogenously as described in the preceding paragraph or endogenously as described here. One way of interpreting the difference is to say that using an exogenous rate of return simply confronts the cost of capital (capital services) with the benefits (gross operating surplus); the endogenous rate of return gives a single figure to be contrasted with the yardstick of a "normal" rate of return.

Table 20.4:Capital services and SNA terminology

Discount rate 5%

	Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to asset value from earnings in :	Value of capital services or gross operating surplus					
Year 1	100					
Year 2	76	80				
Year 3	54	57	60			
Year 4	35	36	38	40		
Year 5	16	17	18	19	20	
Value in year	282	191	116	59	20	
Value index (year on year)	1.00	0.68	0.61	0.51	0.34	
Decline in value	91	74	57	39	20	282
	Consumption of fixed capital					
Income	9	6	3	1	0	18
	Return to capital or net operating surplus					

2. Prices and volumes

20.31 An examination of table 20.1, or indeed any of the others, shows that the value of an asset at a point in time, such as the start of a year, can be expressed rather neatly as the sum of the capital services rendered in the year plus the discounted value of the asset at the end of the year. This is the starting point of much of the algebraic elaboration of capital services in the literature, but with one important difference. Whereas most national accountants tend to think first in terms of current price aggregates and later (possibly) a breakdown into a volume aggregate plus a corresponding price, most descriptions of capital services run in the other direction. They assume a volume and develop a theory of the corresponding price (the "user cost"). These could be multiplied together to give a current value but much analysis is done using volume or price information.

20.32 One reason for working this way is that the assumption underlying table 20.1, that the contributions to production over the life of the asset are known, is not often true in practice. What is known, estimated or simply assumed is an *index* of how the efficiency changes over time. Equally the value of the asset assumed known in table 20.2 is only known on an asset-by-asset basis when each is new; all other value figures are estimates for reasons explained above. It is possible to use the identity that the start-of-year value of an asset equals capital services rendered in the year plus the discounted end-of-year value, all expressed in index number form and assuming no inflation, into one that expresses the value of the capital services as dependent on the decline in the value of the asset due to ageing (the depreciation element) and the rate of return (the opportunity cost of money). If the impact of general inflation is now taken into account, the price of the capital services (usually called the user cost) can be expressed as depending on the increase in value of a new asset of the same type, the nominal cost of money and the relative year-on-year decline in value of the asset due to ageing.

20.33 It is also possible then to have different prices for different sorts of assets and look at differential movements between asset prices and the movements in the general level of inflation. (Table 20.1 was based on the very restrictive assumptions of there being neither absolute nor relative price inflation.)

20.34 Another important consideration passed over in the simple numeric tables is the following. For balance sheet data, values at the date the balance sheet is drawn up are needed. For estimates of capital services/gross operating surplus as well as for consumption of fixed capital and income flows, values at average-year prices are needed. In practice, the mid-year observations are often assumed to be close approximations to the annual averages but this is not always so, especially in times of significant inflation.

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D. Applying the capital service model

20.35 Once a theoretical link between the content of gross operating surplus and the capital services embodied in an asset used in production is accepted, there are a number of other beneficial implications for the national accounts. These include the question of the use of land in production, the valuation of natural resources, the separation of mixed income into the labour and capital components, the measurement of assets with a residual value, the treatment of costs of ownership transfer on acquisition, the treatment of terminal costs, capital maintenance, the valuation of work in progress on long-term projects, an alternative approach to estimating the imputed rentals of owner-occupied dwellings and the separation of the payments under a financial lease into the element to be regarded as the repayment of principle from the element regarded as interest. Each of these will be explained a little further below.

20.36 Before discussing land and natural resources, it is useful to recall the consequences of an asset being used by a unit not the legal owner of the asset. The important distinction is whether the user does or does not assume the risks associated with its use in production. When the user does not assume the risks, the asset is regarded as being subject to an operational lease. In such a case the payment to use the asset is a rental and forms part of intermediate consumption. The benefits from using the asset in production accrue to the owner in the operating surplus of the production account relating to his leasing activity. (See paragraphs 17.301 to 17.303.)

20.37 When the user does assume the risks associated with the use of the asset in production, the benefits from using the asset in production accrue to the user and appear in his operating surplus. This is true of both produced and non-produced assets. The difference between produced and non-produced assets concerns the type of lease existing between the legal owner and the user and the type of property income paid to the legal owner of the asset.

20.38 In the case of a produced asset, the user of the asset who assumes all risks associated with the asset becomes the economic owner of the asset. The asset appears on the balance sheet of the economic owner. If the legal owner is different, any payment from the economic owner to the legal owner is recorded as property income payable under a financial lease. (See paragraphs 17.304 to 17.309.)

20.39 In the case of a non-produced asset, when the user of the resource and legal owner differ, the asset remains on the balance sheet of the legal owner but a resource lease between the legal owner and user obliges the latter to pay the former property income in the form of rent. (See paragraphs 17.310 to 17.312.)

20.40 For all non-financial assets used in production, the estimation of the value of the capital services associated with the asset allows this to be contrasted with the property income payable for its use to determine whether the use of the asset is cost-effective.

1. Land

20.41 The first and oldest recognized form of non-produced capital is land. Land is special in that, under good management, the value is assumed to remain constant from year to year except for the effects of inflation in land prices. That is to say, there is no depreciation of land and all the contribution to production can be regarded as income. To show how this can be related to the previous examples, Table 20.5 shows part of a corresponding table for land that contributes 20 to production in perpetuity. A full table would have an infinite number of rows and columns. Here only a few are shown and some very simple algebra (with explanation) is used to explain how the totals are reached.

20.42 The value of the first column is the sum of 20, 20 discounted once (the second year's contribution to production discounted once), 20 discounted twice for the third year and so on if not for ever, at least for very many years. With a discount rate of 5 per cent as before, the sum of this column is 420. To see that this is so, consider a simple geometric progression. What is required is the sum of a series that can be written as:

$$S_n=a+ad+ad^2+ad^3+ad^4+ad^5+\ldots+ad^n$$

where a is the return to the asset in every period and d is the discount factor. (As noted earlier. for a discount rate of 5 per cent, the discount factor is 95.24 per cent.) If every term in the equation is multiplied by an extra factor d the result is:

$$dS_n= ad+ad^2+ad^3+ad^4+ad^5+\ldots +ad^{n+1}$$

Subtracting the second expression from the first gives:

$$S_n (1-d) = a (1-d^{n+1})$$

If d is less than unity (as it will be in a discounting framework) and n is very large, that last term becomes insignificant and the sum of the series, S_n, can be determined as a/(1-d). In table 20.5, a is 20 and d is 0.9524, so the sum of the series is 420.

Table 20.5:The case of land

	Discount rate 5%					
	Year 1	Year 2	Year 3	Year 4	Year 5	. . . Year 10 . . .
Contribution to asset value from earnings in :						
Year 1	20					
Year 2	19	20				
Year 3	18	19	20			
Year 4	17	18	19	20		
Year 10	13	14	14	15	16	. . . . . 20 . . .
Year 25	6	7	7	8	8	. . . . . 10 . . .
Year 40	3	3	3	3	4	. . . . . 5 . . .
Value in year	420	420	420	420	420	420
Value index (year on year)	1.00	1.00	1.00	1.00	1.00	. . . . 1.00 . . .
Decline in value	0	0	0	0	0	. . . . . 0 . . .
Income	20	20	20	20	20	. . . . . 20 . . .

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20.43 However, since each of the columns of the table, though one term shorter than the previous one, is also an infinite series beginning in exactly the same way, the sum of each column is also 420. Thus the decline in value of the land from year to year is zero and the whole of the 20 is not just the contribution to production but also income. In national accounts parlance, the gross and net operating surplus are both 20 and there is no depreciation. Equally the value of the capital service and the return to capital are both 20.

20.44 As noted above, it may seem slightly odd to think of a non-produced asset contributing a "service" since in national accounts services are always produced. This is simply a reflection of the words chosen by economists to describe the contribution of capital to production without connecting the word "service" to the specific interpretation given to it in the SNA. Similarly one may hear compensation of employees described as the cost of labour services.

20.45 Another term used for capital services is economic rent and this initially seems more applicable in the case of land but is also a pitfall. In table 20.5, the economic rent of land is the extent to which the farmer benefits from using the land for agricultural production (20). This rent accrues whether the farmer is farming his own land or is a tenant farmer. The amount that the tenant farmer is due to pay his landlord is what the national accounts show as rent under property income. In the days when a farmer paid his rent as a share of the crop yield, the link was more obvious. What he retained represented enough to cover his costs and the cost of his own (and any hired) labour. In a monetized economy, the rent payable to the landlord is often agreed a very long time in advance. Comparing the rent earned (as operating surplus) with the rent payable as property income shows whether the agreed rent is "fair" or perhaps excessive relative to the farming income.

2. Valuing natural resources

20.46 There is an increasing interest in placing a capital value on natural resources but, since these assets are seldom sold on the market, there has been doubt about how to do this. Looking at the economic rent to be earned by a mineral deposit or a natural forest, for example, is one way to solve the problem.

20.47 Suppose that a mining company knows the size of the deposit being mined, the average rate of extraction and the costs of extraction of one unit. After allowing for all intermediate costs, labour and the cost of fixed assets used, what is left must represent the economic rent of the natural resource. By applying this to the expected future extractions, a stream of future income can be estimated and from this, using the techniques already described, a figure for the value of the stock of the resource at any point in time.

20.48 In fact, the application of the capital service technique goes further than this. In the case of a natural forest, if the rate of regrowth is at least equal to the rate of harvest, then the value of the forest does not decline and the rate of harvest is sustainable. However, in the case of a mineral deposit with no natural renewable capability, then it is possible as before to separate the contribution to production into an element showing the decline in value of the deposit and a residual element. Because this residual amount is consistent with the idea of maintaining the level of wealth intact, it can be regarded as income. Clearly this leads into the area of so-called green accounting and the possibility of allowing for consumption of natural capital as well as consumption of fixed capital in an alternative presentation of national accounts in a satellite account. Indeed, this is the argument developed at greater length and with applications to specific resources in section D of chapter 7 of the *Integrated Environmental and Economic Accounting 2003 (*United Nations, European Commission, International Monetary Fund, Organisation for Economic Cooperation and Development and World Bank, 2003) commonly referred to as the *SEEA.*

3. Mixed income

20.49 When discussing land, above, it was pointed out that the economic rent of the land was the part that was not otherwise accounted for by intermediate consumption, the cost of hired labour and the capital services rendered by fixed assets and the labour cost of the farmer. Very often, it is difficult to put a value on the labour of a self-employed person and so this may be merged with the economic rent on land and the capital services rendered by any fixed assets used and described as mixed income. In principle, though, if a separate estimate of the capital services rendered by fixed assets can be made from information about the services rendered by similar assets in other parts of the economy, then mixed income can be split into its labour and capital components.

20.50 In practice this has often proved difficult since the residual amount for self-employed income may turn out to be very small or even negative. The most obvious cause of this is that the estimates for the capital services are too high. This may be because larger companies are able to make more efficient use of capital, for example using a high value piece of equipment continuously rather than intermittently, or because they actually have other, intangible, assets, which have not been taken into account. This means the capital services for these unmeasured assets are attributed to those that are recognized but this addition is not appropriate for the self-employed worker. Thus the acceptance of the capital services model is unlikely to provide a quick and accurate breakdown of mixed income but it does show the way to probe the data for both large and small enterprises to ensure that capital is being measured comprehensively and consistently.

4. Assets with a residual value

20.51 Very many assets are used by a single owner until they are worn out and worth nothing. However, this is not the case for all assets. Some are disposed of after a few years, perhaps because the cost of regular maintenance is deemed by the current owner to be too high relative to the value the asset contributes to production. Some airlines, for example, may wish to use the fact that they keep up-to-date fleets of aircraft as part of their advertising appeal. In other cases, for example with construction equipment, the original owner may simply have no further use for the asset.

20.52 Table 20.6 shows an example of an asset that is used for only four years and then disposed of for a value of 300.

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Again for simplicity it is assumed that the disposal value after four years is known when the asset is acquired. For example, the market in used assets may be sufficient to ensure that the value at any point is equal to the remaining services to be delivered by the asset. Inflation is still assumed to be zero.

20.53 The top, triangular, part of the table shows the normal calculation of the value of the capital services to be rendered in these four years, a value that at the outset is seen to be 1 107. To this the discounted value of the residual value of 300 must be added. This value is 247, making the total value of the asset 1 354. As in the case where an asset is held to exhaustion, the decline in the value of the asset including the residual value is lower year by year than the decline in the capital services to be rendered in these four years because there is an income element coming from the fact that the remaining value increases as the time for disposal of the asset gets closer. The total of the decline in the value of the asset, to be shown as consumption of fixed capital, is 1 054. This value, together with the residual value of 300, is equal to the original value of 1 354. The total income (net operating surplus) is 121, the sum of the income arising from the use in production (68) plus the income arising from the unwinding of the discount factor on the terminal value (53).

Table 20.6: An asset with a residual value

	Discount rate 5%					
	Year 1	Year 2	Year 3	Year 4	Residual value	Sum of 4 years
Contribution to asset value from earnings in :						
Year 1	400					
Year 2	286	300				
Year 3	227	238	250			
Year 4	194	204	214	225		
Value in year	1 107	742	464	225	0	
Decline in value	365	278	239	225		1 107
Income	35	22	11	0		68
Residual value	247	259	272	286	300	
Income	12	13	14	14		53
Joint value	1 354	1 001	736	511	300	
Decline in value	352	265	226	211		1 054
Income	48	35	24	14		121

Table 20.6 illustrates that the cumulative value of the consumption of fixed capital calculated in respect of an asset should be equal to the initial value of the asset, treated as fixed capital formation, less the value to the owner on disposal of the asset. This holds whether the asset passes into use as a fixed asset by another user, is used for another purpose in the same economy or is exported.

5. Costs of ownership transfer on acquisition

20.54 The costs of ownership transfer incurred on acquisition of an asset are treated as fixed capital formation. This assertion is equivalent to assuming that the services rendered by the asset must be sufficient to cover both the costs of the asset and the costs of ownership transfer. Table 20.7 shows an example where costs of 30 are incurred on the acquisition of the asset in table 20.6. In order for the asset to have exactly the same value as before on disposal, 300, the costs of ownership transfer have to be accounted for during the period in which the owner who incurred the costs uses the asset in production. The figures in the triangular part of table 20.7 are added to those in the corresponding part of table 20.6 giving increased value to the asset in each year until the end of year 4, increased consumption of fixed capital and slightly increased income, because the costs of ownership transfer are also viewed as the present value of the extra services required to meet the costs.

20.55 If the costs of ownership transfer were to be attributed to the whole life of the asset and not just that part for which the unit that paid the costs owns the asset, there is a mismatch between the calculated value of the asset and the market value demonstrated in the sale at a value of 300. In such a case, the data have to be brought back into reconciliation by means of an entry in the other changes in the volume of assets account but this means that not all of the costs incurred by the initial owner are shown as a charge against gross value added and so income is over-stated. This may be inevitable when assets are sold unexpectedly but in the case of many vehicles and large mobile construction equipment, the purchaser may well take account of the value to be realized on sale after a given period. When this is so, every effort should be made to take account not only of the residual value but also factor the expected life length into the calculations of the amount of consumption of fixed capital to be attributed to the costs of ownership transfer so there is no residual value of these costs left on disposal.

Table 20.7:Example of costs of ownership transfer on the acquisition of the asset in table 20.6

	Discount rate 5%					
	Year 1	Year 2	Year 3	Year 4		Sum of 4 years
Contribution to asset value from earnings in :						
Year 1	10					
Year 2	9	9				
Year 3	6	7	7			
Year 4	5	5	6	6		
Value in year	30	21	13	6		
Decline in value	9	8	7	6		30
Income	1	1	0	0		2
Residual value	1 384	1 022	749	517	300	
Decline in value	361	273	232	217		1 084
Income	49	36	25	14		123

6. Terminal costs

20.56 Table 20.6 considered the case where an asset had a residual value at the time the current owner disposed of it. It is also possible to have assets that have significantly large costs associated with disposal. Examples include the decommissioning costs of nuclear power stations or oil rigs or the clean-up costs of landfill sites. The following discussion is not meant to downplay the practical difficulty of estimating terminal costs, simply to demonstrate why in principle the existence of terminal costs should reduce the value of the asset throughout its life.

20.57 Terminal costs are similar to capital formation in that they should be covered by income generated during the time the asset is used in production. If this is not done during the asset's life these large costs may be treated as intermediate costs at a time when there is no longer any income being generated from production and so lead to negative value added. Alternatively, they are recorded as capital formation but instead of the costs being recovered from value added, these costs are simply written off in the other changes in the

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volume of assets account. This procedure omits from the macroeconomic aggregates a legitimate cost to business and so overstates gross and net domestic product over a period of years.

20.58 Table 20.8 shows an example of how terminal costs should be recorded. The data in fact correspond to the numbers in table 20.6 for the contribution to production in each year, but in this case the residual value is negative rather than positive.

20.59 The analysis of the data follows that for table 20.6 exactly. The value of the capital services to be provided by the asset in use is still 1 107. However, since the present value of the terminal cost is -247, the total value of the asset is 860. As before, the cumulated value of consumption of fixed capital, 1 160 is equal to this value less the terminal value of -300. Not only is the value of the asset in each year lower than the value of the use in production, in year 4 the value is actually negative. The rationale of this is that although the asset will yield services of 225 in that year, the impending costs of 300 mean that the owner would not be able to sell the asset; he would in fact have to pay another owner to take over the asset since it would then be the responsibility of the new owner to meet the disposal costs of 300.

Table 20.8:An asset with a terminal cost

Discount rate 5%

	Year 1	Year 2	Year 3	Year 4	Residual value	Sum of 4 years
Contribution to asset value from earnings in :						
Year 1	400					
Year 2	286	300				
Year 3	227	238	250			
Year 4	194	204	214	225		
Value in year	1 107	742	464	225	0	
Decline in value	365	278	239	225		1 107
Income	35	22	11	0		68
Residual value	- 247	- 259	- 272	- 286	- 300	
Income	- 12	- 13	- 14	- 14		- 53
Joint value	860	483	192	- 61	- 300	
Decline in value	377	291	253	239		1 160
Income	23	9	- 3	- 14		15

20.60 Anticipated costs on ownership transfer on disposal of an asset, including legal fees, commission, transport and disassembly, etc., should in principle be treated in the same way as terminal costs.

7. Major repairs and renovations

20.61 Major repairs and renovations that extend the life of an asset are treated as capital formation and the value of the repairs and renovations is added to the value of the asset before the work was undertaken. The example of costs of ownership transfer on acquisition of an asset can be applied directly in this case, excepting only that the costs are incurred in a year other than the year of acquisition. The value of the capital repairs is supposed to be equal to the discounted value of the increased services that the asset will yield, either by increasing the services in each of the remaining years of the initial life length, or extending the life length, or both.

20.62 The value of the capital repairs can be analysed by merging the value with that of the asset in question and reworking all the calculations of the services to be rendered, the income generated and the consumption of fixed capital for the asset and the maintenance taken together. However, as table 20.7 shows, it is also possible to leave the calculations for the asset as they were and simply aggregate them with a separate analysis of the maintenance undertaken as if it related to a wholly new asset.

8. Work-in-progress for long term projects

20.63 Table 20.9 relates to an asset with a final value of 200 that is to be constructed over a period of four years. One possibility is that, assuming no inflation, work in progress of 50 should be recorded in each of the four years. However, consistent with the notion of discounting future income, an alternative view is preferable. Suppose still that there is a discount rate of five per cent. In each year, the value of the completed asset in each of years 1 to 3 will be 172.8, 181.4 and 190.5, each of which will cumulate to a value of 200 after, respectively, three, two or one years accumulation in value of 5 per cent. Dividing each of these by four implies that even if equal amounts of work are put in place in each year, the values to be recorded should be 43.2, 45.4, 47.6 and 50.0. In addition, though, there will be income arising from a return to the work already put in place. This would give a time series for the work put in place and other income of 2.2, 4.5 and 7.1 in each of years two to four giving the value of the partially complete structure as 43.2, 90.7, 142.9 and 200.0. These are the values that a purchaser of the partially completed structure would be willing to pay, given that he would forgo the income from the finished structure for up to three years.

Table 20.9:Valuing work-in-progress spanning several years

Discount rate 5%

	Year 1	Year 2	Year 3	Year 4
Value of final product in each year	172.8	181.4	190.5	200.0
Value of construction activity (one quarter of final value)	43.2	45.4	47.6	50.0
Income accruing on work put in place				
In year 1		2.2	2.3	2.4
In year 2			2.3	2.4
In year 3				2.4
End year value	43.2	90.7	142.9	200.0

9. Owner-occupied dwellings

20.64 The SNA specifies that an imputed rental on owner-occupied housing should be included in the production boundary and form part of household consumption. In a situation where there is either no rental market in such properties or only a very limited one, this is difficult to implement. Cross-country comparisons of the results (as in the International Comparison Program) show that the different techniques used produce highly variable results. Here too, the use of the techniques described in this chapter may be helpful.

20.65 In the example for land, it is possible to deduce a value of 420 for the land that yielded economic rent of 20 every year in perpetuity. While modern houses do not last for ever, if they are assumed to last for, say, fifty years the discount

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factor applied over this period gives contributions to the value of the asset that are negligible at the end and again it may be supposed that, if the value of the house is 420, then the imputed rental is 20. Given that the market for houses is much better established than for rented housing, this may also provide a source of useful and comparable data for a troublesome area of national accounts. However, this method should be used with caution since houses are often bought in the expectation of making significant real holding gains. It should also be recognized that the rental for a house usually includes land rent.

10. A financial lease

20.66 The process of discounting future income streams to determine present value applies to financial assets as well as to non-financial assets. Consider an agreement with a bank to borrow 1 000 over a period of five years at five per cent interest. The total amount to be paid to the bank will be 1 100 at a rate of 220 per year. But, as table 20.10 shows, each year's payment does not consist of repayment of principal of 200 and interest of 20. Interest is payable on the remaining balance, so is highest in the first year and is zero in the last year. (This is a result of the simplifications used in the chapter. In practice, interest would be charged daily and so even in the last year some interest would be payable. However, the way in which the balance between interest and repayment of principal changes over time as the loan is repaid holds.)

20.67 The arithmetic behind table 20.10 is indistinguishable from any of the other tables in this chapter demonstrating that the same principles hold for valuing financial assets as for non-financial assets. The same methodology that can be used to show how much of the contribution to production is consumption of fixed capital and how much contributes to net operating surplus can also be used to show how much of the payment to the bank is a repayment of capital and how much is interest. Both consumption of fixed capital and a repayment of capital feature in the accumulation accounts as changing the value of the stock of assets. The contributions to net operating surplus and interest are both income flows and are shown in the current accounts.

20.68 This duality is especially important when an asset is acquired under a financial lease. In this case, table 20.10 can be used to show both the change in value of the asset and the change in the loan taken out to pay for it. Cost benefit analyses of the merits of borrowing to acquire assets also depend on this sort of calculation. Unless the asset can contribute at least as much to production as the interest due to the lender, it is not a good investment. Even if a producer has sufficient funds available to purchase an asset without borrowing, it makes sense to undertake such an analysis since the alternative to acquiring the asset is to convert the funds to an asset that will either earn income or appreciate and yield holding gains.

Table 20.10: The case of a financial loan

	Interest rate 5%					
	Year 1	Year 2	Year 3	Year 4	Year 5	Sum of 5 years
Contribution to loan value from payments due in :						
Year 1	220					
Year 2	210	220				
Year 3	200	210	220			
Year 4	190	200	210	220		
Year 5	181	190	200	210	220	
Loan value in year	1000	819	629	430	220	
Repayment of principal	181	190	200	210	220	1000
Interest	39	30	20	10	0	100

E. A supplementary table on capital services

20.69 This section describes a table that could be compiled to compare data coming from the standard national accounts tables for the elements of gross value added with those derived from applying the theory of capital services to the national accounts data on capital stock. Before presenting the table, though, it is appropriate to recall briefly the various simplifying assumptions that underlie the numeric examples in the earlier part of the chapter, assumptions that would be totally inappropriate in serious estimation of capital service flows. The most important are:

a. Somewhat different figures would emerge if any of the tables were to be calculated for the start of year, end of year or mid-year. Mid-year flows need to be discounted by half the annual discount rate to give start of year figures, for example.

b. The assumption that there is no price inflation, either overall or between different assets, is clearly unrealistic. Changes due to price movements need to be separately identified and included in the revaluation account.

c. The general preference for an age-efficiency approach to determine the value of capital stock should not be taken to mean that information on age-price decline, when such exists, is to be ignored. The solution is to find an age-efficiency pattern that matches the observed decline in prices. Where such a match can be made, this may inform the choice of age-efficiency declines where no matching price information is available.

20.70 There is a question about the appropriate level of detail to be used for assets. They are very diverse and even products that appear superficially similar, such as aircraft, may have quite different specifications. This is a problem that must be resolved whatever means of determining a stock figure for assets is used. The final choice may be a source of inaccuracies, or conversely, may lead to extra resource cost for little improvement in the results.

20.71 The first level of detail that might be examined is given in table 20.11. This assumes that information on value added by institutional sector is available. The figures for operating

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surplus for non-financial and financial corporations may be compared with capital services from fixed assets used by these sectors adjusted as necessary for natural resources and inventories. The figures for general government and NPISHs in the national accounts data and those for capital services data must be equal. This is because by convention no return to capital on assets used in non-market production is included when output is estimated as the sum of costs. Consequently gross operating surplus is equal to the consumption of fixed capital and net operating surplus is zero (possibly excepting small amounts of operating surplus coming from secondary market production). The capital services for household dwellings should match operating surplus for households and the figure for capital services for other household unincorporated enterprises is to be compared with the national accounts figure for mixed income (which should include a labour compensation element also).

Table 20.11:The outline of a possible supplementary table

National accounts data	Total/Gross	Consumption of fixed capital	Net
Gross value added			
Compensation of employees			
Mixed income			
Operating surplus			
Non-financial corporations			
Financial corporations			
General government			
NPISHs			
Households			
Taxes less subsidies on production			
Capital services	**Capital services**	**Decline in value**	**Return to capital**
Fixed assets			
Market producers (excluding households)			
Non-financial corporations			
Financial corporations			
Non-market producers			
General government			
NPISHs			
Households			
Dwellings			
Other unincorporated enterprises			
Natural resources			
Inventories			

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Chapter 21: Measuring corporate activity

A. Introduction

21.1 The purpose of this chapter is to discuss aspects particular to corporations in both the financial and non-financial corporation sectors. It begins in section B by discussing the demography of corporations; how they come about, how they disappear and how they merge with one another. The consequences of these actions in the SNA are almost all to do with recording the acquisition of the owner's equity in corporations and in some cases reclassification of assets and liabilities between sectors.

21.2 Section C looks at some subsectoring of corporations and how this can be effectively deployed for analysis.

21.3 Section D considers the relationships between corporations in the domestic economy and in the rest of the world. Much of this section is concerned with aspects of globalization and the derivation of relevant indicators.

21.4 Section E recalls some of the discussion in chapter 20 and looks further at the contribution of assets to production.

21.5 Section F looks at the consequences of financial distress and the implications of remedial action for recording within the SNA.

21.6 The last section, section G, covers a rather different subject and looks at the emergence of commercial accounting standards over the last several years and how the process of developing new standards can be instrumental in helping to develop new approaches within the SNA.

1. A note on terminology

21.7 As explained in section B of chapter 4, the term corporation is used in the SNA to cover a wide variety of legal forms of institutional units. In addition, the expression enterprise is used in connection with production activities. While corporation is normally the term of preference in the SNA, other documents, notably the *BD*, tend to use enterprise in preference to corporation. Further, the register of all enterprises or corporations is usually called a business register, even though "business" is not a term commonly used in national accounts. In this chapter, all three terms are used without implying a difference between them.

B. The demography of corporations

21.8 Maintaining a list of corporations is similar to maintaining a list of all individuals present in the country in that it is necessary to record new corporations as they come into being and to record those that cease to be. A business register normally serves an administrative function in keeping track of the existing businesses in the economy but also serves as the basic sampling frame for surveys directed at businesses. Thus it is normal for a business register to contain information on the activity, size, location, etc. of each business and to note when the main activity of a corporation changes from one type of activity to another. In addition a business register may also include information on the links one corporation may have to other resident and non-resident corporations.

1. The creation of corporations

21.9 Corporations can come into being in a number of ways. One is when what was previously an unincorporated enterprise within the household sector becomes incorporated. (The exact process of incorporation, such as when this may or must happen and how it is effected, will depend on the company law in effect in the country concerned.) When this happens, the assets and liabilities that were previously indistinguishably part of the household are separated off and become those of the corporation. In return for giving up control of these assets, and responsibility for the liabilities, the household acquires equity in the new corporation, initially exactly equal in value to the assets and liabilities transferred to the corporation. Once an enterprise is incorporated, the owning household no longer has a claim on the assets and has no responsibility for the liabilities but instead owns the equity in the corporation.

21.10 An individual may simply decide to set up a business, set up a legal entity and begin operations. Initially, there may be no assets of the entity and no liabilities but as these accrue they belong to the corporation and the owner's equity changes correspondingly. On a larger scale, there

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may be an agreement between a number of units, one or more of whom propose a business plan and one or more of whom agree to finance the operation. A formal agreement results in which the split of the rewards from the corporation's activity is determined and also the division of the responsibilities. The assets of the new corporation are recorded as being acquired by it and an amount of owner's equity in the corporation incurred as a liability towards the parties supplying the finance is also recorded.

21.11 It is not necessary for the corporation to issue shares for the agreement on the share of the profit arising from the activities of the corporation to be binding. Cooperatives and limited liability partnerships are two examples of units the SNA treats as corporations where the way in which profits are shared between the owners is clear even though there are formally no shares.

21.12 Corporations may also come into being at the initiative of government, an NPISH or a unit in another economy. In addition, a corporation may come into existence by the splitting of a previously existing corporation. This possibility is discussed below under mergers and acquisitions.

2. The dissolution of corporations

21.13 Similarly there are several ways in which corporations may go out of existence. The first is when an entity is wound up after having been declared bankrupt. (The exact process varies from country to country. In some countries a declaration of bankruptcy means the corporation must stop trading immediately and the process of winding up its affairs begins. In other countries, there may be a time lag while the corporation has an opportunity to continue trading while it tries to recover its position and only if this fails is it wound up.) When a corporation is wound up, the receiver (the unit responsible for administering the liquidation of the corporation) sells all of its assets and distributes the proceeds amongst those having a claim on the corporation in a legally predetermined order. The shareholders are always the last to be allocated any proceeds. In the case where the corporation is bankrupt it is quite common that the shareholders receive nothing. Only in very exceptional circumstances will the shareholders have any responsibility to provide funds towards settling other liabilities of the corporation.

21.14 A corporation may be wound up voluntarily by its owners. When this happens the assets are sold and the proceeds are divided amongst the owners according to the shares each has in the corporation. If the corporation is one that had issued shares, it can only be wound up if a clear majority of shareholders agree or if a clear majority of the shares are first acquired by a sufficiently small number of units who can reach agreement to wind up the corporation.

21.15 The acquisition of all shares of a corporation need not be a preliminary to the corporation ceasing to exist; it may simply continue with a smaller number of shareholders or even as a private unlisted corporation. The advantage of remaining incorporated is that there is a limit to the liability of the owners to meet any shortfall on the corporation's balance sheet. Thus even when an individual or group of individuals wants to control the whole of a corporation they may choose simply to make it an unlisted corporation but still one with the limited liability that comes with incorporation.

21.16 A third way in which a corporation may disappear is through it being merged with another corporation, though a merger does not automatically imply the merged corporation disappears. This too is discussed below under mergers and acquisitions.

3. Nationalization and privatization

21.17 The government may decide to take ownership of a corporation for a number of reasons, either because it is felt it is in the public interest for government to control the corporation, in response to financial distress or for other political motivations. When this happens the ownership of the corporation passes to the government, that is the government acquires the equity in the corporation, but the assets of the corporation remain on its balance sheet unless the government decides to nationalize the corporation and disband it at the same time. Often but not always, government may make a payment to the previous owners of the corporation but this may not necessarily correspond to their view of a fair price. Unless the corporation is dissolved, the process of nationalization leads to a change in the ownership of the corporation from private units to the government but the assets and other liabilities of the corporation continue to be owned by the corporation. Owners' equity in the corporation is recorded as a transaction in the financial account. There is also a reclassification of the assets and liabilities of a corporation being nationalized from the national private subsector to the public subsector recorded in the other change in the volume of assets account.

21.18 The government may also decide to privatize a corporation it currently controls. When this happens the most usual mechanism is that its shares are offered to the public either for sale or, in some cases, without charge or perhaps at a price lower than the market would bear. When shares are offered free or at a reduced price, a capital transfer from government to the eventual shareholders needs to be recorded in the accounts as well as the acquisition of shares. As with nationalization, only the equity in the corporation changes hands, not its assets and other liabilities, and the change in ownership of the equity is recorded as a transaction in the financial account. The ownership of the assets and liabilities remains with the corporation but they are reclassified from the public to national private subsector in the other changes in the volume of assets account.

21.19 There is more discussion on nationalization and privatization in chapter 22.

4. Mergers and acquisitions

21.20 The process of corporations merging and de-merging is of interest within an economy but especially interesting when the merger (or de-merger) involves units in different economies. Foreign direct investment can hardly be discussed without considering the subject of mergers and acquisitions. Some of the expressions commonly used in this field are listed below. The descriptions come from the

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BD but similar concepts appear also in the *BPM6.* (A revised version of the *BD* was released in 2008. It is consistent with both the SNA and *BPM6*.) Elaborating recommendations for the recording of mergers and acquisitions within the SNA is part of the research agenda.

21.21 A *merger* refers to the combination of two or more corporations to share resources in order to achieve common objectives. A merger implies that, as a result of the operation, only one entity will survive and frequently occurs following an acquisition (described below). There are several types of merger possible.

a. A *statutory merger* relates to the business combination where the merged (or target) corporation will cease to exist. The acquiring corporation will assume the assets and liabilities of the merged corporations. In most cases, the owners of merged corporations remain joint owners of the combined corporation.

b. A *subsidiary merger* relates to an operation where the acquired corporation becomes a subsidiary of the parent corporation. In a reverse subsidiary merger, a subsidiary of the acquiring corporation will be merged into the target corporation.

c. *Consolidation* is a type of merger which refers to a business combination whereby two or more corporations join to form an entirely new corporation. All corporations involved in the merger cease to exist and their shareholders become shareholders of the new corporation. The terms consolidation and merger are frequently used interchangeably. However, the distinction between the two is usually in reference to the size of the combining corporations. Consolidation relates to an operation where the combining corporations have similar sizes while merger generally implies significant differences.

d. A *reverse merger* is a deal where the acquiring corporation ceases to exist and merges into the target corporation. If a corporation is eager to get public listing in a short period of time, it can buy a corporation with listed shares and merge into it in order to become a new corporation with tradeable shares.

e. A *merger of equals* is a type of merger where the corporations involved are of similar size.

21.22 An *acquisition* is a transaction between two parties based on terms established by the market where each corporation acts in its own interest. The acquiring corporation achieves control of the target corporation. The target corporation becomes either an associate or a subsidiary or part of a subsidiary of the acquiring corporation.

a. A *takeover* is a form of acquisition where the acquiring corporation is much larger than the target corporation. The term is sometimes used to designate hostile transactions. However, mergers of equals (in size or belonging to the same sector of activity) may also result in a hostile takeover.

b. A *reverse takeover* refers to an operation where the target corporation is bigger than the acquiring corporation.

21.23 A *divestment (de-merger)* refers to the selling of the parts of the corporation due to various reasons:

a. A subsidiary or part of the corporation may no longer be performing well in comparison to its competitors;

b. A subsidiary or a part may be performing well but may not be well positioned within the industry to remain competitive and meet long-term objectives;

c. Strategic priorities of the corporation to remain competitive may change over time and lead to divestments;

d. Loss of managerial control or ineffective management;

e. Too much diversification may create difficulties and thus lead the parent corporations to reduce the diversification of its activities;

f. The parent corporation may have financial difficulties and may need to raise cash;

g. Divestments may be realized as a defence against a hostile takeover.

21.24 Corporate divestments can be conducted in different ways:

a. A *corporate sell-off* is the sale of a subsidiary to buyers that are other corporations in most cases.

b. A *corporate spin-off* occurs when the divested part of a corporation is floated on the stock exchange. The newly floated corporation is separately valued on the stock exchange and is an independent corporation. The shares in the newly listed corporation are distributed to the shareholders of the parent corporations who thereafter own shares in two corporations rather than one.

c. An *equity carve out* is similar to a corporate spin-off but the parent retains the majority control. This form has the advantage of raising cash for the divestor.

d. *Management buy-outs and buy-ins* occur when the buyer is the manager or a group of managers of the corporation that is being sold off.

21.25 In all these cases, transactions in the equity of the two corporations involved need to be recorded in the financial account and, possibly, a change of classification by sector in the other changes in the volume of assets account.

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C. Subsectors

21.26 The subsectoring of the corporations sectors is discussed in chapter 4. It is proposed that there should be a three-way split of corporations between those that are national private corporations, those that are controlled by the government and those that are foreign controlled. Within each of these it is desirable to identify market non-profit institutions (NPIs).

21.27 The reason for identifying NPIs is twofold. In the first place, in order to have a comprehensive picture of NPIs, as described in chapter 23, it is necessary to be able to identify those market NPIs that are assigned to the corporations sector. Identifying them separately may be unexpected to some users, since there is often a misconception that all NPIs are non-market and fall in the NPISH sector. The other reason for identifying NPIs separately is that for some analyses it may be desirable to analyse corporations excluding the NPIs if it is felt that their economic behaviour is significantly different.

21.28 In identifying publicly controlled corporations, there is a question about how to provide long time series if there has been a significant change in the number and type of corporations subject to public control during the period. It is usual to provide a time series that includes only those corporations that were subject to public control at each period in question. Because interest usually focuses on how much of the corporate sector was controlled by the government, and how this has changed over time, this gives an appropriate picture. However, if the intent is to explore the behaviour of the same group of corporations over time a supplementary table may be prepared that takes the current definition of publicly controlled corporations and uses this set of corporations over the time period considered regardless of whether or not they were publicly controlled for the whole of that period.

21.29 Identifying foreign controlled corporations is key to looking at the interaction between the domestic economy and the rest of the world. Exploring this in greater detail is the subject of the following section.

D. Relations between corporations in different economies

21.30 Deregulation of markets, technological innovations and cheaper communication tools have allowed investors to diversify their participation in competitive markets overseas. In consequence, a significant increase in cross-border financial movements including direct investment has become a key factor in international economic integration, more generally referred to as globalization.

21.31 Regular analysis of direct investment trends and developments is an integral part of most macroeconomic and cross-border financial analysis. It is of prime importance to policy analysts to identify the source and destination of these investments. Several indicators based on direct investment statistics facilitate the measurement of the extent and impact of globalization.

1. Foreign direct investment

21.32 Foreign direct investment (FDI) is a key feature of the balance of payments and it is useful to review some of the basic concepts associated with this. Further details can be found in both *BPM6* and the *BD*. In the context of FDI, the term enterprise tends to be used rather than corporation, but as noted in the introduction, no difference of meaning is intended.

21.33 Direct investment statistics embody four distinct statistical accounts:

a. Investment positions,

b. Financial transactions,

c. Associated income flows between enterprises that are related through a direct investment relationship, and

d. Other changes in the value of assets, especially revaluation terms.

21.34 Direct investment is a category of cross-border investment associated with a resident in one economy (*the direct investor*) having control or a significant degree of influence on the management of an enterprise (*the direct investment enterprise*) that is resident in another economy.

21.35 Direct investment may also allow the direct investor to gain access to the economy of the direct investment enterprise which it might otherwise be unable to do. The objectives of direct investors are different from those of portfolio investors who do not have significant influence on the management of the enterprise.

21.36 Direct investment enterprises are corporations which may either be subsidiaries in which over 50 per cent of the voting power is held, or associates in which between 10 per cent and 50 per cent of the voting power is held or they may be quasi-corporations, such as branches, which are effectively 100 per cent owned by their respective parents. Enterprises that have no direct investment influence upon one another (that is the 10 per cent voting power criterion is not met) but are directly or indirectly influenced in the ownership hierarchy by the same enterprise (which must be a direct investor in at least one of them) are described as fellow enterprises.

21.37 Direct investment relationships are identified according to the criteria of the Framework for Direct Investment

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Relationships (FDIR, described in the *BD*), including both direct and indirect relationships, through a chain of ownership. Suppose that corporation A controls corporation B and B controls C then A in effect has control over C also.

2. FDI and globalization

21.38 Direct investment positions show an important class of investment made abroad and received from abroad, divided between equity and debt, at a given reference point in time. FDI positions as a percentage of GDP give one indication of the extent of globalization at that time. These structural indicators demonstrate the interdependence of economies.

21.39 Financial transactions show the net inward and outward investments with assets (acquisitions less disposals or redemptions) and liabilities (incurrence less discharges) presented separately by instrument in any given period. FDI financial transactions expressed as a percentage of GDP provide one indicator of the changes over that period in the degree of globalization of an economy. This indicator provides early information on the relative attractiveness of economies (both domestic and foreign) for new investments after allowing for the withdrawal of investments or disinvestment during the same time period.

21.40 Direct investment income provides information on the earnings of direct investors and of the direct investment enterprises. Direct investment earnings arise (i) from distributed earnings as well as undistributed earnings which are treated as reinvestment of earnings in that enterprise and (ii) from interest on inter-company loans, trade credit and other forms of debt. FDI income flows as a percentage of GDP provide information on the relative importance of the earnings of direct investment in both the reporting economy and abroad.

3. The role of “pass through funds”

21.41 “Pass through funds” or “funds in transit” are funds that pass through an enterprise resident in one economy to an affiliate in another economy, so that the funds do not stay in the economy of the affiliate. These funds are often associated with direct investment. Such flows have little impact on the economy they pass through. While special purpose entities, holding companies and financial institutions that serve other non-financial affiliates are particularly associated with funds in transit, other enterprises may also have pass through funds in direct investment flows.

21.42 Pass through funds are included in direct investment in standard presentations because they are an integral part of a direct investor’s financial transactions and positions with affiliated enterprises. (An exception is made for positions in debt instruments between related financial institutions.) Excluding these funds from direct investment would distort and substantially understate direct investment financial flows and positions at aggregate levels. Further, inclusion of these data in direct investment promotes symmetry and consistency among economies. However, for the economies through which the funds pass, it is useful to identify inflows and outflows not intended for use locally by the entity concerned.

21.43 FDI has a key role to play in development, especially in emerging countries. In order to explore how much of global FDI reaches these countries, and where it originates, a supplementary analysis is useful. Such an analysis identifies the country where the pass through funds originate by identifying the first unit other than a pass through fund in the host or investing economy (in the outward or inward chain) as appropriate.

4. Ultimate investing country

21.44 Presentations of FDI according to the *BD* show the country of the immediate counterparty and the industry of the immediate counterparty for outward FDI. For inward FDI, it is possible to determine not only the immediate counterparty but also the ultimate investor. The ultimate investor for this purpose is the enterprise that has control over the investment decision to have an FDI position in the direct investment enterprise. As such the ultimate investor controls the immediate direct investor. It is identified by proceeding up the immediate direct investors ownership chain through the controlling links (ownership of more than 50 per cent of the voting power) until an enterprise is reached that is not controlled by another enterprise. If there is no enterprise that controls the immediate direct investor, then the direct investor is effectively the ultimate investor in the direct investment enterprise.

21.45 The country in which the ultimate investor is resident is the ultimate investing country in the direct investment enterprise. It is possible that the ultimate investor is a resident of the same economy as the direct investment enterprise. (A controls B controls C. A and C are resident in the same economy but B is resident in another.)

21.46 In order to transform the usual presentation by country to the supplementary ultimate investing country presentation, the entire FDI position that is attributed to the country of residence of the immediate direct investor is allocated to the ultimate investing country. When there is more than one immediate direct investor in a direct investment enterprise, the entire inward FDI position of each immediate direct investor is reallocated to the respective ultimate investing country based on the ultimate controlling parent of each of the immediate direct investors. This method ensures that the levels of direct investment into a country according to the standard presentation and according to the supplementary presentation are the same.

5. Multinational enterprises

21.47 As well as information relating to foreign direct investment where only a 10 per cent voting power is required to identify a foreign direct investor, there is interest in analysing the activities of multinational enterprises (MNEs) where more than 50 per cent of the voting power is held. Thus the MNEs correspond to foreign controlled enterprises in the sense of subsectors in the SNA. (There is a small distinction between the *BD* and *BPM6* and the SNA on the question of control. For the *BD* and in the *BPM6*, the 50 per cent of voting power rule is applied rigidly but the SNA is more flexible. See chapter 4.)

21.48 In addition to statistics on the activities of MNEs, statistics are also available for the wider group of corporations with

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links in other economies, not just those where there is majority ownership, called foreign affiliates. These statistics are known as Foreign AffiliaTes Statistics (FATS), and are described in *Recommendations Manual on the Production of Foreign AffiliaTes Statistics (FATS)* (Eurostat, 2007) and elaborated in *Measuring Globalisation: Handbook on Economic Globalisation Statistics (Organisation for Economic Co-operation and Development, 2005)*. Work is continuing to ensure the consistency of the various sets of statistics cited in these and other publications on globalization.

6. Outsourcing

21.49 There are two ways in which a corporation A in economy X may have another corporation B in economy Y assemble parts for it. Although the effect appears similar, the consequences for recording in the accounts are quite different. Suppose that A and B are unrelated enterprises, and B contracts to do work for A in return for a fee. (This case is described elsewhere, for example in chapter 28.) In this case there is no recorded transfer of the items from A to B (or X to Y). Only the agreed fee is recorded as a transaction between the two economies.

21.50 However, if A and B both belong to the same group of corporations, then it may be the case that there is a transfer of the risks and rewards of the items on their dispatch from A to B. The question is whether a realistic price is entered for the items in the trade figures for both A (and X) and B (and Y) as the items move internationally. When A and B are related, a practice known as "transfer pricing" is sometimes used. Suppose the tax regime in Y is more liberal than that in X. It may then be the case that A artificially lowers the price of the items dispatched to B in order to minimize profits in X while B records a higher profit subject to the lower tax regime in Y. In principle, international accounting standards and the balance of payments recommendations indicate that items transferring across borders should be valued at "arm's length" prices, that is to say prices that would prevail if there were no relationship between the two corporations involved. Making such an adjustment is not easy but it is in the interests of tax authorities, customs officials and the statistician to see whether appropriate adjustments can be made if the sums involved are significant and adjustments can be made with sufficient reliability.

E. The contribution of assets to production

21.51 Chapter 20 discusses the role of capital services in production and the calculation of multifactor productivity (MFP). The assets to be considered in calculating productivity are those fixed assets that are both owned and used by the enterprise plus any natural resources and other non-produced assets including contracts, leases and licences and possibly marketing assets they both own and use in production. Assets that are not legally owned by the enterprise but are subject to a financial lease are included in the calculations in the same way that they are recorded on the balance sheet of the enterprise. However, assets that are leased under an operating lease agreement are excluded. This may mean two enterprises undertaking similar activities using similar assets may show different productivity figures because one uses assets it owns and the other assets that it leases. An area for supplementary analysis is to consider compiling information on assets according to the using rather than the owning industry and to look at the implications for operating surplus and productivity of the use of leased rather than owned assets.

F. The consequences of financial distress

21.52 Signs that a non-financial corporation is suffering financial distress include the level of profits that it has been generating recently and possibly the level of dividends it is able to offer. It is also probable that it suffers a cash flow problem and is unable to meet its liabilities on a timely basis. Competitors may take the opportunity to launch a takeover bid. However, if no takeover bid is offered the question here is how the corporation may survive at all.

21.53 In a similar way, a financial corporation may suffer financial distress because it has difficulty in raising finance and is unable to service its liabilities. Again this is a circumstance in which a competitor may launch a takeover bid but this may not always be forthcoming.

21.54 If the corporation, whether financial or non-financial, is deemed to be of national importance this may be an instance where government steps in and offers either to take over the corporation, in effect nationalizing it, or may offer a major capital injection in return for a degree of control, possibly full control, of the corporation. The recording of nationalization and capital injections by government as well as of the steps that may be taken under a bailout are discussed in chapter 22.

21.55 Another possibility is that the government offers a guarantee to the creditors of the corporation in distress. The activation of a one-off guarantee is treated in the same way as a debt assumption. The original debt is liquidated and a new debt is created between the guarantor and the creditor. In most instances, the guarantor is deemed to make a capital transfer to the original debtor, unless the guarantor acquires an effective claim on the creditor, in which case it leads to the recognition of a financial asset (a liability of the

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debtor). The recording of guarantees including those offered by government is discussed in part 3 of chapter 17.

1. Bad debts

21.56 All corporations, but especially financial corporations, may suffer from bad debts and this phenomenon may be particularly acute when other aspects of the economy also exert financial pressure on the corporation. Within the SNA, loans are always recorded as the amount that is due to be repaid to the creditor. In cases where the debtor has a bad credit rating this may overstate the market value of the loan. This is seldom done on a loan by loan basis but is regularly done for classes of loans.

21.57 The SNA identifies a subset of bad debts as non-performing loans. As explained in paragraph 13.66, these are loans whose payments of interest or principal are past due by 90 days or more or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons (such as a debtor filing for bankruptcy) to doubt that payments will be made in full. The SNA recommends that memorandum items be compiled for the accounts showing the nominal and market value of bad loans and the implications for interest flows, the amount of interest accruing on the nominal value, the amount of interest outstanding from previous periods and the amount relating to the current period that is unpaid. The proposed memorandum items are discussed in paragraphs 13.67 to 13.68.

21.58 Elaborating the accounting for assets where the market value suddenly diverges from past trend values and the whole question of when it might be appropriate to define and use "fair values" is one item on the research agenda as explained in annex 4. In addition, circumstances emerging from the credit crisis that emerged in 2008 will continue to be monitored to see if other memorandum items or other steps should be recommended.

2. Concessional lending and debt rescheduling

21.59 There is detailed discussion of government's role in concessional lending and debt rescheduling in section D of chapter 22.

G. Links to commercial accounting

21.60 In recent years, the International Accounting Standards Board (IASB) has become increasingly important as the standard setter for commercial accounting. The IASB promulgates International Financial Reporting Standards (IFRS) and at present more than 100 countries are involved in this process of harmonization. Many large companies, especially multinationals, already apply these international accounting standards.

21.61 The principles underlying the IFRS are in most cases entirely consistent with the principles of the SNA. In particular, it is worth noting that the introduction to the standards explains that economic substance should take precedence over legal form. The IFRS, like the SNA, pays attention not only to the conceptually preferred approach but also practical possibilities.

21.62 The process of developing a new standard is a threefold one. In the first step, a document discussing the arguments for and against a new standard is proposed and it is released with an invitation to comment. Once the comments are received and analysed, if it is decided to proceed, an exposure draft is prepared and posted for global comment. Only if the exposure draft receives substantial favourable comment is a formal standard developed. At each stage, the documentation available discusses the background to the standard as well as its formal wording.

21.63 Since it is inevitable that national accounting information for large companies in particular must be drawn from data compiled according to the international accounting standards, it would be advantageous for the national accounts community to take a greater interest in the three stages of developing international accounting standards and contribute their points of view.

21.64 For multinational enterprises, the standard accounts may be available only for the group as a whole where relationships between enterprises in different countries have been consolidated. In this case, national accountants would need to consult other sources for the required non-consolidated data.

21.65 Two particular areas where the IFRS adopts approaches somewhat different from the SNA are in the area of the recognition of holding gains and losses as income and in the recording of provisions and contingent liabilities. Further examination of the IASB position could be helpful in refining the SNA treatment of these issues, if not by accepting the IASB position entirely, at least by showing a reconciliation between their position and that of the SNA.

21.66 In addition to the IASB that sets standards for private corporations, the International Public Sector Accounting Standards Board (IPSASB) performs a similar function for government bodies. There is reference to the IPSASB in chapter 22.

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Chapter 22: The general government and public sectors

A. Introduction

22.1 A major strength of the SNA is the ability to compile accounts for whole sectors, individual units, or some intermediate levels and to aggregate the accounts in different ways. Disaggregating the economy into various sectors and subsectors makes it possible to observe and analyse the interactions between the different parts of the economy for purposes of policymaking. Particular interest is given to the general government sector, as defined in chapter 4 and the public sector, as defined in this chapter. Many of the concepts in this chapter have been described in a number of previous chapters. This chapter aims to bring these together, give some more elaboration on how they might be put into practice and gives a link to other systems of economic statistics particularly aimed at government such as the *GFSM2001*, the *ESA95 Manual on Government Debt and Deficit* (Eurostat, 2002a) and the *External Debt Guide*.

22.2 The powers, motivation and functions of government are different from those of other sectors. Governments use their powers to pass laws affecting the behaviour of other economic units. They are able to redistribute income and wealth largely by means of taxes and social benefits. The accounts for the general government sector show how goods and services provided to the community as a whole or to individual households are financed mainly by revenue raised. The range of goods and services government provides and the prices charged are based on political and social considerations rather than on profit-maximization.

22.3 Fiscal operations are carried out by the government and financed through the budget under the usual budgetary procedures. However, some operations originated by government units may require the intervention of entities which are not ruled by the legal government framework, including public corporations. These actions may be described as quasi-fiscal activities.

22.4 Operations related to privatization and restructuring public corporations, securitization of assets using the intervention of special purpose entities, including those abroad, may be described in this way. Though such operations are not reported in the budget and might escape the usual control procedures, they may have a significant impact on government revenue and expenditure.

22.5 As well as providing services directly, governments often fulfil their public policy objectives through public corporations (for example, railways, airlines, public utilities and public financial corporations). A public corporation may be required to provide services to areas of the economy that would not be covered otherwise by means of subsidized prices. As a result, the public corporation may operate with a reduced profit or at a loss.

22.6 In order to analyse the full impact of government on the economy, therefore, it is useful to form a sector consisting of all the units of general government and all public corporations. This composite sector is referred to as the public sector.

22.7 For the general government and the public sectors, in addition to the usual sequence of accounts of the SNA, the accounts can be presented in a manner that is more suitable for government finance analysts and policymakers. The latter increasingly use aggregates and balancing items defined in terms of the concepts, definitions, classifications and accounting rules of the SNA so that these aggregates can be related to other macroeconomic variables and compared with the same items in other countries. Some of these items, such as saving and net lending or borrowing, are already available in the sequence of accounts. Other items, such as total revenue, total expense and total outlays, the tax burden, the net operating balance and total debt, do not appear as such in the SNA. Aggregates and balancing items of this nature can be used to assess the use of resources to produce individual and collective services, the need to collect taxes and other revenues, the ability of government to borrow and repay debt and the sustainability of the desired level of government operations.

22.8 The present chapter gives an overview of this so-called public finance or government finance presentation of the accounts. In order to derive this presentation, the transactions in the SNA current and capital accounts are rearranged to derive aggregates and balancing items of specific interest to the general government and public sectors. For example, a combination of taxes, user fees and grants from other governments can be aggregated to form total revenue, as the amount available from operations to fund government services.

22.9 Section B summarizes the identification of government units and other units controlled by government units and explains how those units are grouped into sectors in the SNA.

22.10 Section C describes the presentation of government finance statistics.

22.11 Section D addresses a number of accounting issues that are unique to, or exceptionally important for, government.

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22.12 Finally, section E shows how information about the public sector may be prepared in a manner roughly parallel to the government finance statistics presentation described in section D.

1. Data sources

22.13 In practice, macroeconomic accounts can seldom be built up by simply aggregating the relevant microdata. Government is an exception in that the statistics for government units and public corporations are often derived directly from the microdata in government financial accounting databases. As a result, compilers of statistics for the government units and public corporations usually draw more heavily on accounting information than the results of statistical enquiries. In particular, the development in recent years of International Public Sector Accounting Standards by the International Public Sector Accounting Standards Board of the International Federation of Accountants has increased the need for clear guidance on the compilation of government finance statistics so that the detailed accounting data can be transposed correctly into the framework of the SNA. Such guidance is especially important when the government financial accounts are compiled on a cash basis and must be converted to an accrual basis to comply with the accounting basis of the SNA.

2. Consolidation

22.14 As a rule, the entries in the SNA are not consolidated. Consolidation involves the elimination of those transactions or debtor/creditor relationships that occur between two transactors belonging to the same institutional sector or subsector. As stated in chapter 3, however, consolidation may be relevant for the general government sector. For example, information on debt owed by government units to units outside the general government sector may be more relevant than gross figures that include debt owed to other government units. Guidance on consolidation is provided in Section C.

B. Defining the general government and public sectors

22.15 General government units include some NPIs and public enterprises not treated as corporations. The public sector includes general government and public corporations. To identify which NPIs are included in general government, conditions for control by government must be identified. To determine which enterprises are treated as public corporations and which as part of general government, it is necessary to specify conditions for control by government and the concept of economically significant prices.

22.16 In order to identify the units falling in both the general government sector and the public sector, it is helpful to begin by restating the definition of government units given in paragraphs 4.117 to 4.118). The discussion on what is meant by control by government and economically significant prices follows.

1. Government units

22.17 ***Government units are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area.*** Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes, to redistribute income and wealth by means of transfers, and to engage in non-market production. In general terms:

a. A government unit usually has the authority to raise funds by collecting taxes or compulsory transfers from other institutional units. A government unit must have funds of its own either raised by taxing other units or received as transfers from other government units and it must have the authority to disburse some, or all, of such funds in the pursuit of its policy objectives. It must also be able to borrow funds on its own account.

b. Government units typically make three different kinds of final outlays:

- The first group consists of actual or imputed expenditures on the free provision to the community of collective services such as public administration, defence, law enforcement, public health, etc. that are organized collectively by government and financed out of general taxation or other income.

- The second group consists of expenditures on the provision of goods or services free, or at prices that are not economically significant, to individual households. These expenditures are deliberately incurred and financed out of taxation or other income by government in the pursuit of its social or political objectives, even though individuals could be charged according to their usage.

- The third group consists of transfers paid to other institutional units, mostly households, in order to redistribute income or wealth.

22.18 Within a single economy when there are different levels of government at central, state or local levels, there may be many separate government units. Social security funds also constitute government units.

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22.19 In all countries, there is an institutional unit of the general government sector important in terms of size and power, in particular the power to exercise control over many other units. This unit is often referred to as national government and the unit covered by the main budget account. It is a single unit of the central government that encompasses the fundamental activities of the national executive, legislative and judiciary powers. Its revenues as well as its expenses and expenditures are normally regulated and controlled by a Ministry of Finance or its functional equivalent by means of a general budget approved by the legislature. Most of the ministries, departments, agencies, boards, commissions, judicial authorities, legislative bodies and other entities that make up this central government unit are not separate institutional units but are part of this primary central government unit. This is because they generally do not have the authority to own assets, incur liabilities, or engage in transactions in their own right. If there are state or local governments then it is likely that each of these governments will also have a primary government unit that includes the principal executive, legislative and judicial powers.

22.20 In addition, there may be government entities with a separate legal identity and substantial autonomy, including discretion over the volume and composition of their expenses and outlays and a direct source of revenue, such as earmarked taxes. (The terms expense, outlay and revenue are commonly used in the presentation of government accounts. Their definitions and relationship to SNA concepts are covered in section C.) Such entities are often established to carry out specific functions, such as road construction or the non-market production of health or education services. These entities should be treated as separate government units if they maintain full sets of accounts, own goods or assets in their own right, engage in non-market activities for which they are held accountable at law and are able to incur liabilities and enter into contracts in their own right. Such units are often referred to as extrabudgetary units because they have separate budgets and any transfers from the main budget account are supplemented by their own sources of revenue. Budgets vary widely among countries and various terms are often used to describe these units. These units are classified in the general government sector to the extent that they are non-market producers and are controlled by another government unit.

22.21 A social security fund is a particular kind of government unit that is devoted to the operation of one or more social security schemes. A social security fund must satisfy the general requirements of an institutional unit. That is, it must be separately organized from the other activities of government units, hold its assets and liabilities separately and engage in financial transactions on its own account.

22.22 As noted earlier, NPIs that are non-market producers and are controlled by a government are also units of the general government sector. Although they may legally be established to be independent from government, they are considered to be carrying out government policies and are effectively part of government. Governments may choose to use non-profit institutions rather than government agencies to carry out certain government policies because NPIs may be seen as not subject to political pressures. For example, research and development and the setting and maintenance of standards in fields such as health, safety, the environment and education are areas in which NPIs may be more effective than government agencies.

22.23 The case of units engaged in financial activities needs special consideration. As described in paragraph 4.67, a unit set up by government with functions similar to a captive financial institution is treated as an integral part of general government and not as a separate unit if it has no powers to act independently, is restricted in the number of transactions it can engage in, does not carry the risks and rewards associated with the assets and liabilities it holds and is resident in the same economy. If the unit is non-resident, it is treated as a separate unit but the transactions it undertakes as quasi-fiscal operations are reflected in transactions between that unit and the government. In particular, if the non-resident unit borrows abroad, it is regarded as lending the same amount to government and on the same terms.

22.24 At the same time, the general budget of any government level might control market producers satisfying the criteria to be a quasi-corporation as defined below. These units should not be classified in the general government sector, but in the non-financial or financial corporations sector, as appropriate. As public units, they are, however, part of the public sector.

2. NPIs controlled by government

22.25 The criteria for deciding whether an NPI is controlled by government or not is described in paragraph 4.92. They are summarized here for convenience.

22.26 Control of an NPI is defined as the ability to determine the general policy or programme of the NPI. All NPIs allocated to the general government sector should retain their identity as NPIs in statistical records, to facilitate analysis of the complete set of NPIs. To determine if an NPI is controlled by the government, the following five indicators of control should be considered:

a. The appointment of officers;

b. Other provisions of the enabling instrument;

c. Contractual agreements;

d. Degree of financing by government; and

e. Risk exposure.

A single indicator could be sufficient to establish control in some cases but sometimes a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators will necessarily be judgmental in nature but the judgements should be consistent for similar cases.

3. Corporations controlled by government

22.27 To be classified as a public corporation, a corporation must not only be controlled by another public unit, but it also

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must be a market producer. Control is defined as the ability to determine the general policy or program of an institutional unit. Government is in a position to exercise control over many kinds of units: miscellaneous extrabudgetary agencies, non-profit institutions and corporations (non-financial or financial). The criteria for control of a corporation are described in paragraphs 4.77 to 4.80. The key factors to be considered are

a. Ownership of the majority of the voting interest;

b. Control of the board or other governing body;

c. Control of the appointment and removal of key personnel;

d. Control of key committees of the entity;

e. Golden shares and options**;**

f. Regulation and control;

g. Control by a dominant customer; and

h. Control attached to borrowing from the government.

Although a single indicator could be sufficient to establish control in some cases, in others a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators must necessarily be judgmental in nature, but the judgements should be consistent for similar cases.

4. Economically significant prices

22.28 To be considered as a market producer, a unit must provide all or most of its output to others at prices that are economically significant. ***Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy. These prices normally result when:***

a. The producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs; and

b. Consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged.

22.29 These conditions usually mean that prices are economically significant if sales cover the majority of the producer's costs and consumers are free to choose whether to buy and how much to buy on the basis of the prices charged. Although there is no prescriptive numerical relationship between the value of output (excluding both taxes and subsidies on products) and the production costs, one would normally expect the value of goods and services sold (the sales) to average at least half of the production costs over a sustained multiyear period.

22.30 Because economic circumstances vary considerably, it may be desirable to accept different thresholds to achieve consistent economic measurement over time, between units and across countries. In principle, the distinction between market and non-market should be made on a case-by-case basis.

22.31 It can be presumed that prices are economically significant when the producers are private corporations. When there is public control, however, the unit's prices may be modified for public policy purposes. This may cause difficulties in determining whether the prices are economically significant. Public corporations are often established to provide goods that the market would not produce in the desired quantities or at the desired prices. Even when the sales of such corporations may cover a large portion of their costs, one can expect that they respond to market forces quite differently than would private corporations.

22.32 It is likely that corporations receiving substantial government financial support, or that enjoy other risk reducing factors such as government guarantees, will act differently from corporations without such advantages because their budget constraints are softer. A non-market producer is a producer that faces a very soft budget constraint so that the producer is not likely to respond to changes in the economic conditions in the same way as market producers.

Suppliers of goods and services to government

22.33 The question arises whether units supplying goods and services to government should be treated as market or non-market producers. The essential question is whether the unit provides the goods and services in competition with private producers and the choice of supplier is based on price. This is true whether the supplier is the only supplier and whether the government is the only customer of the supplier.

Definition of sales and costs

22.34 In order to assess whether a producer is a market producer, it is necessary to carry out a comparison between the receipts from sales and the production costs of the products. Sales are measured before any taxes applicable to the products are added. Sales exclude all payments received from government unless they would be granted to any producer undertaking the same activity. Own account production is not considered as part of sales in this context.

22.35 Production costs are the sum of intermediate consumption, compensation of employees, consumption of fixed capital and [other] taxes on production. Further, if the unit is to be treated as a market producer, a return to capital is included in production costs. Subsidies on production are not deducted.

5. A decision tree for public units

22.36 Figure 22.1 shows the relationship between the general government sector, the public sector and the other main sectors of the domestic economy.

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22.37 As explained in paragraph 4.117, government units are established by political processes and have legislative, judicial or executive authority over other institutional units within a given territory. These units belong to the general government sector and so to the public sector also. In order to determine which other institutional units belong to the general government sector and which to the public sector, the decision tree described in figure 4.1 should be followed, using the following sequential questions:

a. Is the entity of interest an institutional unit? If it is not, but is resident, then it is treated as part of the unit that controls it. If it is not an institutional unit but is non-resident it is treated as a quasi-corporation in the economy in which it is resident.

b. Is the unit a market or non-market producer according to the criteria given immediately above?

c. Is the unit controlled by government or another public corporation?

22.38 The answers to the last two questions lead to allocations to sectors as follows:

a. If the unit is a market producer and not controlled by government it is a part of neither the general government sector nor the public sector.

b. If the unit is a market producer and controlled by government or another public corporation, it is not part of general government but is part of the public sector.

c. If the unit is a non-market producer and controlled by government, it is part of the general government sector and the public sector.

d. If the unit is a non-market producer but not controlled by government, it is treated as an NPISH. It is a part of neither the general government sector nor the public sector.

6. Subsectors of the general government sector

22.39 As described in chapter 4, the general government sector may be subsectored in either of two ways. One method is to have up to three subsectors; one for central government, one for state government and one for local government with social security included at any level where relevant. In some cases there may be only one or two levels of general government; in some cases more levels of government must be accommodated within the three level structure. The other method of subsectoring is to exclude social security funds from each level of government and have a separate subsector for social security funds covering all levels of government. The choice of classification used will depend on whether social security funds are independent of the level of government where they operate or not.

22.40 Greater detail on subsectoring general government is given in section F of chapter 4.

7. Subsectors of the public sector

22.41 It is possible to construct subsectors of the public sector to meet analytical demands. Two methods of subsectoring the public sector may be considered. In the first, the public sector could be divided into the general government sector as one subsector and the aggregate of all public corporations as a second subsector. The public corporations might be further divided into non-financial public corporations, financial public corporations other than the central bank, and the central bank.

22.42 Secondly, the public sector could be divided by level of government in the same way as the general government sector is. In this case, the subsectors would be the central government public sector, the state government public sector and the local government public sector. Each of these subsectors would consist of the corresponding subsector of the general government sector plus all public corporations controlled by a unit of that level of government. If a unit is controlled in part by a unit at one level of government and in part by a unit in another part of government, an allocation must be made to one or the other level of government depending on factors such as the degree of control exercised by each of the controlling units. Social security funds could form a separate subsector or could be combined with each level of government. It should be noted that if there is a separate fund to meet government employee pensions, this fund should be excluded from social security funds.

8. Borderline cases

22.43 Specific guidance on when certain entities created by government units are to be included in the public sector or not is needed. The entities concerned include quasi-corporations, restructuring agencies, special purpose entities, joint ventures and supranational authorities.

Figure 22.1:The public sector and its relation to institutional sectors

<table>
<tr><th>Non-financial corporations</th><th>Financial corporations</th><th>General government</th><th>NPISHs</th><th>Households</th></tr>
<tr><td>Public</td><td>Public</td><td rowspan="2">Public</td><td rowspan="2">Private</td><td rowspan="2">Private</td></tr>
<tr><td>Private</td><td>Private</td></tr>
</table>

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Quasi-corporations

22.44 Quasi-corporations are unincorporated enterprises that function as if they were corporations. Quasi-corporations are treated in the SNA as if they were corporations: that is, as institutional units separate from the units to which they legally belong. Thus, quasi-corporations owned by government units are grouped with corporations in the non-financial or financial corporate sectors.

22.45 The intent behind the concept of a quasi-corporation is to separate from their owners those unincorporated enterprises that are sufficiently self-contained and independent of their owners that they behave in the same way as corporations. If they function like corporations, they must keep complete sets of accounts. Indeed, the existence or possibility to construct a complete set of accounts, including balance sheets, for the enterprise is a necessary condition for it to be treated as a separate institutional unit, otherwise it would not be feasible from an accounting point of view to distinguish the quasi-corporation from its owner.

22.46 In order to be treated as a quasi-corporation the government must allow the management of the enterprise considerable discretion not only with respect to the management of the production process but also the use of funds. Government quasi-corporations must be able to maintain their own working balances and business credit and be able to finance some or all of their capital formation out of their own saving, financial assets or borrowing. The ability to distinguish flows of income and capital between quasi-corporations and government implies that, in practice, their operating and financing activities must be separable from government revenue or finance statistics, despite the fact that they are not separate legal entities. The net operating surplus of a government owned quasi-corporation is not a component of government revenue and the accounts for government record only the flows of income and capital between the quasi-corporation and government.

The case of restructuring agencies

22.47 Some public units are involved in the restructuring of corporations, either non-financial or financial. These corporations may or may not be controlled by government. Restructuring agencies may be long-standing public units or agencies created for this special purpose. Government may fund the restructuring in various ways, either directly, through capital injections (capital transfer, loan or acquisition of equity) or indirectly, through granting guarantees. Units such as restructuring agencies have little output so the usual criterion of whether the output is market or non-market in determining when the unit is part of general government is not sufficient. Instead the following propositions should be considered:

a. A unit that serves only government is more likely to be included in general government than one that deals with other units also.

b. A unit that sells financial assets at other than market values is more likely to be in the general government sector than not.

c. A unit that takes on low risk because it acts with strong public financial support and legally or effectively on behalf of the government is likely to be included within general government.

22.48 Restructuring agencies may operate in a number of ways. The following are two frequently-observed examples.

22.49 A restructuring agency may undertake the reorganization of the public sector and the indirect management of privatization. Two cases may be considered:

a. The restructuring unit is a genuine holding company controlling and managing a group of subsidiaries and only a minor part of its activity is dedicated to channelling funds from one subsidiary to another on behalf of the government and for public policy purposes. The unit is classified as a corporation and the transactions made on behalf of the government should be rerouted through the general government.

b. The restructuring unit, whatever its legal status, acts as a direct agent of the government and is not a market producer. Its main function is to redistribute national income and wealth, channelling funds from one unit to the other. The restructuring unit should be classified in the general government sector.

22.50 Another example of a restructuring agency is one mainly concerned with impaired assets, mainly in a context of a banking or other financial crisis. Such a restructuring agency must be analysed according to the degree of risk it assumes, considering the degree of financing of the government. Again, two cases may be considered:

a. The restructuring agency borrows on the market at its own risk to acquire financial or non-financial assets that it actively manages. In this case the unit should be classified as an institution in the financial corporations sector.

b. The restructuring agency deliberately purchases assets at above market prices with direct or indirect financial support from the government. It is primarily engaged in the redistribution of national income (and wealth), does not act independently of government or place itself at risk and therefore should be classified in the general government sector.

Special purpose entities

22.51 Government units are always considered resident because, by definition, the economic territory of a country consists of the geographic territory administered by a government, as well as some territorial enclaves in the rest of the world, used by the government for diplomatic, military, scientific, or other purposes, normally with the formal agreement of the government of the country in which they are physically located. These enclaves are part of the general government sector.

22.52 Some governments may set up special purpose entities (SPEs) for financial convenience, the SPE being involved in fiscal or quasi-fiscal activities (including securitization

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of assets, borrowing, etc.). Resident SPEs that function in only a passive manner relative to general government and that carry out fiscal activities are not regarded as separate institutional units in the SNA and are treated as part of general government regardless of their legal status. If they act independently, acquire assets and incur liabilities on their own behalf, accepting the associated risk, they are treated as separate institutional units and are classified to sector and industry according to their principal activity.

22.53 Non-resident SPEs are always classified as separate institutional units in the economy where they are established. When such entities are created, care must be taken to reflect faithfully the fiscal activities of the government. All flows and stock positions between the general government and the non-resident SPE should be recorded when they occur in the accounts for general government and the rest of the world.

22.54 A government may create a non-resident SPE to undertake government borrowing or incur government outlays abroad. Even if there are no actual economic flows recorded between the government and the SPE related to these fiscal activities, transactions should be imputed in the accounts of both the government and the rest of the world to reflect the fiscal activities of the government undertaken by the SPE, including borrowing. The special case of securitization units is discussed in section D.

Joint ventures

22.55 Many public units enter into arrangements with private entities or other public units to undertake a variety of activities jointly. The activities could result in market or non-market output. Joint operations can be structured broadly as one of three types: jointly controlled units, referred to here as joint ventures; jointly controlled operations; and jointly controlled assets.

22.56 ***A joint venture involves the establishment of a corporation, partnership or other institutional unit in which each party legally has joint control over the activities of the unit.*** The units operate in the same way as other units except that a legal arrangement between the parties establishes joint control over the unit. As an institutional unit, the joint venture may enter into contracts in its own name and raise finance for its own purposes. A joint venture maintains its own accounting records.

22.57 The principal question to be considered here is whether the effective economic control of the joint venture establishes a public or a private unit. If a joint venture operates as a non-market producer, it must be the case that government is in effective control and it is classified as part of general government.

22.58 If the joint venture is a market producer, it is treated as a public or private corporation according to whether it is or is not controlled by a government unit, using the same indicators as described above. Normally, the percentage of ownership will be sufficient to determine control. If the public and private units own an equal percentage of the joint venture, the other indicators of control must be considered.

22.59 Public units can also enter into joint operating arrangements that do not involve establishing separate institutional units. In this case, there are no units requiring classification, but care must be taken to ensure that the proper ownership of assets is recorded and any sharing arrangements of revenues and expenses are made in accordance with the provisions of the governing contract. For example, two units may agree to be responsible for different stages of a joint production process or one unit may own an asset or a complex of related assets but both units agree to share revenues and expenses.

Supranational authorities

22.60 Some countries may be part of an institutional agreement that involves monetary transfers from the member countries to the associated supranational authority and vice versa. The supranational authority also engages in non-market production. In the national accounts of the member countries, the supranational authorities are non-resident institutional units that are part of the rest of the world and may be classified in a specific subsector of the rest of the world.

22.61 Because the supranational authority is fulfilling the functions of a level of government, it is possible to construct a set of accounts for the authority as if it were a resident unit of the member country even though it remains non-resident. Such an additional account may provide a useful supplement for the analysis of the economic activities of the member countries.

C. The government finance presentation of statistics

1. Introduction

22.62 The sequence of accounts for all institutional units and sectors is described in chapters 6 to 13. For the general government sector and, in some cases, the public sector, experience has shown that an alternative presentation, usually known as a government finance presentation or public finance presentation, of the stocks and flows is better suited to certain analytical requirements. This section gives a very brief overview of the way in which government accounts are presented in, for example, the *GFSM2001*, which should be consulted for further explanation and discussion.

22.63 Basically the government finance presentation consists of transactions that increase net worth leading to an aggregate called revenue and transactions that decrease net worth leading to the aggregate called expense. In addition there are two main balancing items, net operating balance and net

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lending or net borrowing. Additional accounts can be shown for other economic flows and balance sheets.

22.64 The following section provides general information about the concepts involved in government finance.

2. Revenue

22.65 A revenue transaction is one that increases net worth. In the government finance presentation of the accounts, the concept of revenue is defined to include all resources acquired by government as recorded in the SNA current accounts and capital transfers receivable recorded in the capital account. Specifically, revenue can be determined as follows:

Revenue

equals Taxes,

plus Social contributions,

plus Other current revenue,

plus Capital transfers receivable.

22.66 Government revenue is usually dominated by compulsory levies in the form of taxes and social contributions. For some levels of government, grants (transfers from other government units and international organizations) are a major source of revenue. Other general categories of revenue include property income, sales of goods and services and miscellaneous transfers other than grants.

22.67 Estimating taxes and social contributions can be quite difficult. The problems involved and the recommended solutions are described in section D. Taxes are recorded in several of the accounts in the sequence of accounts. An advantage of the government finance presentation is that all taxes can be presented as one category of revenue, with subclassifications according to the basis on which the tax was levied. In particular, both current and capital taxes can be shown under a single heading.

22.68 Other current revenue covers property income, sales of goods and services, fines, penalties and forfeits, voluntary transfers other than grants and miscellaneous and unidentified revenue. The distribution of goods and services that are not sold at all or sold for prices that are not economically significant does not accord with the general notion of revenue as a transaction that increases net worth. As a result, only actual sales of goods and services or goods and services produced by government but provided as compensation of employees in kind are included in revenue. (The goods and services provided as compensation in kind are treated as revenue because they offset expenditure.)

22.69 Transfers from one government unit to another, often from the central or a state government to a lower level of government, can be quite important sources of government revenue. The government finance presentation allows all of these receipts to be collected into a separate category of revenue, usually labelled grants. Other transfers, including subsidies, normally amount to much less and are reported separately. Property income may or may not be an important source of revenue, but in either case it relates directly to the same category as in the allocation of primary income account.

3. Expense

22.70 An expense transaction is one that decreases net worth. In the government finance presentation of the accounts, the concept of expense is defined to include all uses incurred by government as recorded in the SNA current accounts and capital transfers payable as recorded in the capital account. Specifically, expense can be determined as follows:

Expense

equals Production expenses (compensation of employees, intermediate consumption and consumption of fixed capital),

plus Interest payable,

plus Grants,

plus Social benefits,

plus Other current expenses,

plus Capital transfers payable.

22.71 The government finance presentation as in *GFSM2001*, for example, differs from the sequence of accounts in a number of ways. The absence of a production account in the government finance presentation makes it impossible to show both the cost structure of own account production and its final use. Thus, for instance, the salaries of employees engaged in own account capital formation are directly classified as acquisitions of capital formation and not as compensation of employees. Conversely, the salaries of employees that produce social benefits in kind are recorded as compensation of employees and not again as (part of) expense on social benefits in kind. The government finance presentation uses some labels and definitions that differ from those in the sequence of accounts and also introduces various simplifications. For example, outlays on FISIM and insurance services are not distinguished from interest and net insurance premiums respectively.

22.72 Governments typically produce many services and some goods and then distribute them free or at prices that are not economically significant. In the SNA, the cost of these goods and services is recorded as a use when they are produced and again as a social benefit or final consumption expenditure when they are distributed. To reduce unnecessary duplication, these costs are recorded only as production expenses in the government finance presentation.

22.73 In principle, retirement benefits paid to government employees are considered the liquidation of a liability rather than a payment of a current expense. However, in practice social benefits as reported in government accounts

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may include retirement benefits paid to government employees. If these transactions in pension liabilities are to be excluded, the contributions must also be excluded from revenue and the item adjustment for changes in pension entitlements excluded from expense.

4. Outlays

22.74 The purchase of a non-financial asset is not an expense because it has no net effect on net worth since it represents the exchange of one type of asset for another or the incurrence of a liability matched by the acquisition of an asset. It is however included in a total called outlays (or sometimes expenditure). Outlays are defined as follows:

Outlays

*equal*s Expense,

plus Acquisitions less disposals of non-financial assets.

The net acquisition of non-financial assets is the sum of the gross capital formation and acquisitions less disposals of non-produced non-financial assets.

5. Net operating balance

22.75 The net operating balance is defined as revenue less expense. It is the balance of all transactions that affect net worth. It is equivalent to the changes in net worth due to saving and capital transfers in the SNA sequence of accounts. It provides a measure of the sustainability of government policies as it represents the resources acquired or consumed by the government's current operations. Specifically:

Net operating balance

equals Revenue,

less Expense.

6. Net lending or net borrowing

22.76 Net lending or net borrowing can be calculated as the net operating balance less the net acquisition of non-financial assets or total revenue less total outlays. It represents the amount the government has available to lend or must borrow to finance its non-financial operations. Specifically:

Net lending or net borrowing

equals Net operating balance,

less Acquisitions less disposals of non-financial assets.

or, alternatively:

Net lending or net borrowing

equals Revenue,

less Outlays.

22.77 Net lending or net borrowing is also the balancing item of the financial account, although in practice a statistical discrepancy could appear as a result of using different sources and of possible errors and omissions.

7. Consolidation

22.78 For analytical purposes, there is often interest in the relationship between net lending or net borrowing and the change in government liabilities. Attention to government liabilities usually centres on the amount owed to non-government units. There may be a substantial amount of liabilities incurred by one government unit and held by a second government unit. The government finance presentation consolidates all flows and stocks within each subsector and sector, and thus all asset and liability positions between units belonging to the same grouping are eliminated. This procedure still allows the separate identification of the debt of the general government sector, the central government subsector and the public sector, which are analytically useful.

22.79 Consolidation is a method of presenting statistics for a set of units as if they constituted a single unit. It involves eliminating transactions and reciprocal stock positions among the units that are being consolidated. Consolidation may be undertaken for any group of units, but it is particularly useful to consolidate the units within the general government sector and its subsectors. For example, assessing the overall impact of government operations on the total economy or the sustainability of government operations is more effective when the transactions between different levels of government are eliminated and only those transactions that are with other sectors or non-residents remain. Consolidation is of particular relevance for transactions such as property income (in particular interest), current and capital transfers and transactions in financial assets and liabilities. For example, the consolidated figures on the ratio of revenue or expense to GDP are more useful for some purposes than the unconsolidated figures.

22.80 In the SNA, consolidation is discouraged. Even in the government finance presentation, where consolidation is often useful, it takes place only within a single account where the matching revenue and expense entries appear. For this reason, consolidation adjustments do not affect balancing items. For example, a grant (or transfer) from a central government to a local government unit is consolidated by eliminating the expense from central government and the revenue from the local government, thus leaving the net operating balance of the general government sector unchanged.

22.81 Conceptually, the nature of consolidation is to eliminate all flows among the consolidated units, but practicality should be kept in mind. For example, it may be argued that transactions in the production account, such as output and intermediate consumption of goods and services, should not be consolidated. The decision about the level of detail employed in consolidation should be based on the policy usefulness of the consolidated data and the relative importance of the various types of transactions or stocks.

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22.82 Within a government finance presentation, the major transactions considered for consolidation, in probable order of importance, are:

a. Current and capital transfers, such as central government grants to lower levels of government;

b. Transactions in financial assets and liabilities, such as loans to other governments for policy purposes, acquisitions of government securities by social security units and debt forgiveness;

c. Interest revenue and expense on intergovernmental holdings of financial assets and liabilities;

d. Acquisitions and disposals of non-financial assets, including intergovernmental transactions in land, buildings and equipment;

e. Taxes paid by one government unit or entity to another;

f. Purchases and sales of goods and services between government units.

22.83 Two types of transactions that appear to take place between two government units are never consolidated because they are re-routed in the SNA to other units. The first is that all employer social contributions, whether paid to social security or to government pension funds, are treated as being paid to the employee as part of compensation and then paid by the employee to the fund. The second is that all taxes withheld by government units from the compensation of their employees, such as pay-as-you-earn (PAYE) taxes, and paid to other governments should be treated as being paid directly by the employees. The government employer is simply the collecting agent in this case for the second government unit. However, taxes on gross payroll and labour force that are not treated as social contributions should be consolidated when they are significant and can be identified.

22.84 Practical difficulties always arise with consolidation. For example, when a transaction to be consolidated is identified in the records of one unit, the corresponding transaction should appear in the accounts of the counterparty, but it may not be recorded there, it may be recorded in a different period, it may be recorded at a different value, or it may be classified as a different type of transaction. Such errors in the strict application of a quadruple accounting system may exist in relation to any transaction but become apparent when consolidation is attempted.

22.85 Even if transactions between the subsectors of government are being consolidated when presenting the accounts for general government as a whole, they should not be eliminated for the accounts of each subsector considered separately.

8. Classification of the functions of government

22.86 A classification of transactions on outlays using the Classification of Functions of Government (COFOG) is integral to the government finance presentation. This classification shows the purpose for which outlays are undertaken. These purposes may differ significantly from the administrative arrangements of governments. For example, an administrative unit responsible for health services may undertake some activities with an educational purpose, such as training of medical professionals. A cross classification of the transactions of government by both economic nature and according to functions, as shown for example in *GFSM2001*, is encouraged.

D. Accounting issues particular to the general government and public sectors

22.87 The accounting rules of the SNA apply to general government and public sectors in the same way that they apply to all other sectors of the economy. However, due to the particular nature of the activities of government units, some additional guidance is useful to assist with the treatment of selected transactions. These topics are grouped under four headings:

a. Clarification of the recording of taxes;

b. Interaction with non-resident government-type authorities (including taxes paid to another authority);

c. Issues related to debt;

d. Interaction with the corporations sectors.

A separate section for each of these headings follows.

1. Clarification of the recording of taxes

Government issued permits

22.88 Taxes are compulsory unrequited payments, in cash or in kind, made by institutional units to the general government exercising its sovereign powers or to a supranational authority. They usually constitute the major part of government revenue, up to 90 per cent in some countries. Taxes are described as unrequited because, in most cases, the government provides nothing commensurate in exchange to the individual unit making the payment. However, there are cases where the government does provide something to the individual unit in return for a payment in the form of the direct granting of a permit or authorization. In this case, the payment is part of a mandatory process that ensures proper recognition of ownership or that activities are performed under the strict authorization by the law. The borderline between when such payments are to be treated as a tax and when as the

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sale of a service or as the sale of an asset by the government requires additional guidance.

22.89 As noted in chapters 7 and 8 when discussing the difference between a tax and a fee for a service, the borderline is not always clear-cut in practice. The following recommendations apply.

a. The payment is recorded as a tax when a licence or a permit is automatically granted by the government as a mandatory condition to perform an activity or acquire an asset and when the government unit performs little or no work other than a minimum control of the legal capacity of the acquirer to receive the permit (for instance, to confirm the applicant has not been convicted of a crime). The payment of the fee in such a case is not commensurate with the control function that the government exercises.

b. The payment is recorded as the purchase of a service when, for instance, issuing the licence or permit implies a proper regulatory function of the government by exercising control on the activity, checking the competence or qualifications of the persons concerned, etc. In such a case, the payment is taken to be proportion to the costs of producing the service for all or any of the entities benefiting from the services and is borne by those benefiting. Only if the payment is out of proportion to the costs of producing the services, is it treated as a tax.

22.90 Chapter 17 discusses the case of licences issued by government in strictly limited numbers.

a. If the licence is not one to use a natural resource that qualifies as an asset and which the government controls on behalf of the community, then the payment for the licence is a tax. Notwithstanding, if the licence is legally and practically transferable to a third party, it may still be classified as an asset in the category of contracts, leases and licences.

b. When the licence is to make use of a natural resource that qualifies as an asset and which the government controls on behalf of the community, payments for the licence are treated either as the acquisition of an asset in the category of contracts, leases or licences or as the payment of rent. The conditions that need to be considered in deciding between the acquisition of an asset and the payment of rent are described in detail in part 5 of chapter 17.

Permission to use a produced asset owned by government is treated as an operating or financial lease as appropriate.

Accrual recording of taxes

22.91 Like all transactions in the system, government transactions should be recorded on an accrual basis. This is true on both the revenue side (for example, taxes and social contributions) and the expense side (for example, interest charges). Unless both parties to a transaction record their view of the transaction at the same point in time, the accounts do not balance.

22.92 For the government, recording revenue and claims when the underlying event occurs is particularly difficult since government recordings are often on a cash basis. This is especially the case for taxes. Further, when accrued taxes are calculated from assessments of taxes due, there may be a risk of over- or understatement of tax revenue. Since tax revenue is a crucial government finance aggregate, such an error must be avoided.

22.93 As explained in chapter 3, the period of time between the moment a tax or any distributive transaction is recorded as accruing in the non-financial accounts and the moment the payment is actually made is bridged by recording an account receivable or payable in the financial account. In cases where a prepayment covering two or more accounting periods is made to government, an account payable is recorded in the financial account of government for the amounts due in future periods. In effect this is a financial advance made to government by the payee. It is a liability of the government and an asset of the payee. This liability is extinguished as the amounts fall due in future periods.

22.94 The amount of taxes recorded as accruing recognizes that some taxes that may be due in principle are in practice unlikely to be collected. The alternative means of making the necessary adjustments are described in paragraphs 8.58 to 8.59.

Tax credits

22.95 Tax relief can take the form of a tax allowance, an exemption, a deduction or a tax credit. Tax allowances, exemptions and deductions are subtracted from the tax base before the tax liability is computed. A tax credit is an amount subtracted directly from the tax liability due by the beneficiary household or corporation after the liability has been computed. Tax credits can sometimes be payable, in the sense that any amount of the credit that exceeds the tax liability is paid to the beneficiary. In contrast, some tax credits are non-payable (sometimes called wastable) and are limited to the size of the tax liability.

22.96 In *Revenue Statistics* and *GFSM2001*, a tax relief that is embedded in the tax system is recorded as reducing the tax liability of the taxpayer and therefore as reducing government tax revenue. This is the case for tax allowances, exemptions and deductions, since they enter directly into the calculation of the tax liability. This is also the case for non-payable tax credits as their value to the taxpayer is limited to the size of their tax liability. For payable tax credits, only the excess over the corresponding liability, which corresponds to an outlay by government, is shown as an expense.

22.97 In contrast, in the SNA, the total amounts due as payable tax credits should be considered as expense and recorded as such at their total amount. In consequence, tax revenue should be recorded without any deduction for payable tax credits.

22.98 Treating payable tax credits in this way has no impact on the net borrowing or net lending of the general government, but has an impact on both the tax burden and the ratios of public expense or expenditure to GDP. Because of the need to explain differences in presentation between different

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statistical systems, however, in the SNA the amounts of payable tax credits that are offset against tax liabilities should also be shown.

2. Transactions with other national, international and supranational organizations

22.99 Transactions may occur between government units and either international or supranational organizations, regarded as non-resident units. Even when government acts as the unit channelling funds to or from the non-resident unit, the transactions are recorded as taking place directly with the non-resident unit. Six cases may be considered:

a. *Taxes*: Some taxes on products, such as import duties, excises and value added taxes, might be payable to a supranational organization because they are considered to be levied directly by the supranational organization.

b. *Subsidies*: Any subsidies paid by a supranational organization directly to a resident producer are recorded as payable by the supranational organization rather than a resident government unit.

c. *Current international cooperation:* This consists of current transfers in cash or in kind between the governments of different countries or between governments and international organizations and includes specifically:

· Transfers between governments that are used by the recipients to finance current expenditures, including emergency aid after natural disasters; they include transfers in kind in the form of food, clothing, blankets, medicines, etc.;

· Annual or other regular contributions paid by member governments to international organizations (excluding taxes payable to supranational organizations);

· Payments by governments or international organizations to other governments to cover the salaries of those technical assistance staff who are resident in the country in which they are working and are employed by the host government.

d. *Miscellaneous current transfers:* These consist of payments to international or supranational authorities that are regarded as being compulsory but are not taxes.

e. *Capital transfers:* These include investment grants and other capital transfers, including the counterpart transaction of debt cancellation as a capital transfer payable and the counterpart of debt assumption as a capital transfer receivable.

f. *Financial transactions:* Some financial transactions, usually loans, may be recorded when granted by international organizations (for example, the World Bank and the International Monetary Fund) or granted to other governments.

International membership dues

22.100 In a few cases, membership dues and subscription fees payable to international organizations may not be treated as transfers but as payments for a service, recorded on an accrual basis. Exceptionally, and when there is a possibility even if unlikely, of repayment of the full amount, the payment may represent the acquisition of a financial asset.

International assistance

22.101 International assistance sometimes takes the form of making goods, such as food and clothing or emergency equipment available following a natural disaster. In addition to the goods or services themselves, all costs identifiable with the delivery of the goods or services such as transportation to the foreign country, delivery within that country, the compensation of government employees of the donating country to prepare the shipments or oversee their delivery, insurance and so forth should be included in the value of the transfer to the extent that these costs are met by the donor.

22.102 The prices of the goods or services in the receiving country might be quite different from the prices in the donor country. As a general principle, the value of the donation to the recipient should be regarded as equal to the cost of providing the assistance to the recipient. It follows that the prices of the donor country should be used as a basis for the calculation of the value of the donation.

22.103 When the goods and services and associated delivery charges are donated by government, NPISHs or households, the items are negative final consumption matching a transfer in kind. If the items are provided by corporations, they are recorded as a transfer in cash followed by a purchase of the goods by the recipient. In both cases the items involved are included in exports of the donor country and imports of the recipient country.

3. Debt and related operations

Debt

22.104 Debt is a commonly used concept, defined as a specific subset of liabilities identified according to the types of financial instruments included or excluded. Generally, debt is defined as all liabilities that require payment or payments of interest or principal by the debtor to the creditor at a date or dates in the future. Consequently, all debt instruments are liabilities, but some liabilities such as shares, equity and financial derivatives are not debt. However, due to specific legal, institutional or practical arrangements some other definitions of debt may also exist. It is therefore useful in all cases to clearly identify the definition of debt according to the instruments included.

22.105 Debt operations are often used by government as a means of providing economic aid to other units. The general principle for any cancellation or assumption of debt of one unit by another unit made by mutual agreement is to consider that there is a voluntary transfer of wealth between the two units. This means that the counterpart transaction of

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the liability assumed or of the claim cancelled is a capital transfer.

Debt reorganization

22.106 There are four main types of debt reorganization:

a. Debt forgiveness. A reduction in the amount of, or the extinguishing of, a debt obligation by the creditor via a contractual arrangement with the debtor.

b. Debt rescheduling or re-financing. A change in the terms and conditions of the amount owed, which may result or not in a reduction in burden in present value terms.

c. Debt conversion. The creditor exchanges the debt claim for something of economic value, other than another debt claim, on the same debtor. This includes debt-for-equity swaps and debt prepayment among other arrangements.

d. Debt assumption and debt payments on behalf of others when a third party is also involved.

Debt forgiveness (or debt cancellation)

22.107 Debt forgiveness is defined as the voluntary cancellation of all or part of a debt obligation within a contractual arrangement between a creditor and a debtor. Debt forgiveness is distinguished from debt write-off by the agreement between the parties and the intention to convey a benefit, rather than unilateral recognition by the creditor that the amount is unlikely to be collected. Debt forgiven may include all or part of the principal outstanding, inclusive of any accrued interest arrears (interest that fell due in the past) and any other interest costs that have accrued. Debt forgiveness does not arise from the cancellation of future interest payments that have not yet fallen due and have not yet accrued.

22.108 Debt forgiveness is recorded as a capital transfer received by the debtor from the creditor at the time specified in the agreement that the debt forgiveness takes effect with a repayment of the debtor's liability in the financial account and a matching receipt by the creditor. In the balance sheet, the debtor's liability and creditor's asset are reduced by the amount of debt that is forgiven. Valuation of the amount of the debt forgiven is at market prices for flows and stocks, except for loans where the nominal value is used.

Debt rescheduling and refinancing

22.109 *Debt rescheduling (or refinancing)* is an agreement to alter the terms and conditions for servicing an existing debt, usually on more favourable terms for the debtor. Debt rescheduling involves rearrangements on the same type of instrument, with the same principal value and the same creditor as with the old debt. Refinancing entails a different debt instrument, generally at a different value and may be with a creditor different than that from the old debt.

22.110 Under both arrangements, the debt instrument that is being rescheduled is considered to be extinguished and replaced by a new debt instrument with the new terms and conditions. If there is a difference in value between the extinguished debt instrument and the new debt instrument, part is a type of debt forgiveness by government and a capital transfer is necessary to account for the difference.

22.111 *Debt rescheduling* is a bilateral arrangement between the debtor and the creditor that constitutes a formal deferment of debt-service payments and the application of new and generally extended maturities. The new terms normally include one or more of the following elements: extending repayment periods, reductions in the contracted interest rate, adding or extending grace periods for the repayment of principal, fixing the exchange rate at favourable levels for foreign currency debt, and rescheduling the payment of arrears, if any.

22.112 The treatment for debt rescheduling is that the existing contract is extinguished and a new contract created. The applicable existing debt is recorded as being repaid and a new debt instrument (or instruments) of the same type and with the same creditor is created with the new terms and conditions.

22.113 The transaction is recorded at the time both parties record the change in terms in their books, and is valued at the value of the new debt.

22.114 *Debt refinancing* involves the replacement of an existing debt instrument or instruments, including any arrears, with a new debt instrument or instruments. It can involve the exchange of the same type of debt instrument (loan for a loan), or different types of debt instruments (loan for a bond). For instance, the public sector may convert various export credit debts into a single loan. Also, debt refinancing can be said to have taken place when a debtor exchanges existing bonds for new bonds through exchange offers given by its creditor (rather than a change in terms and conditions).

22.115 The treatment of debt refinancing transactions is similar to debt rescheduling to the extent that the debt being refinanced is extinguished and replaced with a new financial instrument or instruments. However, unlike in rescheduling, the old debt is extinguished at the value of the new debt instrument except for non-marketable debt owed. The balance sheet reflects the transactions extinguishing the old debt instrument and the creation of the new debt instrument along with any valuation change recorded in the revaluation account.

Debt conversion

22.116 *A debt-for-equity swap* occurs when a creditor agrees to replace a debt owed to it by an equity security. For example, the government may agree with a public enterprise to accept an increase in its equity stake in the public enterprises instead of making a loan. If there is a difference in value between the extinguished debt instrument and the new equity instrument, it is a type of debt forgiveness by government and a capital transfer is necessary to account for the difference.

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Debt assumption

22.117 *Debt assumption* occurs when one unit assumes responsibility for another unit's outstanding liability to a creditor. When a government assumes a debt, in most instances the counterpart transaction of the new government liability is a capital transfer in favour of the defaulting debtor. However, if the government acquires an effective legal claim against the defaulting unit and there is a realistic probability that the claim will be paid, the government may record, as the counterpart transaction of its new liability, the acquisition of a financial asset equal to the present value of the amount expected to be received. If this amount is equal to the liability assumed, no further entries are required. If the amount expected to be recovered is less than the liability assumed, the government records a capital transfer for the difference between the liability incurred and any asset acquired. Similarly, if a government has its debt assumed by another government, then it records a capital transfer receivable, a new debt to the assuming government unit, or a combination of the two.

22.118 Debt assumption frequently occurs when a government guarantees a debt of another unit and the guarantee is called (or activated). The treatment of the guarantee itself is described below.

22.119 *Debt payments on behalf of others* are similar to debt assumptions, but the unit making the payments does not assume the entire debt. The transactions recorded are similar to those described under debt forgiveness.

Other issues related to debt re-organization

22.120 *Debt write-offs* refer to unilateral reductions by a creditor in the amount owed to it, usually when a creditor concludes that a debt obligation has no value or a reduced value because part or all of the debt is not going to be paid. Frequently the debtor is bankrupt or has disappeared. An other change in the volume of assets is used to record the write-off. Unlike the cases of debt assumption and debt forgiveness, no capital transfer is recorded and therefore there is no impact on net lending or borrowing of government.

22.121 *Debt arrears* occur when a debtor misses an interest or principal payment. The debt instrument will not normally change, but knowing the amount of debts in arrears can provide important information. When feasible and important, therefore, each category of debt should be divided into those instruments that are in arrears and those not in arrears.

22.122 *Debt defeasance* allows a debtor (whose debts are in the form generally of debt securities and loans) to remove certain liabilities from the balance sheet by pairing irrevocably assets of equal value to the liabilities. Defeasance may be carried out either by placing the paired assets and liabilities in a trust account within the institutional unit concerned, or by transferring the paired assets and liabilities to another institutional unit. In the former case, there are no transactions with respect to defeasance and the assets and liabilities should not be excluded from the balance sheet of the unit. In the latter case, the assets and liabilities in question are moved to the balance sheet of second unit as long as this unit is recognized as an institutional unit in the SNA. Often the unit to which the paired assets and liabilities may be moved is an SPE. The conditions under which an SPE is considered to be an institutional unit are described in paragraphs 4.55 to 4.67. If the SPE is purely passive it is not considered to be an institutional unit and the assets and liabilities concerned do not move off-balance sheet.

22.123 *Debt issued on concessional terms.* There is no precise definition of concessional loans, but it is generally accepted that they occur when units lend to other units and the contractual interest rate is intentionally set below the market interest rate that would otherwise apply. The degree of concessionality can be enhanced with grace periods, frequencies of payments and a maturity period favourable to the debtor. Since the terms of a concessional loan are more favourable to the debtor than market conditions would otherwise permit, concessional loans effectively include a transfer from the creditor to the debtor.

22.124 Loans with concessional interest rates to a foreign government could be seen as providing a current transfer equal to the difference between the actual interest and the market equivalent interest. If such a transfer were recognized, it would usually be recorded as current international cooperation, and the interest recorded would be adjusted by the same amount. However, the means of incorporating the impact within the SNA and international accounts have not been fully developed, although various alternatives have been advanced. Accordingly, until the appropriate treatment of concessional debt is agreed, information on concessional debt should be provided in supplementary tables.

22.125 Further details on the recording of debt operations can be found in *GFSM2001*, the *Manual on Government Debt and Deficit*, the *External Debt Guide* and Appendix 2 of *BPM6.*

Government guarantees

22.126 Three types of guarantees are recognized in the SNA, standardized guarantees, guarantees that meet the definition of a financial derivative and one-off guarantees. The recording of standardized guarantees (for government and other units offering such guarantees) is described in part 3 of chapter 17.

22.127 Guarantees that meet the definition of financial derivatives are those that are actively traded on financial markets, such as credit default swaps. The derivative is based on the risk of default of a reference instrument and so is not actually linked to an individual loan or bond. They have no effect on the net lending or borrowing of government.

22.128 One-off guarantees exist where the conditions of the loan or the security are so particular that it is not possible for the degree of risk associated with the loan to be calculated with any degree of accuracy. In most cases, the granting of a one-off guarantee is considered a contingency and is not recorded as a liability for the guarantor. Payments under a one-off guarantee are recorded when the call on the guarantee is made or when the fact that such a call will be made is very well established. As an exception, one-off guarantees granted by governments to corporations in

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certain financially distressed situations and with a very high likelihood to be called are treated as if these guarantees were called at inception. A particular case in point is a bailout by government, which is discussed below.

22.129 The activation of a one-off guarantee is treated in the same way as a debt assumption. The original debt is liquidated and a new debt is created between the guarantor and the creditor. In most instances, the guarantor is deemed to make a capital transfer to the original debtor, unless the guarantor acquires an effective claim on the creditor, in which case it leads to the recognition of a financial asset (a liability of the debtor).

22.130 The activation of a guarantee may or may not require repayment of debt at once. The accrual principle for time of recording requires that the total amount of debt assumed is recorded at the time the guarantee is activated and the debt assumed. Repayments of principal by the guarantor (the new debtor) and interest accruals on the assumed debt are recorded as these flows occur.

Securitization

22.131 Securitization occurs when a unit, named the originator, conveys the ownership rights over financial or non-financial assets or the right to receive specific future flows, to another unit, named the securitization unit. In return, the securitization unit pays an amount to the originator from its own source of financing. The securitization unit is often an SPE. The securitization unit obtains its own financing by issuing securities using the assets or rights to future flows transferred by the originator as collateral. Government units have made widespread use of this source of finance.

22.132 The first case involving government to be considered is when the securitization comprises the sale (or the transfer) of an asset. (In the SNA, a stream of future tax receipts is not recognized as a government asset that could be used for securitization.) The key question for how to record the transaction properly is to determine whether the transfer of the asset is a sale of an existing asset to the securitization unit or a way to borrow using possible future flows of revenues as collateral. In order to be treated as a sale, the asset must already appear in the balance sheet of the government and there must be a full change of ownership to the securitization unit as evidenced by the transfer of the risks and rewards linked to the asset. The following factors must also be considered:

a. To be recorded as a sale, the purchase price must be equal to the current market price.

b. If the government, as the originator, guarantees repayment of any debt related to the asset incurred by the securitization unit, it is unlikely that all of the risks associated with the asset have been transferred.

22.133 The second case involving government is the securitization of future revenue flows. In the SNA, a stream of future incomes is not recognized as an asset. In most of these cases, it is not the rights to the income that are used as collateral, but the obligation of the government to use a sufficient amount of the future income to repay the borrowing in full. If more income is earned than is needed to repay the borrowing, the excess is retained by the government. Because receipts of future income are uncertain, “rights” to considerably more income than is necessary to repay the borrowing of the securitization unit are usually used as collateral. The amount received by the government as the originator is treated as borrowing, usually in the form of a loan.

Government assumption of pension liabilities

22.134 On occasion, large one-off transactions may occur between a government and another unit, usually a public corporation, linked to pension reforms or to privatization of public corporations. The goal may be to make a public corporation competitive and financially more attractive by removing existing pension liabilities from the balance sheet of the public corporation. This goal is achieved by the government assuming the liability in question in exchange for a cash payment of the same value. If the cash payment is not equal in value to the liability incurred, a capital transfer is recorded for the difference.

4. Relations of general government with corporations

Earnings from equity investment

22.135 A government unit has a close relationship with any public corporation or quasi-corporation that it controls. Despite this close relationship, flows related to the equity investment between a government unit and its controlled corporation are treated in the same way as flows between any corporation and its owners. An equity investment is the action by economic agents of placing funds at the disposal of corporations. The amounts invested, described as equity capital, are part of the own funds of the corporation and the corporation has a large degree of freedom in the way in which they are used. In return, the owners receive shares or some other form of equity securities. These financial assets represent property rights on corporations and quasi-corporations and entitle the holders to:

a. A share of any dividends (or withdrawals of income from quasi-corporations) paid at the discretion of the corporation but not to a fixed and predetermined income, and

b. A share in the net assets of the corporation in the event of its liquidation.

Dividends versus withdrawal of equity

22.136 It is important to distinguish between the return of the equity investment by the corporation to its owner and the payment of income in the form of dividends. Only regular distributions from the entrepreneurial income are recorded as property income either as dividends or withdrawals of income from quasi-corporations. Large and irregular payments, based on accumulated reserves or sale of assets are recorded as a withdrawal of equity.

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Disposal of assets

22.137 The sale of non-financial assets owned by public corporations, such as buildings and land, does not by itself constitute privatization and is recorded in the capital account of the corporations sector as disposals of fixed assets or other non-financial assets. However, if the public corporation sells assets and then surrenders the proceeds of such a sale to general government, this is recorded as a withdrawal of government's equity in the corporation. A withdrawal of equity is also recorded if the public corporation disposes of a financial asset and surrenders the proceeds to government.

Acquisition of equity, capital transfers and subsidies

22.138 Subsidies are current transfers, usually made on a regular basis, from government to corporations designed to influence their levels of production, the prices at which their outputs are sold or the remuneration of the corporations. Payments to public corporations on a large and irregular basis (often called "capital injections" in the media) are not subsidies. They are treated as either a capital transfer or the acquisition of equity:

a. Payments to cover cumulated losses arising as a result of public policy purposes should be recorded as a capital transfer.

b. A payment made in a commercial or competitive context may be treated as an acquisition of equity. This should be limited to cases where the government is acting similarly to a private shareholder in that it has a valid expectation of a cash return in the form of future property income. In this case, the corporation will probably issue new shares to the government and enjoy a large degree of freedom over how the funds provided are used.

Treating the payments as the acquisition of equity depends on evidence of the corporation's profitability and its ability to pay dividends in future.

Privatization

22.139 Privatization is usually understood to consist of the sale of shares or other equity held by government in a public corporation to other units. Often these other units are outside the public sector but they need not be; for example, a public corporation may buy shares in a unit newly separated from government. Such sales are purely financial transactions, recorded in the financial account of the SNA. The assets owned by the public corporation continue to belong to the corporation; it is the ownership of the corporation itself, as represented by the ownership of the equity in it, that changes hands. In effect, the government's claim on the public corporation reduces because government exchanges shares or equity in the public corporation for cash or other financial assets. The cost of any financial services that government must purchase to achieve the sale are treated as an expense that should be recorded as intermediate consumption by general government in the SNA.

22.140 Privatization may be organized in more complicated institutional arrangements. For instance, some or all of the non-financial assets of a public corporation may be sold by a public holding company, or other public agency, controlled by a government and all or part of the proceeds paid to the government. In such cases, the public corporation will record the disposal of non-financial assets in the capital account, while the payment to the government of the proceeds from the sale is recorded as a withdrawal of equity.

22.141 The case where the privatization is arranged via a restructuring agency is discussed in paragraphs 22.47 to 22.50.

Nationalization

22.142 Nationalization is a process whereby government takes control of specific assets or an entire corporation, usually by acquiring the majority or the whole stake in the corporation. The recording of flows differs according to the way the government takes control.

a. *Appropriation or confiscation*: the change in ownership of assets is not the result of a transaction made by mutual agreement. There is no payment to the owners (or the compensation is not commensurate with the fair value of the assets). The difference between the market value of the assets acquired and any compensation provided is recorded as an uncompensated seizure in the other changes in the volume of assets account.

b. *Purchase of shares:* the government buys all or some of the shares in the corporation at a price that is the market price or very close to it. There is usually a legal context for the transaction which ensures that it is made by mutual agreement, even though the former owner may have little choice whether or not to accept the offer, or to negotiate the price. The purchase of shares is a financial transaction recorded in the financial account.

Bailouts

22.143 A bailout is a term meaning a rescue from financial distress. It is often used when a government unit provides either short-term financial assistance to a corporation to help it survive a period of financial difficulty or a more permanent injection of financial resources to help recapitalize the corporation. A bailout may in effect constitute another means of nationalization if the government acquires control of the corporation it is bailing out. Bailouts of financial institutions are particularly noteworthy. Bailouts are likely to involve highly publicized one-time transactions involving large amounts and are therefore easy to identify.

22.144 Intervention of general government may take various forms. For instance:

a. A government might provide equity financing on exceptionally favourable terms.

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b. A government might purchase assets from the enterprise to be assisted for prices greater than their true market value.

c. A government might create a special purpose entity or other type of public body to finance or to manage the sales of assets or liabilities of the enterprise to be assisted.

22.145 In most of these cases, the assistance provided by government to the unit suffering financial distress is recorded as a capital transfer. In determining the magnitude of the capital transfers, the following points need to be taken into account.

a. If the government buys assets from the enterprise to be assisted, the amount paid will normally be more than the true market price of the assets. The purchase of assets other than loans should be recorded at the actual market price and a capital transfer should be recorded for the difference between the market price and the total amount paid.

b. Governments often buy loans from financial institutions during a bailout. Unless a loan becomes tradeable and is traded with established market value, it is always recorded in the SNA at nominal value. Only if a market for the loans develops and the loans are regularly traded there are they reclassified as securities and recorded at market value.

c. When a government buys a loan at nominal value when the fair value is much less, no capital transfer for the difference in value is recorded. However, if there is reliable information that some loans are irrecoverable, their value is reduced to zero as an other volume change in the balance sheet of the corporation and a capital transfer should be recorded from government to the corporation for their former nominal value. If there is some possibility that some part of the loan may be recoverable in the future, the loans are reclassified (at their zero value) from the balance sheet of the corporation to that of the government at the time the capital transfer is recorded. If the value of the loans subsequently increases, this is shown as a revaluation item in the government's balance sheet.

d. As part of a bailout, government may extend the range of guarantees it is prepared to offer. These guarantees should be recorded as described above in paragraphs 22.126 to 22.130 according to whether this is a one-off guarantee or part of a standardized guarantee scheme.

22.146 If a public institutional unit is created by government simply to assume management of the bailout, the unit should be classified in the general government sector. If the new unit has other functions and the bailout is a temporary task, its classification as a government unit or a public corporation is made following the general rules as described in the section above on restructuring agencies. Units that purchase financial assets from distressed financial corporations with the objective of selling them in an orderly manner cannot be considered financial intermediaries. If the unit has been created by government for this specific task, it is classified in the general government sector.

Restructuring, mergers and reclassifications

22.147 When a public corporation is restructured, financial assets and liabilities may appear or disappear reflecting new financial relationships. These changes are recorded as changes in sector classification and structure in the other changes in the volume of assets account. An example of such a restructuring is when a corporation is split into two or more institutional units and new financial assets and liabilities are created.

22.148 The purchase of shares and other equity of a corporation as part of a merger, on the other hand, is to be recorded as a financial transaction between the purchasing corporation and the previous owner.

22.149 Any change in the classification of assets and liabilities not related to restructuring or changes in sector classification is recorded as a change in the classification of assets or liabilities in the other changes in the volume of assets account.

Transactions with the central bank

22.150 It is appropriate to begin by recalling the definition of the central bank and associated explanations from chapter 4. The central bank is the national financial institution that exercises control over key aspects of the financial system. In general, the following financial institutions are classified in this subsector:

a. The national central bank, including where it is part of a system of central banks; and

b. Currency boards or independent currency authorities that issue national currency that is fully backed by foreign exchange reserves.

c. Central monetary agencies of essentially public origin (for example, agencies managing foreign exchange or issuing bank notes and coin) that keep a complete set of accounts but are not classified as part of central government. Supervisory authorities that are separate institutional units are not included with the central bank but are included with financial auxiliaries.

As long as the central bank is a separate institutional unit, it is always allocated to the financial corporations sector even if it is primarily a non-market producer.

22.151 While the bank may be legally independent of government, it is charged with carrying out government policy under the legislation establishing it. The central bank is always treated as being controlled by government and is included in the financial corporations sector as a public corporation. It is the single exception to the rule that a unit whose output is primarily non-market is not to be classified as a corporation.

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22.152 Two types of payments by the central bank to the government require clarification:

a. Payments made on a regular basis, usually in the form of dividends, based on the current activity of the central bank (such as managing foreign exchange reserves). These payments are recorded as dividends so long as they are not abnormally higher than the sum of net interest and net commissions receivable by the bank. Amounts in excess of this sum are to be recorded as a withdrawal of equity.

b. Exceptional payments following sales or revaluation of reserve assets. These payments should be recorded as a withdrawal of equity. The rationale is that these assets are being managed as the economic property of the nation and not of the bank itself. Their valuation affects the equity liability of the central bank and the equity assets of the government. Holding gains on the reserve assets (assets of the central bank) have a counterpart in the equity liability of the central bank and the equity assets of the central government.

22.153 The measurement of output of the central bank is described in paragraphs 6.151to 6.156. As part of government policy, the central bank may pay interest on deposits at artificially high or low rates. The treatment of interest payments in this case is described in paragraphs 7.122 to 7.126

Public-private partnerships

22.154 Public-private partnerships are long-term contracts between two units, whereby one unit acquires or builds an asset or set of assets, operates it for period and then hands the asset over to a second unit. Such arrangements are usually between a private enterprise and government but other combinations are possible, with a public corporation as either party or a private NPI as the second party. These schemes are described variously as Public-Private Partnerships (PPPs), Private Finance Initiatives (PFIs), Build, Own, Operate, Transfer schemes (BOOTs) and so on. The basic principles of all are the same and are treated the same way in the SNA.

22.155 Governments engage in PPPs for a variety of reasons, including the hope that private management may lead to more efficient production and that access to a broader range of financial sources can be obtained. In the contract period the PPP contractor has the economic ownership. Once the contract period is over, the government has both economic and legal ownership. It is not easy to establish which unit is the legal owner of an asset during the contract period or how the implicit transactions when its economic ownership changes should be recorded. There may be an advance agreement on the timing of the transfer of economic ownership part way through the service lives of the assets, under agreed terms that do not reflect market prices of the assets. In consequence, some actual transactions may have to be partitioned to reveal their true economic character.

22.156 PPPs vary greatly. A general description that includes the most common arrangement is as follows. A private enterprise agrees to acquire a complex of fixed assets and then to use those assets together with other production inputs to produce services. Those services may be delivered to the government, either for use as an input to its own production (for example, motor vehicle maintenance services) or for distribution to the public without payment (for example, education services), in which case the government will make periodic payments during the contract period. The private enterprise expects to recover its costs and earn an adequate rate of return on its investment from those payments. Alternatively, the private enterprise may sell the services to the public (for example, a toll road), with the price regulated by the government but set at a level that the private enterprise expects will allow it to recover its costs and earn an adequate rate of return on its investment. At the end of the contract period, the government may gain legal and economic ownership of the assets, possibly without payment. There can be many variations in PPP contracts regarding the disposition of the assets at the end of the contract, the required operation and maintenance of the assets during the contract, the price, quality and volume of services produced and so forth.

22.157 The private enterprise is responsible for acquiring the fixed assets, although the acquisition is often aided by the backing of the government. The contract may require, however, that the assets meet the design, quality and capacity specified by the government, be used in the manner specified by the government to produce the services required by the contract and be maintained in accordance with standards specified by the government. Furthermore, the assets typically have service lives much longer than the contract period so that the government will control the assets, bear the risks and receive the rewards for a major portion of the assets' service lives. Thus, it frequently is not obvious whether the private enterprise or the government controls the assets over their service lives or will bear the majority of the risks and reap the majority of the rewards.

22.158 As with leases, the economic owner of the assets related to a PPP is determined by assessing which unit bears the majority of the risks and which unit is expected to receive a majority of the rewards of the assets. The factors that need to be considered in making this assessment can be broadly divided into two groups, those associated with acquiring the asset and those associated with using it in production. Some of the risks associated with acquiring the asset are:

a. The degree to which the government controls the design, quality, size and maintenance of the assets;

b. Construction risk, which includes the possibility of additional costs resulting from late delivery, not meeting specifications or building codes and environmental and other risks requiring payments to third parties.

Some of the risks associated with using the asset in production are:

a. Supply risk, which covers the degree to which the government is able to control the services produced, the units to which the services are provided and the prices of the services produced;

b. Demand risk, which includes the possibility that the demand for the services, either from government or

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from the public at large in the case of a paying service is higher or lower than expected;

c. Residual value and obsolescence risk, which includes the risk that the value of the asset will differ from any price agreed for the transfer of the asset to government at the end of the contract period;

d. Availability risk, which includes the possibility of additional costs or the incurrence of penalties because the volume and/or quality of the services do not meet the standards specified in the contract.

22.159 The relative importance of each factor is likely to vary with each PPP. It is not possible to state prescriptive rules that will be applicable to every situation in a satisfactory way. The provisions of each PPP must be evaluated in order to decide which unit is the legal owner.

22.160 Likewise, the complexity and variety of PPP contracts preclude the enumeration of detailed rules governing the transactions to be recorded concerning the control and use of the assets. Instead, all of the facts and circumstances of each contract should be considered and then an accounting treatment should be selected that best brings out the underlying economic relationships. There are, however, a few common difficulties.

22.161 If the private enterprise is assessed as being the legal owner during the contract period and if, as usual, the government obtains legal and economic ownership at the end of the contract without an explicit payment, a transaction must be recorded for the government's acquisition of the assets. One general approach is for the government gradually to build up a financial claim and the private unit gradually to accrue a corresponding liability such that the value of both is expected to be equal to the residual value of the assets at the end of the contract period. Implementing this approach requires existing monetary transactions to be rearranged or new transactions to be constructed using assumptions about expected asset values and interest rates.

22.162 An alternative approach is to record the change of legal and economic ownership as a capital transfer. The capital transfer approach does not reflect the underlying economic reality as well, but data limitations, uncertainty about the expected residual value of the assets and contract provisions allowing various options to be exercised by either party could make recording a capital transfer acceptable on pragmatic grounds.

22.163 If the government is assessed as being the legal owner during the contract period but does not make any explicit payment at the beginning of the contract, a transaction must be imputed to cover the acquisition. The most common suggestion is that the acquisition be made via an imputed financial lease because of the similarity with actual financial leases. The implementation of that choice, however, depends on the specific contract provisions, how they are interpreted and possibly other factors. For example, a loan could be imputed and actual government payments to the private unit, if they exist, could be partitioned so that a portion of each payment represents repayment of the loan. If there are no actual government payments, then non-monetary transactions could be constructed for the loan payments.

E. The public sector presentation of statistics

22.164 As described in section B, the public sector includes all resident institutional units controlled directly or indirectly by resident government units. In other words, the public sector consists of all units of the general government sector plus all resident public corporations.

22.165 Statistics for the public sector can be presented both within the sequence of accounts for institutional units and sectors or within the same government finance framework as described in section C of this chapter, depending on the use to be made of the statistics.

22.166 With either method of presentation, it is useful to show both subsectors of the public sector and the entire public sector, with the total public sector statistics shown both unconsolidated and consolidated. For example, one column might have the statistics for the general government sector, a second column for the aggregate of all public corporations and a third column would have the unconsolidated totals for the entire public sector. Depending on the flows involved, a fourth column could show the amounts to be eliminated by consolidation and a fifth column could show the consolidated totals for the entire public sector.

22.167 Not all flows need to be consolidated for the public sector. Because the public sector is a mixture of market and non-market producers, most components of revenue and expense will have limited economic meaning for the public sector. Elements of the financial account and the balance sheet are the most likely candidates to be consolidated.

22.168 The same balancing items as stressed for the general government sector are likely to be important for the public sector. The public sector net operating balance (or saving in the sequence of accounts) will indicate trends in net worth resulting from the public sector's current operations. This is particularly useful if there are public corporations operating at significant losses.

22.169 Net lending or net borrowing for the total public sector is known as the public sector borrowing requirement. Net lending indicates the net financing supplied to either the rest of the economy or the rest of the world; net borrowing indicates net financing obtained by the public sector from either the rest of the economy or the rest of the world.

22.170 The balance sheet provides information of net worth, determined as the value of total assets less total liabilities,

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and financial net worth, determined as the difference between the value of total financial assets and the total liabilities. The latter is often cited because of the public sector's influence on the financial system and because it is often difficult to value government-unique non-financial assets.

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Chapter 23: Non-profit institutions

A. Introduction

1. Non-profit institutions in the SNA

23.1 Non-profit institutions (NPIs) play a somewhat unusual role in the SNA. Like corporations, some NPIs produce goods and services for sale with the intention to cover costs, that is to say as market production. In common with other market producers, they cannot undertake final consumption. Like government units, some NPIs are non-market producers and make their output available free or at prices that are not economically significant to individual households or the community at large. Some of these non-market NPIs are controlled by government and included in the general government sector but those that are not are grouped in their own sector, the non-profit institutions serving households (NPISHs).

23.2 Most NPIs are separately identified institutional units. That is, they are capable in their own right of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. It follows that a complete set of accounts for the unit, including a balance sheet of assets and liabilities, exists or could be constructed if required. In some countries, especially developing countries, an NPI may be an informal entity whose existence is recognized by society but does not have any legal status.

23.3 The distinguishing feature that identifies an NPI is that its status does not permit it to be a source of income, profit or other financial gain for the units that establish, control or finance it. An NPI may make a profit, it may be exempt from taxes, it may have a charitable purpose but none of these are determining characteristics. The only essential criterion for a unit to be treated as an NPI is that it may not be a source of income, profit or financial gain to its owners.

23.4 All NPIs produce goods and services, most often services, intended for consumption by households or by corporations. Some NPIs produce services for corporations typically charging fees (sometimes described as subscriptions) intended to cover costs. They are often set up as associations that provide services exclusively to members. The level of fees charged, the price of membership, typically satisfies the SNA criteria of economically significant prices. For this reason these NPIs are allocated to the corporations sectors. An example of an NPI serving corporations is a trade association.

23.5 An NPI may be controlled by government in that government may appoint its officers and determine the objectives of the institution. It is treated as an institutional unit separate from government because it has independent control of its budget (even if much or all of the funding comes from government) but it is allocated to the general government institutional sector. Such institutions provide individual and collective services. An example is a research institute controlled by government.

23.6 Other NPIs exist to provide goods and services to households either in return for a fee or free. When fees are charged, these may or may not cover a large proportion of the NPI's costs and therefore may or may not be deemed to be economically significant prices. When the fees charged are regarded as being economically significant, the NPIs concerned are treated as providing market services and are allocated to the corporations sectors. Otherwise the NPIs fall into the institutional sector of NPISHs.

23.7 Thus it is possible to categorize NPIs as follows:

a. those providing services to corporations whose output is sold to the corporations concerned and treated as intermediate consumption;

b. those that are controlled by government and provide individual or collective services on a non-market basis;

c. those providing goods and services to households, divided between:

· those that provide goods and services to individual households at economically significant prices;

· those providing services to individual households free or at prices that are not economically significant;

· those that provide collective services free or at prices that are not economically significant.

23.8 Those NPIs that fall under the first bullet point in category (c) are allocated to the corporations sectors and expenditure on their output is treated as final consumption expenditure by households. Those that fall under the second bullet point under (c) are allocated to the NPISH sector and their output is treated as actual final consumption of households delivered as social transfers in kind. Those that fall under the third bullet point under (c) are allocated to the NPISH sector but their output remains as actual final consumption of NPISHs.

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23.9 There are thus a number of sectors where NPIs appear in the SNA; in both the financial and non-financial corporations sectors, in the general government sector and in the separate sector of NPISHs. Subsectors of the first three sectors are established to contain NPIs only. Those NPIs in the corporations sectors may be further subdivided to show those that are foreign controlled, those that are publicly controlled and those that are subject to national private control. The NPIs in the general government sector may be subdivided by level of government; central, state and local government. NPISHs may be divided between those that are foreign controlled and those subject to national private control.

2. The accounting rules for NPIs in the SNA

23.10 The output of NPIs is valued in the same way as for all institutional units. If the unit is a non-market producer, output is valued at the sum of costs, including consumption of fixed capital but excluding a return to capital. If the unit is a market producer, output is measured by sales adjusted for changes in inventories and any production for own capital formation. For some NPIs that cover a large proportion but not all their costs from sales, this will leave the unit with negative operating surplus. This is covered by donations (current transfers).

3. A satellite account for NPIs

23.11 For some time, there has been growing interest in studying the contribution to the economy of institutions such as NPIs because they are seen to constitute a significant presence of growing economic and policy interest. Such institutions are variously referred to as "non-profit", "voluntary", "civil society" or "non-governmental" organizations and collectively as the "third", "voluntary", "non-profit" or "independent" sector. Such institutions attract interest because their operating characteristics are somewhat different from those of other units in the corporations and government sectors. Specifically:

a. They are not permitted to distribute profits;

b. They may produce public goods as well as private goods;

c. They may receive as much or more from current transfers as they receive from selling their output;

d. They may depend on volunteer labour as well as paid labour;

e. Because they cannot pay dividends, they cannot attract equity capital in competition with corporations;

f. They may be eligible for special tax advantages in many countries;

g. They typically have special legal provisions covering the governance, reporting requirements, political participation and so on;

h. Although they provide public goods and services, they do not have the same powers or restrictions as government in deciding what these goods and services should be and how they should be allocated.

23.12 Arising out of this interest, a satellite account for NPIs has been developed as described in the *Handbook on Non-Profit Institutions in the System of National Accounts* (United Nations, 2003). Sections B and C describe the essential features of this satellite account. Section D discusses some other aspects of NPIs that it may be desirable to explore in addition to the satellite account.

B. The units included in the NPI satellite account

23.13 The starting point for the satellite account is to identify the units of interest. As will be seen, the units chosen coincide largely (but not quite entirely) with the units described as NPIs in the SNA. One way of approaching a satellite account, therefore, would be to consider compiling the complete sequence of accounts for a sector made up of the subsectors of NPIs in the non-financial corporations sector, the financial corporations sector, the general government sector and NPISHs. However, because many of those interested in accounts for NPIs only do not come from an SNA background, the handbook starts by identifying characteristics of the units of interest.

1. Determining characteristics of units for the satellite account

23.14 Various alternative concepts have been put forward around which a satellite account for non-profit institutions could be formulated.

23.15 The first of these is the concept of the "social economy" which depicts non-governmental institutions with a social or collective purpose. Typically mutual societies, cooperatives and associations would be included.

23.16 The second concept is of "public benefit" organizations. This typically covers a narrower range of institutions that serve a broad public purpose and excludes institutions that serve only their own members.

23.17 In between these two is the concept of the non-profit sector on the lines initially pioneered by the Johns Hopkins Comparative Non-Profit Sector Project. In this project a definition of the non-profit units was elaborated along structural-operational lines. The requirements for inclusion are the following:

a. organizations should exist as identifiable institutions;

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b. They should be institutionally separate from government;

c. They do not distribute profits;

d. They are self-governing, that is to say they are not subject to control from other units;

e. Membership of the unit is neither obligatory nor automatic but involves some degree of voluntary participation.

23.18 The main exclusions from the set of NPIs recognized in the SNA are those NPIs allocated to the general government sector because, although they are institutionally separate from government, they are controlled by government units. There are a small number of informal, usually temporary, NPIs that may be excluded also. These are discussed in section D.

2. Examples of units included

23.19 The following are illustrative examples of the kinds of entities that are likely to be found within the "non-profit sector" for the purposes of the NPI satellite account:

a. *Non-profit service providers*, such as hospitals, higher education institutions, day-care centres, schools, social service providers and environmental groups;

b. *Non-governmental organizations* promoting economic development or poverty reduction in less developed areas;

c. *Arts and culture organizations*, including museums, performing arts centres, orchestras, ensembles and historical or literary societies;

d. *Sports clubs* involved in amateur sport, training, physical fitness and competitions;

e. *Advocacy groups* that work to promote civil and other rights, or advocate the social and political interests of general or special constituencies;

f. *Foundations*, that is, entities that have at their disposal assets or an endowment and, using the income generated by those assets, either make grants to other organizations or carry out their own projects and programs;

g. *Community-based or grass-roots associations* that are member-based and offer services to or advocate for members of a particular neighbourhood, community or village;

h. *Political parties* that support the placing of particular candidates into political office;

i. *Social clubs*, including touring clubs and country clubs, that provide services and recreational opportunities to individual members and communities;

j. *Unions, business and professional associations* that promote and safeguard labour, business or professional interests;

k. *Religious congregations*, such as parishes, synagogues, mosques, temples and shrines, which promote religious beliefs and administer religious services and rituals. However, an official state church incorporated into the state administration, particularly one supported by obligatory taxes, would not meet the "institutionally separate from government" criterion and thus would be excluded from the set of NPIs in the satellite account. It should be noted that religious congregations are different from religiously affiliated service agencies in such fields as health, education and social services. Similarly, service organizations related to a state church might still be considered to be within the non-profit sector, as long as they are separate institutional units and meet all the definitional criteria.

Both market and non-market units should be included in each of these categories, so long as the institution concerned is an NPI (and not just an NPISH).

3. Borderline cases

23.20 Certain other types of organizations are likely to occupy a grey area between the non-profit sector and either the corporations or government sectors. Some of those entities will properly belong within the non-profit sector for purposes of the NPI satellite account, while others will not. The following guidelines may be helpful for making those decisions. (Obviously, these guidelines will have to be applied to types of organizations and not on an organization-by-organization basis, but the decision rules can still be instructive.) The guidelines given here are those of the handbook, slightly modified in the light of experience with implementing the accounts. It is proposed that the modifications included here will be incorporated into the next edition of the handbook.

23.21 *Cooperatives* are organizations formed freely by individuals to pursue the economic interests of their members. The basic principles of cooperatives include:

a. democratic control, that is, one person, one vote;

b. shared identity, that is members are both owners and customers; and

c. orientation to provide services to members "at cost".

As with other institutional units, if the articles of association of a cooperative prevent it from distributing its profit, then it will be treated as an NPI; if it can distribute its profit to its members, it is not an NPI (in either the SNA or the satellite account).

23.22 *Mutual societies* include such organizations as mutual savings banks, savings and loan associations, mutual insurance companies, sickness and burial funds. Mutual societies, like cooperatives, are organized by individuals seeking to improve their economic situation through collective activity. They differ from cooperatives, however,

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in that they are mechanisms for sharing risk, either personal or property, through periodic contributions to a common fund. Normally the depositors in mutual societies formally control their operations.

23.23 Because mutual societies operate in the commercial sphere, they fall in the financial corporations sector. Only if their articles of association prevent them from distributing profits to their owners are they treated as NPIs in the SNA (but still within the financial corporations sector) and included within the NPI sector for the satellite account.

23.24 *Self-help groups* are similar to both cooperatives and mutual societies in that individuals join to accomplish goals of mutual support that would be unattainable on an individual level. They differ from both, however, in that they are not principally engaged in commercial activities. As a general rule, self-help groups should be treated as membership organizations and included within the non-profit sector.

23.25 S*ocial ventures* are enterprises organized for the purpose of employing and training disadvantaged individuals (handicapped, long-term unemployed, etc.) who would otherwise not find employment. The enterprise is considered an NPI unless it generates and distributes its surplus to owners or stockholders.

23.26 *Quasi-non-governmental organizations*, which are found in many European countries and elsewhere, are designed to function at arm's length from government departments, thus avoiding direct political control. To the extent that they are truly self-governing entities, they are appropriately considered part of the non-profit sector, even if they exercise the limited authority delegated to them by government agencies.

23.27 *Universities*, like other institutions, can be either NPIs, public institutions or for-profit corporations. Differentiating NPIs from public institutions is especially difficult since both may receive significant amounts of government support, either directly or indirectly, and since even public institutions may have a significant degree of autonomy. The key, therefore, is whether the institution is clearly self-governing and not part of the government's administrative system. Educational institutions that are NPIs will have their own self-perpetuating boards that can determine all facets of organizational operations, without approval by government officials, and that can cease their operations without the approval of government authorities. Public educational institutions will have boards selected in significant part by government officials or agencies and lack the power to cease operations without an act of the government.

23.28 *Hospitals*, like educational institutions, can also be either NPIs, public institutions or for-profit corporations. The same rules that apply to educational institutions also apply to hospitals.

23.29 *Indigenous or territorial groups*, such as "band councils" in Canada (a form of First Nation government) and peasant or native communities in Peru, are organized around either cultural or ethnic groupings or a particular geographic area, mainly with the purpose of improving the welfare of their members. The difficulty arises when such groups essentially operate as local governments, often making and enforcing their own laws. When that is the case, the groups do not meet the "institutionally separate from government" criterion and fall outside the boundaries of the NPI satellite account.

4. Classification of NPIs

23.30 NPIs can be classified according to the activity they undertake or the purpose for which they are envisaged. In terms of activity, the normal classification to be used would be *ISIC*. Because the detail available in *ISIC*, Rev. 3 for many of the social services covered by NPI was not sufficient, an elaboration of the basic *ISIC* codes was developed for use in conjunction with the NPI satellite account. This classification is known as the International Classification of Non-Profit Organizations (ICNPO). Similarly some elaboration of the classification of NPIs by purpose (COPNI) was developed. In *ISIC*, Rev. 4, however, an alternative aggregation for data reporting for non-profit institutions is given in part four, section D. The twelve main headings of interest are shown in table 23.1.

Table 23.1:ICNPO groups

Group	
1.	Culture and recreation
2.	Education and research
3.	Health
4.	Social services
5.	Environment
6	Development and housing
7.	Law, advocacy and politics
8.	Philanthropic intermediaries and voluntarism promotion
9.	International
10.	Religion
11.	Business and professional associations, unions
12.	Not elsewhere classified

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C. Accounts for non-profit institutions in the satellite account

23.31 The first set of accounts prepared in the satellite account corresponds exactly to those in the SNA sequence of accounts. Indeed this can be seen as a simple aggregation across the subsectors for NPIs in the corporations sectors plus NPISHs. NPIs in the general government sector are excluded from the satellite account as noted above.

23.32 The second version of the accounts is to consider those NPIs that provide services at economically significant prices but where the sales of their output bring in revenue that is significant but less than the whole of their costs. Two possible scenarios exist. The first is that the enterprise undertakes different types of activities, some on a market basis and some on a non-market basis but with the market basis activities predominating. Although the two types of activity cannot be allocated to separate institutional units, separate establishments for each can be distinguished. In principle, the production account of the establishments undertaking market activities should be compiled as normal but the production account for the non-market establishments should be based on the sum of costs. The value of this output should be treated as distributed to households as social transfers in kind and added to household actual final consumption.

23.33 The second possibility is that only one sort of activity is undertaken but the sales cover a large part of the costs with the balance being made up of donations. The donations are treated in the SNA as current transfers (any donations designated for capital purposes being treated as capital transfers). The satellite account treats these donations as analogous to subsidies and so measures the value of the output as the total sum of costs. In this case, the excess of output measured in this way over the proceeds from sales is treated as non-market output, social transfers in kind and part of actual consumption of households.

23.34 The third variant on the accounts builds on the second version of the accounts by also including an estimate of the value of volunteer labour used in the NPIs. Volunteer labour constitutes a significant input to many NPIs. If a value is placed on this, it may exceed the value of monetary donations to some NPIs. In the satellite account, it is recommended that the value of voluntary labour is estimated on the basis of the remuneration rates of employees undertaking similar work and not at the opportunity cost of the volunteers.

23.35 Work is proceeding on the measurement of volunteer labour in the context of a satellite account. A draft *Manual on the Measurement of Volunteer Work* (International Labour Organization, forthcoming) was presented to the ICLS in December 2008.

23.36 The cost of the volunteer labour is treated as both part of compensation of employees and as a transfer back from these employees to the NPI where they work. The value of the output of the NPI, and the amount treated as social transfers in kind, is increased over the amount in the second version of the accounts by the estimated value of the volunteer labour.

23.37 The satellite account includes other tables apart from the sequence of accounts. One of these is to show details of revenue received with a breakdown by sector of origin and type of transaction. In particular, it is recommended to distinguish revenue coming from government split between sales and grants, and that coming from the rest of the domestic economy split between private sales and current transfers (donations). Where possible both sales and transfers should be separated into those coming from the domestic economy and from the rest of the world.

23.38 Another table includes information in physical units such as the number of employees, number of volunteers, number of entities and number of members of the organization. In addition some information is given on the financial account and the assets held by the NPI.

23.39 Fully annotated descriptions of the tables are included in the handbook on the satellite account.

D. Other SNA considerations concerning NPIs

1. NPISHs and government

23.40 In some countries, NPISHs take responsibility for the provision of specific services to households that the government does not see as part of its role to provide. In others, especially developing countries, NPISHs may provide services government would like to provide but simply does not have sufficient resources to do so. This becomes very clear following a natural disaster when NPISHs may be very active in relief work.

23.41 Whether the unit undertaking the work is resident or not will depend on the normal rules concerning residence. Quick response actions that do not lead to long-term involvement in the country being assisted will be regarded as non-resident with the production being recorded in the home countries of the units giving assistance and the assistance itself being shown as imports of goods and services funded by transfers. If the assistance extends beyond one year, the unit providing the assistance will be regarded as resident and a unit in the NPISH sector of the country receiving the assistance. In circumstances where international relief is important, it may be helpful to identify NPISHs subject to foreign control separately from other NPISHs and to identify donations from abroad for all NPISHs.

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2. Informal and temporary NPISHs

23.42 Quite frequently, a number of households may get together to pool resources of knowledge and volunteer labour to serve their local community. This could include teaching in informal schools, offering medical assistance or the construction of roads, a well, a school building, etc. When only services are provided on the basis of volunteer labour, no value for the output of the activity is recorded in the SNA.

23.43 When physical structures result, the activity is included in the production boundary. The value of the output is estimated by comparison with similar products elsewhere in the economy or, when it has to be estimated at the sum of costs, an estimate is made for the implicit value of the labour input. This labour input is treated as gross mixed income accruing to households who then are assumed to "purchase" the product. In fact they may then transfer the product to another unit, often government, for maintenance. However, the recommendation in the SNA, as described in paragraph 4.168, is that such organizations should be treated as informal partnerships rather than as NPISHs.

23.44 If a group of households cooperates to produce goods for sale, even if the objective is still to be able to pay for work on a communal asset, this is not treated as a non-profit institution but as an unincorporated enterprise in the household sector.

23.45 Many small groups of individuals or households may exist as a practical means of allocating shared costs. These may be as simple as a "coffee club" at the workplace or may be a more formal arrangement whereby the costs of common services provided to all tenants in a block of flats are shared equitably. Such groups are practical rather than economic. They are not treated as NPIs and their activities are not recorded in the SNA. Such costs as they incur should be recorded as paid by the units to which the costs are eventually allocated.

23.46 In the case of microfinance, the unit providing the service is most likely to be either a corporation or an unincorporated enterprise. Even though the owner of the enterprise may not keep the profits but uses them to generate new loans, this does not automatically make the unit an NPI. The definition of an NPI is not that the owners choose not to withdraw profits but that they are not legally entitled to do so.

23.47 In practice it may be difficult to compile information on informal NPISHs unless the results are sufficiently important to come to general attention.

3. The output of NPISHs

23.48 NPISHs produce goods and services, but typically services, that are provided to individual households free or at prices that are not economically significant. However it is possible conceptually for an NPISH to provide collective services. An example may be a well-financed institution that engages in research and development but makes its results freely available. Such an institution is engaged in non-market production but, because it is not controlled by government, it falls in the NPISH sector. The value of its output is treated as final consumption expenditure and actual final consumption by the NPISH itself.

23.49 The services provided by non-profit institutions serving households are not only very similar to those provided by government. They present much the same difficulties of measuring their output and of selecting suitable price indices for deflating output to volume terms.

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Chapter 24: The households sector

A. Introduction

24.1 The economy functions because people want goods and services and are prepared to work to obtain them. At the most basic level there is subsistence activity where people work to grow food to eat. Any sort of development gives opportunities to earn money by working for others and using it to buy goods and services different from those one's labour has created.

24.2 In addition society recognizes that some individuals cannot participate in the economy in this way and so makes transfers available to the young, the old and the sick, for example. Often these transfers are undertaken by government which redistributes income on behalf of the community at large. In addition, transfers may be made by non-profit institutions or by extended family members, or others, based on traditional and cultural norms. Some individuals do not spend all their income but use some to acquire wealth.

24.3 Lastly there is income arising from the ownership of wealth. At its simplest, wealth is due to the accumulation of income earned in earlier periods (possibly generations earlier). Wealth gives rise to income because others wish to make use of it and pay to do so. In the SNA such payments are called property income. Like income, wealth may be transferred from one owner to another.

24.4 The SNA gives a clear and full accounting of all income accruing to households in the period itemized by type of income. It also accounts clearly for how this income is spent on goods and services, transferred to others or used to acquire more wealth. However, while the sequence of accounts ensures that the accounts of all households are balanced it does not show how this balance is achieved for subsets of households.

24.5 This chapter is about how to use information from the SNA on the households sector in conjunction with other data sources to investigate the behaviour of households in greater detail. The focus here is on how income is used, how the patterns of income and use vary across subsectors and about the links between income and wealth at a detailed level. Such a focus is of both analytical and policy interest. It is a quite different view of economic behaviour from the predominant view of the SNA which is how income is generated.

1. Unincorporated enterprises

24.6 All households undertake final consumption and all to a greater or lesser extent undertake accumulation but a household does not necessarily undertake production. To the extent possible, the production activities within households are treated as quasi-corporations, included in one of the corporations sectors and separated from the rest of the household. However, as explained in paragraphs 4.155 to 4.157 a quasi-corporation can only be created when a full set of accounts, including balance sheet entries and information about withdrawals of income from the quasi-corporation, is available. Very frequently, and especially so in the case of a professional working alone, there may be complete information available on the production activities but it may not be possible to separate out other income flows, transfers and financial transactions relating to the production activity from those for the household in general. In this case as well as in ones where even the information on the production activity is incomplete, an unincorporated enterprise remains as part of the household.

24.7 Even when a quasi-corporation can be created and removed from the rest of the household accounts, the household may still include an unincorporated enterprise relating to other activity. For example, within a given household one person may be able to separate off the activities repairing vehicles but another may not be able to separate the activities providing food for sale from the rest of the household activities. Moreover, many households without any other production activities will contain unincorporated enterprises providing housing services from owner-occupied dwellings and from employing domestic staff.

24.8 Just as there may be production undertaken within the households sector, there may be people providing labour to these unincorporated enterprises. Members of the household who work in the unincorporated enterprise are called self-employed and their remuneration is termed mixed income rather than compensation of employees. Individuals who are not members of the household who are employed in an unincorporated enterprise are employees. It is possible but not always likely that the enterprise pays for social security for these people. It is possible but even less likely that the household may offer other social insurance benefits to their employees.

24.9 There is further discussion about employment within households in chapters 19 and 25.

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2. The problems associated with subsectoring households

24.10 The difficulty in disaggregating the households sector arises for a number of reasons.

a. The first is that income is earned by individuals but consumption is undertaken by households.

b. The second is that it is difficult to find a basis for subsectoring households such that the households in each subsector behave in a similar fashion to one another. Even if their income patterns are broadly similar, their expenditure patterns may differ according to the number and age of the members of the households. Grouping by the latter may give no similarity in the level of income.

c. The third reason concerns the source of data on household income and expenditure. Typically, information on corporations comes from establishment surveys and information on government comes from administrative sources. These sources are fairly comprehensive and are in large part the only source, or at least the primary source, for the data to feed into the SNA. Data for households comes from household income and expenditure surveys but these surveys are based on smaller samples, may be less frequent than establishment surveys and the data from them may be difficult to reconcile with the totals for income and expenditure that emerge from the accounting constraints in the SNA.

3. Structure of the chapter

24.11 The households sector may be viewed in a number of different ways depending on whether the interest is primarily on what sort of production households undertake, what sort of income they earn or what patterns of consumption are portrayed. Given these different perspectives, it is not easy to come up with a single definitive set of subsectors for households. The conceptual and practical reasons for the difficulties are reviewed in section B. A review of possible subsectors is given in section C. The next three sections (D, E and F) in turn look at households as producers, households as consumers and household income. The last section, section G looks at household wealth and associated income flows.

B. Household composition and sectoring

1. Definition of a household.

24.12 It is useful to begin by recalling the definition of the household given in paragraphs 4.149 to 4.157. ***A household is defined as a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.*** In general, each member of a household should have some claim upon the collective resources of the household. At least some decisions affecting consumption or other economic activities must be taken for the household as a whole.

24.13 Households often coincide with families, but members of the same household do not necessarily have to belong to the same family so long as there is some sharing of resources and consumption. Households may be of any size and take a wide variety of different forms in different societies or cultures depending on tradition, religion, education, climate, geography, history and other socio-economic factors. The definition of a household that is adopted by survey statisticians familiar with the socio-economic conditions within a given country is likely to approximate closely to the concept of a household as defined in the SNA, although survey statisticians may add more precise, or operational, criteria within a particular country.

24.14 Domestic staff who live on the same premises as their employer do not form part of their employer's household even though they may be provided with accommodation and meals as remuneration in kind. Paid domestic employees have no claim upon the collective resources of their employers' households and the accommodation and food they consume are not included with their employers' consumption. They should therefore be treated as belonging to separate households from their employers.

24.15 Persons living permanently in an institution, or who may be expected to reside in an institution for a very long, or indefinite, period of time are treated as belonging to a single institutional household when they have little or no autonomy of action or decision in economic matters. Some examples of persons belonging to institutional households are the following:

a. Members of religious orders living in monasteries, convents or similar institutions;

b. Long-term patients in hospitals, including mental hospitals;

c. Prisoners serving long sentences;

d. Old persons living permanently in retirement homes.

24.16 On the other hand, persons who enter hospitals, clinics, convalescent homes, religious retreats, or similar institutions for short periods, who attend residential schools, colleges or universities, or who serve short prison sentences should be treated as members of the individual households to which they normally belong.

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2. Residence

24.17 All households are resident in the economy but of increasing interest is the phenomenon of a person abroad, often but not necessarily a family member, who remits significant amounts to the family in the domestic economy. (The same phenomenon also exists within a country, between urban and rural areas, for example.) The aspect of people moving abroad in response to better employment prospects may be seen as another facet of globalization and one that deserves to be monitored.

3. Determining subsectors

24.18 As noted in the introduction, the difficulty in disaggregating the households sector arises for a number of reasons. The first is that income is earned by individuals but consumption is undertaken by households. While all households contain all individuals, it is very difficult to associate particular income recipients with particular household groups. It is possible to have one table showing the types of income earned and the types of individuals receiving them. It is also possible to have a table of types of households and the pattern of household consumption of each. Only in the highly stylized situation of one income earner only per household (and only one source of income) can the type of income be matched with the type of household and even then only if households are categorized according to the type of income. The problem could be compared to that of the supply and use tables but whereas it is possible to establish which industries make which products, there is no natural relationship between individuals as income recipients and the household to which they belong when households are grouped by any criterion other than main income source.

24.19 The problem of trying to link income flows from the SNA with a desirable set of household characteristics is one of the most difficult aspects of building a social accounting matrix. Very often it is necessary to revert to modelling to reconcile income related to individuals to consumption related to households.

24.20 The second problem is related to the homogeneity of households. Various criteria may be used to disaggregate the sector (discussed in section C) but whatever criterion is used it is difficult to assert that the behaviour of the sample is typical of the whole. This is a difficulty not normally encountered in industrial classifications and surveys. For example, if a survey covers 50 per cent of firms in a given industry it is probably reasonable to suppose that the pattern of expenditure is typical of the whole. If an enterprise doubles its turnover, the level of intermediate consumption will probably approximately double but its composition may not alter significantly. Such assumptions are very suspect in the case of household groups. This is another area where it may be difficult to use a social accounting matrix for analysis without having further recourse to modelling, this time to determine how groups of households react to different stimuli.

24.21 The information for the corporations sectors derives from surveys. The household aggregates of income and expenditure are known from the accounting identities in the sequence of accounts. While it is true that information from household surveys may sometimes reveal errors in industry data or vice versa it is more problematical to take information from household surveys on, say, expenditure patterns of one group of households and suppose all other members of the group behave in the same way. For this reason a household income and expenditure survey is often reported as a freestanding exercise and integration with the national accounts totals is not as frequently part of compiling the full set of national accounts as is the case with establishment surveys. In order to explore why this may be so, it is useful to look briefly at some of the problems experienced with household surveys.

4. Household surveys

24.22 Any attempt to disaggregate the households sector is likely to be dependent on a household income and expenditure survey. The conventions adopted by survey statisticians and those of national accountants are not always the same. A household expenditure survey for example may not include estimates of imputed rental of owner-occupied dwellings or own account production. It may measure income after tax and measure expenditure on a cash and not on an accrual basis. Various publications have been prepared to examine such differences and make recommendations on how to reconcile survey data with national accounts requirements. Particularly relevant is the *Final Report and Recommendations of the Expert Group on Household Income Statistics* (Canberra group, 2001) and *Household Income and Expenditure* (International Labour Organization, 2003).

24.23 A major problem with household surveys is that it is very common for respondents to underestimate or underreport their income. This may be deliberate or may simply be a lack of understanding of what should be included or simple forgetfulness.

24.24 Similarly some items of consumption are regularly underreported, most notably expenditure on alcohol and tobacco. On the other hand, consumption of some items is over-reported. For example, if a survey asks for expenditure on durables based on the recall of the respondent of what has been spent over the last two or three years, people often underestimate how long it is since purchases were made and will report more expenditure in this period than has actually been the case. This phenomenon does not only apply to very large items of expenditure; it is reported that household surveys have suggested that the purchase of toothbrushes, for example, is many times higher than in the sales reported by shops.

24.25 The problem of non-response is a concern in household surveys since it is quite likely that some of the households that refuse to respond have income and expenditure patterns that are different from respondents. For example people with incomes arising from illegal activities may be very reluctant to supply information and may choose not to participate in the survey. Similarly it is common for households at the very top and very bottom of the distribution to be omitted from the survey either by design or on the grounds of practicality.

24.26 Household surveys may be designed to investigate particular phenomena that are not necessarily the primary

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interest for national accounts. For example, they may be restricted to low income earners in urban areas. While this information is highly valuable and useful it is not sufficient to produce aggregate figures for national accounts. Sometimes even if the coverage is more comprehensive, the sample size may not be such as to allow disaggregation along the lines desirable within the national accounts. It is important to realize that a desired pattern of subsectoring should be determined before the survey is undertaken to ensure the desired characteristics will be adequately represented in the survey sample.

C. Subsectoring households

1. The production perspective

24.27 A first consideration is to investigate the possibility of subsectoring households according to their involvement in production. This may be done following the pattern shown in chapter 25 to identify informal and other production activity undertaken by households.

24.28 The first division is to separate institutional households and those households that do encompass an unincorporated enterprise from those that do not. Thereafter it is straightforward to identify those households whose only productive activity is connected with the owner occupation of houses or the employment of domestic staff. The households that are left may be further divided between those that employ staff to work in their unincorporated enterprises and those that do not. As described in the chapter on the informal sector, when proceeding along these lines it is sometimes desirable to identify the type of activity of an unincorporated enterprise, in particular identifying agricultural activity separately from other types of activity.

24.29 Within the SNA, all household enterprises that can be treated as quasi-corporations because they have complete sets of accounts showing their ownership of assets (separately from those of the household to which they belong) and the withdrawal of income to their owners are classified in one of the corporations sectors. The number of household enterprises that can be treated as quasi-corporations, and thus removed from the households sector, varies considerably from country to country depending on the availability of accounting information and the resources available to identify such enterprises and treat them as quasi-corporations.

24.30 Although it is possible to identify households that only have owner-occupied housing as their unincorporated enterprise, in many cases other unincorporated enterprises will undertake owner occupation of their houses as well. While from a production point of view it is possible to separate the different types of production activities, for the institutional unit as a whole it is not possible to make this separation.

24.31 In most countries, many households do not have unincorporated enterprises, so when subsectoring is done according to production undertaken by households, those without unincorporated enterprises are grouped together in a single subsector. The only common factor these households share is that they do not have an unincorporated enterprise. Thus while subsectoring households according to production is useful in some circumstances it has its limitations in terms of identifying the role of different types of households in the economy.

2. The consumption perspective

24.32 It is widely observed that as household income rises so the pattern of consumption changes. The proportion of expenditure devoted to food and other necessities declines as more income is available and is devoted to more luxury goods. Thus one approach to disaggregating households according to consumption patterns is in fact to disaggregate by level of income, assuming this captures the difference in consumption patterns. Studies showing consumption patterns according to income deciles are quite common and give interesting information about how patterns of consumption change as the overall level of income increases.

24.33 The question arises of how household consumption patterns may relate to incomes of individuals. There is no obvious way to identify how recipients of income fall into one or other income decile when these deciles are calculated on a household basis. Households with a high income may result from one very well-paid worker or from a number of middle income earners. Further, although the production account shows total compensation of employees and it may be possible to compare this to the total number of employees, this gives no information about the distribution of income across the labour force in the enterprise.

24.34 Not all income comes from compensation of employees and the effect on total household consumption of other sources of income is equally uncertain.

24.35 Using the level of household income as a proxy for consumption patterns has some significant problems. One possible disaggregation of households where consumption patterns might be significantly different would be according to whether the household includes children and, where it does not, whether the household is relatively young (and may be setting up home for the first time) or relatively old (where expenditure on consumer durables may be lower than for other groups). However, here again there is no easy way to link the source of the income with the type of the household in which the income recipient resides.

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3. The income perspective

24.36 A more promising approach to subsectoring appears to come from considering not the level of income but the type of income. As proposed in chapter 4, the following scheme might be considered.

24.37 Households may be grouped into subsectors according to the nature of their largest source of income. For this purpose, the following types of household income need to be distinguished:

a. Income accruing to the owners of household unincorporated enterprises with paid employees (employers' mixed income);

b. Incomes accruing to the owners of household unincorporated enterprises without paid employees (own-account workers mixed income);

c. Compensation of employees;

d. Property and transfer incomes.

24.38 Households are allocated to subsectors according to which of the four categories of income listed above is the largest for the household as a whole, even if it does not always account for more than half of total household income. When more than one income of a given category is received within the same household, for example, because more than one member of the household earns compensation of employees or because more than one property or transfer income is received, the classification should be based on the total household income within each category. The four subsectors are described as follows:

a. Employers;

b. Own-account workers;

c. Employees;

d. Recipients of property and transfer incomes.

24.39 The fourth subsector, households for which property and transfer incomes make up the largest source of income, constitutes a heterogeneous group and it is recommended that it should be divided into three further subsectors when possible. These subsectors are defined as follows:

· Recipients of property incomes;

· Recipients of pensions;

· Recipients of other transfer incomes.

4. Using a reference person

24.40 Other methods of subsectoring usually require a reference person to be identified for each household. The reference person is not necessarily the person that other members of the household regard as the "head of the household", as the reference person should be decided on grounds of economic importance rather than age or seniority. The reference person should normally be the person with the largest income although the reference person could also be the person who makes the major decisions with regard to the consumption of the household.

24.41 Once a reference person has been identified, it is possible to group households into subsectors on the basis of the reference person's characteristics. For example, subsectors may be defined according to:

a. Occupation of the reference person;

b. Industry, if any, in which the reference person works;

c. Educational attainment of the reference person;

d. Qualifications or skills possessed by the reference person.

5. The consequences of demographic change

24.42 A growing policy interest in some countries is the effect of demographic change on household well-being and the response required by government. For example, in an ageing population, there may be less demand for educational services and more for health services.

24.43 Another concern is whether pension provision is sufficient to ensure that individuals have an adequate level of income in retirement without looking to government for income support. A focus on such issues might suggest subsectoring households according to whether the main income earner is in work, of working age but not in work or in retirement. Again, categorization according to the main income earner will give different results from categorizing income as a whole.

6. Other considerations

24.44 It is possible to consider subsectoring households on quite different grounds. Examples include the number of persons in the household, the region where the household is located, the qualifications or education level of the head of the household, the industry where the head of the household works, whether the household owns property or other assets and so on.

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D. Households as producers

1. Households and the informal sector

24.45 In all countries, there are some production activities undertaken by households. Many of these may be described as informal and, as described in chapter 25, measuring the extent of the informal sector and how this changes as the economy develops gives particular insight into the extension of the market economy beyond formal enterprises.

24.46 The difficulty of separating the productive activity of a household from the rest of the institutional unit has been discussed in a number of places in earlier chapters, particularly in chapter 4, and is referred to above in discussion about the subsectors for households. This section therefore discusses only some aspects of those productive activities that inevitably remain within the households sector.

2. Agriculture

24.47 In some countries, subsistence agriculture, or indeed the results of any agricultural production which are used entirely by those responsible for the production, is a very significant part of household consumption and by extension of GDP. In countries where much of the staple food is grown for own consumption, and it is seasonal, it is necessary to consider whether some part of the increase in the value of the crop due to storage is part of production. There are details of how this may be done in the annex to chapter 6.

24.48 It should be recalled that the purchaser's price for agricultural products used for own consumption does not mean the price at the nearest local market which would include transportation costs. The market price is the price that somebody would pay for the crops where they are grown. This is frequently called the farm-gate price.

24.49 In principle, all fruit and vegetables grown for their own use by households with small allotments or large gardens should be included within the production boundary, even in developed countries. In practice it is unlikely to be worth the effort of making estimates unless the amounts involved are significantly large.

3. Housing

24.50 In almost all economies, a large number of households live in dwellings that they own. The size of the rental market may be very small and may be confined to some areas, for example urban areas, which makes it difficult to use market rentals as a means of estimating the services provided by all owner-occupied dwellings. In chapter 20, it is explained that in principle the rent on a capital asset can be calculated by applying a discount factor to the stock of capital at the beginning of a period, so if the value of the house is known, a figure for the services provided can be estimated. However, this approach also is problematic in those circumstances where there are no data on the stock of capital or where there is uncertainty on the rate of return to be estimated. For simple rural dwellings, it may be necessary to calculate the cost of construction and estimate how long the building is usable without major renovation.

24.51 All dwellings require regular maintenance. The production account for an owner-occupied dwelling treats as intermediate consumption only the goods and services necessary to undertake the sort of repairs that are typically the responsibility of the landlord in the case of rented buildings. These may include payment to specialists in the building trade, for example plumbers or painters, and the cost of these specialists will include their compensation of employees. However when work is undertaken by the owner himself only the cost of the materials is included in intermediate consumption with no estimate made for the value of the owner's time spent on repairs. In consequence, there is no compensation of employees appearing in the production account for owner-occupied dwellings. (This may be seen to be a pragmatic convention. If labour costs were to be imputed to the owner undertaking repairs, this would be recorded as income accruing to the household but the income from the rental on the house would be reduced by an exactly offsetting amount.)

24.52 The whole of the imputed rental less actual costs (including costs other than those relating to repairs) incurred is treated as operating surplus of the owner. The accounts for the owner of the building show the whole of the value of the imputed rental as output, any costs incurred as intermediate consumption and the difference as gross operating surplus which is paid to the household in its capacity as the owner of the unincorporated enterprise. In the use of income account, the full value of the rental is shown as consumption of the imputed rental of owner-occupied dwellings.

24.53 When major repairs are undertaken, these are treated as gross fixed capital formation but the same conventions apply concerning the recording of compensation of employees.

24.54 Some houses are owned by households but leased out by them. In this case the rental paid by the tenant is the value of the output of the rental service. The production account for the earning household shows intermediate consumption charged against this output to derive the operating surplus of the activity, which is treated as income to the owning household. In some cases the whole of the intermediate consumption may be a service charge paid to a rental agency. It is conceivable that occasionally the service paid to the rental agency may exceed the rental income so that the rental activity produces a loss. For example, if a house stands empty for a time, there may still be a fee payable to the rental agency. The earning household will often regard this as acceptable because one reason for owning a house to rent is because it is hoped a holding gain will be made on owning the house over a long period.

24.55 By convention, all the value added arising from leasing dwellings is treated as operating surplus, not mixed income.

24.56 Some houses will be owned as second homes either in the same economy or abroad. The same principles apply as in

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the case of imputed rental of owner-occupied dwellings and rental services activities that come from renting out a house. If the house is in another country, it is treated as belonging to a notional resident unit in that country. The legal owner then has a financial claim on the notional resident unit. The notional resident unit therefore appears to be a direct investment enterprise wholly owned by a non-resident. However, the only asset of the unit is the value of the property and the whole of the operating surplus from renting out the house is treated as being withdrawn from the notional unit and remitted to the owner so there are no retained earnings remaining to be treated as reinvested earnings.

24.57 To the extent that the house abroad is used by nationals of the economy where the legal owner is resident, the rentals should be treated as exports of services from the foreign country and imports of services to the domestic economy. However, the operating surplus of the notional unit is remitted to the owner and appears as a property income outflow from the foreign country and inflow to the domestic economy, offsetting the flows of rental services (at least in part).

24.58 When a house is financed by a mortgage, in principle FISIM charges relating to interest payments on the loan should be treated as part of the intermediate consumption of the production activity associated with renting the property (either for use by the owner or by a tenant). However, it may be difficult to identify FISIM related only to interest on the mortgage and in some cases a loan using the property as collateral may not be used to secure the property for the purpose of having a dwelling available. In practice, if FISIM is not treated as part of the intermediate consumption of the rental activity, the operating surplus from the rental activity will be higher than otherwise but the consumption expenditure of the household will be higher by the same amount.

4. Domestic staff

24.59 Services provided by paid domestic staff are valued at the cost of the compensation of employees paid to those staff but including any income in kind such as free accommodation or free meals as well as any social insurance contributions that may be paid on behalf of the staff. By convention the production account for paid domestic services consists only of this compensation of employees. All of the products used in the performance of domestic services, such as cleaning materials and tools used, are treated as final consumption expenditure of the household.

24.60 Individuals who provide paid domestic services must be members of another household. Payments to children for performing tasks in the house are not treated as the provision of paid domestic services but simply as if the payment were a transfer within the household. On the other hand payments to a child for babysitting a neighbour's children should in principle be treated as domestic services but these may be too small and difficult to measure.

24.61 In practice, some countries may include full-time domestic employees as members of the households, in which case a transfer within the households is recorded, even though transfers within an institutional unit are not normally recorded. This in turn means there is an element of double counting for the household concerned with a payment to the domestic staff and the expenditure by those staff both being included in the household's consumption expenditure.

24.62 In chapter 29 there is discussion of the possibility of extending the production boundary within the context of a satellite account to include all domestic services, including those that are not performed in return for payment.

E. Households as consumers

1. Consumption goods and services provided in kind

24.63 Chapter 9 describes the different concepts of consumption expenditure, actual consumption and the use of consumption goods and services. Within the SNA, only the first two are measured and the difference between them is accounted for by social transfers in kind provided by government and NPISHs to households. In principle it might be interesting to be able to distinguish social transfers in kind provided to children (for example most education), to the elderly (particularly health care) or perhaps on a regional basis. However, there are considerable difficulties in working at this level of detail and so it is probable that such extra detail could be provided only in the context of a satellite account.

24.64 In principle, transfers in kind between households should be recorded in the SNA. However, if there are no subsectors of the households sector, such transfers will not appear in the accounts when they occur between resident households. On the other hand transfers in kind between resident and non-resident households may be quite significant and should be captured through information on remittances in the balance of payments data. Practical considerations are described in *International Transactions in Remittances: Guide for Compilers and Users* (International Monetary Fund, 2008b))

24.65 When there is a significant amount of consumption represented by own account production, income in kind, barter or transfers in kind it would be useful to itemize the distinction between consumption expenditure by households in kind from consumption purchased in the market place.

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2. Expenditure by tourists

24.66 Most data sources for household consumption from the supply side are not able to distinguish whether purchases are made by resident households or by non-resident households. Equally, the same sources will not reveal purchases made abroad by resident households. These two items are often of a sufficiently significant size that it is important that they be estimated both for the impact on the balance of payments and in order to ensure that the supply and use table can be adequately balanced. Further consideration of expenditure by tourists is discussed in chapter 29 in the context of a tourism satellite account.

3. Consumption expenditure by type of product

24.67 Most household surveys itemize consumption according to the purposes it is intended to serve: food, housing, etc. This type of breakdown is the one used in the Classification Of Individual COnsumption by Purpose (COICOP). For inclusion in the supply and use table, and indeed for other analyses, it is useful to prepare a table showing the cross classification of consumption by purpose and by type of product. This is useful not only in terms of providing the information for the supply and use tables but also in examining the information used to compile consumer price indices, which in turn are used to deflate consumption expenditure. If the data permit, it may also be useful to look at the composition of consumption expenditure by type of household with a view to calculating consumer price indices for different groups of households, for example for the elderly or for those with young children.

F. Household income

24.68 It is a well-established phenomenon in all countries that income is distributed unevenly and in a very skewed manner. Very many people have income significantly below the average or median income and very few people have extremely large incomes. A poverty line is sometimes quoted as half the median income but an income of twice the median does not imply great wealth; the wealthiest individuals in an economy may have incomes many times larger than the average or median income.

24.69 The reason that the sequence of accounts is important is that it gives a picture of how income is distributed and redistributed either compulsorily via taxes and benefits or voluntarily via transfers or because of ownership of financial or other assets (property income). In order to examine whether the process of distribution and redistribution of income significantly changes the overall distribution of income in the economy it is necessary to be able to show the flows between different groups of households. As noted in the introduction, it is difficult to allocate income from one particular source to one household group rather than another. This is not straightforward and not a standard part of the SNA. However, it is straightforward to provide more information to analysts on the type of household income than the total contained in the standard sequence of accounts. As far as value added is concerned, it may be possible to distinguish compensation of employees paid by individual industries or perhaps according to level of education or by region. Mixed income can similarly be distinguished. Consumption of fixed capital should be separated between that due to owner-occupied dwellings and that relating to other assets of unincorporated enterprises.

24.70 The standard accounts contain information on transfers in the form of taxes paid and social insurance contributions and benefits split between pensions and other benefits. In some countries it is especially relevant to show personal remittances from abroad to demonstrate the impact on the domestic economy of those with strong ties to economies abroad. For countries with a large migrant population it may be similarly useful to identify the corresponding outflows and their destination.

24.71 Within property income it is useful to distinguish those flows that place resources at the disposal of the recipients from those where the receipts are already precommitted as saving, for example, pension entitlements, property income on life insurance and interest that derives from the increase in the value of bonds. It should be noted that it is particularly useful to identify the withdrawal of income from quasi-corporations if there are many household enterprises treated as quasi-corporations.

24.72 It may be useful to identify and show separately income in kind of all types, such as wages and salaries in kind and transfers in kind, and then derive a total excluding both these and the precommitted saving which might be called discretionary income.

G. Household wealth and associated income flows

1. Household balance sheets

24.73 For many households, their main assets are their land, houses and accumulated pension entitlements. Where they exist, claims on enterprises may also be significant. Investment in financial assets outside pension funds may

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also be important in some countries. However, set against the assets must be the liabilities of the households, including the loans involved in mortgages and other financial liabilities and, for example, credit card or other debt.

24.74 For households including an unincorporated enterprise other than owner-occupied dwellings, there may be other fixed assets recorded on the balance sheet but these tend to be small relative to housing.

2. Family trusts

24.75 Family trusts are owned by households, though some trusts may be owned by a number of households collectively possibly including non-resident households. Trusts may be set up to protect wealth until a beneficiary comes of age or meets another criterion, they may be set up to preserve family estates and so on. The SNA recommends that trusts should be treated as quasi-corporations and included in the financial corporations sector as captive financial institutions. However the trusts must have liabilities to the beneficiaries sufficient to reduce their net worth to zero. In compiling the balance sheet for the households sector, the value of the assets corresponding to the liabilities due to resident households must be included. Where family trusts are important and when household wealth is the subject of interest, it may be useful to introduce a supplementary heading under other equity owned by households to show the value of trusts separately from the equity of other quasi-corporations such as partnerships.

3. The distribution of wealth

24.76 Increasing interest is being shown in conducting surveys of household wealth along lines similar to surveys of household income and expenditure. Again the interest is to look at a disaggregation of the households sector to discover the composition of household wealth and its relation to household income.

24.77 In general the distribution of wealth is even more strongly skewed than income. A family where the main earners are in mid career may have a comfortable level of income and occupy their own house but still have a considerable mortgage and may not yet have built up significant pension reserves.

4. Pension considerations

24.78 There is a question about whether the rundown of wealth post retirement should be recorded as income or as dis-saving.

24.79 By treating pension schemes as social insurance schemes, pension benefits are shown as current transfers, and thus income, rather than as a run-down of saving. If a pension scheme is not treated in this way, though, there is still income accruing to the pension beneficiary in the form of the property income payable on the pension entitlements. For a defined benefit scheme, this property income represents the unwinding of the discount factor on future entitlements. The decrease in the entitlements is equal to the difference between the benefits payable and this property income, similar to the position for an annuity explained at the end of part 1 of chapter 17.

24.80 To the extent that the value of the pension as a form of wealth is based on the net present value of future income flows, pension receipts can be partitioned into the rundown of savings and income accruing. In cases where there are no pension entitlements, a household with a significant level of financial assets is still likely to receive significant property income, though the mix of property income and holding gains and losses will depend on the investment strategy of the household concerned.

24.81 For a household where one or more of the members is building a pension, significant income will accrue each year but this is not accessible to the household to spend. It must be accumulated to fund future pension entitlements and thus shows as an increase in wealth.

24.82 It is possible to construct an asset account for pension entitlements showing the start of year level of entitlements, increments due to work done in the year, increases due to the fact that retirement has become a year nearer (the unwinding of a discount factor) and other changes such as an allowance for inflation, less decreases due to pension payments or other changes that reduce entitlements.

5. Consumer durables

24.83 Within the SNA, consumer durables are not treated as a form of wealth but as a form of expenditure. However, there may be considerable interest in having a memorandum item in the balance sheets to show the worth of consumer durables. The acquisition of durables may well be cyclical and there is interest in a satellite account that would replace the purchase of consumer durables as current expenditure by figures for the flow of services provided from the same items treated as fixed capital. This is discussed further in chapter 29.

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Chapter 25: Informal aspects of the economy

A. Introduction

25.1 No economy is completely regulated and captured perfectly by statistical enquiries. Steps have to be taken, therefore, to attempt to cover unregulated activity and survey imperfections as special exercises. There are two approaches that, although they share a lot of common ground, are directed towards two rather different goals. The first is to ensure that all activities including those that may be described as "hidden" or "underground" are encompassed in measures of total activity. The second is to define what is meant by the subset of economic units that can be considered "informal" and to measure this.

25.2 The rationale for the first activity is obvious; to have a view of the economy as a whole that is as complete as possible and as comparable over time and across countries as possible. The part of the economy difficult to measure has become known as the Non-Observed Economy (NOE) and several publications have been dedicated to measuring it, notably the handbook *Measuring the Non-Observed Economy* (Organisation for Economic Co-operation and Development, International Monetary Fund, International Labour Organisation and CIS STAT (2002). As the techniques in the handbook make clear, a specific measure of the NOE is not important in itself. Attention focuses on ensuring that the measurement of total activity is complete or "exhaustive".

25.3 The second alternative recognizes the analytical importance, especially in developing countries, of being able to measure that part of the economy that reflects the efforts of people without formal jobs to engage in some form of monetary economic activity. This part of the economy has become known as the informal sector. It is by estimating the size of the informal sector that it becomes possible to assess how far the benefits of development reach, for example, people living on the street or in shanty towns. Those supporting the second approach do not deny the importance of the comprehensive measure of the economy but for them this is not sufficient. Despite the difficulty of doing so, attempts must be made to identify and measure an informal sector.

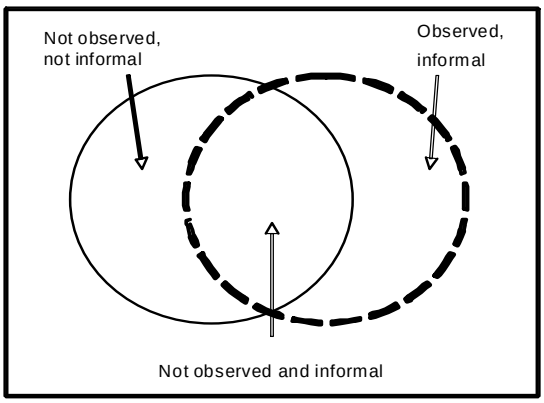
25.4 There is a large overlap between both concerns. However, while the NOE and the informal sector overlap, neither is a complete subset of the other. This can be seen in figure 25.1. The solid circle represents the non-observed economy and the dotted circle the informal sector. Thus the overlap consists of activities that are not observed and undertaken informally but there are some activities that are not observed but are not undertaken informally and some that are undertaken informally but are observed. The relative size of the three segments in figure 25.1 will vary from country to country.

25.5 Efforts to cover the NOE ensure that all enterprises are covered in statistical estimates even if not covered by statistical enquiries. Some of the supplementary estimates may well relate to those activities of household unincorporated enterprises considered to be informal (in this chapter called informal enterprises) but some will relate to large enterprises, not regarded as informal. In addition, the NOE aims to cover misreporting in large enterprises, whether this is inadvertent or deliberate. The NOE thus covers some activity by informal enterprises but also information for some formal enterprises.

25.6 Within the informal sector, some information may be captured statistically. Consider a household that lets rooms to visitors for one or several nights. The activity cannot be treated as a quasi-corporation because it is impossible to make a clear separation of costs from regular household costs and to partition that fraction of the house treated as an asset associated with the letting of rooms from its main function as a family home. However, the value of the letting activity may be captured in a survey directed at tourism activities, for example.

25.7 Other examples might be considered. Street traders or taxidrivers may be both not observed and informal. A vehicle repair shop with 5-10 employees may be formal but too small to be covered by statistical enquiries and therefore not observed. Teaching assistants may be informal but observed. The situation is complicated by the

Figure 25.1:The non-observed economy and the informal sector



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fact that street traders, taxi drivers, vehicle repair shops and teaching assistants may be formal in some countries and informal in others, just as they may be observed in some and not in others.

25.8 It should be noted that all countries have both non-observed parts of their economies and informal enterprises though the scale of each and the policy interest in identifying the latter may vary.

1. The policy interest in measuring activity undertaken by informal enterprises

25.9 Production in the informal economy appears in different ways in different countries. When the motivation is a pure survival strategy or a desire for flexible work arrangements, it is likely to be encouraged. However, when the motivation is to avoid taxes and regulations, or to engage in illegal activities, efforts are likely to be made to curtail these. Most kinds of production activities may be undertaken by an informal unit. These units may operate without a fixed location, or in homes, small shops or workshops. The activities covered range from street vending, shoe shining and other activities that require little or no capital and skills to activities that involve a certain amount of investment or level of expertise such as tailoring, car repair and professional services. Many informal enterprises are operated by an individual working alone, as a self-employed entrepreneur (own-account worker), or with the help of unpaid family members, while other informal unincorporated enterprises may engage paid workers.

25.10 The size and significance of production undertaken by informal enterprises depends on the social structures, national and local economic regulations, and enforcement efforts of a given country. The level of policy interest varies from country to country depending on the type of activity and magnitude of it. The size, registration and other characteristics of the production units involved are key variables in determining whether to encourage or discourage certain modes of production or enlarge the scope of the formal economy by recognizing units operating below previous thresholds. Specific social support and assistance programmes may be designed and monitored to see how far they support goals such as increased production, job creation and security, poverty reduction and the empowerment of women.

2. Structure of the chapter

25.11 Section B looks at the characteristics of production units to try to identify the characteristics significant for the non-observed economy, the informal sector or both.

25.12 In the context of compiling national accounts, much attention focuses on the non-observed economy. This topic is addressed briefly in section C.

25.13 The International Labour Organization (ILO), in adopting a resolution of the International Conference of Labour Statisticians (ICLS), has been instrumental in establishing a concept of an informal sector to identify a set of production units within the SNA households sector that are particularly relevant for policy analysis and formulation, especially in many developing countries and countries in transition. This work addresses the question of how the market economy is penetrating areas outside the formal parts of the economy. This topic is addressed in sections D and E.

25.14 The ILO work is pragmatic in realizing that it is very difficult to establish a definition of the informal sector that is strictly comparable across countries given the difference in the structure of micro and small enterprises, the national legislation covering registration of enterprises and the labour laws. An Expert Group on Informal Sector Statistics (known as the Delhi Group) was set up in 1997 to address, among other issues, both the conceptual and operational aspects of the ILO definition. Work of the Delhi Group is reported in section F.

25.15 Section G discusses the borderline of units that might be regarded as informal but in practice are not recorded in the households sector, as well as some activities in the households sector that are not regarded as informal. It goes on to indicate how data matching the concepts of the informal sector may be derived from the SNA accounts.

25.16 Section H complements this by discussing some approaches relating to collecting data on activities undertaken by informal enterprises and on informal employment.

25.17 The interest in the informal sector has led to the production of a number of handbooks and studies of current practices. It is impossible to report these in depth in this chapter but section I gives a brief description of some of these and indicates where they may be consulted.

B. Characteristics of units acting informally

25.18 As noted in the introduction, it is not straightforward to define what is meant by the adjective “informal”. Is the description one of the nature of activities, the way in which they are carried out, or the way in which they are captured in statistical enquiries? In order to try to formulate a precise delineation of what is the subject of interest, a number of potential characteristics can be listed of what characteristics the word “informal” might be intended to convey. Although different commentators place more emphasis on some criteria and some on others, there is broad agreement that no single criterion on its own is sufficient to determine what is meant by informal; several criteria must be considered.

25.19 Two questions need to be kept in mind when considering each possible criterion:

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a. is this really central to the definition of activity undertaken by a unit considered to be an informal enterprise, and

b. is it the basis for reaching a definition that will yield internationally comparable results?

25.20 *Registration*. One interpretation of what is informal is whatever is not registered with some arm of government. The problems with this criterion are obvious. Different countries have different practices on registration. Some may insist that all activities, however small and casual, should be registered; others may be more pragmatic and require activities to be registered only when their turnover exceeds a given amount or when the number of employees exceeds a given number. Further, whatever the official requirements for registration, the degree of compliance with the requirements will vary according to the extent to which they are enforced in practice. A definition of the informal sector based on registration is therefore not going to give international comparability or, possibly, comparability over time within a country if the requirements for registration or degree of compliance with the requirements vary.

25.21 *Legal incorporation*. Closely related to the characteristic of registration is one of legal incorporation. It is the case that all legally incorporated enterprises are treated in the SNA as falling into one of the corporations sectors but these sectors also include quasi-corporations. A quasi-corporation is defined in the SNA as a unit where either a full set of accounts, including the balance sheet, is available or can be drawn up. In this way some units that the owners choose not to incorporate (in many cases quite legitimately) are treated in the SNA as if they are incorporated but having a full set of accounts is a fairly stringent requirement. Some units may have very detailed information about their production activities but not about other accounts. Thus they cannot be treated as quasi-corporations and excluded from the households sector despite appearing to be "formal" in terms of the nature of their activity. Examples where this may happen include doctors, lawyers, engineering consultants and many other professions. In addition to the statistical restriction on treating production activities as if they are undertaken by incorporated units, laws requiring or permitting incorporation vary from country to country thus limiting international comparability.

25.22 *Size*. Faced with this variation of statistical and administrative practices, one possibility for identifying informal enterprises might be to rely simply on the size of the enterprise, defined either in terms of turnover or number of employees. The problem with turnover is again the potential variability across countries and over time. Using a maximum number of employees to identify informal enterprises would result in some units with full accounts, and thus allocated to the corporations sectors, being identified as informal and some units in the households sector without a full set of accounts as formal.

25.23 *Covered by statistical surveys.* The coverage of statistical surveys, particularly establishment surveys, varies considerably from country to country and also from industry to industry within a country. Often small-scale enterprises are excluded because the statistical office considers the cost of collecting information from such units is too expensive considering the proportion of output they account for and the potential for inaccuracies in the reported data. However, there may be a "grossing up" procedure to allow for the non-coverage of the smaller units. In such a case, the production activities of these units are likely to appear attributed to the corporations sectors even though strict conformity with SNA guidelines would place these in the households sector.

25.24 *Borderline of activity*. In chapter 6 there is discussion of the production boundary of the SNA. As noted there, some activities that are economic in nature are excluded from the production boundary, specifically services produced by households for their own consumption other than the services provided by owner-occupied housing and services provided by paid domestic staff. While there is interest in measuring these activities for some forms of analysis, there is agreement that in measuring activity undertaken by informal enterprises the boundary of production in the SNA should be taken as appropriate. However, the services from owner-occupied dwellings are excluded.

25.25 *Illegal activity.* Chapter 6 makes clear that, in principle, the fact that an activity may be illegal is not a reason to exclude it from the production boundary. In some countries, the difficulties of capturing illegal activities may mean that they are either not well covered or deliberately ignored on pragmatic grounds. However, for some countries ignoring the production of drugs, for instance, would seriously underestimate the overall level of economic activity. In general, as discussed further in section C, some illegal activity may be included in the SNA, if only indirectly, and so complete exclusion is impracticable in any case.

25.26 *Location.* Some analysts may be interested mainly in the development of informal enterprises in urban areas, particularly in so-called shanty towns on the outskirts of large conurbations. While the policy implications of such an approach can be appreciated, the role of the informal economy in areas outside the main urban areas is also important and for international comparability, and for comparison over time when internal migration is significant, restricting coverage by location is undesirable.

25.27 *The terms of employment*. Some employees have terms of employment that entitle them to various benefits in addition to their wages and salaries. These benefits typically include paid annual and sick leave and pension entitlement. Even production units offering such terms to some of their workers may also employ people on less generous terms offering no benefits beyond wages and salaries. People who work on their own account (the self-employed) may do so to provide some supplementary income, may do so because they are unable to obtain a job with benefits or may simply choose to do so for a number of reasons, including the flexibility of choosing what they do, for whom and for how long. Many of the latter may work under terms that offer not employment as such but a service contract.

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C. The non-observed economy

25.28 At the time the 1993 revision of the SNA started, it was assumed that identifying an informal sector was mainly a problem for developing countries. However, even by the time that revision was complete, it was obvious that the problem affected all economies, whatever their state of development. Within the EU, the need to ensure strict comparability of coverage of the national accounts among member states led to a series of initiatives to ensure the accounts were "exhaustive" (that is, fully comprehensive). Also in the early 1990s as countries in Central and Eastern Europe made the transition to market economies, the need to cover activities outside the scope of previous reporting methods, whether undertaken within formal units or in informal enterprises, became pressing.

25.29 The extent of economic activity missing from statistical data collections and from administrative sources became known as the "non-observed economy". In some countries, the emphasis has been placed not on identifying the non-observed economy as such but simply ensuring that the accounts are fully comprehensive ("exhaustive"), but it is easiest to describe factors affecting exhaustiveness through the notion of the non-observed economy.

25.30 As explained in the introduction, the non-observed economy overlaps with, but is not the same as, the informal sector. As well as attempting to cover activities slipping under the net of statistical collection (sometimes called the "underground" or "hidden" economy), attention was paid to ensuring that reported information was both complete and accurate.

25.31 As noted in chapter 6, the fact that some activities are illegal in themselves or may be carried out illegally does not exclude them from the production boundary. Exercises to measure the non-observed economy should also, in principle, cover such illegal activity. How far this is pursued in practice will depend on assessments of the importance of illegal activities, how it might be done and the resources available.

25.32 Trying to assess the additions to be made to the national accounts for the non-observed economy is not just a question of examining the comprehensiveness and accuracy of statistical enquiries. The process of assembling a set of national accounts, especially when the supply and use framework is used, already casts light on missing information and helps improve the estimates overall. Consider the case of some types of illegal activities. Because avoiding taxes is illegal and tax collection may be pursued more vigorously than statistical reporting, a prostitute may report her (or his) earnings more or less accurately but describe her activity as modelling, acting or any number of other ways. Similarly, while smugglers of cigarettes may not report their activities, the fact that households purchase the cigarettes may be much better documented and thus implicitly the illegal imports are captured in the accounts.

25.33 It has been argued that a completely balanced set of supply and use tables is unlikely to omit any significant activity. While it is possible that something may be omitted, if the tables are to balance, there must be exactly matching omissions in other aspects of the accounts, which is not very likely. However, while the act of balancing the tables may in effect estimate some non-observed activity, it may not be sufficient to capture all of it.

25.34 It should be noted that, again as pointed out in the introduction, concern about the non-observed economy does not lead to a separable measure of it. The example of using the balancing of supply and use tables as a means of ensuring exhaustiveness is an illustration of why this may not be possible.

25.35 Measures of the non-observed economy will overlap with activities undertaken informally but not exactly match them. Elements not observed will include estimates for informal enterprises not covered in statistical enquiries and corrections to some measures of informal enterprises that are captured in statistical enquiries. However, estimates for informal enterprises that are covered in statistical enquiries and are judged to be accurate will be excluded. Nevertheless, many of the techniques used to estimate aspects of the non-observed economy, as described in the manual *Measurement of the Non-Observed Economy: a Handbook* are useful for measuring the informal enterprises also.

D. The informal sector as defined by the ILO

1. The ILO concept of the informal sector

25.36 A major focus of this chapter is to present a concept of an "informal sector" as a subset of household unincorporated enterprises. This is the characterization of the informal sector in the resolution of the 15th ICLS on statistics of employment in the informal sector, which described in detail the definitions used by the ILO, as follows:

(1) The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production and on a small scale. Labour relations - where they exist - are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.

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(2) Production units of the informal sector have the characteristic features of household enterprises. The fixed and other assets used do not belong to the production units as such but to their owners. The units as such cannot engage in transactions or enter into contracts with other units, nor incur liabilities, on their own behalf. The owners have to raise the necessary finance at their own risk and are personally liable, without limit, for any debts or obligations incurred in the production process. Expenditure for production is often indistinguishable from household expenditure. Similarly, capital goods such as buildings or vehicles may be used indistinguishably for business and household purposes.

25.37 Although the expression “informal sector” is used in the context of the ILO work, the word sector is used with a different meaning from the SNA sense of a grouping of institutional units. The ILO work focuses only on production activities and does not include the consumption and accumulation activities of the unit.

2. Defining the sector

25.38 In the SNA, household enterprises do not constitute separate legal entities independently of the household members who own them. Fixed capital used in production may also be used for other purposes, for example the premises where the activity is carried out may also be the family home or a vehicle may be used to transport items produced within the household as well as for normal household transport. The items do not belong to the enterprise as such but to the household members. As a result, it may be impossible to compile a complete set of accounts for the household productive activities including the assets, both financial and non-financial, attributable to those activities. It is for this reason, the lack of complete accounts, that the production activity remains within the households sector as an unincorporated enterprise rather than being treated as a quasi-corporation in one of the corporations sectors.

25.39 The ILO concept of the informal sector takes household unincorporated enterprises and further subdivides them into three; one part forming the informal sector, a second part being units treated as formal, because of the numbers of employees or registration, the third part being referred to simply as households. (A note on the different uses of terms such as sector and households follows at the end of this section.)

25.40 The subset of household enterprises treated as belonging to the informal sector have economic objectives, behaviour and a form of organization that sets them apart from other unincorporated enterprises. Specifically, the informal sector is defined according to the types of production the enterprise undertakes, still maintaining the production boundary of the SNA and not extending it to include own-use household services, for example.

Exclusion of units producing purely for own final use

25.41 The first restriction is that at least some of the production must be sold or bartered. Thus some household enterprises that the SNA treats as producing “for own final use” because most of their production is so used are included but those that produce exclusively for own final use are excluded. It follows that the activity of dwelling services produced purely for owner-occupation is thus excluded from the informal sector.

Exclusion of units with formal characteristics

25.42 In addition, the coverage of the informal sector is restricted by using additional criteria of numbers of employees or registration. The minimum number of employees chosen is left to the country to decide based on national circumstances. Only those not registered under specific forms of national legislation (such as commercial laws, tax and social security laws and regulatory laws) should be treated as informal.

Two categories of informal enterprises

25.43 The exclusion of units from the informal sector varies from country to country, depending on the conditions for registration or the minimum number of employees chosen to determine which units are treated as formal. However, the ILO concept of the informal sector is always a subset of

Figure 25.2:Identifying units in the ILO informal sector

<table>
<tr><td>General government</td><td>Non-financial and financial corporations</td><td colspan="3">Households</td><td>NPISHs</td></tr>
<tr><td></td><td></td><td>Households containing an unincorporated enterprise that is registered or has more than a given number of employees</td><td>Informal sector enterprises
(a) without employees "informal own-account enterprises"
(b) with employees "enterprises of informal employers"</td><td>Institutional households, households with no unincorporated enterprises, households only undertaking production for own final use (including owner occupation of dwellings)</td><td></td></tr>
</table>

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household unincorporated enterprises operating within the production boundary of the SNA.

25.44 These units are divided into the following two subsets:

a. *Unincorporated enterprises without employees.* The ILO term for such units is "informal own-account enterprises",

b. *Unincorporated enterprises with employees*. The ILO term for such units is "enterprises of informal employers".

25.45 With these additional criteria, the production unit in the informal sector is defined as a household enterprise with at least some production for sale or barter for which one or more of the criteria of a limited size of employment, the non-registration of the enterprise or its employees are met. The delineation of this set of units in terms of the SNA sectors is shown in figure 25.2.

Exclusions on grounds of activity

25.46 Apart from defining the informal sector, the 15th ICLS recommended the following additional considerations about the scope of the informal sector and its statistical treatment.

a. In principle, all goods and services producing activities are within scope. These might be presented according to the alternative aggregation recommended for the analysis of the activities of the informal sector in *ISIC Rev. 4*. This alternative presentation takes into account that some economic activities such as public administration and defence (*ISIC* 84) are undertaken by units in general government and so cannot qualify as informal sector activities. However, the ICLS recommends that:

· agricultural activities (*ISIC* section A) are measured separately from other economic activities to ensure international comparability and to facilitate the selection and application of appropriate statistical data collection tools and sample design. (Units undertaking only subsistence activity are already excluded as they do not sell any of their output.)

· activities of households as employers of domestic personnel (*ISIC* 97) with households being producers for own final use are outside the scope of the informal sector.

b. Geographical coverage includes both urban and rural areas even if preference may be given initially to informal enterprises operating in urban areas.

c. Outworkers are included if the units for which they work as self-employed persons or as employees are included in the informal sector.

3. Clarifying the use of familiar terminology

Sector

25.47 The term "sector" in the expression "informal sector" does not have the same basis as the usual use of the word sector throughout the SNA. In the SNA, sectors are made up of complete institutional units; in the context of the informal sector only the productive activities are concerned. Thus, for example and importantly, households having no productive activity are simply not considered in the steps to identify those unincorporated enterprises operated by households that are to be included in the informal sector.

Enterprise

25.48 In the SNA, a corporation represents a single enterprise but each such enterprise may consist of a number of establishments. A key difference between an enterprise and an establishment is that a full set of accounts must exist, or could be constructed, for an enterprise but for an establishment a much more restricted set of data is available, typically only information relating to production, number of employees and the capital formation associated with the activity.

25.49 Within a household many different production activities may take place. For none of these individually nor for the total of all activities that cannot be treated as quasi-corporations does a complete set of accounts exist. The SNA usage of "unincorporated enterprise" is taken to mean the totality of all unincorporated activity undertaken by a household even though in a supply and use table, for example, this may be partitioned by types of activity and be grouped with establishments of corporations undertaking the same activity.

25.50 The use of unincorporated enterprise in the ILO description of the informal sector does not correspond to the totality of unincorporated activity of a household but to each activity separately. In SNA terms, the unincorporated enterprise is broken down into a number of unincorporated establishments, some of which may be included in the informal sector and some excluded, even for the same household. Further, the ILO identifies individual members of a household as owning each establishment/enterprise and capable of employing workers. In the SNA, it is the household collectively that is responsible for all activity and for employing workers.

Subsectoring production

25.51 The SNA subdivides production into market production, production for own final use and non-market production. Non-market production is not at issue here, since it is never undertaken by households. However, to meet the ILO guidelines it is necessary to subdivide producers for own final use into those where some of the production is for sale or barter and those where the production is exclusively for own final use. In the case of unincorporated enterprises where only some of the production is sold or bartered, all of the production of the unit of those goods and services is still included in production by the informal sector.

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Formal sector, informal sector and households

25.52 The SNA does not use the expression formal sector but it is not difficult to conceive of all units in the corporations sectors, general government and NPISHs as being part of a formal sector as far as production is concerned. Quasi-corporations are included because they are included in the corporations sectors. However, this is not the same as saying that any unit that is not informal is formal, since households with unincorporated enterprises not included in the informal sector are divided between those that are treated as formal (because of size or registration) and the rest that are not treated as informal but are left simply in a group called households.

25.53 The ILO meaning of households is thus quite different from that of the SNA since the SNA includes all the units included under ILO guidelines as informal, plus those units with unincorporated enterprises treated as formal, plus those unincorporated enterprises excluded because they produce exclusively for own final use, plus those households with no unincorporated enterprises plus institutional households.

E. Informal employment

1. Informal employment

25.54 Increasingly it has been realized that production alone is not the only aspect of the economy where a distinction between formal and informal is informative, it is also relevant for employment.

25.55 The ILO defines formal wage employment as employment under terms that bring associated benefits such as paid leave and pension entitlement. The ILO regards all other forms of employment, including self-employment, as informal.

25.56 As noted in section B, it is possible for formal units to have informal employees and it is also possible (though less likely) that units that are classed as informal may have terms of employment for some of their workers that make them formal employees. The extent of informal employment can be seen in the shaded part of figure 25.3.

25.57 As explained in chapter 19, there is a distinction between a job and an employee, one employee being capable of holding several jobs. There are five categories of jobs considered by the ILO. These are:

a. own-account workers (the self-employed in SNA terms),

b. heads of unincorporated enterprises with employees, treated as employers,

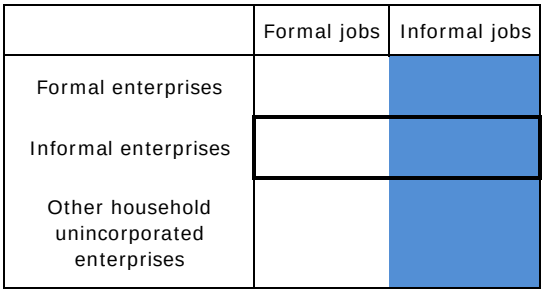
c. unpaid family workers contributing labour to the unincorporated enterprise,

d. employees,

e. members of producers' cooperatives.

25.58 Formal enterprises provide informal jobs only as employees or contributing family workers. Informal enterprises may offer any of the five types of informal jobs and also formal jobs. Households (in the ILO sense) provide informal jobs as own-account workers, employees and family workers. Some domestic staff may have formal jobs.

Figure 25.3:Informal employment and employment in the informal sector



2. Employment in the informal sector

25.59 As well as informal employment in total, it is useful to identify the extent of employment in informal enterprises. This excludes informal jobs in formal units, excludes any informal jobs in other household unincorporated enterprises and includes formal jobs in informal enterprises. The ICLS defines the population employed in the informal sector as comprising all persons who, during a given reference period, were employed in at least one informal sector unit, irrespective of their status in employment and whether it was their main or a secondary job. The coverage of employment in the informal sector is indicated by the heavy border in figure 25.3.

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F. Work of the Delhi Group

25.60 In 1997 an expert group on informal sector statistics was set up by the United Nations Statistical Commission as a "city group" and is known as the Delhi Group. One of its objectives was to try to identify internationally comparable data for the informal sector or, at least, a common subset of it.

25.61 The third meeting of the Delhi Group in 1999 proposed a subset of the informal sector that could be defined uniformly across countries, though this subset presently covers only a relatively small part of the informal sector. These recommendations are as follows:

a. All countries should use the criteria of legal organization (unincorporated enterprises), of type of accounts (no complete set of accounts) and of product destination (at least some market output).

b. Specification of the employment size limit of the enterprise in the national definition of the informal sector is left to the country's discretion. For international reporting, however, countries should provide figures separately for enterprises with less than five employees. In the case of multiple-establishment enterprises, the size limit should apply to the largest establishment.

c. Countries using the employment size criterion should provide disaggregated figures for enterprises that are not registered, as well as for enterprises that are registered.

d. Countries using the criterion of non-registration should provide disaggregated figures for enterprises with less than five employees as well as for enterprises with five and more employees.

e. Countries that include agricultural activities should provide figures separately for agricultural and non-agricultural activities.

f. Countries should include persons engaged in professional or technical activities if they meet the criteria of the informal sector definition.

g. Countries should include paid domestic services unless these are provided by employees of the household where the services are rendered.

h. Countries should follow paragraph 18 of the Resolution adopted by the 15th ICLS regarding the treatment of outworkers/home-workers. Countries should provide figures separately for outworkers/home-workers included in the informal sector.

i. Countries covering urban as well as rural areas should provide figures separately for both urban and rural areas.

j. Countries using household surveys or mixed surveys should make an effort to cover not only persons whose main job is in the informal sector, but also those whose main job is in another sector and who have a secondary activity in the informal sector.

25.62 Subsequent work of the Delhi Group examined many studies on national practices in the collection of data on the informal sector to lead up to the provision of a manual on the informal sector and informal employment to be published by the ILO.

G. Deriving data on activities of informal enterprises from the SNA accounts

25.63 In trying to identify activities undertaken by informal enterprises within the national accounts, three steps are necessary. The first is to identify those unincorporated enterprises within the whole of the SNA households sector that are candidates to be included. The second is to consider national practices in establishing the households sector to see if any adjustment to the first step is necessary. The third step is to provide a breakdown by type of activity so that common exclusions according to type of activity can be made.

1. Candidate households

25.64 The households sector includes some institutional units that should be excluded at the outset. These are:

a. Institutional households such as prisons, religious orders and retirement homes;

b. Households with no production activity (that is do not include an unincorporated enterprise);

c. Households whose only activity is the production of services from owner-occupied dwellings, the production of services by employing domestic staff, or both.

25.65 The remaining households all contain some production activity. However, it will include both market production and production for own final use. The ILO guidelines on that part of household activity to be regarded as informal include a concept of market production that does not conform to the SNA category. The ILO treats an enterprise as a market producer if any of the output is sold whereas the SNA requires that most or all of the output be sold. To overcome this difference, it is recommended that a three-way split of production be made:

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a. market production according to the SNA criterion whereby most or all output is sold,

b. output for own final use where some is sold, and

c. output exclusively for own final use.

The sum of the first two categories then accords with the ILO guidelines for inclusion in the informal sector as market producers though only the first is so regarded in SNA terms.

25.66 The ILO also distinguishes households between those that do not have workers employed on a continuous basis and those that do, as follows:

a. Unincorporated enterprises without employees on a continuing basis,

b. Unincorporated enterprises with employees on a continuing basis.

This categorization is combined with the preceding one as indicated in figure 25.4.

2. Adjustments for national practices

25.67 Although the SNA recommends separating NPISHs into a sector separate from households, not all countries do this. If they are not already separated from households, they should be removed at this stage.

25.68 Production units that are not formally incorporated but have complete accounts should be treated as quasi-corporations and excluded from the households sector. If this is not national practice, a further adjustment is necessary to remove them.

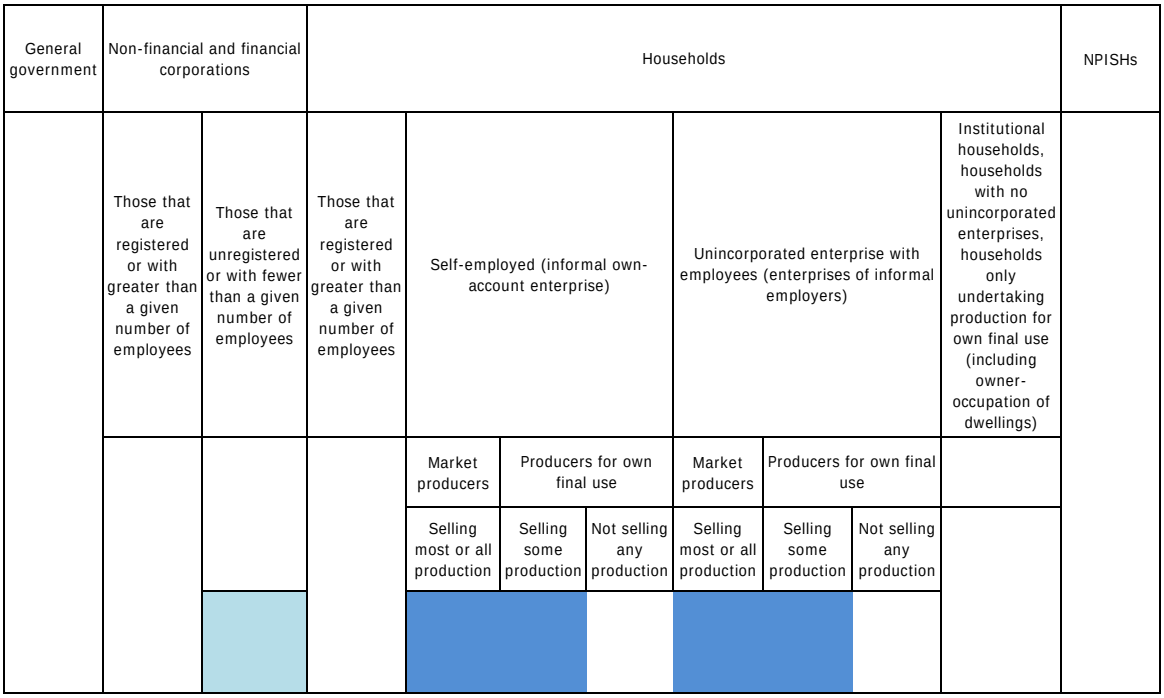
25.69 The SNA also recommends that small enterprises without complete sets of accounts should be included in the households sector as unincorporated enterprises. Some countries, however, prepare production estimates by type of activity for inclusion in a supply and use framework without regard to whether a full set of accounts exists. By default, all may be included in the corporations sectors with little production remaining in the households sector apart from the imputed services of owner-occupied dwellings and the services provided by paid domestic staff. It is therefore recommended that estimates for unregistered enterprises with less than five employees be extracted from the figures for the corporations sector to set alongside the figures from the households sector. Similarly any enterprises that are unincorporated but registered should be separately identified.

25.70 Figure 25.4 demonstrates how the potential units for treatment according to the ILO definition of the informal sector relate to the institutional sectors of the SNA. The light shading under corporations indicates that in principle any enterprise that is not registered and has fewer than a given number of employees should be identified if it has been included in corporations. In practice, it may not be possible to separate those that are registered from those that are not.

3. Disaggregation by type of activity

25.71 The third step is to disaggregate the production activities from households, grouped as suggested above, and those extracted from the corporations sectors for small-scale activities according to the type of activity concerned.

Figure 25.4:Identifying units for the ILO informal sector from within the SNA institutional sectors



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Because the separation is initially in terms of units and not activities, there will still be some services from owner-occupied dwellings included and these should be eliminated. If a cross-classification by activity and type of unit is available, a choice can be made about whether to include or exclude an activity where the output is exclusively for own use even when another activity by the same unit includes sales outside the households.

25.72 Some further exclusions may also be made, for example services provided by paid domestic staff and agricultural production.

25.73 The problem remains about how to treat individuals such as the doctors and other professionals discussed earlier where information about their production is available but not a full set of accounts. They thus still represent unincorporated enterprises and are not excluded from the informal sector by reason of registration or number of employees but are not usually thought of as characteristic of part of the informal sector.

25.74 The Delhi group recognizes that such individuals will be part of the informal sector. However, if it is desired either to identify them as a subset or even to exclude them entirely from the informal sector, it is possible that some rules of thumb may be conceived to do so. For example depending on the type of activity, the rates of pay or the duration of the task, but objections to any of these are easy to formulate and implementation would be extremely difficult.

4. Presenting the data on the informal sector and informal employment

25.75 The information relating to activities undertaken informally extends only as far as the production and generation of income account. It is not possible to go farther in the sequence of accounts because of the impossibility of identifying which other income flows, consumption and capital formation relate only to the activity in question rather than to the household to which they belong as a full institutional unit. Thus the informal sector, as explained previously, is not strictly a sector in the SNA sense and so the figures for it cannot be presented in terms of the full sequence of accounts. However, it is recommended that where possible two supplementary tables should be prepared, one covering production and the generation of income and one covering employment.

Production

25.76 It is suggested that the following type of information be provided for each of the shaded areas in table 25.4:

a. Production

· *of which* for own use

b. Intermediate consumption

c. Value added

d. Compensation of employees (for unincorporated enterprises with employees only)

e. Gross mixed income

f. Consumption of fixed capital

g. Net mixed income.

25.77 Further information may also be useful if available. For example, a breakdown of production by type of activity and, possibly, the proportion of the total production in the industry produced by informal enterprises.

25.78 In countries where some small units that might be considered part of the informal sector are covered by establishment surveys and included in the corporations sector, there may be units of interest in the lightly shaded cell in table 25.4. If this is so, and if separate estimates for them can be identified, it would be useful to show these alongside the entries for those units clearly within the households sector.

Employment

25.79 Information on the number of jobs should be presented showing:

a. Employment in the informal sector

· Formal jobs

· Informal jobs

b. Informal employment outside the informal sector

· In the formal sector

· In other household unincorporated enterprises.

25.80 If possible, information on the hours worked in each of these categories would be useful.

H. Approaches to measuring activities undertaken in the informal economy

25.81 It is neither possible nor appropriate to give detailed information in the SNA on survey methodology and questionnaire design. However, it is useful for national accountants to be aware of some of the options that may be available to help in collecting data on production in informal enterprises. More detailed discussion is available

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in, for example, the manual on *Measuring the Non-Observed Economy*.

25.82 The choice of the appropriate method for measuring the informal sector depends upon how adequately established data collection methods cover the activities of interest. Three main measurement approaches are considered here. The choice between them will depend upon what information is missing from existing collections, the organization of statistical systems, the resources available and user needs.

1. Household surveys

25.83 A household survey (or labour force survey) may provide a means to collect information on production by household enterprises that are not included in the sampling frames used for establishment surveys. It may also be possible to collect data on informal sector employment in household or labour force surveys. Questions seeking this sort of information could be addressed to everyone in the sampled households during the reference period of the survey, irrespective of their status in employment and in respect of their main and secondary jobs since in many countries a large number of informal sector activities are undertaken as secondary jobs. Special questions may be required to identify unpaid work in small family enterprises, activities undertaken by women and children, activities undertaken away from home, undeclared activities and informal sector businesses conducted as secondary jobs. The success of such an approach is dependent on the survey sample including representative geographical areas where household activities take place and informal sector workers live.

25.84 It should be borne in mind, though, that although employees, contributing family workers and proxy respondents may be engaged in household and informal enterprises, they may have limited knowledge of the operations of the enterprises in question and may not be able to respond to such questions.

2. Establishment surveys

25.85 In most cases, an establishment survey can be used to measure activity undertaken by an informal enterprise only when a household establishment survey is carried out just after an economic or establishment census because the sampling frame may not include information, or not up-to-date information on household enterprises.

25.86 Even when an establishment survey is used to measure household production units including those of the informal sector, it should be noted that production units without a fixed location or with unrecognizable business premises are easily omitted in the collection. In addition, double counting of household production may occur if the collections for different types of economic activity are undertaken at different times rather than simultaneously in an integrated design. For example, the manufacturing activity of a household producing goods in a small workshop or at home may be included in one collection round while the retail sales activity undertaken by the same family of those produced goods is measured in another round.

3. Mixed household-enterprise surveys

25.87 One type of mixed household-enterprise survey is designed with enterprise modules attached to existing labour force or other household surveys. Such a survey could cover all household entrepreneurs of the sampled households including informal entrepreneurs (including units operating without fixed premises such as mobile units) and their activities, irrespective of the size of the enterprises, the kind of activity and the type of workplace used and of whether the activities are undertaken as main or secondary jobs.

25.88 Another type of survey, described as a modified mixed household-enterprise survey, is described in *International Recommendations on Industrial Statistics*, (United Nations, 2008.)

25.89 When a mixed household-enterprise survey is used as the preferred method, attention should be paid to the question of whether the sample adequately reflects the geographical distribution of economic activities of household production. It is also necessary to consider how enterprises with production units in more than one location are handled and how duplication of coverage for enterprises that are operated under partnerships may be avoided if the same enterprise is reported by each of its partners who may belong to different households.

I. Guidelines, studies and handbooks on the informal economy

25.90 Since the publication of the *1993 SNA*, significant advances in methodology have taken place in fields related to the informal economy. Also, countries have gained extensive experience in collecting and working with data on the informal sector. These developments, which are highlighted below, suggest that there is a body of work to be taken into account in updating the treatment of the informal sector in the SNA.

- The proceedings and papers of the meetings of the Delhi Group on Informal Sector Statistics, beginning in 1997, contain the results of extensive conceptual and analytical work, including country practices in the area of the informal sector. Various papers of the Expert Group on Informal Sector Statistics (Delhi Group), are can be accessed at http://www.mospi.nic.in/mospi_informal_sector.htm.

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- The handbook *Household Accounting: Experience in Concepts and Compilation, Volume 1: Households Accounts* (United Nations, 2000), the product of a 1997 expert group, contains papers on various aspects of the treatment and measurement of the informal sector. The chapter "The informal sector as part of the households sector" is of particular interest.

- The results of the work started by Eurostat in the mid-1990s and carried out through its Task Force for Accuracy Assessment of Basic Data in European Union member countries and the related pilot tests conducted in candidate countries revealed the extent of exhaustiveness adjustments and their implications for the value of the GDP.

- Research on statistical methods for improving the exhaustiveness of measures of economic production lead to the preparation of the handbook *Measuring the Non-Observed Economy - a Handbook*. The handbook's chapter on informal sector production provides a core definition, clarifies the distinctions between informal sector production and concepts with which it is often confused, and outlines the main methods for measurement.

- The UNECE published a *Guidebook to Statistics of the Hidden Economy* (United Nations Economic Commission for Europe, 1992) and has since carried out three surveys of country practices and published the results. The first was in respect of 1991 and covered nine countries. The results were published as an *Inventory of National Practices in Estimating Hidden and Informal Activities for National Accounts* in 1993. The second survey was in respect of 2001/2 and covered 29 countries. The third survey was carried out for 2005/6 and 45 countries responded. Both the second and third surveys asked for estimates of the size of the non-observed economy as well as elaborating on the methods used. The results of the two surveys are summarized in two editions of *Non-observed Economy in National Accounts - Survey of Country Practices* (United Nations Economic Commission for Europe, 2003 and 2008, respectively).

- There are many ILO documents that elaborate the concepts of informal sector and informal employment. These include the Resolution concerning *Statistics of Employment in the Informal Sector*, (International Labour Office, 1993) adopted by the 15th ICLS and *Guidelines Concerning a Statistical Definition of Informal Employment* (International Labour Office, 2003) adopted by the 17th ICLS. Other useful information can be found in *ILO Compendium of Official Statistics on Employment in the Informal Sector* (Hussmanns and du Jeu, 2002), *Women and Men in the Informal Economy: A Statistical Picture*. (International Labour Office, 2002), *Measuring the Informal Economy: From Employment in the Informal Sector to Informal Employment.* (Hussmanns, 2004), *Measurement of Informal Employment: Recent International Standards*, (Hussmanns, 2005)

- Over the decade, a number of workshops with a focus on the informal sector were held, organized singly or jointly by United Nations Statistics Division, the regional commissions, ILO, and others. The most recent of these were the OECD/UNESCAP/ADB Workshop on Assessing and Improving Statistical Quality: Measuring the Non-observed Economy, held in Bangkok in May 2004 and the Workshop on Household Surveys and the Measurement of the Labour Force with focus on the Informal Economy held for Southern African Development Community countries in Maseru, Lesotho in April 2008.

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Chapter 26: The rest of the world accounts and links to the balance of payments

A. Introduction

26.1 This chapter is about the relationship between the rest of the world sector in the SNA and the international accounts as described in *BPM6*. It shows that the two manuals use the same macroeconomic framework, with the international accounts providing additional detail on aspects of particular relevance in international transactions or positions.

1. The rest of the world account in the SNA

26.2 In the SNA, transactions between a resident unit and the rest of the world are recorded as if the units in the rest of the world were another sector of the economy. The production and generation of income accounts relate only to transactions within the national economy but flows in all other accounts potentially have an entry for the rest of the world. These entries are necessary to balance each row of the sequence of accounts but they do not enter the aggregate balancing items. For example, the difference between GDP and GNI derives from transactions for both uses and resources recorded in the allocation of primary income account where the counter-party is a unit in the rest of the world. If the counter-party entries for the rest of the world were also included, there would be no difference between the balancing items.

Current accounts

26.3 Because the rest of the world account is shown in this way, flows to the rest of the world are shown as a use by the rest of the world and flows from the rest of the world as resources. For example, exports are shown as uses of the rest of the world and imports as resources from the rest of the world. Entries for imports and exports form part of the goods and services account in the SNA sequence of accounts.

26.4 As well as entries for imports, exports and the items appearing in the allocation of primary income account, there are potential transactions with the rest of the world to be recorded for all entries in the secondary distribution of income account and for the adjustment item for the net change in pension liabilities appearing in the use of income account.

26.5 There are no entries for the rest of the world account for intermediate or final consumption (or for fixed capital formation) because the use made of the goods and services in another economy is not relevant for the national economy; only the total amount exported is.

26.6 Although balancing items are not calculated in the SNA for the rest of the world account for each individual account, two balancing items relevant to the current accounts are important. The first is the external balance on goods and services, which is the difference between imports and exports. The second is the current external balance which is the sum of all resources coming from the rest of the world less all uses going to the rest of the world, including imports and exports. The current external balance thus shows how far residents call on saving by non-residents.

Accumulation accounts

26.7 In the rest of the world capital account, there is no entry for fixed capital formation, as noted above. It is possible for a transaction to be recorded for a natural resource, for a contract, lease or licence or for goodwill and marketing assets. By their nature, though, and given that land is almost always acquired by a resident unit, such entries will not be common. On the other hand, capital transfers to and from the rest of the world may be quite important.

26.8 The financial account and balance sheets detailing transactions in, and stocks of, financial assets and liabilities where one party is non-resident are viewed as a particularly important part of the rest of the world accounts. Indeed, in *BPM6* more text is devoted to these items than to the items in the current accounts.

26.9 In addition, there are possible entries for other changes in the volume of assets and liabilities and revaluation items for both, relevant to the rest of the world account.

2. The international accounts in *BPM6*

26.10 In the description of the rest of the world accounts above, it was noted that exports, for example, are treated as a use by the rest of the world and imports as a resource from the rest of the world. As its name implies, the rest of the world account is drawn up from the perspective of the rest of the world. *BPM6* looks at the same stocks and flows from the point of view of the domestic economy. Thus the *BPM6* entries are the mirror image of the SNA entries relating to the rest of the world.

26.11 Further, in the context of *BPM6*, stock levels are usually referred to as positions and the balance sheet accounts for all financial assets and liabilities where one party to the

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arrangement is non-resident is called the international investment position.

26.12 The international accounts for an economy summarize the economic relationships between residents of that economy and the rest of the world. They comprise:

a. the balance of payments, which summarizes transactions between residents and non-residents during a specific time period;

b. the international investment position (IIP), which shows at a point in time the value of: financial assets of residents of an economy that are claims on non-residents or are gold bullion held as reserve assets; and the liabilities of residents of an economy to non-residents; and

c. the other changes in financial assets and liabilities account, a statement that shows other flows, such as valuation changes, which reconcile the balance of payments and IIP for a specific period by showing changes due to economic events other than transactions between residents and non-residents.

These accounts correspond to the transactions, balance sheets and other changes in assets accounts in the SNA, respectively. Note, though, that what appear as assets in the rest of the world account appear as liabilities in the international accounts and vice versa.

3. The structure of the chapter

26.13 Section B of the chapter discusses the accounting rules of the international accounts. These are consistent with the SNA accounting rules and agreement has been reached on when the SNA and when *BPM6* takes the lead in defining the rules to be applied in both contexts. Residence is a case in point where the SNA follows *BPM6*.

26.14 The structure of the international accounts and their relation to similar SNA accounts is the subject of section C.

26.15 A feature of the financial accounts and IIP of the international accounts is the introduction of functional categories that describe the main purpose of financial investment abroad. This is the subject of section D.

26.16 Section E touches on some considerations of particular importance to the international accounts; global imbalances, exceptional financing, debt reorganization, currency unions and currency conversions.

B. Accounting principles

1. Comparison with SNA accounting principles

26.17 Although the SNA works with a quadruple-entry accounting system, the balance of payments has only a double-entry system. When a transaction is undertaken between two resident units, four entries are necessary, for example two showing the exchange of a good and two the exchange of a means of payment. However, when a resident unit carries out a transaction with a non-resident unit, national compilers are unable to verify independently the counterpart entries in the rest of the world. As a result, although in principle the balance of payments is balanced, in practice, there may be an imbalance due to shortcomings in source data and compilation so that there is a mismatch between financial transactions and their counterparts within the domestic economy. This imbalance, a usual feature of published balance of payments data, is labelled net errors and omissions. The balance of payments manuals have traditionally discussed this item, to emphasize that it should be published explicitly, rather than included indistinguishably in other items and that it should be used to indicate possible sources of mismeasurement.

26.18 However, there has been increasing interest in estimates that are derived from counterpart reporting that has better coverage, valuation, etc. As well, there has been much work done on reconciling data from the view of both parties (for example, exports of one country, with the counterpart imports recorded by the partner country) and global totals. Counterparty data are also necessary to prepare consolidated data for a currency or economic union from the data of individual member countries. In effect, all this work is built on the fact that balance of payments statistics effectively become a quadruple-entry system when used at the bilateral or global level.

Valuation

26.19 Valuation principles are the same in the SNA and the international accounts. In both cases, market values are used, with nominal values used for some positions in instruments where market prices are not observable. In the international accounts, the valuation of exports and imports of goods is a special case where a uniform valuation point is used, namely the value at the customs frontier of the exporting economy, that is, the FOB-type valuation (free on board). This treatment brings about consistent valuation between exporter and importer and provides for a consistent basis for measurement in circumstances where the parties may have a wide range of different contractual arrangements, from “ex-works” at one extreme (where the importer is responsible for arranging all transport and insurance) to “delivered duty paid” at the other (where the exporter is responsible for arranging all transport, insurance and any import duties). In international transactions, there may be motivations for under- or over-invoicing in order to evade taxes or exchange controls, so *BPM6* provides guidance on how to develop market-equivalent prices when these cases are identified, and how to make the necessary adjustments needed to other items affected. There is further

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discussion on the recording of imports and exports in chapters 14 and 28.

Time of recording and change of ownership

26.20 Time of recording and ownership principles are the same in the SNA and the international accounts. In practice, the change of economic ownership of goods is often taken to be when the goods are recorded in customs data. To the extent that there are differences between customs data and actual changes in ownership, such as for items with large values or goods sent on consignment (that is, dispatched before they are sold), adjustments are made.

26.21 There are no longer any exceptions to the recording basis of the change of economic ownership. However, there is a different presentation in the case of merchanting; that is, where an owner buys and resells goods in the same condition without the goods passing through the territory of the owner. In that case, the acquisition of the goods is identified as a change of ownership, but shown as a negative export rather than an import on acquisition of the goods and as a positive export on disposal. If the goods are acquired in one period and not disposed of until a subsequent period, they will appear in changes in inventories of the merchant even though these inventories are held abroad. A consequence of this change in treatment is that in the international accounts, merchanting now appears as transactions in goods where previously it was recorded as a transaction in services.

26.22 The principle of recording imports and exports when change of ownership takes place applies also to items such as high-value capital goods where change of ownership is recorded as work is put in place. (See paragraphs 10.53 and 10.55.)

Netting

26.23 The same rules on netting are applied in *BPM6* as in the SNA. In general, netting is not advised except in the special case of recording transactions in financial assets and liabilities. However, only acquisitions and disposals of the same type of asset (or incurrence and redemption of the same type of liability) are netted. There is no netting of assets against liabilities, even of the same sort of instrument and no netting across different sorts of instruments. Greater detail about netting in respect of financial instruments appears in chapter 3 of *BPM6*, paragraphs 3.109 to 3.121.

2. Units

26.24 The international accounts and the SNA are built on the same definitions of institutional units and residence. Because the international accounts focus on economic relationships between residents and non-residents, more elaboration of borderline cases is provided in *BPM6*.

Economic territory

26.25 The most commonly used concept of economic territory is the area under the effective economic control of a single government. However, currency or economic unions, regions, or the world as a whole may be used, as they may also be a focus for macroeconomic policy or analysis.

26.26 An economic territory includes the land area including islands, airspace, territorial waters and territorial enclaves in the rest of the world (such as embassies, consulates, military bases, scientific stations, information or immigration offices, that have immunity from the laws of the host territory) physically located in other territories. Economic territory has the dimensions of physical location as well as legal jurisdiction, so that corporations created under the law of that jurisdiction are part of that economy. The economic territory also includes special zones, such as free trade zones and offshore financial centres. These are under the control of the government so are part of the economy, even though different regulatory and tax regimes may apply. (However, it may also be useful to show separate data for such zones.) The territory excludes international organizations and enclaves of other governments that are physically located in the territory.

Institutional units

26.27 The concept of an institutional unit is the same in the SNA and *BPM6*. Because of the focus on the national economy, there are some special treatments of units in cross-border situations. As discussed below, in some cases, legal entities are combined into a single institutional unit if they are resident in the same economy, but are not combined if they are resident in different economies. Similarly, a single legal entity may be split when it has substantial operations in two or more economies. As a result of these treatments, the residence of the resulting units concerned becomes more clear-cut and the concept of the economic territory is strengthened.

26.28 As discussed in chapter 4, resident artificial subsidiaries and special purpose entities (SPEs) are combined with their owners into single legal entities. However, a legal entity that is resident in one jurisdiction is never combined with a legal entity resident in another. As a result, SPEs and other similar corporate structures owned by non-residents are considered to be resident of their territory of incorporation, even though most or all of their owners and most or all of their assets are in another economy.

26.29 Similarly, members of a household must all be resident in the same economy. If a person resides in a different economy from the other members of a household, that person is not regarded as a member of that household, even though they may share income and expenses, or hold assets together.

Branches

26.30 A branch is an unincorporated enterprise that belongs to a non-resident unit, known as the parent. It is resident and treated as a quasi-corporation. The identification of branches as separate institutional units requires indications of substantial operations that can be separated from the rest of the entity. A branch is recognized in the following cases:

a. Either a complete set of accounts, including a balance sheet, exists for the branch, or it is possible and

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meaningful, from both an economic and legal viewpoint, to compile these accounts if required. The availability of separate records indicates that an actual unit exists and makes it practical to prepare statistics.

In addition, one or both of the following factors tend to be present:

b. The branch undertakes or intends to undertake production on a significant scale which is based in a territory other than that of its head office for one year or more:

- if the production process involves physical presence, then the operations should be physically located in that territory;

- if the production does not involve physical presence, such as some cases of banking, insurance, other financial services, ownership of patents, merchanting and "virtual manufacturing", the operations should be recognized as being in the territory by virtue of the registration or legal domicile of those operations in that territory.

c. The branch is recognized as being subject to the income tax system, if any, of the economy in which it is located even if it may have a tax-exempt status.

26.31 The identification of branches has implications for the statistical reporting of both the parent and branch. The operations of the branch should be excluded from the institutional unit of its head office and the delineation of parent and branch should be made consistently in both of the affected economies. A branch may be identified for construction projects or mobile operations such as transport, fishing or consulting. However, if the operations are not substantial enough to identify a branch, they are treated as an export of goods or services from the head office.

26.32 In some cases, preliminary operations related to a future direct investment project prior to incorporation are sufficient evidence of establishing residence that a quasi-corporation is established. For example, licences and legal expenses for a project are shown as being incurred by a quasi-corporation, and are part of direct investment flows into that unit rather than sales of licences to non-residents, or exports of services, respectively, to the head office.

Notional resident units

26.33 When land located in a territory is owned by a non-resident entity, a notional unit that can be treated as resident is identified for statistical purposes as being the owner of the land. This notional resident unit is a kind of quasi-corporation. The notional resident unit treatment is also applied to associated buildings, structures and other improvements on that land, leases of land for long periods, and ownership of natural resources other than land. As a result of this treatment, the non-resident is owner of the notional resident unit, rather than owning the land directly, so there is an equity liability to the non-resident, but the land and other natural resources are always assets of the economy in which they are located. The notional resident unit usually supplies services to its owner, for example accommodation in the case of vacation homes.

26.34 In general, if a non-resident unit has a long-term lease on an immovable asset such as a building, this is associated with it undertaking production in the economy where it is located. If for any reason there is no associated production activity, a notional resident unit is also created to cover such a lease.

Multiterritory enterprises

26.35 A few enterprises operate as a seamless operation over more than one economic territory, typically for cross-border activities such as airlines, shipping lines, hydroelectric schemes on border rivers, pipelines, bridges, tunnels and undersea cables. If possible, separate branches should be identified, but if the entity is run as a single operation with no separate accounts or decision-making for each territory that it operates in, it is not possible to delineate branches. In such cases, because of the central focus on data for each national economy, it is necessary to split the operations between economies. The operations should be prorated according to an appropriate enterprise-specific indicator of the proportions of operations in each territory. The prorating treatment may also be adopted for

Table 26.1:Selected effects of a household's residence status on the statistics of the host economy

Economic flow or position	Resident (for example, long-term guest worker)	Non-resident (for example, short-term guest worker)
Compensation of employees received from enterprises in the reporting economy	Resident-to-resident compensation of employees	Resident-to-non-resident compensation of employees
Personal expenditure in the reporting economy	Resident-to-resident transaction	Exports of services, mainly travel
Transfers to relatives in home economy	Resident-to-non-resident current or capital transfers	Non-resident-to-non-resident transfer (There is often some international financial transaction of the short-term worker returning funds from his host to his home economy, for example via a bank in the host economy)
A resident institutional unit's financial claims on or liabilities to the household	Resident-to-resident financial claim	International financial claim
Land and buildings owned in host economy	Non-financial asset	Non-financial asset and direct investment liability of a notional resident unit
Land and buildings owned in home economy	Direct investment asset in notional resident unit	Not in balance sheet of host economy

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enterprises in zones subject to joint administration by two or more governments.

3. Residence

26.36 ***The residence of each institutional unit is the economic territory with which it has the strongest connection, expressed as its centre of predominant economic interest.*** An institutional unit is resident in an economic territory when there exists, within the economic territory, some location, dwelling, place of production, or other premises on which or from which the unit engages and intends to continue engaging, either indefinitely or over a finite but long period of time, in economic activities and transactions on a significant scale. The location need not be fixed so long as it remains within the economic territory. Actual or intended location for one year or more is used as an operational definition. While the choice of one year as a specific period is somewhat arbitrary, it is adopted to avoid uncertainty and facilitate international consistency. Most units have strong connections to only one economy but with globalization, a growing number have strong links to two or more economies.

Residence of households

26.37 A household is resident in the economic territory in which household members maintain or intend to maintain a dwelling or succession of dwellings treated and used by members of the household as their principal dwelling. If there is uncertainty about which dwelling is the principal dwelling, it is identified from the length of time spent there, rather than other factors such as cost, size, or length of tenure. Being present for one year or more in a territory or intending to do so is sufficient to qualify as having a principal dwelling there. The implications of the residence of a household for the recording of its flows and stocks are summarized in table 26.1.

26.38 In addition to the general principles, additional guidance in determining the residence of households is given in the following specific cases:

a. *Students*. People who go abroad for full-time study generally continue to be resident in the territory in which they were resident prior to studying abroad. This treatment is adopted even though their course of study may exceed a year. However, students become residents of the territory in which they are studying when they develop an intention to continue their presence in the territory of study after the completion of the studies. Members of the same household who are accompanying dependents of students are also considered to be residents of the same economy as the student.

b. *Patients*. People who go abroad for the purpose of medical treatment maintain their predominant centre of interest in the territory in which they were resident prior to the treatment, even in the rare cases where complex treatments take a year or more. As with students, accompanying dependents are treated in the same way.

c. *Crew of ships etc.* Crew of ships, aircraft, oil rigs, space stations or other similar equipment that operate outside a territory or across several territories are treated as being resident in the territory of their home base. The home base is determined by where they spend most of their time when not undertaking their duties. This location may not be the same as that of the operator of the mobile equipment.

d. *Diplomats, military personnel, etc.* National diplomats, military personnel and other civil servants employed abroad in government enclaves and their households are considered to be residents of the economic territory of the employing government. However, other employees, such as locally recruited staff and international organization staff are resident in the location of their principal dwelling.

e. *Cross-border workers*. There is no special treatment for these workers. The residence of the persons concerned is based on the principal dwelling, rather than the territory of employment, so employees who cross borders to undertake a job still have their residence determined from their principal dwelling.

f. *Refugees*. No special treatment is adopted for refugees, so their residence will change from their home territory if they stay or intend to stay in another economy for a year or more, regardless of their legal status or intention to return.

Table 26.2:Selected effects of the residence status of an enterprise on the statistics of the host economy

Economic flow or position	Resident enterprise (for example, major long-term construction project)	Non-resident enterprise (for example, minor short-term construction project)
Sales by enterprise to residents	Resident-to-resident transaction	Imports of goods and services
Purchases by enterprise from residents	Resident-to-resident transaction	Exports of goods and services
Compensation of employees payable to residents of host economy	Resident-to-resident compensation of employees	Non-resident-to-resident compensation of employees
Compensation of employees payable to residents of home economy	Resident-to-non-resident compensation of employees	Not a transaction of host economy
Net operating surplus	Dividends payable or reinvested earnings	Not a transaction of host economy
Injections of funds by owners	Direct investment liabilities of the reporting economy	Not a transaction of host economy
A resident institutional unit's financial claims on or liabilities to the enterprise	Resident-to-resident financial claims	International financial claims

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g. *Highly mobile individuals*. Some individuals have close connections with two or more economies. In cases of no principal dwelling, or two or more principal dwellings in different economies, the residence is determined on the basis of the territory in which the predominant amount of time is spent in the year. While these individuals need to be classified as residents of a single economy for statistical purposes, additional information may be needed in recognition of strong ties to another economy.

26.39 When households change their economy of residence, there are changes to the status of the assets they own and liabilities they owe. These changes are recorded as reclassifications through the other changes in volume account. Because of the treatment of having a notional resident unit for ownership of land by non-residents, new notional units may be identified or old ones converted to ownership of the assets as a result of changes in residence of the owners.

Residence of enterprises

26.40 An enterprise is resident in an economic territory when the enterprise is engaged in a significant amount of production of goods or services from a location in the territory. Taxation and other legal requirements tend to result in the use of a separate legal entity for operations in each legal jurisdiction. In addition, a separate institutional unit is identified for statistical purposes where a single legal entity has substantial operations in two or more territories (for example, for branches, land ownership and multiterritory enterprises, as noted above). As a result of splitting such legal entities, the residence of each of the subsequently identified enterprises is usually clear. The implications of the residence of an enterprise for the recording of its flows and stocks are summarized in table 26.2.

26.41 In some cases, the physical location of an enterprise is not sufficient to identify its residence because the enterprise has little or no physical presence, for example its administration is entirely contracted out to other entities. Banking, insurance, investment funds, securitization vehicles and some special purpose entities may operate in this way. Many trusts, corporations, or foundations that hold private wealth also have little or no physical presence. Similarly, with virtual manufacturing, all the physical processes are outsourced to other units. In the absence of any significant physical dimension to an enterprise, its residence is determined according to the economic territory under whose laws the enterprise is incorporated or registered. The incorporation and registration represent a substantial degree of connection to the economy, associated with jurisdiction over the enterprise's existence and operations. In contrast, other connections such as ownership, location of assets, or location of its managers or administrators may be less clear-cut.

26.42 In some rare cases, laws allow enterprises to change their economy of residence, such as within an economic union. In such cases, as for households, a change of residence means that their assets and liabilities change their status through other changes in volumes. More commonly, what is called "corporate migration" involves the conveyance of assets and liabilities from a corporation in one economy to a related entity in another economy recorded as a transaction rather than a change of residence of the entity.

Residence of other entities

26.43 General government includes territorial enclaves, such as embassies, consulates, military bases and other enclaves of foreign governments. However, an entity created by a government under the laws of another jurisdiction is an enterprise resident in the host jurisdiction and not part of the general government sector in either economy.

26.44 International organizations are resident in an economic territory of their own and not of the economy in which they are physically located. An international organization that operates military forces or acts as the interim administration in a territory remains an international organization and is non-resident in that territory, even if it undertakes general government functions there. In cases where these organizations are significant, it may be desirable to identify them separately. Some international organizations cover a group of economies in a particular region, such as with economic or currency unions. If statistics are prepared for that region as a whole, these regional organizations are residents of the region as a whole, even though they are not residents of any member economy.

26.45 A non-profit institution serving households (NPISH) has a centre of economic interest in the economy where the institution is legally created or otherwise officially recognized. When an NPISH is engaged in charity or relief work on an international scale, the foreign operations may be sufficiently substantial to be recognized as branches.

C. A comparison between the international accounts and the SNA rest of the world accounts

26.46 Like the SNA, the international accounts cover accounts for current transactions, accumulation accounts and balance sheets. The transaction accounts are collectively called the balance of payments. An overview of the international accounts presentation (using the SNA numerical example) is given in tables 26.3. The three current accounts are the goods and services account, the primary income account and the secondary income account. The primary income account corresponds to the allocation of primary income accounts in the SNA, the secondary income account to the secondary distribution of income account in the SNA. The income accounts in *BPM6* do not use distribution and redistribution in their titles, since they do not show distribution and redistribution from one party to another,

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but just show the income from the point of view of one party. Because there is no account corresponding to use of income in the international accounts, the adjustment for the change in pension entitlements term appears as a single item after the secondary income account. (Cross-border pensions are currently minor for most economies.)

26.47 There are no exact parallels in the international accounts for the production account, the generation of income account and use of income account because the international accounts do not describe production, consumption (or capital formation). Products imported and exported are treated as simple transactions in all cases; whether the products will eventually be used for intermediate consumption, final consumption, capital formation, or will be re-exported is unknown in the context of the international transaction. The use made of products is entirely domestic in nature.

26.48 Table 26.3 also shows the restricted form of the capital account in the international accounts and the financial account using the functional classification of financial transactions rather than the instrument classification used in the SNA. Because the functional classification is a grouping of instruments, the two forms of presentation are strictly consistent. The functional classification is described below in section D. (The explanation of the shaded cell for reserves liabilities is explained in section D also.)

1. Goods and services account

26.49 The goods and services account consists only of imports and exports of goods and services because these are the only transactions in goods and services with a cross-border dimension. Goods and services are recorded when there is a change of economic ownership from a unit in one economy to a unit in another country. Although there is usually a

Table 26.3:Overview of the balance of payments

	Credits	Debits	Balance
Current accounts			
Goods and services account			
Goods	462	392	
Services	78	107	
Goods and services	*540*	*499*	*41*
Primary income account			
Compensation of employees	6	2	
Interest	13	21	
Distributed income of corporations	17	17	
Reinvested earnings	14	0	
Primary income account	*50*	*40*	*10*
Goods, services and primary income	*590*	*539*	*51*
Secondary income account			
Current taxes on income, wealth, etc.	1	0	
Net non-life insurance premiums	2	11	
Non-life insurance claims	12	3	
Current international transfers	1	31	
Miscellaneous current transfers	1	10	
Secondary income	*17*	*55*	*-38*
Current account balance			*13*
Capital account			
Acquisition or disposals of non-produced assets	0	0	
Capital transfers	1	4	
Capital account balance			*-3*
Net lending (+) or net borrowing (-)			10
Financial account (by functional category)			
Direct investment	8	11	
Portfolio investment	18	14	
Financial derivatives (other than reserves) and ESOs	3	0	
Other investment	20	22	
Reserve assets	8		
Total changes in assets or liabilities	*57*	*47*	
Net lending (+) or net borrowing (-)			*10*
Net errors and omissions			*0*

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physical movement of goods when there is a change of ownership, this is not necessarily the case. In the case of merchanting, goods may change ownership and not change location until they are resold to a third party.

26.50 Goods that change location from one economy to another but do not change economic ownership do not appear in imports and exports. Thus goods sent abroad for processing, or returned after processing, do not appear as imports and exports of goods; only the fee agreed for processing appears as a service.

26.51 The balance of payments gives emphasis to the distinction between goods and services. This distinction reflects policy interests, in that there are separate international treaties covering goods and services. It also reflects data issues, in that data on goods are usually obtained from customs sources, while data on services are usually obtained from payments records or surveys.

26.52 The main source of data for goods is international merchandise trade statistics. International standards are given in *International Merchandise Trade Statistics: Concepts and Definitions (IMTS)* (United Nations, 1998). *BPM6* identifies some sources of difference that may occur in some or all countries. It also recommends a standard reconciliation table to assist users in understanding these differences. One major source of difference is that the standards for IMTS use a CIF-type (cost, insurance and freight) valuation for imports, while the balance of payments use a uniform FOB valuation for both exports and imports. It is therefore necessary to exclude freight and insurance costs incurred between the customs frontier of the exporter and the customs frontier of the importer. Because of variations between the FOB-type valuation and actual contractual arrangements, some freight and insurance costs need to be rerouted.

26.53 The change of ownership basis used for the balance of payments means that goods entries will have a time of reporting consistent with the corresponding financial flows. In *BPM6*, there are no longer exceptions to the change of ownership principle. In contrast, IMTS follow the timing of customs processing. While this timing is often an acceptable approximation, adjustments may be needed in some cases, such as goods sent on consignment. In the case of goods sent abroad for processing with no change of ownership, the values of goods movements are included in IMTS, but changes in ownership are the primary presentation in the balance of payments. (However, the values of goods movements are recommended as supplementary items to understand the nature of these arrangements.) Further details of the recording of these processing arrangements are given in chapter 21. Other adjustments to IMTS may be needed to bring estimates into line with the change of economic ownership of goods, either generally or because of the particular coverage of each country. Possible examples include merchanting, non-monetary gold, goods entering or leaving the territory illegally, goods procured in ports by carriers, and goods moving physically but where there has been no change of ownership.

26.54 Re-exports are foreign goods (goods produced in other economies and previously imported with a change of economic ownership) that are exported with no substantial transformation from the state in which they were previously imported. Because re-exported goods are not produced in the economy concerned, they have less connection to the economy than other exports. Economies that are major trans-shipment points and locations of wholesalers often have large values of re-exports. Re-exports increase the figures for both imports and exports and when re-exporting is significant the proportions of imports and exports to economic aggregates are increased also. It is therefore useful to show re-exports separately. Goods that have been imported and are waiting to be re-exported are recorded in inventories of the resident economic owner.

26.55 Goods are presented at an aggregate level in the balance of payments. More detailed commodity breakdowns can be obtained from IMTS data.

26.56 Detail is produced for the following 12 standard components of services:

a. Manufacturing services on physical inputs owned by others;

b. Maintenance and repair services n.i.e.;

c. Transport;

d. Travel;

e. Construction;

f. Insurance and pension services;

g. Financial services;

h. Charges for the use of intellectual property n.i.e.;

i. Telecommunications, computer and information services;

j. Other business services;

k. Personal, cultural and recreational services; and

l. Government goods and services n.i.e.

26.57 Three of the standard components are transactor-based items, that is, they relate to the acquirer or provider, rather than the product itself. These categories are travel, construction and government goods and services n.i.e.

a. Travel covers all goods or services acquired by non-residents during visits whether for own use or to give away. Travel includes goods, local transport, accommodation, meals and other services.

b. Construction covers both the total value of the product delivered by the contractor and any goods and services sourced locally by the contractor that are not recorded in imports and exports of goods.

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c. Government goods and services n.i.e. cover a range of items that cannot be allocated to more specific headings.

Besides the three transactor-based items, the remaining components are product-based, built from the more detailed classes of the *CPC 2*. Additional standards for services trade are shown in the *Manual on Statistics of International Trade in Services (MSITS) (*United Nations, European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations Conference on Trade and Development and the World Trade Organization, 2002), which is fully harmonized with the international accounts.

2. The primary income account

26.58 The entries in the primary income account are concerned with compensation of employees and property income, exactly as in the allocation of primary income account in the SNA. Payments of taxes on production by residents and receipts of subsidies by residents from the domestic government are recorded in the generation of income account, an account that does not form part of the balance of payments. Any payments of taxes on production payable by a resident to another government as well as any subsidy receivable by a resident from another government are recorded in the primary income account of the balance of payments. The matching entries for the domestic government are shown in the SNA in the allocation of primary income account and for foreign governments in the rest of the world column of that account and in the primary income account of the balance of payments.

26.59 Rent may arise in cross-border situations, but rarely, because all land is deemed to be owned by residents, if necessary by creating a notional resident unit. An example where rent may be recorded in the international accounts may be short-term fishing rights in territorial waters provided to foreign fishing fleets. It is common in the international accounts to use the term investment income meaning property income excluding rent. Investment income therefore reflects income arising from the ownership of financial assets and the disaggregation of investment income matches that of financial assets and liabilities so that rates of return can be calculated.

26.60 In *BPM6*, interest flows are measured on exactly the same basis as in the SNA with FISIM separated and treated as an import or export of financial services.

Income of direct investment enterprises

26.61 The role of direct investment enterprises is particularly important and reflected in both the flows and positions in the international accounts. There is extended discussion on the identification and role of direct investment enterprises in section D.

26.62 As explained in paragraphs 7.136 to 7.139, in the case of a direct investment enterprise, it is assumed that a proportion of the enterprise's retained earnings is distributed to the direct investor as a form of investment income. The proportion corresponds to the direct investor's holding in the enterprise.

26.63 Retained earnings are equal to the net operating surplus of the enterprise plus all property income earned less all property income payable (before calculating reinvested earnings) plus current transfers receivable less current transfers payable and less the item for the adjustment for the change in pension entitlements. Reinvested earnings accrued from any immediate subsidiaries are included in the property income receivable by the direct investment enterprise.

26.64 Reinvested earnings may be negative, for example where the enterprise makes a loss or where dividends are distributed from holding gains, or in a quarter when an annual dividend is paid. However, if the dividends are disproportionately large relative to recent levels of dividends and earnings, the excess should be recorded as a withdrawal of owner's equity from the corporation as explained in paragraph 7.131.

26.65 For a direct investment enterprise that is 100 per cent owned by a non-resident, reinvested earnings are equal to retained earnings and the saving of the enterprise is exactly zero.

3. Secondary income account

26.66 The entries in the secondary income account are current transfers. The range of entries corresponds exactly to those in the secondary distribution of income account in the SNA. Several of these are particularly important in the international accounts, especially current international cooperation and remittances sent to their home countries by individuals working abroad.

26.67 Cross-border personal transfers are household-to-household transfers and are of interest because they are an important source of international funding for some countries that provide large numbers of long-term workers abroad. Personal transfers include remittances by long-term workers, that is, those who have changed their economy of residence.

26.68 Other workers, such as border and seasonal workers do not change their economy of residence from the home economy. Instead of transfers, the international transactions of these workers include compensation of employees, taxes and travel costs. A supplementary presentation of personal remittances brings together personal transfers with these related items. Personal remittances include personal transfers, compensation of employees less taxes and travel, and capital transfers between households. For further details, see Appendix 5 Remittances in *BPM6*.

26.69 Insurance flows, especially flows relating to reinsurance, can be important internationally. These flows are recorded in the same way as in the SNA, both as regards the separation of a financial service charge and the treatment of direct insurance and reinsurance flows separately and not on a consolidated basis. Detailed information on this separation is given in part 1 of chapter 17.

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4. Balancing items in the current accounts of the international accounts

26.70 The structure of the balancing items in the balance of payments is somewhat different from that in the SNA, in that each account has its own balancing item and another that carries down to the next account. To illustrate, the primary income account has its own balancing item (balance on primary income) and a cumulative balance (balance on goods, services and primary income). The external balance on primary income corresponds to balance of primary incomes and is the item feeding into GNI. The current external balance corresponds to saving by the rest of the world relative to the domestic economy. The balancing items in the *BPM6* structure of accounts are shown in table 16.3, reproduced here for convenience as table 26.4.

5. The capital account

26.71 The elements of the capital account subject to international transactions are more restricted than those covered in the SNA. The entries in the capital account cover acquisitions and disposals of non-produced non-financial assets and capital transfers. There are no transactions recorded as capital formation of produced assets because, as explained earlier, the ultimate use of exports is not a concern for the national economy.

26.72 Like the SNA, net lending or net borrowing is the balancing item for the sum of the current and capital accounts and for the financial account. As in the SNA, it covers all instruments used for providing or acquiring funding, not just lending and borrowing. Conceptually, it has the same value as the national accounts item for the total economy, and the same as the national accounts item for the rest of the world but with the sign reversed.

6. The financial account and IIP

26.73 The financial account of the balance of payments and the IIP are of particular importance because they provide an understanding of international financing as well as of international liquidity and vulnerability. The integrated IIP statement, including the IIP and associated financial and other changes accounts, is shown in Table 26.5. The primary classification is based on functional categories, with additional data on instruments and institutional sectors.

26.74 The functional categories, described in section D, convey more information about the motivation and relationship between the parties, which are of particular interest to international economic analysis. Data by functional category are further subdivided by instrument and institutional sector, which makes it possible to link them to the corresponding SNA and monetary and financial statistics items. The institutional sector classification is the same as in the SNA, although it is usually abbreviated (to five sectors in the standard components). In addition, a supplementary subsector is used for monetary authorities, which is a functional subsector linked to reserve assets. It covers the central bank and any parts of general government or financial corporations other than the central bank that hold reserve assets, so is relevant for countries

Table 26.4: Balancing items in the international accounts in relation to the SNA sequence of accounts

Uses		Resources
Rest of the world	Transactions and balancing items	Rest of the world
	Goods and services account	
	Imports of goods and services	499
540	Exports of goods and services	
- 41	*External balance of goods and services*	
	Primary income account	
6	Compensation of employees	2
	Taxes on production and imports	
	Subsidies	
44	Property income	38
- 10	*External balance of primary income*	
- 51	*External balance of goods, services and primary income*	
	Secondary income account	
17	Current transfers	55
38	*External balance of secondary income*	
	Adjustment for the changes in pension entitlements	
- 13	*Current external balance*	
	Capital account	
	Acquisitions less disposals of non-produced assets	
	Capital transfers, receivable	4
	Capital transfers, payable	- 1
3	*External capital account balance*	
- 10	*Net lending (+) / net borrowing (–)*	

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where some or all reserves are held outside the central bank.

26.75 The part of the balance sheets covered in the international accounts is called the IIP. The terminology highlights the specific components of the national balance sheet which are included. The IIP covers only financial assets and liabilities because, to be included in the IIP, there must be a cross-border element. In the case of financial claims, the cross-border element arises when one party is a resident and the other party is a non-resident. In addition, while gold bullion is an asset that has no counterpart liability, it is included in the IIP when held as a reserve asset, because of its role as a means of international payments. However, non-financial assets are excluded as they do not have a counterpart liability or other international aspect.

26.76 The balancing item on the IIP is the net IIP. The net IIP plus non-financial assets in the national balance sheet equal national net worth, because resident-to-resident financial claims net to zero in the national balance sheet.

26.77 The same level of detail is used for investment income and the IIP. As a result, average rates of return can be calculated. Rates of return can be compared over time and for different instruments and maturities. For example, the trends in return on direct investment can be analysed, or the return can be compared with other instruments.

7. The other changes in assets accounts

26.78 International assets and liabilities may be subject to all the possible types of other changes in the volume of assets and liabilities and to revaluation changes.

26.79 Because instruments are often denominated in foreign currencies and analysis of the effect of exchange rate movements is particularly important, there is a breakdown of revaluations into exchange rate changes and other factors.

D. International accounts functional categories

26.80 The international accounts functional categories are the primary classification used for each of investment income, financial transactions and positions in the international accounts. The following five categories are identified:

a. direct investment;

b. portfolio investment;

c. financial derivatives (other than reserves) and employee stock options;

d. other investment; and

e. reserve assets.

26.81 Detailed definitions are given later in this section. The functional categories are built on the classification of

Table 26.5:Overview of Integrated International Investment Position Statement

	Opening position	Transactions (Financial account)	Other changes in the volume of assets	Revaluation	Closing position
Assets (by functional category)					
Direct investment	78	8	0	1	87
Portfolio investment	190	18	0	2	210
Financial derivatives (other than reserves) and ESOs	7	3	0	0	10
Other investment	166	20	0	0	186
Reserve assets	833	8	0	12	853
Total	*1 274*	*57*	*0*	*15*	*1 346*
Liabilities (by functional category)					
Direct investment	210	11	0	2	223
Portfolio investment	300	14	0	5	319
Financial derivatives (other than reserves) and ESOs	0	0	0	0	0
Other investment	295	22	0	0	317
Total	*805*	*47*	*0*	*7*	*859*
Net IIP	*469*	*10*	*0*	*8*	*487*

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financial instruments discussed in chapters 11 and 13, but with an additional dimension that takes into account some aspects of the relationship between the parties and the motivation for investment. As a result, the different categories exhibit different patterns of behaviour. For example, there is a different type of relationship between the parties for direct investors compared to portfolio investors holding equity. Direct investment is related to control or a significant degree of influence, and tends to be associated with a lasting relationship although it may be short-term. In addition to financial resources, direct investors often supply additional factors such as know-how, technology, management and marketing. As well, related companies are more likely to trade with and lend to each other. In contrast, portfolio investors typically have a smaller role in the decision-making of the enterprise, with potentially important implications for future flows, and for the volatility of the price and volume of positions. Portfolio investment differs from other investment in that it provides a direct way to access financial markets, and so can provide liquidity and flexibility.

26.82 Reserve assets include a range of instruments that are shown under other categories when not owned by monetary authorities or other units authorized by the monetary authorities and sometimes even when held by monetary authorities. However, as reserve assets they are identified as being available to meet international payments financing needs and undertake market intervention to influence the exchange rate.

26.83 The instrument classification alone does not fully reflect these behavioural differences. For example, a loan can appear under direct investment or other investment, but the different nature of the relationship between the parties

Table 26.6: Link between Financial Assets Classification and Functional Categories

SNA /MFSM Financial Assets and Liabilities Classification	Functional categories				
	Direct investment	Portfolio investment	Financial derivatives (other than reserves) and ESOs	Other investment	Reserve assets
Monetary gold					X
Special drawing rights				X*1	X*1
Currency and deposits:					
Currency				X	X
Interbank positions				X	X
Other transferable deposits	X			X	X
Other deposits	X			X	X
Debt securities	X	X			X
Loans	X			X	X
Equity and investment fund shares:					
Equity:					
Listed shares	X	X			X
Unlisted shares	X	X			x
Other equity	X			X	
Investment fund shares/units:					
Money market fund shares/units	x	X			X
Other investment fund shares/units	x	X		x	X
Insurance, pension and standardized guarantee schemes:					
Non-life insurance technical reserves	x			X	
Life insurance and annuity entitlements	x			X	
Pension entitlements				X	
Claims of pension funds on pension managers	X			X	
Entitlements to non-pension benefits				X	
Provisions for calls under standardized guarantees	X			X	
Financial derivatives and employee stock options:					
Financial derivatives			X		X
Employee stock options			X		
Other accounts receivable/payable:					
Trade credit and advances	X			X	
Other accounts receivable/payable	X			X	

Footnote 1: SDR assets are reserve assets; SDR liabilities are other investment;
X shows applicable functional categories; x shows cases that are considered to be relatively uncommon.

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means that the risks and motivations behind the transaction tend to differ. A direct investment loan is more likely to be provided and generally involves less vulnerability on the part of the borrowing economy because of the relationship between the parties. Table 26.6 shows the relationship between instruments and functional categories.

1. Direct investment

26.84 ***Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy.*** As well as the equity that gives rise to control or influence, direct investment also includes associated debt (except debt between affiliated financial intermediaries).

26.85 Control is determined to exist if the direct investor owns more than 50 per cent of the voting power in the direct investment enterprise. Such an enterprise is called a subsidiary. A significant degree of influence is determined to exist if the direct investor owns from 10 to 50 percent of the voting power in the direct investment enterprise. Such an enterprise is called an associate. In order to achieve bilateral consistency and avoid subjective decisions about actual control or influence, these operational definitions should be used in all cases.

26.86 As well as immediate direct investment relationships, there may be indirect direct investment relationships, as a result of a chain of ownership. In addition, fellow enterprises may be an important part of direct investment. (Fellow enterprises are enterprises that have less than ten per cent equity in each other but which are under the control or influence of the same investor who is a foreign direct investor in at least one of the fellows.) Reverse investment arises when direct investment enterprises invest in their own direct investors but have less than ten per cent of the voting power in the direct investor.

26.87 Direct investment includes debt between the parties as well as equity except in the case of debt positions between related financial institutions. Such debt between related companies may be called inter-company lending. One of the features of a group of direct investment enterprises is that its members are more likely to extend loans and trade credit to each other than are unrelated enterprises.

26.88 Because of the relationship of control or influence, the direct investor's share of retained earnings of a subsidiary or associate is imputed as first being paid out as an income flow and then reinvested as a financial transaction. The income item is called reinvested earnings; the corresponding equal entry in the financial account is called reinvestment of earnings. Reinvested earnings are defined as the direct investor's share in the retained earnings of the enterprise, and so are consistent with the corresponding SNA items. A consequence is that there will be no saving by an enterprise that is 100 per cent foreign owned, because all saving will be attributed to its direct investor.

26.89 Those direct investment enterprises that are controlled by non-residents correspond to the SNA subsectors of foreign-controlled enterprises. However direct investment enterprises include those not subject to control from abroad but still subject to a significant degree of influence. The SNA's foreign-controlled enterprises are limited to inward direct investment, while the international accounts are also concerned with outward direct investment. Reinvested earnings on foreign direct investment in the SNA have the same scope as in the balance of payments (although "foreign" is not used because it is redundant in the context of the international accounts).

26.90 In addition to the statistics on the international financial flows associated with direct investment, information on foreign-controlled enterprises is provided through statistics on the Activities of Multinational Enterprises (AMNE statistics) and the closely related Foreign AffiliaTes Statistics (FATS). These cover items such as exports, imports, domestic sales and domestic purchases of goods and services. They therefore provide a wider picture of the operations of multinational enterprises. Additional information is available in *Recommendations Manual on the Production of Foreign AffiliaTes Statistics*, the *Handbook on Economic Globalisation Indicators* and *MSITS*.

2. Portfolio investment

26.91 ***Portfolio investment is defined as cross-border transactions and positions involving debt or equity securities, other than those included in direct investment or reserve assets***. Securities are instruments designed for convenient negotiability between parties, such as shares, bonds, notes and money market instruments. The negotiability of securities is a way of facilitating trading, allowing them to be held by different parties during their lives. Negotiability allows investors to diversify their portfolios and to withdraw their investment readily.

26.92 Portfolio investment typically depends on organized financial markets and associated bodies such as dealers, exchanges and regulators. In contrast, the parties to direct and other investment instruments usually deal directly with each other. The negotiability of portfolio investment transactions makes them a convenient and flexible investment channel, but also may be associated with volatility.

3. Financial derivatives (other than reserves) and employee stock options

26.93 The definition of the functional category financial derivatives (other than reserves) and employee stock options largely coincides with the corresponding financial instrument class, discussed in chapters 11 and 13. The difference in coverage between the functional category and the financial instrument is that financial derivatives associated with reserve asset management are excluded from the functional category and included in reserve assets. This category is identified separately because it relates to risk transfer, rather than supply of funds or other resources.

4. Other investment

26.94 ***Other investment is a residual category that includes positions and transactions other than those included in direct investment, portfolio investment, financial***

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derivatives and employee stock options and reserve assets. It includes the remainder of the following financial instruments:

a. other equity;

b. currency and deposits;

c. loans (including use of IMF credit and loans from the IMF);

d. non-life insurance technical reserves, life insurance and annuities entitlements, pension entitlements and provisions for calls under standardized guarantees;

e. trade credit and advances;

f. other accounts receivable/payable; and

g. SDR allocations (SDR holdings are included in reserve assets).

5. Reserve assets

26.95 ***Reserve assets are those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing). Reserve assets must be denominated and settled in foreign currency.*** Underlying the concept of reserve assets are the notions of "control" and "availability for use" by the monetary authorities.

26.96 In general, only external claims actually owned by the monetary authorities can be classified as reserve assets. Nonetheless, ownership is not the only condition that confers control. In cases where institutional units (other than the monetary authorities) in the reporting economy hold legal title to external foreign currency assets and are permitted to do so only on terms specified by the monetary authorities or only with their express approval, such assets can be considered reserve assets. This is because such assets are under the direct and effective control of the monetary authorities.

26.97 Reserve assets must be readily available in the most unconditional form. A reserve asset is liquid in that the asset can be bought, sold and liquidated for foreign currency (cash) with minimum cost and time, and without unduly affecting the value of the asset. This concept refers to both non-marketable assets, such as demand deposits, and marketable assets, such as securities where there are ready and willing sellers and buyers. In order to be readily available to the authorities to meet balance of payments financing needs and other related purposes under adverse circumstances, reserve assets generally should be of high quality.

26.98 Reserve assets are limited to assets, but a memorandum item is provided for reserve-related liabilities that are included in other functional categories, mainly portfolio and other investment. (This is why the liabilities cell for reserves in table 26.3 is shaded.)

E. Special international accounts considerations

1. Global imbalances

26.99 In recent years, the IMF has done extensive work on global statistical imbalances. By summing data for all economies, global totals can be derived. (Although as a functional category, reserve assets have no counterpart liability, the constituent instruments can be allocated to their counterpart liabilities for an exercise of the type described here.) The extent of actual inconsistency has been used to identify systematic biases that can indicate reporting problems, for example, that services credits have higher coverage than services debits.

2. Exceptional financing

26.100 Exceptional financing brings together financial arrangements made by the authorities to meet balance of payments needs. Exceptional financing therefore identifies transactions according to their motivation. In addition, the incurrence of arrears is included in exceptional financing. Although it is not a transaction, it is an action the monetary authorities may take to manage their payments requirements.

26.101 Exceptional financing is presented in the "analytic" presentation of the balance of payments, as published in the *Balance of Payments Statistics Yearbook* (International Monetary Fund, annual). In this presentation, entries relating to reserves, IMF credit and exceptional financing are presented "below-the-line" while all the other entries, which will require funding, are shown above-the-line. This presentation facilitates analysis of the monetary authorities' international liquidity.

26.102 There is more discussion on exceptional financing in appendix 1 of *BPM6*.

3. Debt instruments

26.103 It is useful to group the different types of debt instruments, because debt instruments have particular implications for international liquidity and risk. Debt instruments are those instruments that require the payment of principal or interest or both at some point(s) in the future. Debt instruments comprise special drawing rights, currency and deposits, debt securities, loans, insurance technical reserves and provision for calls under standardized guarantees, and other

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accounts receivable/payable. Financial derivatives are not debt instruments, but an overdue obligation on a financial derivative contract is classified as an account payable and thus is included as a debt instrument.

26.104 Debt instruments can be contrasted with equity and investment shares in the nature of the liability and risk. While equity gives a residual claim on the assets of the entity, a debt instrument involves an obligation to pay an amount of principal or interest or both usually according to a predefined formula, which means that the creditor has a more limited risk exposure. In contrast, the return on equity is largely dependent on the economic performance of the issuer, so the holders bear more of the risk. Additional information is provided in the *External Debt Guide*.

26.105 Debt instrument flows and positions are shown divided between long-term and short-term. Primarily, this split is according to their original maturity, that is, the period from issue until contractually scheduled final payment. In addition, because of the international accounts concern with international liquidity issues, liability data can also be prepared on the basis of remaining maturity, that is, the period from the reference date until contractually scheduled final payment, on a supplementary basis.

4. Debt reorganization

26.106 ***Debt reorganization (also referred as debt restructuring) is defined as arrangements involving both the creditor and the debtor (and sometimes third parties) that alter the terms established for servicing an existing debt.*** Governments are often involved in debt reorganization, as a debtor, or a creditor or a guarantor, but debt reorganization can also involve the private sector, such as through debt exchanges. Debt reorganization involves a range of different types of transactions as well as valuation and timing issues.

26.107 The four main types of debt reorganization are:

a. Debt forgiveness; a reduction in the amount of, or the extinguishing of, a debt obligation by the creditor via a contractual arrangement with the debtor;

b. Debt rescheduling or refinancing; a change in the terms and conditions of the amount owed, which may or may not result in a reduction in burden in present value terms;

c. Debt conversion; the creditor exchanges the debt claim for something of economic value, other than another debt claim on the same debtor, such as debt-for-equity swaps, debt-for-real-estate swaps, debt-for-development swaps, debt-for-nature swaps, and for debt prepayments, debt-for-cash; and

d. Debt assumption and debt payments on behalf of others when a third party is also involved.

Debt forgiveness across economies often involves government and there is further guidance on the treatments of these arrangements in chapter 22, *BPM6* and specialized manuals such as the *External Debt Guide*.

26.108 Debt repudiation, write-offs and write-downs of debt on a unilateral basis are not treated as transactions in either the SNA or *BPM6* and so are not considered part of debt reorganization.

5. Regional arrangements, including currency unions

26.109 Regional arrangements include:

a. monetary and currency unions, which provide for a single monetary policy across an area. Some of the same issues apply when one economy unilaterally adopts the currency of another economy, such as with “dollarization”;

b. economic unions, which harmonize certain economic policies to foster greater economic integration; and

c. customs unions, which have common tariff and other trade policies with non-member economies.

BPM6 gives detailed guidance on the treatments of these arrangements. Among the issues that are dealt with are the production of consolidated data for a union as a whole, the treatment of regional organizations, including the central bank, treatment of bank notes in a currency union, and revenue-sharing arrangements in a customs union.

6. Currency conversion, including multiple exchange rates

26.110 Exchange rates must be considered carefully when measuring international transactions and positions, as changes can distort measurement. Flows denominated in a foreign currency are converted to their value in the domestic currency at the rate prevailing when the flows take place, and positions are converted at the rate prevailing on the balance sheet date. The midpoint between the buying and selling rates should be used at the time of transaction (for transactions) and at the close of business on the reference date for positions. The difference between buying/selling prices and midpoint prices represents a service charge and should be recorded as such.

26.111 In principle, the actual exchange rate applicable to each transaction should be used for currency conversion. The use of a daily average exchange rate for daily transactions usually provides a very good approximation. If daily rates cannot be applied, average rates for the shortest period should be used. Some transactions occur on a continuous basis, such as the accrual of interest, over a period of time. For such flows, therefore, an average exchange rate for the period in which the flows occur should be used for currency conversion.

26.112 Under a multiple exchange rate regime, two or more exchange rates are applicable to different categories of transactions; the rates favour some categories and discourage others. Such rates incorporate elements similar to taxes or subsidies. Because the multiple rates influence the values and the undertaking of transactions expressed in domestic currency, net proceeds implicitly accruing to authorities as a result of these transactions are calculated as

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implicit taxes or subsidies. The amount of the implicit tax or subsidy for each transaction can be calculated as the difference between the value of the transaction in domestic currency at the actual exchange rate applicable and the value of the transaction at a unitary rate that is calculated as a weighted average of all official rates used for external transactions. For conversion of positions of external financial assets and liabilities in a multiple rate system, the actual exchange rate applicable to specific assets or liabilities at the beginning or end of the accounting period is used.

26.113 Parallel (unofficial) or black market rates cannot be ignored in the context of a multiple rate regime and can be treated in different ways. For instance, if there is one official rate and a parallel market rate, the two should be handled separately. Transactions in parallel markets should be converted using the exchange rate applicable in that market. If there are multiple official rates and a parallel rate, the official rates and the parallel rate should be treated as distinct markets in any calculation of a unitary rate. Transactions effected at the parallel rate usually should be separately converted at that rate. However, in some instances, parallel markets may be considered effectively integrated with the official exchange rate regime. Such is the case when most or all transactions in the parallel market are sanctioned by the authorities or when the authorities actively intervene in the market to affect the parallel rate, or do both. In this instance, the calculation of the unitary rate should include both the official and parallel market rates. If only limited transactions in the parallel market are sanctioned by the authorities, the parallel rate should not be included in the calculation of a unitary rate.

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Chapter 27: Links to monetary statistics and the flow of funds

A. Introduction

27.1 Chapter 11 describes the financial account of the sequence of accounts of the SNA. It shows transactions in each category of financial assets and liabilities for each of the institutional sectors of the national economy and of the rest of the world.

27.2 As explained when describing the principle of quadruple accounting in both chapter 11 and chapter 4, each transaction leads to two pairs of entries in the SNA accounts. For many transactions, one pair is recorded in one of the non-financial accounts and one pair in the financial account. For others, which are concerned with changing the composition of a portfolio of financial assets and liabilities, both pairs of entries are recorded in the financial account. It is for this reason that only by including the financial account in the sequence of accounts is the full articulation of the accounting system achieved.

27.3 However, the information in the financial account is of analytical and policy interest in its own right and represents an important part of monetary and financial statistics. These statistics are used to monitor the state of the money and other capital markets in particular and as an indicator of the state of the economy in general. For the latter, the link to the rest of the SNA accounts is usually implicit rather than explicit.

27.4 The purpose of this chapter is to give an introduction to the sorts of analyses involved in monetary and financial statistics more generally and to show how the data in the sequence of accounts can be linked to these other presentations. Further detail on monetary and financial statistics can be found in the *MFSM* and its companion *Compilation Guide (*International Monetary Fund (IMF) 2008), the *Manual on Sources and Methods for the Compilation of ESA 95 Financial Accounts (Eurostat, 2002b),* the *Monetary Financial Institutions and Market Statistic Manual* (European Central Bank, 2007) and in *Financial Production, Flows and Stocks in the SNA.* (United Nations and the European Central Bank, forthcoming).

1. Monetary statistics

27.5 Monetary statistics cover the stocks and flows of the assets and liabilities of financial corporations, both within an economy and between units in the economy and units in the rest of the world. However, a more aggregate level of subsectoring is used than in the SNA. Financial corporations are divided into two subsectors only at the highest level, depository corporations and the other financial corporations subsector. The former is then further subsectored into the central bank subsector and the other depository corporations subsector. More information on monetary statistics is given in section B.

2. Financial statistics

27.6 Financial statistics extend the range of monetary statistics to include the stocks and flows of financial assets and liabilities between all sectors of the economy and between the sectors of the economy and the rest of the world.

27.7 The basic accounting rules, concepts of residence, time of recording and the classification of financial assets and liabilities are consistent between the SNA, *BPM6* and *MFSM*. The *MFSM* uses a more aggregate level of sectoring than the SNA but one that is strictly consistent with it.

27.8 Some further aspects of financial statistics building on the classifications used in the financial account are discussed in section C.

3. Flow of Funds

27.9 The flow of funds is a three dimensional presentation of financial statistics where both parties to a transaction as well as the nature of the financial instrument being transacted are elaborated. A similar three dimensional presentation is also presented in respect of the stocks of financial assets and liabilities where the creditor and debtor of each instrument are shown. The flow of funds is discussed in section D.

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A. Monetary statistics

1. Defining depository corporations

27.10 Money is very important as a financial variable, but the wide range of ways in which money is defined in different countries precludes a simple definition within the SNA.

27.11 The composition of broad money and other monetary aggregates varies widely among countries and encompasses many classes of deposits and certain categories of short-term securities, particularly negotiable certificates of deposit. In addition, many countries compile a range of money measures, as well as broader liquidity measures. Even within a single country, innovation, deregulation or technical progress may cause definitions of broad money to shift over time in response to changes in financial instruments and the organization of money markets.

27.12 In the *MFSM*, a country-specific concept of broad money as nationally defined is used. Although the specific components of broad money may vary across countries, in all cases the nationally defined concept is used to identify those financial corporations that issue liabilities included in broad money. Such corporations are described as depository corporations.

27.13 The set of nine subsectors of the financial corporations sector described in chapter 4 and listed in table 27.1 is such that it should be possible to identify depository corporations as just defined as a combination of two or more of these subsectors. At a minimum, the group will include the central bank and deposit-taking institutions. In some countries money market funds may also be included because they are considered to be part of broad money.

27.14 Once depository corporations are identified, the three subsectors used for monetary statistics, the central bank subsector, the other depository corporations subsector and the other financial corporations subsector, can be established.

2. Presentation of monetary statistics

27.15 Monetary statistics are presented for all financial corporations, with the following disaggregation:

a. Depository corporations subsector,

- Central bank subsector,
- Other depository corporations subsector,

b. Other financial corporations subsector.

27.16 The instrument classification is the standard one from the financial account, as shown in table 27.2, with possibly some further breakdown according to whether the instrument is denominated in local currency or foreign currency.

27.17 For each instrument, a set of entries equivalent to an asset account is shown, that is:

a. Opening stock,

b. Transactions,

c. Valuation changes,

d. Other changes in volume,

e. Closing stock.

Table 27.1: Subsectors of the financial corporations sector

1. Central Bank
2. Deposit-taking corporations except the Central Bank
3. Money market funds (MMF)
4. Non-MMF investment funds
5. Other financial intermediaries except insurance corporations and pension funds
6. Financial auxiliaries
7. Captive financial institutions and money lenders
8. Insurance corporations (IC)
9. Pension funds (PF)

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B. Financial statistics

27.18 As noted in the introduction, financial statistics extend the range of monetary statistics to include the stocks and flows of financial assets and liabilities between all sectors of the economy and between the sectors of the economy and the rest of the world. Financial statistics include the financial account, balance sheets, other changes in assets account and the capital account to the extent that net borrowing or net lending is taken from there. The format used for financial statistics is similar to that used for monetary statistics except that all sectors are covered. In addition, disaggregation of the financial sector into subsectors is common. As indicated, though, the sectors outside the financial corporations sector may be aggregated. It is usual to show general government separately and also the rest of the world. If it is of particular interest, public non-financial corporations may also be shown as a separate sector.

Table 27.2: The classification of financial assets and liabilities

Monetary gold and special drawing rights (SDRs)
- Monetary gold
- Special drawing rights

Currency and deposits
- Currency
- Transferable deposits
  - Interbank positions
  - Other transferable deposits
- Other deposits

Debt securities*
- Short-term
- Long-term

Loans
- Short-term
- Long-term

Equity and investment fund shares**
- Equity
  - Listed shares
  - Unlisted shares
  - Other equity
- Investment fund shares/units*
  - Money market fund shares/units
  - Other investment fund shares/units

Insurance, pension and standardized guarantee schemes
- Non-life insurance technical reserves
- Life insurance and annuity entitlements
- Pension entitlements
- Claims by pension funds on pension managers
- Provisions for calls under standardized guarantees

Financial derivatives and employee stock options
- Financial derivatives
  - Options
  - Forwards***
- Employee stock options

Other accounts receivable / payable
- Trade credit and advances
- Other

Memorandum item: Foreign direct investment
- *Equity*
- *Loans*
- *Debt securities*
- *Trade Credit*
- *Other*

* *The listed/unlisted split is relevant for debt securities and investment funds also.*

** *Reinvested earnings can exist under any of these.*

*** *Credit default swaps to cover for guarantees are included within this item.*

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27.19 The classification of financial assets, shown in table 27.2, is based primarily on two kinds of criteria: the liquidity of the asset and the legal characteristics that describe the form of the underlying creditor/debtor relationship. The concept of liquidity embraces other more specific characteristics such as negotiability, transferability, marketability or convertibility. These characteristics play a major role in determining the categories, although they are not separately identified in a systematic way. The classification is designed to facilitate the analysis of transactions of institutional units and is a framework for assessing the sources and uses of financing and degree of liquidity for these units.

27.20 Maturity distinction is recognized as a secondary classification criterion. Short-term is defined for the classification as one year or less, while long-term is defined as more than one year. To monitor possible liquidity risks, it may also be helpful to distinguish those long-term instruments with a remaining maturity of one year or less. (Remaining maturity is the period from the reference date until contractually scheduled final payment.)

27.21 The classification does not contain functional categories, such as direct investment, portfolio investment, and international reserves, which are basic classification criteria for the balance of payments financial account. In view of the importance of these categories, the classification does provide for memorandum items for financial account transactions related to foreign direct investment relationships. This topic is treated in greater detail in chapters 21 and 26.

C. Flow of funds

27.22 The form of table described under the section on monetary statistics shows how the closing stock of a comprehensive set of assets for a particular sector may be analysed by seeing how the opening stock is changed by transactions in the asset, revaluation changes and other changes in the volume of assets to reach the closing stock. This is a particular application of the asset accounts described in chapter 13.

27.23 Another popular form of table is that known as a flow of funds table. This may take one of several forms. The most common presentation consists of an articulation of flows (or stocks) showing for each instrument which sector or subsector is the creditor and which the debtor. Another variation is to combine the elements of the capital and financial accounts to examine all accumulation transactions and not just those concerning financial assets. The rationale for this is that the balancing item on the right-hand side of the financial account should be exactly equal in magnitude but opposite in sign to that on the left-hand side of the capital account. By including the items from the capital account, discrepancies in this account may be revealed by the exercise of completing the flow of funds table, instead of assuming the net lending or net borrowing total is already determined. (This still assumes that saving is determined correctly. The act of balancing the flow of funds table may suggest a re-examination of the current accounts if it is difficult to reconcile the saving figure for a sector with the recorded capital and financial transactions.)

1. Flow accounts

27.24 The financial account, as presented in table 11.1 and repeated for convenience here as table 27.3, records the net acquisition of financial assets and net incurrence of liabilities for all institutional sectors by type of financial asset. For each sector, the financial account shows the liabilities that the sector incurs to mobilize financial resources and the financial assets that the sector acquires. For each financial asset and liability, the financial account shows the effects of transactions on the level of assets acquired by each sector and on the level of liabilities incurred by each sector. This information is very valuable in identifying the financial assets that net borrowing sectors use to finance their deficits and the assets that net lending sectors use to allocate their surpluses. Although the

Table 27.3: The financial account - concise form - changes in assets

Changes in assets

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net acquisition of financial assets	83	172	- 10	189	2	436	47		483
Monetary gold and SDRs		- 1				- 1	1		0
Currency and deposits	39	10	- 26	64	2	89	11		100
Debt securities	7	66	4	10	- 1	86	9		95
Loans	19	53	3	3	0	78	4		82
Equity and investment fund shares	10	28	3	66	0	107	12		119
Insurance, pension and standardized guarantee schemes	1	7	1	39	0	48	0		48
Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
Other accounts receivable/payable	4	1	5	4	1	15	10		25

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movement of financial flows can be mapped at this level of recording, the question of who is financing whom is not answered. Table 27.3 shows that non-financial corporations incur liabilities predominantly in the form of loans and other equities and investment fund shares. Financial corporations incur net liabilities by using the full range of financial instruments. While the instrument by which the liabilities are incurred is clearly presented in this account, it is not possible to identify the sector that is providing the funds. Similarly, the net acquisition of financial assets can be tracked. Households acquire net financial assets spread across a range of assets, while financial corporations acquire net financial assets mostly in the form of loans and securities. However, it cannot be determined from this level of recording to which sectors the financing is being provided.

27.25 For a full understanding of financial flows and the role they play in the economy, it is often important to know more detailed financial relationships between sectors and the financial assets by which these relationships are carried out. For example, it is useful to show what types of liabilities government is using to finance its deficit and which sectors (or the rest of the world) are providing the financing. For financial corporations (and those supervising them), it is interesting to show not only the composition of financial assets (loans and securities) that they have acquired but also which sectors these are claims upon. In addition, it is often desirable to analyse financial flows between subsectors within a sector (central government financial transactions with local governments or central bank financial transactions with deposit-taking institutions) and across sector boundaries (changes in deposit-taking institutions' claims on public non-financial corporations). Such detailed information is necessary to understand how financing is carried out and how it changes over time.

27.26 This more detailed approach is particularly important in spelling out the role that financial corporations play in financial transactions. Financial corporations often have very small net lending or borrowing balances in comparison with their total transactions in both financial assets and liabilities. This reflects the basic role of financial intermediation of mobilizing financial resources and making them available to other sectors in forms suitable to these sectors through transformation of the maturity of exact form of the assets available. More generally, financial corporations play a major role assisting institutional units to rebalance their portfolios of assets and liabilities taking account of their preferences between investment safety and rate of return, liquidity preference and convenience amid constantly changing market conditions. Thus, financial corporations play a critical role in directing financing flows from net lending sectors to net borrowing sectors and allow lenders to choose their asset instruments and borrowers their forms of indebtedness.

The format of the account

27.27 Table 27.4 facilitates the more detailed financial analysis just described by showing transactions in assets cross-classified by type of asset and by the debtor sector in the first part and the type of liability cross-classified by the creditor sector in a similar, second part. The sectors transacting in assets or liabilities form the columns of the table while the type of asset, disaggregated by sector of debtor, is shown in the rows. It would be conceptually possible to present all the relationships between creditors and debtors in a single table but this would require a table of very many cells, many of which would be blank.

27.28 Table 27.4 is merely illustrative of the type of detail that a country may wish to develop. Initially it may be possible to show columns only for general government, the financial sector and the rest of the world separately from all other sectors, but even at this level if monetary statistics exist, it should be possible to disaggregate the financial sector into three subsectors as described earlier.

27.29 Ultimately it is desirable to show all the institutional sectors of the SNA and possibly subsectors such as central government and publicly controlled corporations.

27.30 The degree of detail shown for the financial instruments will depend on data availability and the relative importance of each. What follows is a list of possible disaggregations.

27.31 Currency and deposits may be distinguished according to currency, transferable deposits and other deposits identifying that part of each that is denominated in

Table 27.3 (cont): The financial account - concise form - changes in liabilities and net worth

Changes in liabilities and net worth

Transactions and balancing items	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world	Goods and services	Total
Net lending (+) / net borrowing (–)	- 56	- 1	- 103	174	- 4	10	- 10		0
Net acquisition of liabilities	139	173	93	15	6	426	57		483
Monetary gold and SDRs									
Currency and deposits		65	37			102	- 2		100
Debt securities	6	30	38	0	0	74	21		95
Loans	21	0	9	11	6	47	35		82
Equity and investment fund shares	83	22				105	14		119
Insurance, pension and standardized guarantee schemes		48	0			48	0		48
Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
Other accounts receivable/payable	26	0	9	4		39	- 14		25

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domestic currency or foreign currency and whether the creditor or debtor is a resident or non-resident.

27.32 Debt securities and loans may be divided by maturity (short and long-term) as well as by sector.

27.33 For equity a distinction between resident and non-resident enterprises as well as the distinction between listed, unlisted and other equity may be helpful.

27.34 For insurance, standardized guarantee schemes and for financial derivatives the presentation may be simplified because one party to the transaction must be a financial corporation, either resident or non-resident. For employee stock options, the debtor must be either a financial or non-financial corporation. Most pension schemes are operated by financial corporations but some may be operated by non-financial employers without involving a financial corporation.

27.35 Trade credits and advances may be made by any sector. The claims of pension funds on pension managers may, in principle, relate to any sector but are likely not to involve households. Other accounts receivable or payable may be separated into whether they are with residents or non-residents.

27.36 The form of table 27.4 should be interpreted as a general model, and substantial flexibility should be allowed in specific country circumstances. In many countries, the dimensions of the tables will be severely constrained by data availability. It should also be noted that these tables are extensions of the basic financial account and that the third dimension to the analysis can be added on a selective basis by identifying particular asset or sector (or subsector) relationships for which this level of detail would be useful.

Analytical uses

27.37 A detailed flow of funds table can be used in at least three important areas related to economic policy. Data from these tables can be used in economic analysis and description of activity and trends in current periods. They can be used as an aid to projections in the context of the production of economic plans or to assess the effect of current economic policies, or changes in them, on the future path of the economy. They can also be used in projects that undertake modelling of the economy to study economic behaviour as an aid to the formulation of economic policy. Such studies, of course, would be complementary to similar work on data from other accounts in the SNA. In particular it is useful, when using the flow of funds accounts to facilitate the study of the operation of the financial system in the economy, to relate these transactions to the behaviour of the non-financial economy. Similarly, the flow of funds accounts facilitate study of the process of making the equality between saving and investment, by tracing the channels by which net lending reaches ultimate borrowing, after passing through various financial corporations and assets.

27.38 In the policy area, a few examples will illustrate the usefulness of these tables. Common policy problems faced by many nations include questions such as: How will the central government’s deficit be financed? How will the major non-financial public corporations be financed and by whom? In each of these examples, the provision of answers to the questions requires an impact analysis on various sectors and types of transaction. The articulation of the accounts within the flow of funds facilitates the analysis and provides a framework in which to assess the answers.

27.39 In the area of financial projections, the use of time-series from relevant parts of the flow of funds tables enables an examination for consistency of a number of separately prepared sector or market forecasts, and the implications for future financial transactions of a particular set of assumptions about future events (for example, interest rates, exchange rates, growth, sector surpluses or deficits).

27.40 Other policy areas where these projections and studies can be of assistance are in considering the long-term development of financial markets and institutions in the economy and assessments of the need for new types of assets to satisfy the potential demand of savers and investors requiring access to reliable liquid assets.

2. Stock accounts

27.41 Just as tables like those above can be compiled and very usefully analysed in terms of flows, so it is instructive to compile exactly similar tables in terms of the stocks of financial assets and liabilities. Where flows may be fairly volatile from one period to the next, the level of stocks is likely to be more stable and the degree of fluctuation from the stock level may convey particularly useful additional information.

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Table 27.4: Format for detailed flow of funds table or stocks of financial assets analysed by debtor and creditor

Part 1: Asset and creditor **Part 2: Liability and debtor**	Sectors and sub-sectors
Monetary gold and SDRs	
Monetary gold	
SDRs	
Currency and deposits	
Currency	
Local currency	
Residents	
Non-residents	
Foreign currency	
Transferable deposits	
Interbank positions	
Other transferable deposits	
Local currency	
Residents	
Non-residents	
Foreign currency	
Residents	
Non-residents	
Other deposits	
Local currency	
Residents	
Non-residents	
Foreign currency	
Residents	
Non-residents	
Debt securities	
Short-term	
{Sectors}	
Long-term	
{Sectors}	
Loans	
Short-term	
{Sectors}	
Long-term	
{Sectors}	
Equity and investment fund shares	
Equity	
Listed shares	
Resident enterprises	
Non-resident enterprises	
Unlisted shares	
Resident enterprises	
Non-resident enterprises	
Other equity	
Resident enterprises	
Non-resident enterprises	
Investment fund shares/units	
Money market fund shares/units	
Resident enterprises	
Non-resident enterprises	
Other investment fund shares/units	
Resident enterprises	
Non-resident enterprises	
Insurance, pension and standardized guarantee schemes	
Non-life insurance technical reserves	
Life insurance and annuity entitlements	
Pension entitlements	
Claims of pension funds on pension managers	
Entitlements to non-pension benefits	
Provisions for calls under standardized guarantees	
Financial derivatives and employee stock options	
Financial derivatives	
Options	
Forwards	
Employee stock options	
Other accounts receivable/payable	
Trade credits and advances	
{Sectors}	
Other accounts receivable/payable	
{Sectors}	

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Chapter 28: Input-output and other matrix-based analyses

A. Introduction

28.1 The purpose of this chapter is to build on the presentation of the supply and use tables in chapter 14 to examine in greater detail the possibilities offered by using a matrix form of presentation of the accounts. As has been noted on a number of occasions, the SNA is intended to offer a degree of flexibility in implementation as long as the inherent accounting rules are observed. The fact that the requirement to balance uses and resources is immediately obvious within a matrix framework makes this a powerful way in which to explore different options while still ensuring the balances are satisfied. One aim of this chapter is to demonstrate the power of a matrix presentation in this way.

1. Input-output tables

28.2 A second aim is to describe the basic ideas of input-output matrices. Supply and use tables are an integral part of the SNA and the process of compiling these tables is a powerful way of ensuring consistency between the various data sources available to the compiler. For many analytical purposes, though, a transformation from a pair of supply and use tables into a single input-output table where row and column totals are equal brings very considerable advantages. Input-output tables cannot be compiled without passing through the supply and use stage (except under very restrictive assumptions). They are therefore analytical constructs that inevitably involve some degree of modelling in their compilation.

28.3 There is a vast literature on the compilation and use of input-output tables and it is impossible in a short chapter to give a full appreciation of the range of complexities of compilation and inventiveness of applications. The chapter aims only to give a feel for the sort of operations necessary to transform supply and use tables into input-output tables and to give some ideas of their possible applications. The *Manual of Supply, Use and Input-Output Tables* and a visit to the web site of the International Input-Output Association (www.iioa.org) are good places to start a more detailed investigation of the potential in this field.

2. Social accounting matrices

28.4 Both the supply and use tables and input-output tables are matrix representations of the goods and services account. It is possible to cast the whole of the sequence of accounts, including the goods and services account, in a matrix format also. Such a matrix is called a social accounting matrix (SAM).

28.5 It is possible to extend and elaborate a SAM by introducing alternative disaggregations of existing flows or new types of flows, just as long as the use and resource of these flows balance in the usual way. This is such a common extension of a SAM that the usual understanding of what a SAM is often goes further than a matrix encompassing the standard sequence of accounts to include extensions, particularly of the household sector.

3. The structure of the chapter

28.6 Chapter 14 describes how the supply and use tables may be used in order to ensure the internal consistency of disparate data sets. Section B of this chapter looks at two particular aspects of the supply and use tables where it may be useful to adopt a different approach to that described in chapter 14. The first of these concerns the treatment of insurance and freight on imported goods and the second concerns the treatment of goods that are processed by a unit that is not the legal owner of them. Section B also discusses how information cross-classified by establishment and industry can be transformed into information relating to institutional sectors.

28.7 Section C is concerned with how a pair of supply and use tables may be transformed into a single symmetric input-output matrix. Each of the supply and use tables shows disaggregation by products and industries. In an input-output table, one of these dimensions is eliminated. Thus a single table may show the relationship between the supply and use of products or alternatively the output of industries and the demand for the output of industries.

28.8 Section D goes on to show how the whole of the accounting system can be represented in matrix form. This is a useful pedagogical tool and may be instructive as a stepping-off point for extensions of the accounts such as social accounting matrices.

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B. Flexibility in the supply and use tables

1. The treatment of margins on imports

28.9 In discussing valuation in section B of chapter 14, consideration is given to how transport margins should be incorporated into the accounts and in particular how international transport charges should be recorded. Paragraphs 14.61 to 14.77 explain that the parallel between basic and producer prices does not carry forward simply to a distinction between CIF and FOB-based prices. The distinction depends on whether it is the unit providing the goods or the unit taking delivery of the goods that is responsible for providing the transport and insurance. Paragraph 14.77 ends by discussing briefly the practical problems in deriving the desired valuation from the available data sources. It is reproduced here for convenience.

28.10 It may not be possible to determine from customs declarations which unit is responsible for the transport costs and, even when it is and conceptually the transport costs should be separated from the value of the goods themselves, there may be no information and no resources available to make the separation in practice. In such a case the CIF value of imports may be the only source with a disaggregation by type of good. If the disaggregated CIF figures are used for imports of goods, though, that part of the transport costs and insurance also included in imports of services would be double-counted. In order to avoid this, therefore, an adjustment column is inserted into the supply table. The adjustment column consists of a deduction from the services items for transport and insurance equal to the CIF-to-FOB adjustment for these items with an offsetting global adjustment made to imports of goods. Table 14.4, reproduced here as table 28.1 gives an example of such an adjustment.

Table 28.1:An example of imports entries in the supply table with the global CIF to FOB adjustment

	CIF/FOB adjustment	Goods	Services
Agriculture, forestry and fishery products (0)		37	
Ores and minerals; electricity, gas and water (1)		61	
Manufacturing (2-4)		284	
Construction (5)			
Trade, accommodation, food & beverages; transport services (6)	-6		62
Finance and Insurance (7 less 72-73)	-4		17
Real estate services; and rental and leasing services (72-73)			
Business and production services (8)			5
Community and social services (92-93)			
Other services (94-99)			
Public administration (91)			
CIF/FOB adjustment	10	-10	
Purchases abroad by residents		20	23
Total	0	392	107

28.11 This adjustment column shows the reallocation of service margins from the industries where they are produced (by resident or non-resident producers) to an adjustment row for the CIF/FOB adjustment. In the column for goods, the values given industry by industry include an element of these service margins, but this is deducted on the CIF/FOB adjustment row to leave the total equal to the total of imports FOB. The adjustments in this column are analogous to a similar column that could be shown illustrating the adjustment between purchasers' and basic prices.

28.12 A simpler procedure than that just described, though one not strictly consistent with *BPM6* recommendations, is to ignore the balance of payments division between goods and services and adjust the figures for imports of services by the amount of services provided by non-residents that are included in the detailed figures for imports of goods. This ensures that the total of imports of goods and services agrees with the total in the balance of payments but will not agree with the total of imports of goods FOB and of services shown there. This makes compiling the supply and use tables simpler but means that it is not possible to use imports of goods on a FOB basis to match exports of those goods from other countries. Even in this simpler version, however, the amount of freight and insurance on imports provided by residents must be shown as an export of services.

2. Goods processed by a unit not assuming economic ownership

28.13 A producer may carry out the same activity under quite different economic conditions. Consider farmers growing grain which is milled into flour before use. Suppose one farmer acquires a mill to process his own grain but once this is acquired he may offer to mill grain for others for a fee. The production account for the farmer with a mill will look somewhat different from that for a farmer who does not have a mill but pays the first farmer a fee for milling even though both produce flour for sale.

28.14 In the case of milling the reasons for subcontracting the activity to another may be the availability of suitable fixed capital. Increasingly, however, similar processes are being carried out internationally and in respect of activities more usually associated with manufacturing such as the assembling of component parts. Here the motivation is less one of the availability of capital than of the costs of labour. If the average wages in country X are half of those in country Y, it may be cost-effective for a unit in Y to dispatch the components to a unit in X for assembly and then have the completed product returned to Y or even shipped directly to a final purchaser.

28.15 Previous editions of the SNA have recommended that components for assembly should be recorded as delivered to the unit in country X and that the whole of the value of the completed product should be recorded as output of X and exports from X to Y. This does not match the treatment of grain milling or, for example, repairs to machinery where no such change of ownership of the goods being processed is imputed. Imputing a change of ownership of the parts to be assembled gives rise to significant data compilation problems because the value of the assembled product may be greater than the cost of the components

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plus the fee to assemble them. The value of the finished product may incorporate the results of research and development of the unit contracting the assembly, for instance. The SNA now recommends that products should only be recorded as being delivered to another unit if there is a change of ownership or, in the case where both producing units belong to the same enterprise, the producing unit taking delivery also assumes responsibility for subsequent risks and rewards of production such as deciding how much to process, what price to charge and when to sell.

28.16 The question arises of how to record the activity of assembling goods to order for another unit in the supply and use tables and the input-output table. The processes of assembly for oneself and for another are physically similar but the economics are different.

28.17 Suppose in year 1 a processing unit converts products only on own account. In year 2 the unit processes the same amount on its own account but also processes a similar amount on behalf of another. Suppose the cost of items processed in year 1 is 90, the cost of associated products needed to assemble them is 10 and the value added is 35. The total value of output is thus 135. In year 2, all other things being equal, intermediate consumption increases by another 10 to 110 and value added to 70 bringing the value of output to 180. The change in the structure of production is difficult to understand in the absence of information on the change in the role of the producer who is operating no longer only on his own behalf but also on behalf of others.

28.18 There are essentially two ways to proceed. The first is to treat processing on own account and on behalf of another as different types of activity and different products. In this way in the second year the producer would have one activity with inputs of 100, value added of 35 and output of 135 as in the first year, plus another activity with inputs of 10, value added 35 and output of 45.

Table 28.2: Options for recording goods not changing economic ownership

	Year 1	Year 2	Option 1		Option 2
Cost of materials	90	90	90		180
Other costs	10	20	10	10	20
Total intermediate consumption	100	110	100	10	200
Value added	35	70	35	35	70
Output	135	180	135	45	270

28.19 The second alternative is to show the intermediate inputs in the second year as 200, value added as 70 and output as 270. Value added is the same under both options and the comparison between the second and the first year makes more sense from a transformation point of view under option 2. However, adding an extra 90 to both output and intermediate consumption is essentially artificial. Further, as noted above, it may be difficult for the processor to put a value on the components he receives and the output he provides to the other unit. The chances are that he only knows that he receives a fee of 45 to cover his incidental expenses of 10 and leave an amount of value added, 35 in this case. These options are shown in table 28.2.

28.20 It should be emphasized that it is option 1 that is the recommendation of the SNA and, for goods sent abroad for processing, *BPM6*. Option 2 is shown as a supplementary presentation that may be adopted for reasons of continuity with past practices. Option 1 more accurately reflects the economic processes taking place while option 2 focuses on the physical transformation process.

28.21 When goods are sent abroad for processing, they are recorded as neither exports of goods by the country holding economic ownership, nor as imports of goods by the processing country in either the SNA or *BPM6*. Similarly, after processing they are recorded neither as exports by the processing country nor as imports of goods by the country of economic ownership. The only item recorded as imports and exports is the fee agreed between the economic owner and the processor.

28.22 The physical flows of the goods will continue to appear in the merchandise trade figures. However, the product code after processing may be different from the code on entry, making it difficult to match the incoming and outgoing flows.

28.23 The presentation of option 2 suggests that the fee can be derived as the difference between the value of the goods on arrival and departure from the processing country but while this may sometimes give a reasonable approximation of the processing fee, there are many reasons why this may not be so.

a. If processing takes any significant amount of time, there may be holding gains and losses affecting the value of the goods. These accrue to the economic owner, not the processor.

b. Goods may be lost or damaged or may simply become obsolete while in process. (This has been observed in the case of electronic components.) These other volume changes also apply to the economic owner and not the processor.

c. The value of the processed goods may be greater than the costs of the components and the processing fee to the extent that the finished product incorporates part of the value of R&D treated as fixed capital formation of the economic owner.

28.24 All these situations reinforce the preference for option 1 over option 2 in table 28.2.

3. Supply and use tables and sector accounts

28.25 As explained in chapter 14, it is possible to derive the three estimates of GDP from a set of supply and use tables. Since these tables can be expressed in volume terms, estimates can also be made of growth rates based on the tables. However, to complete the sequence of accounts, production accounts are needed by institutional sector. To ensure that the supply and use table and the sequence of accounts are perfectly integrated and consistent, it is desirable to take the

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part of the use table showing intermediate consumption and the components of value added and allocate the columns to institutional sectors.

28.26 The starting point for the compilation is the part of the use table in table 14.12 relating to intermediate consumption and value added. This is shown in a somewhat aggregated form in table 28.3.

28.27 The easiest allocation is for financial corporations since typically such corporations do not undertake secondary activity and other institutional units do not undertake any financial activity. When these conditions prevail, the column for the finance and insurance activity can be taken in its entirety as appropriate for the institutional sector. It is possible that financial corporations may undertake some production for own final use (as capital formation), in which case some part of an appropriate column in the section of table 28.3 relating to own account production should be added. No such adjustment has been made in this example.

28.28 The columns relating to non-market producers must be allocated between general government and NPISHs. In addition, though not in this example, it is possible that either general government or NPISHs may have an establishment undertaking market production. This is how it is possible that non-market producers may have small amounts of operating surplus. It is also possible that both general government and NPISHs may have some production for own final use (as capital formation) but none has been assumed here.

28.29 The last step is to allocate all columns not yet accounted for between non-financial corporations and households. An indication that some part of a market production activity should be allocated to households is the presence of mixed income as part of the value added of the activity. Thus, in this example, some parts of market production of agriculture, manufacturing, construction and trade are attributable to households as well as production for own final use. (As noted in general some of production for own final use will be attributable to other sectors. It is not done so here for reasons of simplicity at such an aggregate level.)

28.30 Once these calculations are complete, table 28.4 results, showing for each sector not just total intermediate consumption but also a product breakdown of this as well as the items for value added.

28.31 The figures shown for intermediate consumption, output and the elements of value added for each institutional

Table 28.3:The use table from table 14.12

	Use of products	Total supply at purchasers' prices		Taxes on products	Subsidies on products		Intermediate consumption of industries (by ISIC categories)										
							Market										
							Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Finance and insurance	Real estate activities	Business services	Education, human health and social work	Other services	Sub-total market
							(A)	(B-E)	(F)	(G-I)	(J)	(K)	(L)	(M-N)	(P-Q)	R-T and U	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Products (by CPC section)																
	Total uses																
1	Agriculture, forestry and fishery products (0)	128					2	71	0	3	1	2	1	2	0	0	82
2	Ores and minerals; electricity, gas and water (1)	263					3	190	1	6	3	2	1	2	0	0	208
3	Manufacturing (2-4)	2 161					27	675	63	44	16	16	9	19	4	5	878
4	Construction (5)	261					1	9	5	3	1	1	1	1	0	0	22
5	Trade, accommodation, food & beverages; transport services (6)	216					3	65	3	25	4	4	2	4	0	0	110
6	Finance and Insurance (7 less 72-73)	159					1	36	5	18	1	3	3	7	1	1	76
7	Real estate services; and rental and leasing services (72-73)	195					1	15	1	8	2	5	2	4	0	1	39
8	Business and production services (8)	272					2	70	12	15	10	18	9	19	7	9	171
9	Community and social services (92-93)	275					0	1	0	0	0		0	1	0	0	2
10	Other services (94-99)	95					1	1	0	1	1	1	0	1	0	0	6
11	Public administration (91)	168					0	0	0	0	0	0	0	0	0	0	0
12	Direct purchases abroad by residents	43															0
13	Domestic purchases by non-residents	0															0
14	Total	4 236					41	1 133	90	123	39	52	28	60	12	16	1 594
15	Total gross value added/GDP			141	- 8		37	728	118	139	61	94	66	123	51	66	1 483
16	Compensation of employees						19	547	79	102	32	44	49	79	43	47	1 041
17	Taxes less subsidies on production and imports			141	- 8		- 2	43	5	- 5	- 1	4	6	4	1	1	56
18	Mixed income, gross						4	30	3	9	0	0	0	0	0	0	46
19	Operating surplus, gross						16	108	31	33	30	46	11	40	7	18	340
20	Consumption of fixed capital -mixed income						1	3	0	1	0	0	0	0	0	0	5
21	Consumption of fixed capital - other						8	80	11	30	7	12	5	12	1	2	168
22	Total output						78	1 861	208	262	100	146	94	183	63	82	3 077
23	Labour inputs (hours worked)						1 840	31 962	4 244	8 786	1 332	1 290	920	1 562	494	642	53 072
24	Gross fixed capital formation						10	122	8	49	14	7	5	7	1	2	225
25	Closing stocks of fixed assets						142	1 861	143	731	208	143	102	147	22	29	3 528

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sector are those that appear in the production account and generation of income account in the sequence of accounts.

C. Deriving an input-output table

1. What is an input-output table?

28.32 Essentially an input-output table is derived from a use table where either the columns representing industries in the two left-most quadrants are replaced by products or where the products in the two topmost quadrants are replaced by industries. The resulting intermediate consumption matrix is then square, showing products in both rows and columns or industries in both. In both cases the row totals for the complete matrix match the column totals for the complete matrix, product by product or industry by industry as the case may be. The resulting matrices are therefore referred to as being symmetric.

28.33 The process of replacing the product dimension by an industry one is based on one of several possible models, to be discussed below. This process necessarily means that a symmetric input-output matrix is further removed from basic data sources than a supply and use table and it is therefore useful to review why making this transition is so useful.

28.34 Note that in table 14.12, there is a product for ores and minerals, electricity and water but no column for it. If there is no industry for which this is the principal product, identifying the primary producers rather than the number of products will determine the final size of the symmetric (square) matrix.

Table 28.3 (cont):The use table from table 14.12

	Intermediate consumption of industries (by ISIC categories)									Exports		Final consumption expenditure						Gross capital formation			
	Own final use			Non-market											General government						
	Agriculture, forestry and fishing	Construction	Real estate and private household services	Sub-total own final use	Education, human health and social services	Public Administration	Sub-total non-market	Total industry	Total economy	Goods	Services	Sub-total final consumption expenditure	Households	NPISHs	Sub-total	Collective	Individual	Sub-total gross capital formation	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables
	(A)	(F)	(L)		(P-Q)	(O)															
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)
1	1	0	0	1	3	2	5	88			7	0	30	28	0	2	0	2	3	2	1	
2	0	0	0	0	5	4	9	217			7	0	40	40	0	0	0	0	- 1	0	- 1	
3	5	17	10	32	42	38	80	990			422	0	573	570	0	3	0	3	176	161	5	10
4	0	0	0	0	11	7	18	40			6	0	2	2	0	0	0	0	213	190	23	
5	0	0	0	0	4	5	9	119			0	55	42	42	0	0	0	0				
6	0	2	3	5	6	17	23	104			0	2	53	53	0	0	0	0				
7	0	0	0	0	8	10	18	57			0	1	115	115	0	0	0	0	22	22	0	
8	0	5	7	12	15	24	39	222			0	9	40	40	0	0	0	0	1	1	0	
9	0	0	0	0	24	8	32	34			0	2	239	21	14	204	0	204				
10	0	0	0	0	2	2	4	10			0	0	85	85	0	0	0	0				
11	0	0	0	0	1	1	2	2				0	166	5	2	159	156	3				
12													43	43								
13											20	9	- 29	- 29								
14	6	24	20	50	121	118	239	1 883			462	78	1 399	1 015	16	368	156	212	414	376	28	10
15	5	12	80	97	91	50	141	1 721	1 854													
16	0	0	0		70	39	109	1 150	1 150													
17	0	0	0	0	1	1	2	58	191													
18	3	12	0	15				61	61													
19	2	0	80	82	20	10	30	452	452													
20	3	0	0	3				8	8													
21	1	0	15	16	20	10	30	214	214													
22	11	36	100	147	212	168	380	3 604														
23	218	780	0	998	7 299	8 000	15 299	69 369														
24	1	1	124	126	13	12	25	376														
25	17	17	1 851	1 885	201	169	370	5 783														

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2. Analytical potential of an input-output matrix

28.35 Such tables have algebraic properties that make them particularly suitable for analyses that enable estimates to be made of the effects of changing relative prices, of labour and capital requirements in the face of changing output levels, of the consequences of changing patterns of demand and so on. They may also be used as the basis for an expanded version that may be used to estimate the demands made by the economy on the environment, for instance.

28.36 As noted in the introduction, there is a vast literature on how to compile and use input-output tables. The purpose of this section is simply to indicate the key aspects of converting a pair of supply and use tables into an input-output table.

28.37 Suppose the entries in the inter-industry matrix are each divided by the figure for output at the bottom of the corresponding column, and the resulting matrix is designated as A; the vector of outputs is written as x and the vector of total final demand is written as y. Then

$$Ax + y = x$$

This can be rewritten as

$$(I-A)\,x = y$$

or

$$x=(I-A)^{-1}y.$$

28.38 The matrix (I-A) is known as the Leontief matrix, after the man who pioneered the use of input-output tables and the matrix $(I-A)^{-1}$ is known as the Leontief inverse. It is the last formulation that gives the analytical power to input-output analysis.

28.39 Suppose there is an increase in demand, for manufactured products, say. Looking at even the supply and use table it can be seen that to increase the output of these goods, more inputs of almost all types of products are needed. This increase in demand for a range of products is called the direct effect of a change in demand. However, the increase in demand in all these products causes a further round of increases in output for all products and this in turn triggers another set of increases in output and so on. Each round of effects is smaller than the last until it eventually becomes insignificant. The total of all second and subsequent round effects is called the indirect effect of a change in demand.

Table 28.4:Intermediate consumption and value added cross-classified by industry and institutional sector

	Non-financial corporations										Financial corporations	
Use of products	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Information and communication	Real estate activities	Business services	Education, human health and social work	Other services	Total industry	Finance and insurance	Total industry
Goods and services, (by CPC section)												
Total uses												
1. Agriculture, forestry and fishery products (0)	2	68	0	3	1	1	2	0	0	77	2	2
2. Ores and minerals; electricity, gas and water (1)	3	182	1	6	3	1	2	0	0	198	2	2
3. Manufacturing (2-4)	24	643	61	38	16	9	19	4	5	819	16	16
4. Construction (5)	1	8	5	3	1	1	1	0	0	20	1	1
5. Trade, accommodation, food and beverages; transport services (6)	3	61	3	23	4	2	4	0	0	100	4	4
6. Finance and Insurance (7) excluding real estate	1	36	5	18	2	3	7	1	1	74	2	2
7.Real estate services; and rental and leasing services (72-73)	1	15	1	8	2	2	4	0	1	34	5	5
8.Business and production services (8)	2	68	11	14	9	9	19	7	9	148	19	19
9.Community, social services (92,93)	0	1	0	0	0	0	1	0	0	2	0	0
10. Other services (94-99)	1	1	0	1	1	0	1	0	0	5	1	1
11. Public Administration (91)	0	0	0	0	0	0	0	0	0	0	0	0
14. Total	38	1 083	87	114	39	28	60	12	16	1 477	52	52
17. Total gross value added/GDP	31	691	115	127	61	66	123	51	66	1 331	94	94
28. Total output	69	1 774	202	241	100	94	183	63	82	2 808	146	146
Compensation of employees	18	540	79	99	32	49	79	43	47	986	44	44
Gross mixed income												
Gross operating surplus	15	108	31	32	30	11	40	7	18	292	46	46
Taxes less subsidies on production and imports	- 2	43	5	- 4	- 1	6	4	1	1	53	4	4
Consumption of fixed capital	8	80	11	31	7	5	12	1	2	157	12	12
of which Mixed income												0
Net mixed income												
Net operating surplus	7	28	20	1	23	6	28	6	16	135	34	34

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28.40 In terms of the algebra just introduced, the direct effect is equal to Ay, the second round effect to A^2y, the third round effect to A^3y and so on. It can be shown that $(I-A)^{-1}$ can be written as $A+A^2+A^3+A^4$ etc. This is where the power of having a symmetric matrix comes from since A needs to be square for this formulation to work.

28.41 As long as changes in demand, y, are sufficiently small that the average coefficients in A are likely to be good approximations to the new situation, the new level of x can be calculated. The approach breaks down if the changes in demand are so great that significant changes in A are likely to follow and marginal rather than average coefficients are needed.

28.42 The matrix A is also sometimes called a matrix of technological coefficients and can provide insights into the way an economy works. In an economy dominated by primary products with little processing carried out in the domestic economy, there are relatively few significant non-zero elements in A. As the economy develops and processing of primary products becomes more commonplace, A becomes more populated with entries reflecting greater vertical and horizontal integration of activities within the economy. By exploring different industries associated with different stages in the production process it is possible to say where value added is generated. For example, cotton is grown as an agricultural product. It is then subject to separation into lint and seed (ginning), then the lint is converted to yarn and the yarn to fabric. If each of these activities appears in a different industry, it is possible to see where the value added between the growing of the cotton and the eventual fabric in which it is used arises.

3. Secondary products

28.43 An industry classification such as *ISIC* essentially identifies industries in terms of the sorts of goods or services they typically produce. However, there are more products than industries and, for all sorts of reasons, some products may be made in several industries.

28.44 In order to limit the number of products per unit and to allow integration with basic production statistics, the concept of establishment is introduced. In principle, an establishment produces only one product at one location but the SNA recognizes that in practice it is not possible to separate production into such fine detail. Dealing with the fact that many establishments produce more than one product is fundamental to the idea of calculating a symmetric input-output matrix.

Table 28.4 (cont):Intermediate consumption and value added cross-classified by industry and institutional sector

	General government			NPISHs		Households						
Use of products	Education, human health and social work	Public Administration	Total industry	Education, human health and social work	Total industry	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Real estate activities	Total industry	Total
Goods and services, (by CPC section)												
Total uses												
1. Agriculture, forestry and fishery products (0)	3	2	5	0	0	1	3	0	0	0	4	88
2. Ores and minerals; electricity, gas and water (1)	4	4	8	1	1	0	8	0	0	0	8	217
3. Manufacturing (2-4)	36	38	74	6	6	8	32	19	6	10	75	990
4. Construction (5)	9	7	16	2	2	0	1	0	0	0	1	40
5. Trade, accommodation, food and beverages; transport services (6)	4	5	9	0	0	0	4	0	2	0	6	119
6. Finance and Insurance (7) excluding real estate	5	17	22	1	1	0	0	2	0	3	5	104
7.Real estate services; and rental and leasing services (72-73)	7	10	17	1	1	0	0	0	0	0	0	57
8.Business and production services (8)	13	24	37	2	2	0	2	6	1	7	16	222
9.Community, social services (92,93)	21	8	29	3	3	0	0	0	0	0	0	34
10. Other services (94-99)	1	2	3	1	1	0	0	0	0	0	0	10
11. Public Administration (91)	1	1	2	0	0	0	0	0	0	0	0	2
14. Total	104	118	222	17	17	9	50	27	9	20	115	1 883
17. Total gross value added/GDP	76	50	126	15	15	11	37	15	12	80	155	1 721
28. Total output	180	168	348	32	32	20	87	42	21	100	270	3 604
Compensation of employees	59	39	98	11	11	1	7	0	3		11	1 150
Gross mixed income						7	30	15	9		61	61
Gross operating surplus	17	10	27	3	3	3	0	0	1	80	84	452
Taxes less subsidies on production and imports	0	1	1	1	1	0	0	0	- 1	0	- 1	58
Consumption of fixed capital	17	10	27	3	3	5	3	0	0	15	23	222
of which Mixed income						4	3	0	1	0	8	8
						3	27	15	8	0	53	53
Net operating surplus	0	0	0	0	0	2	0	0	2	65	69	238

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28.45 The reason that manipulation of supply and use tables is needed to produce an input-output table is the existence of secondary products. If there were the same number of industries as products, and if each industry only produced one product, the supply table for the domestic economy would be unnecessary; the column totals for industries would be numerically equal to the row totals for products and the inter-industry matrix would be square as originally compiled. As noted elsewhere, the intent behind using establishments rather than enterprises, and working at a fairly detailed level in the supply and use tables, is to get as close to this situation as is reasonably practicable. Inevitably though some secondary production remains.

28.46 There are three types of secondary production

a. Subsidiary products: those that are technologically unrelated to the primary product. Just a few examples include a large retailer with a fleet of trucks used primarily for its own purposes that may occasionally offer transport services to another unit, a farmer who use part of his land as a caravan site, or a mining company that builds access roads and accommodation for its workers.

b. By-products: products that are produced simultaneously with another product but which can be regarded as secondary to that product, for example gas produced by blast furnaces.

c. Joint products: products that are produced simultaneously with another product that cannot be said to be secondary (for example beef and hides).

In order to reduce the supply and use tables to one single input-output matrix two possibilities exist. One is to express the input-output matrix in terms of products only; the other is to express the input-output table in terms of industries.

4. Reallocating secondary products

28.47 There are two basic approaches to eliminating secondary products. Both come from applying information from the use matrix to the supply matrix to reduce it to a purely diagonal one. Once this is done, the supply matrix contains no further useful information and is no longer presented. The transformed use matrix is what is referred to as an input-output matrix.

28.48 In deriving a product by product matrix in the simplest possible way, the final demand quadrant of the use matrix is unaltered. It already expresses demand by product and does not need changing. The intermediate consumption and value added parts of the matrix, though, need to be changed from an industry dimension to a product one. The row totals of the matrix already show the correct product totals so the exercise consists of reallocating entries from one column to another within the given row total. This is called a technology approach. It assumes that the demand for intermediate consumption and labour and capital inputs are determined by the nature of the products made.

28.49 In deriving an industry by industry matrix in the simplest possible way, the value added part of the use matrix is unaltered and because the level of output will not alter, only the composition of intermediate consumption changes, not its total. Thus the exercise is one of reallocating items between rows but not between columns. In contrast to the product by product case, the quadrant relating to final demand will change and will show demand related to the industry supplying the products and not to the products themselves. This is called a sales structure approach. It assumes that as the level of output of an industry changes, the pattern of sales will remain the same.

Table 28.5:A numerical example of reallocating products from construction to manufacturing

Use of products	Manufacturing and other industry	Construction	Manufacturing and other industry	Construction	Manufacturing and other industry	Construction	Manufacturing and other industry	Construction
	Use table		Coefficient form		Industry technology		Product technology	
1 Agriculture, forestry and fishery products (0)	71	0	3.8	0.0	71.0	0.0	71.2	-0.2
2 Ores and minerals; electricity, gas and water (1)	190	1	10.2	0.5	190.0	1.0	190.6	0.4
3 Manufacturing (2-4)	675	63	36.3	30.3	676.8	61.2	677.2	60.8
4 Construction (5)	9	5	0.5	2.4	9.1	4.9	9.0	5.0
5 Trade, accommodation, food & beverages; transport services (6)	65	3	3.5	1.4	65.1	2.9	65.2	2.8
6 Finance and Insurance (7 less 72-73)	36	5	1.9	2.4	36.1	4.9	36.1	4.9
7 Real estate services; and rental and leasing services (72-73)	15	1	0.8	0.5	15.0	1.0	15.0	1.0
8 Business and production services (8)	70	12	3.8	5.8	70.3	11.7	70.2	11.8
9 Community and social services (92-93)	1	0	0.1	0.0	1.0	0.0	1.0	0.0
10 Other services (94-99)	1	0	0.1	0.0	1.0	0.0	1.0	0.0
11 Public administration (91)	0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1 133	90	61	43	1135.6	87.4	1136.7	86.3
Total gross value added	728	118	39	57	731.4	114.6	730.3	115.7
Total output	1 861	208	100	100	1 867	202	1 867	202

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28.50 Both these assumptions, the technology assumption and the sales structure assumption, are rather simplistic and in practice a more generalized approach may be used but it is helpful first to examine each of the assumptions in a little more detail.

Product by product tables

28.51 There are two ways in which a product by product matrix can be derived. These are:

a. The industry technology assumption where each industry has its own specific means of production irrespective of its product mix.

b. The product technology assumption where each product is produced in its own specific way irrespective of the industry where it is produced.

28.52 It is simplest to explain these by example. In the upper part of table 14.12, the construction industry is shown as producing 6 units (out of 208) of manufacturing products. In the lower part of table 14.12, reproduced as table 28.3, the inputs necessary for manufacturing and for construction are shown. These are reproduced in the first two numeric columns in table 28.5. The next two numeric columns express these in percentage form. Thus, for example, one unit of manufacturing requires 0.038 units of agricultural products, 0.102 units of ores and minerals and so on. Construction uses no agricultural products, 0.005 units of ores and minerals and so on.

28.53 In order to create the product by product matrix, it is necessary to deduct the costs associated with the production of 6 units of manufactured goods from the column for construction and add it to the column for manufacturing. On completion of this exercise for all secondary production, the columns will represent products rather than industries.

Industry technology assumption

28.54 Under the industry technology assumption, the coefficients showing how manufactured products are produced are assumed to depend on the industry they happen to be produced in. Thus to reallocate the 6 units of manufacturing products from the construction industry to a column that will now refer to manufactured products only (ignoring other secondary products for the moment) a set of inputs, derived as 6 times the coefficients for construction is added to the manufacturing column and deducted from the construction column. The results of this are shown in the fifth and sixth numeric columns of table 28.5.

Product technology assumptions

28.55 Under the product technology assumption, the coefficients showing how manufactured products are produced are those of the manufacturing industry regardless of where they are actually produced. In this case, to reallocate the 6 units of manufacturing products from the construction industry a set of inputs derived as 6 times the coefficients for manufacturing is added to the manufacturing column and deducted from the construction column. The results are shown in the seventh and eighth numeric columns of table 28.5.

28.56 It is important to note a problem that arises under this assumption. When the product technology assumption is used, manufactured products produced by the construction industry are assumed to use a small amount of food. However, no agricultural products are actually recorded as being used in the construction industry so deducting these inputs from the recorded entries for construction leads to a negative entry. Negative entries cannot appear under the industry technology assumption. Since negative entries are logically impossible, this is one argument in favour of using the industry assumption rather than the product assumption.

Industry by industry tables

28.57 Just as there are two ways in which a product by product matrix can be derived, there are two ways in which an industry by industry matrix can be derived. These are:

a. The fixed product sales structure where it is assumed the allocation of demand to users depends on the product and not the industry from where it is sold.

b. The fixed industry sales structure where it is assumed that users always demand the same mix of products from an industry.

28.58 Although a table similar to table 28.5 is not presented for the industry by industry tables, its construction is similar and straightforward but would show the entries across the rows of the use tables rather than down the columns.

28.59 In order to create an industry by industry table, it is necessary to move the use of 6 units of manufactured products from the row for the manufacturing to the row for the construction. On completion of this exercise for all secondary production, the rows will represent industries rather than products.

Fixed product sales structure

28.60 In this case, to allocate the 6 units of manufactured goods supplied by the construction industry to the row for construction, a proportion of the row for manufacturing is allocated to the construction row using the proportions in the manufacturing row. It follows that such a matrix will not contain negative entries.

Fixed industry sales structures

28.61 Here the 6 units of manufactured goods supplied by the construction industry are reallocated to the construction row from the manufacturing row using the proportions of the construction row. Such a matrix can contain negative elements.

The choice of approach to be used

28.62 There are four basic choices open to the input-output compiler.

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Table 28.6:Example of a product by product input-output matrix

Use of products	Intermediate consumption by product groups														Exports		General government					Sub-total gross capital formation	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables	Total economy
	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	0	Finance and insurance	Real estate activities	0	Business and information services	Education, human health and social work	Other services	Public Administration	Total industry	Goods	Services	Sub-total final consumption expenditure	Households	NPISHs	Sub-total	Collective	Individual					
Agriculture, forestry and fishing	3	43	0	3	0	2	1	0	3	3	0	2	60	7	0	17	15	0	2	0	2	3	2	1	0	87
Manufacturing and other industry	32	658	74	39	0	18	21	0	37	47	6	42	974	403	0	449	446	0	3	0	3	84	80	4	0	1 910
Construction	1	10	5	3	0	1	1	0	2	11	0	7	40	6	0	2	2	0	0	0	0	196	173	23	0	244
Trade, transport, accommodation and food	4	69	6	18	0	4	2	0	6	8	0	5	123	16	55	36	36	0	0	0	0	3	3	0	0	233
Finance and insurance	1	34	7	16	0	0	6	0	2	7	1	17	91	0	2	53	53	0	0	0	0	0	0	0	0	146
Real estate activities	1	16	1	7	0	5	2	0	5	8	1	10	57	0	1	115	115	0	0	0	0	22	22	0	0	195
Business and information services	2	72	16	12	0	17	15	0	26	21	10	22	212	0	9	33	33	0	0	0	0	1	1	0	0	255
Education, human health and social work	0	1	0	0	0	0	0	0	1	24	0	8	34	0	2	239	21	14	204	0	204	0	0	0	0	275
Other services	1	1	0	1	0	1	0	0	2	2	0	2	10	0	0	81	81	0	0	0	0	0	0	0	0	91
Public Administration	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	166	5	2	159	156	3	0	0	0	0	168
Adjustments:																										
Taxes less subsidies	1	35	5	2	0	1	1	0	0	1	0	2	48	0	0	10	0	54	54	0	0	0	21	21	0	0	133
Imports	0	213	0	10	0	3	0	0	6	0	0	0	232	0	0	140	140	0	0	0	0	84	74	0	10	456
Direct purchases abroad by residents																43	43									43
Purchases in domestic market by non-residents														20	9	- 29	- 29									0
Total at purchaser's prices	46	1 151	114	110	0	52	50	0	90	133	19	118	1 883	462	78	1 399	1 015	16	368	156	212	414	376	28	10	4 236
Total gross value added/GDP	41	758	130	123	0	94	145	0	166	142	72	50	1 721	1 854												
Compensation of employees	19	565	80	90	0	44	51	0	100	113	49	39	1 150													
Taxes less subsidies on production	- 2	43	5	- 4	0	4	6	0	3	2	1	1	58	191												
Consumption of fixed capital	12	88	11	27	0	12	20	0	17	21	3	10	222													
Mixed income, gross	6	33	13	8	0	0	0	0	0	0	0	0	61													
Operating surplus, gross	18	118	31	29	0	46	88	0	63	27	23	10	452													
Total output	87	1 909	244	233	0	146	195	0	256	275	91	168	3 604													

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Table 28.7:Example of an industry by industry input-output matrix

Use ofindustry output	Intermediate consumption by industry												Exports		Sub-total final consumption expenditure	General government				Sub-total gross capital formation	Gross fixed capital formation	Changes in inventories	Acquisition less disposals of valuables	Total economy
	Agriculture, forestry and fishing	Manufacturing and other industry	Construction	Trade, transport, accommodation and food	Finance and insurance	Real estate activities	Business and information services	Education, human health and social work	Other services	Public Administration	Total industry		Goods	Services		Sub-total	NPISHs	Households	Collective	Individual				
Agriculture, forestry and fishing	3	44	0	3	2	1	3	3	0	2	61		7	0	18	16	0	2	0	2	3	2	1	89
Manufacturing and other industry	32	632	72	43	18	20	39	46	5	41	948		392	2	435	432	0	3	0	3	85	81	5	1 862
Construction	1	13	5	3	1	1	2	11	0	7	44		8	0	5	5	0	0	0	0	187	165	22	244
Trade, transport, accommodation and food	4	74	7	21	4	2	8	9	0	6	135		20	53	45	45	0	0	0	0	8	7	0	262
Finance and insurance	1	31	7	18	0	6	3	7	1	17	91		0	2	53	53	0	0	0	0	0	0	0	146
Real estate activities	1	15	1	8	5	2	6	8	1	10	56		0	1	116	116	0	0	0	0	21	21	0	194
Business and information services	2	76	17	14	17	15	29	21	9	22	223		5	9	41	41	0	0	0	0	5	4	0	282
Education, human health and social work	0	1	0	0	0	0	1	24	0	8	34		0	2	239	21	14	204	0	204	0	0	0	275
Other services	1	1	0	1	1	0	2	2	0	2	9		0	0	73	73	0	0	0	0	0	0	0	82
Public Administration	0	0	0	0	0	0	0	1	0	1	2		0	0	166	5	2	159	156	3	0	0	0	168
Adjustments:																								
Taxes less subsidies	1	35	5	2	1	1	0	1	0	2	48		10	0	54	54	0	0	0	0	21	21	0	133
Imports	0	213	0	10	3	0	6	0	0	0	232		0	0	140	140	0	0	0	0	84	74	0	456
Direct purchases abroad by residents															43	43							10	43
Purchases in domestic market by non-residents													20	9	- 29	- 29								0
Total at purchaser's prices	47	1 133	114	123	52	48	99	133	16	118	1 883		462	78	1 399	1 015	16	368	156	212	414	376	28	4 236
Total gross value added/GDP	42	728	130	139	94	146	184	142	66	50	1 721	1 854												
Compensation of employees	10	122	8	49	7	5	21	71	2	39	334													
Taxes less subsidies on production	- 2	43	5	- 5	4	6	3	2	1	1	58	191												
Consumption of fixed capital	4	0	0	0	0	15	0	21	2	10	52													
Mixed income, gross	3	0	12	0	0	0	0	0	0	0	15													
Operating surplus, gross	2	0	0	0	0	80	0	20	0	10	112													
Total output	89	1 861	244	262	146	194	283	275	82	168	3 604													

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a. A product by product approach using a product technology assumption,

b. A product by product approach using an industry technology assumption,

c. An industry by industry approach assuming a fixed product sales structure,

d. An industry by industry approach assuming a fixed industry sales structure.

Options a and d may result in negative entries; options b and c do not.

28.63 Both product by product and industry by industry tables may be compiled. They serve different analytical functions. For example, to ensure that price indices are strictly consistent, a product by product matrix is to be preferred. For a link to labour market questions, an industry by industry table may be more useful. Although traditionally a lot of interest focused on the product by product tables, this was accompanied in large part by an attention to the underlying technology. Increasingly the economic interaction of different industries has brought more interest in the industry by industry tables.

Hybrid approaches

28.64 In practice, no single method is used on its own. Knowledge of the type of product or industry in question should dictate whether an industry-based conversion procedure or a product-based one is most appropriate. Some secondary products may be dealt with one way and others another despite the fact that, on occasion, negative values may initially appear.

28.65 The extent of variation between the various approaches will depend on a number of factors, including in particular the extent of secondary production in the supply matrix. In general, the greater the degree of disaggregation and thus the less secondary production to be reallocated, the closer the input-output tables will resemble the supply and use tables. Indeed some countries prefer to work with very detailed supply and use tables and not produce symmetric tables at all.

28.66 As an illustration of the differences involved, tables 28.6 and 28.7 show the results of converting the supply and use tables in chapter 14 to, first, a product by product matrix using only the industry technology assumption and then an industry by industry matrix using only the product sales structure.

The database required for the transformation

28.67 The starting point for the production of a symmetric input-output table is a pair of supply and a use tables both at basic prices. Even the calculation of a use table in basic prices is one step away from basic statistics and actual observations, reinforcing the fact that the input-output tables are analytical constructs, not a compilation of directly observed phenomena.

28.68 Further, it is advantageous to separate the use table at basic prices into two, one showing those elements relating to domestic output and the other those elements relating to imports. The statistical requirements for such a separation are demanding but the results allow considerable flexibility in the treatment of imports and permit a clear analysis of the impact of demand on supplies from resident producers and on foreign suppliers.

28.69 The exact manner of dealing with imports is a subject of considerable complexity where a number of options are available also. In some economies, some important products will only be imported and so separating these "non-competing" imports from the rest may be of particular interest.

28.70 Another topic that requires careful consideration is the degree of detail that is desirable for product and industry classifications. This may vary depending on the resources available to the statistical office and the sort of use to be made of the results.

Table 28.8:The goods and services account in matrix form

	Goods and services account		Production account		Use of income accounts		Capital accounts		Total use
	E	R	E	R	E	R	E	R	
Goods and services account			Intermediate consumption		Final consumption		Gross capital formation		
E	Exports	540	1 883		1 399		414		4 236
R	Imports	499							
Production account	Output								
E	3 737								
R									
Total supply	4 236								

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D. Social accounting matrices

1. Expressing the sequence of accounts in matrix form

28.71 The part of the use table relating to the destination of products represents one side of the goods and services account in matrix form. However, it can also be expressed as a series of sub-matrices; one for intermediate consumption, one for final consumption, one for capital formation and one for exports. These sub-elements can be associated with the production account, the use of income account, the capital account and the rest of the world account respectively. Similarly the supply table represents the other side of the goods and services account but can also be written as two sub-matrices, one associated with the production account (output) and one with the rest of the world (imports). By writing the supply table horizontally and the supply table vertically in terms of these sub-matrices and their associated accounts, table 28.8 emerges. The rows and columns labelled E denote the total economy and those labelled R the rest of the world.

28.72 The attraction of this format is that the total across the set of rows for the goods and services account is equal to the total down the columns for the same account. There is no match for the second set of rows for the production account, but it is not difficult to bring this about. The entries for value added can be inserted in a third set of rows with the entries underneath intermediate consumption. In this way the sum down the columns for the production account is then equal to the rows for the same account. But there is now an unmatched third set of rows containing value added. Since value added ultimately carries forward to the allocation of primary income account, the third set of rows can be so labelled as in table 28.9.

28.73 If, to match this third set of rows, a third set of columns is inserted between the production account columns and those for the use of income account, property income can be inserted at the intersection of the third set of rows and columns and a fourth set of rows inserted to show the balance of primary income as it appears in the secondary distribution of income account. Proceeding in this way, successive sets of rows and columns can be introduced until the whole sequence of accounts is covered, as in table 28.10.

28.74 By including the entries for the rest of the world as well as for the total economy, the balancing items from the balance of payments can be shown as, for instance, the -41 in table 28.9.

28.75 It is also possible to extend table 28.10 to show the incorporation of the balance sheets as in table 28.11. For this, a row above the initial table is introduced to show the opening balance sheet and three rows below it. The first of these shows the entries for the other changes in the volume of assets account, the second relates to the revaluation account and the last is the closing balance sheet. Two adjustments also need to be made to table 28.6. The first concerns the item for the consumption of fixed capital, which is transposed from the row for the capital account and column for the production account and placed in the column for the capital account and row for the production account but with a negative sign. The second is to subdivide the capital account with the first set of rows and columns covering all items in the account but the second set covering the product details for gross capital formation and thus forming part of the asset account for non-financial assets.

28.76 Reading down the columns starting with the opening balance sheet entry for fixed assets, for example, this value plus the value of capital formation, less consumption of fixed capital, plus other changes in the volume of assets plus revaluation items is equal to the value on the closing balance sheet. For financial assets less liabilities the matching identity holds.

2. Expanding the matrix

28.77 It is possible to expand and rearrange the rows and columns of the matrix so long as this is done consistently in both dimensions. It is not strictly necessary to adhere to the

Table 28.9:The supply and use table in matrix form

	Goods and services account		Production account		Use of income accounts		Capital accounts		Total
	E	R	E	R	E	R	E	R	
Goods and services account			Intermediate consumption		Final consumption		Gross capital formation		
E	Exports	540	1 883		1 399		414		4 236
R	Imports	499							499
Production account	Output								
E	3 737								3 737
R									
Primary distribution of income accounts			Value added						
			1 854						
		- 41							
Total	4 236	499	3 737						

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order of the sequence of accounts or the degree of detail shown there. The transactions to be included can be expanded or contracted as can the sets of institutional units to be identified.

28.78 The example of transposing consumption of fixed capital from being a positive entry on one side of the account to a negative entry on the other demonstrates how the matrix formulation may be used to enhance the articulation of the asset accounts.

28.79 It is also possible to include alternative classifications of key items. For example a row called "human needs" could be included showing how much food, housing etc was needed for each group of households, based on the functional classification of household consumption. In the column for consumption expenditure, the set of needs can be then cross-classified by product and household group.

28.80 A further expansion of the matrix may be to show the from-whom-to-whom details of such flows as property income and transfers.

28.81 The matrix presentation is very powerful in terms of the flexibility it can encompass, and in displaying the interaction of the accounts in a compact and graphic manner. On the other hand, there are disadvantages to the matrix presentation also.

a. Without explanatory text describing each of the main elements, a reader has to have a very good understanding of the SNA to interpret the numeric entries in the table.

b. Such a table always contains lots of white space which means that it is not an effective way of presenting a large amount of data.

In general, the matrix format is best used to explain the structure of the accounts being presented with individual cells, or a combination of cells, following in a more traditional format.

3. Disaggregating households

28.82 Expanding the accounting matrix of the sequence of accounts to incorporate the disaggregation of households is the usual form of a satellite account known as a social accounting matrix (SAM). As such it moves beyond a rigorous accounting structure based on observations to make an allocation of income into household groups possibly based on a household income and expenditure survey. In some cases this is based on a single survey. The problem, as explained in chapter 24 on the household sector, is that income flows in the SNA relate to individuals whether as employees, recipients of property income or transfer recipients while expenditure relates to households. Mapping individuals to households is necessarily difficult and depends to a greater or lesser extent on a set of assumptions. Any analysis of how government policies will affect households and their consumption depends on making such a mapping.

4. A SAM for labour accounts

28.83 One example of where a SAM is useful is in the case of labour accounts, showing the level and composition of employment and unemployment. SAMs have often provided additional information on this issue, via a subdivision of compensation of employees by type of person employed. This subdivision applies to both the use of labour by industry, as shown in the supply and use table, and the supply of labour by socio-economic subgroup, as shown in the allocation of primary income account for households. It implies that the matrix presents not only the supply and use of various products, but also the supply and use of various categories of labour services.

28.84 In order to have a comprehensive picture of the relationship between households and the labour market, the following sets of information are likely to be needed:

a. Various stocks underlying the flows in the SAM, such as size and composition of the population by household group (including the potential labour force) and production capacity by industry;

b. For the self-employed, it may be desirable to have information on the possession of assets (for example, agricultural land, consumer durables) as well as information on financial assets and liabilities;

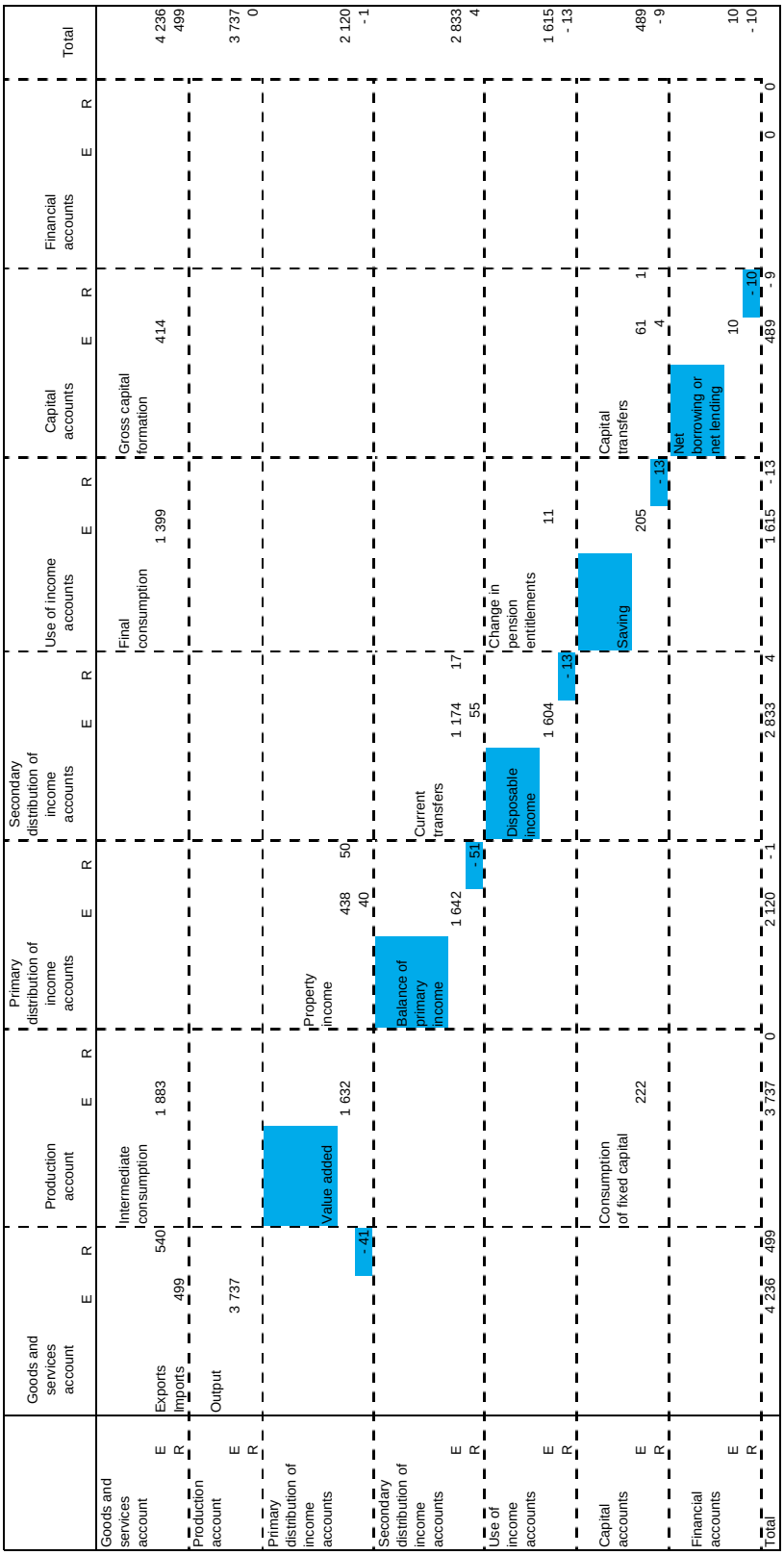
c. Related non-monetary socio-economic indicators, such as life expectancy, infant mortality, adult literacy, nutrient intake, access to (public) health and education facilities, and housing situation by household group (see *Towards a System of Social and Demographic Statistics* (United Nations, 1975));

d. Some re-routings such as social transfers in kind by groups of households.

28.85 Comparing labour incomes of all employed persons as shown in the SAM, a decomposition of these incomes into full-time equivalent employment and average wage rates, and the potential labour force by type of person and household group (expressed in "full-time" equivalents), yields detailed information on the composition of unemployment and an aggregate indicator ("full-time equivalent unemployment") which is consistent, both conceptually and numerically, with the other macroeconomic indicators; these can also be derived from the SAM framework.

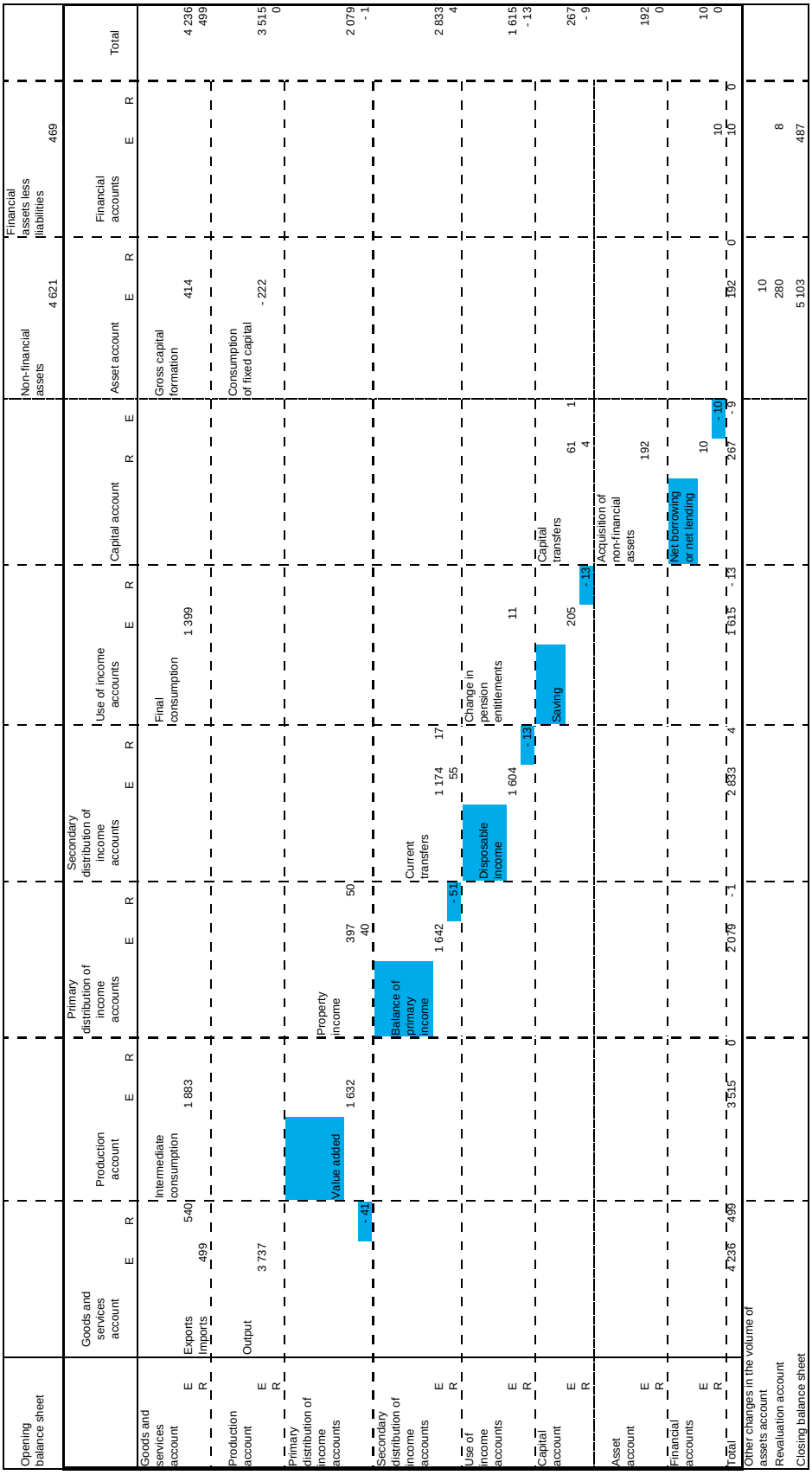
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Table 28.10:The flow accounts in the sequence of accounts in matrix form



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Table 28.11:The sequence of accounts including the balance sheets in matrix form



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Chapter 29: Satellite accounts and other extensions

A. Introduction

29.1 The sequence of accounts is fully integrated in large part because of the underlying rigour of the accounting system. However, the guidelines given in earlier chapters are not necessarily to be followed without variation. A great strength of the SNA is that its articulation is sufficiently robust that a great deal of flexibility can be applied in its implementation while still remaining integrated, economically complete and internally consistent. The purpose of this chapter is to illustrate some of the ways in which this flexibility can be applied.

1. Functional classifications

29.2 As noted in several earlier chapters, moving away from what is purchased to answer the question of why outlays are incurred adds considerably to the analytical power of the system. One approach to this question is the use of functional classifications of expenditure and outlays. A description of these classifications is given in section B. These functional classifications are central to the SNA and also provide a useful starting point for some types of satellite accounts.

2. Key sector accounts

29.3 Instead of using the product and industry classifications (*CPC* and *ISIC*) in their standard order and at the same level of their hierarchies, it can be very instructive to select a group of products or industries of particular importance to the economy, designated here as a key sector. The choice might be very specific, for example concentrating on a single agricultural crop or mineral output, or may be more general such as all the goods and services primarily serving tourism. In either case, a set of supply and use tables may be compiled concentrating on the key sector and aggregating other products and industries. In some cases, where the activity is undertaken by relatively few, relatively large enterprises, it may be possible to go further and compile a complete sequence of accounts for the key sector also. These approaches are described in section C.

3. Satellite accounts

29.4 A further and more extensive form of flexibility is that of a satellite account. As its name indicates, it is linked to, but distinct from, the central system. Many satellite accounts are possible but, though each is consistent with the central system, they may not always be consistent with each other.

29.5 Broadly speaking, there are two types of satellite accounts. One type involves some rearrangement of central classifications and the possible introduction of complementary elements. Such satellite accounts mostly cover accounts specific to given fields such as education, tourism and environmental protection expenditures and may be seen as an extension of the key sector accounts just referred to. They may involve some differences from the central system, such as an alternative treatment of ancillary activities, but they do not change the underlying concepts of the SNA in a fundamental way. The main reason for developing such a satellite account is that to encompass all the detail for all sectors of interest as part of the standard system would simply overburden it and possibly distract attention from the main features of the accounts as a whole. Many elements shown in a satellite account are invisible in the central accounts. Either they are explicitly estimated in the making of the central accounts, but they are merged for presentation in more aggregated figures, or they are only implicit components of transactions which are estimated globally.

29.6 The second type of satellite analysis is mainly based on concepts that are alternatives to those of the SNA. The sorts of variations in the basic concepts that may be considered are discussed in section D. These include a different production boundary, an enlarged concept of consumption or capital formation, an extension of the scope of assets, and so on. Often a number of alternative concepts may be used at the same time. This second type of analysis may involve, like the first, changes in classifications, but in the second type the main emphasis is on the alternative concepts. Using those alternative concepts may give rise to partial complementary aggregates, the purpose of which is to supplement the central system.

29.7 Section E suggests some sorts of tables that might be useful in the context of a satellite account. Again, flexibility in the presentation of tables is recommended but the subjects of the tables given in section E have proved to be useful in a number of cases.

29.8 The emphasis on the flexibility of the SNA extends to allowing complete flexibility about how many and what sort of satellite or other extended accounts may be developed. Satellite accounts, especially of the second sort, allow experimentation with new concepts and methodologies, with a much wider degree of freedom than is possible within the central system. When a number of countries develop similar satellites, exchanging experience can lead to beneficial refinements and the establishment of

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international guidelines in a particular topic and ultimately the possibility of changes in the central system itself. Some examples of this sort of research are reported in section F of this chapter.

B. Functional classifications

29.9 The SNA uses special classifications to analyse consumption, or more generally outlays, by different sectors according to the purpose for which the expenditure is undertaken. Such classifications are referred to as functional classifications. The classifications concerned are:

a. Classification Of Individual COnsumption by Purpose (COICOP);

b. Classification Of the Functions Of Government (COFOG);

c. Classification Of the Purposes of Non-profit Institutions serving households (COPNI);

d. Classification of Outlays of Producers by Purpose (COPP).

29.10 Full details of all the classifications can be found in *Classifications of Expenditure According to Purpose* (United Nations, 2000).

29.11 The main purpose of these classifications is to provide statistics which experience has shown to be of general interest for a wide variety of analytical uses. For example, COICOP shows items such as household expenditure on food, health and education services all of which are important indicators of national welfare; COFOG shows government expenditure on health, education, defence and so on and is also used to distinguish between collective services and individual consumption goods and services provided by government; COPP may provide information on the "outsourcing" of business services, that is, on the extent to which producers buy-in catering, cleaning, transport, auditing and other services that were previously carried out as ancillary activities within the enterprise.

29.12 Functional classifications also provide the means to recast key aggregates of the SNA for particular kinds of analyses, some of which are described in later sections of the chapter. For example:

a. It can be argued that, for several analytical purposes, the SNA definition of gross capital formation is too narrow. In studies of the causes of labour productivity, researchers would often like to have a measure of "human capital" which is normally derived from information on past expenditures on education. The four functional classifications each identify expenditures on education and thus it is possible to derive education expenditure incurred by households, government, non-profit institutions and producers;

b. In studies of household expenditure and saving, some researchers have considered expenditures on consumer durables as capital rather than current expenses. COICOP facilitates this by identifying expenditures on durable goods;

c. In studies of the impact of economic growth on the environment, researchers often wish to identify environmental protection expenditure. COFOG and COPP both include this as one of their first level categories.

1. COICOP

29.13 There are 14 main categories in COICOP. The first 12 sum to total individual consumption expenditure of households. The last two identify those parts of consumption expenditure by NPISHs and general government that are treated as social transfers in kind. Together all 14 items represent actual final consumption by households. The 14 categories are as follows:

1. Food and non-alcoholic beverages,
2. Alcoholic beverages, tobacco and narcotics,
3. Clothing and footwear,
4. Housing, water, electricity, gas and other fuels,
5. Furnishings, household equipment and routine household maintenance,
6. Health,
7. Transport,
8. Communication,
9. Recreation and culture,
10. Education,
11. Restaurants and hotels,
12. Miscellaneous goods and services,
13. Individual consumption expenditure of NPISHs,
14. Individual consumption expenditure of general government.

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29.14 Household budget surveys frequently use a classification scheme based on COICOP to collect household expenditure information. This then has to be reallocated to products for use in a supply and use table as discussed in chapters 14 and 28.

2. COFOG

29.15 There are ten main categories of COFOG as follows:

1. General public services,
2. Defence,
3. Public order and safety,
4. Economic affairs,
5. Environmental protection,
6. Housing and community amenities,
7. Health,
8. Recreation, culture and religion,
9. Education,
10. Social protection.

29.16 As noted in chapter 22, COFOG is used in the analysis and presentation of the government finance presentation of statistics.

3. COPNI

29.17 There are seven main categories in COPNI as follows:

1. Housing,
2. Health,
3. Recreation and culture,
4. Education,
5. Social protection,
6. Religion,
7. Political parties, labour and professional organizations.

29.18 This classification is a somewhat reduced version of the classification for all non-profit institutions given in chapter 23.

4. COPP

29.19 There are six main categories in COPP as follows:

1. Outlays on infrastructure,
2. Outlays on research and development,
3. Outlays on environmental protection,
4. Outlays on marketing,
5. Outlays on human resource development,
6. Outlays on current production programmes, administration and management.

29.20 In principle, COPP applies to all producers, whether market or non-market, although not all categories are of equal interest for both kinds of producers. It is probable that, in practice, classification of outlays of producers by purpose will mainly be of interest for classifying transactions of market producers.

C. Satellite accounts for key sector and other special sector accounts

29.21 The sequence of accounts is normally compiled for the whole economy or for all institutional units belonging to the same institutional sector or subsector. Within the supply and use tables, production units may be grouped to show the elements of the production account and generation of income account, even if the production units are not complete institutional units. Although the rows and columns of the supply and use tables often follow *CPC* and *ISIC*, at similar levels of their respective hierarchies, it is quite possible to select a number of industries that are of special interest in a given country. It is common practice to refer to such groupings of industries as “sectors” even though they do not constitute institutional sectors as the term is used in the SNA.

29.22 It can be very useful for economic analysis to identify particular activities that play a key role in the economy’s external transactions. These key activities may include the petroleum sector, mining activities or crops (coffee, for example), when they account for an important part of exports, foreign exchange assets and, very often, government resources.

29.23 The SNA does not try to provide specific and precise criteria for the definition of what identifies a key sector or activity. It is a matter of judgement in a given country, based on economic analysis and economic and social policy requirements. For instance, even a small industry at an infant stage might deserve to be treated as a key activity.

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29.24 The first step in drawing up key sector accounts is to identify the key activities and their corresponding products. This may involve grouping together items shown in different parts of *ISIC* or *CPC*. For example, accounting for oil and natural gas may cover extraction of crude petroleum and natural gas (*ISIC* division 06), manufacture of refined petroleum products (*ISIC* class 1920), transport via pipelines (*ISIC* class 4930), wholesale of solid, liquid and gaseous fuels and related products (*ISIC* class 4661) and retail sale of automobile fuel (*ISIC* class 4730). The extension of the key sector(s) depends on local circumstances; for example, it may be useful for the energy sector to cover petrochemical processing.

29.25 The key products and key industries accounts may be analysed in the context of a supply and use table. Key industries are shown in detail in columns and other industries may be aggregated. In the rows, key products are similarly shown in detail and other products aggregated. Below the supply and use table, extra rows may show labour inputs, gross fixed capital formation and stocks of fixed assets. In the use part of the table, columns for gross fixed capital formation and changes in inventories respectively may be broken down between one or more key sectors or industries and other sectors or industries. In a country where the key activity is carried out by very heterogeneous types of producers, such as small farmers and large plantations owned and operated by corporations, it may be useful to show the two groups of producers separately, as they have wholly different cost structures and behave differently.

29.26 Thereafter, a set of accounts, following the sequence of accounts as far as possible, may be compiled for the key sector. In the case of energy and mining activities, the key sector generally consists of a limited number of large corporations where access to the commercial accounts of the corporations is usually possible. All transactions of the corporations are covered, even when they carry out secondary activities. It is useful to know the nature of the secondary products, but not necessarily their destination.

29.27 When the key sector relates to an agricultural industry or product, such as coffee in certain countries, the situation is more complex. Many producers may be unincorporated enterprises that do not qualify as quasi-corporations. Ideally, the key sector accounts would include a complete set of accounts for the households that carry out these productive activities. Because this may be difficult to do in practice, it may be necessary to show only the accounts and transactions which are most closely linked with the key activity such as the production and generation of income accounts from the one side and main transactions of the capital and financial accounts from the other.

29.28 In many cases, government plays an important role in connection with key activities, either via taxes and property income receipts, regulatory activity or subsidies. Accordingly, the detailed study of transactions between the key sector and general government is very important. The classification of transactions may be extended to identify those flows connected with the key activity, including the relevant taxes on products. These flows may be received by various government agencies, such as ministries for special purposes, universities, funds or special accounts. Similarly, it is very useful for economic analysis to indicate what uses are made by government of these resources, especially in the case when they are routed via a government agency. This calls for a specific analysis by purpose of this part of government expenditure.

29.29 The distinction between public, foreign controlled or national private corporations is fundamental when dealing with a key sector.

29.30 One more step may consist in showing in additional tables the “from-whom-to-whom?” relationship between the key sector and each other sector and the rest of the world.

D. Satellite accounts; options for conceptual variations

29.31 This section looks at some of the options that might be adopted in developing a satellite account of the second type, where some of the basic concepts of the central system are intentionally varied. It is deliberately illustrative rather than exhaustive.

1. Production and products

29.32 Within the production boundary of the central framework of the SNA, producer units are establishments, classified according to their principal economic activity. Such units are classified according to *ISIC*.

29.33 When establishments, and consequently industries, are not homogeneous at a given level of the *ISIC*, they undertake both a principal activity and one or more secondary activities. The output of these secondary activities is identified according to its nature, following a product classification, but the inputs of secondary activities are not separated from those of the principal activities. Ancillary activities, on the other hand, are not analysed and classified according to their own nature and the related products do not appear as autonomous products.

29.34 When examining certain kinds of activity and products, it may be useful not only to separate secondary from principal activity, but also to identify and recognize the ancillary activities in order to obtain a full picture of the inputs corresponding to the activity being examined.

29.35 Consider the example of transportation. The output of transportation activities in the central framework covers only transport services rendered to third parties, whether as a principal or secondary product. Own-account transportation is treated as an ancillary activity; its inputs are unidentified components of the costs of the producing units it serves. To obtain a broader picture of transportation

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activity, own-account transportation of producing units may be identified and measured.

29.36 In some instances, it may be useful to consider enlarging the production boundary. For instance, to make an overall estimate of the transportation function in an economy, it might be useful to cover transport services rendered by households using their own cars and to try to value the time people spend using transport facilities. Generally speaking, the scope of non-market activities may be extended considerably.

29.37 The process of identifying principal, secondary and ancillary activities works well when the activity in question is identified in one of the standard classifications and so appears in the central framework. However, in some important cases, such as tourism and environmental protection activities, the process of identification is complex because not all the relevant activities and products appear in the central framework classifications. In this case, the use of the word "industry" is not in strict accordance with the normal usage just as "sector" is used in a special sense in the context of key sector accounts.

2. Income

Primary incomes

29.38 When the production boundary is extended, as suggested above, the magnitude of primary incomes is increased, income being imputed for the additional activities which are inserted within the boundary of production.

29.39 In conditions of high inflation, nominal interest may be judged not to be an appropriate measure of the return to lent funds. Nominal interest includes an implicit or explicit component as compensation for the change inflation causes in the real value of monetary assets and liabilities. This component may be analysed as a holding gain for the borrower and a holding loss for the lender, rather than as an element of property income.

Transfers and disposable income

29.40 Several kinds of transfers in addition to those in the central framework may be delineated, if meaningful. Some examples follow.

29.41 Implicit transfers may be made explicit. Implicit transfers change the situation between units without any flow being treated as an imputed transfer in the central framework. For instance, tax benefits refer to the advantages or disadvantages economic units incur as a consequence of tax legislation by reference to an average situation. Another example is the case of non-market services provided free of charge by government units to market producers. In the central framework these services are treated as collective consumption of government. If a further analysis were to treat them as an addition to intermediate consumption of market producers, a counterpart should be introduced, preferably in subsidies on production. This approach may be undertaken systematically to measure all types of transfers between government and particular sectors, such as agriculture. The implicit benefits resulting from tax concessions, equity participation, soft loans, differential exchange rates, differential domestic prices, etc., may then be added to subsidies, other current transfers, or capital transfers embodied in the central framework data.

29.42 Externalities are impacts on third parties that are not accounted for in the value of monetary transactions between two economic units or that result from actions of these units in the absence of any monetary transaction. As such, externalities may give rise to a wide range of implicit transfers. For example, pollution and nuisance created by producers may have negative effects on final consumers. These negative effects might (with difficulty) be estimated and recorded as negative transfers from producers to households. In order to balance these negative transfers, one possibility might be to introduce a concept of production of externalities which would result in an output of negative or positive services and the corresponding final consumption.

29.43 Flows in the other changes in volume of assets account and the revaluation account of the central framework are candidates for enlarged concepts of transfers and disposable income. Uncompensated seizures, for example, could be recorded as a transfer (albeit unwillingly on the part of the former owner). In countries where holding gains or losses on financial assets or liabilities are significant, real holding gains and losses on financial assets and liabilities could be added to disposable income in order to derive a broader measure of income.

3. Uses of goods and services

29.44 The coverage of uses of goods and services, either for intermediate or final consumption or capital formation, obviously changes as a result of enlarging the concept of production. For example, if services rendered to each other by members of the same household were included in production, they would have to be also included in final consumption.

29.45 The borderline between intermediate consumption, final consumption and capital formation may also be modified in various ways. Two often mentioned cases refer to human capital and consumer durables. If at least part of final consumption on education and health were treated as fixed capital formation, the corresponding central framework transactions would be reclassified from consumption to fixed capital formation resulting in human capital assets. As an immediate consequence, the concept of consumption of fixed capital would be extended.

29.46 An alternative to the inclusion of expenditures on consumer durables such as cars and furniture in household final consumption would be to treat them as fixed capital formation. Only that part of the resulting fixed asset estimated as the capital services provided by the durable would then enter final consumption. Strictly speaking, this procedure implies enlarging the concept of production to include household services. (This is one subject discussed further in section E.)

29.47 As a consequence of the changes just considered, the concept of saving would be extended.

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4. Assets and liabilities

29.48 The scope of non-financial assets could be modified as a consequence of extending the concept of production or modifying the borderline between consumption and capital formation, as indicated in the previous paragraphs.

29.49 The scope of financial assets and liabilities could also be broadened by including contingent assets and liabilities in the classification of financial instruments. Further, alternative rules about the valuation of financial assets may be used, for example using fair value estimates instead of market value.

5. Purposes

29.50 Section B describes the functional classifications. In the standard version, headings at a given level are mutually exclusive. For example, teaching in hospitals must be classified as either education or health expenditure but not both. Consequently, for an education or health account, it might be desirable to reclassify a number of transactions. In order to preserve as great a degree of consistency with the central system as possible, any reclassifications should be treated as removing an item from one heading and placing it in another rather than allowing double counting. Double counting would mean that transactions classified by purpose were no longer additive since some of them would appear under two or more headings. However, even without double counting, it should be noted that different satellite accounts, each with a different focus, may not be consistent with respect to other headings. For example, if an education satellite account treats some teaching done in hospitals as education rather than health, the measure of health in that satellite will differ from that in any other satellite where such a displacement has not been made.

6. Aggregates

29.51 A number of the complementary or alternative analyses mentioned above may modify the main aggregates as shown in the central framework either directly or indirectly. Examples of direct modifications are the increase in output and value added when final consumption of household services for own use is included within the boundary of production, or the increase in fixed capital formation if human capital is considered an economic asset. Other aggregates are indirectly modified; saving in the latter case, disposable income in the former.

29.52 In some types of analysis the objective is to focus on one specific field of concern, such as education or tourism. Changes in some concepts and aggregates of the central framework may be introduced, but this is not the primary intention, nor is it intended to give a different picture of the overall economic process.

E. Possible tables for a satellite account

29.53 The previous section described what variations in the basic concepts, accounting rules and classifications of the SNA could be applied in a satellite account. This section suggests some sorts of tables that it might be useful to compile for a satellite account.

1. Scoping a functionally orientated account

29.54 The starting point is to decide which products are of interest and which are the industries involved in their production. The resources devoted to the production of the items include not only current costs but also fixed capital used in production. Once the items are produced, the question arises of how they are used. This leads to requiring information on the following topics:

a. A detailed analysis of the supply and use of the products in question;

b. Information on the fixed capital used in the production process.

29.55 For many items, the units using the products are responsible for bearing the expense of acquiring the product but satellite accounts may frequently be compiled for areas, such as health or education, where there may be an important distinction between who pays for the product and who consumes it.

29.56 In addition, for many products of special interest, there may be particular taxes or subsidies associated with their production or use. Taking these two factors together, therefore, in addition to the items above, the following is required:

c. An analysis of any transfers associated with either production or use.

29.57 It is also useful in many cases to associate non-monetary figures with the monetary ones. This means assembling the following information:

d. Information on employment and the availability of assets.

29.58 Once these four sets of data are assembled, it should be possible to develop a satellite account that covers the analysis of uses of, or benefits from, the expenditure on the items, production including the labour and capital employed, transfers and other ways of financing the uses. All of this can be expressed in value terms and, when relevant, in physical quantities.

2. Determining the products of interest

29.59 For any field of interest, the starting point is to identify the products specific to this field. It is customary, in the context

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of a satellite account, to identify these as characteristic products and connected products. Characteristic products are those that are typical of the field; for instance, for health, characteristic products are health services, public administration services, education and R&D services in health.

29.60 The second category, connected goods and services, includes products whose uses are interesting because they are clearly covered by the concept of expenditure in a given field, without being typical, either by nature or because they are classified in broader categories of products. In health, for example, transportation of patients may be considered connected services; also pharmaceutical products and other medical goods, such as spectacles, are very often treated as connected goods and services.

29.61 Together characteristic products and connected products are referred to as specific products.

3. Measuring production

29.62 For characteristic products, the satellite account should show the way these goods and services are produced, what kinds of producers are involved, what kinds of labour and fixed capital they use and the efficiency of the production process and, hence, of the allocation of resources.

29.63 For connected products, there is no particular interest in their conditions of production because they are not typical of the field of interest. If the conditions of production are important, then the items should be considered characteristic products and not connected products. For example, pharmaceutical products might be considered characteristic in the account for health of a country in the first stages of developing a domestic industry. The precise borderline between characteristic and connected products depends on the economic organization in a given country and the purpose of a satellite account.

4. Components of uses/national expenditure

29.64 The components of uses or national expenditure are the following:

1. Consumption of specific goods and services,
2. Capital formation in specific goods and services,
3. Fixed capital formation of characteristic activities in non-specific products,
4. Specific current transfers,
5. Specific capital transfers.

Each of these items is discussed below.

Consumption

29.65 Item 1 is consumption of specific goods and services. It covers actual final consumption (as defined in the central framework) and intermediate consumption. Market products, products for own final use and non-market products are distinguished and, for the last-named, individual and collective consumption may be shown separately. Intermediate consumption generally has a broader coverage than in the central framework, as the output of the relevant ancillary activities is identified with intra-establishment deliveries being recorded. As a consequence, it covers (actual) intermediate consumption as defined in the central framework and internal intermediate consumption. In some cases, such as transport services, the last component may be important in size. Sometimes, it could be considered that this internal intermediate consumption should be treated as final consumption and added to actual final consumption, as in the use of ancillary education and health services, thus broadening the scope of household actual final consumption. Alternatively, the scope of consumption may be narrowed, if the use of certain services is treated as fixed capital formation in a satellite account instead of intermediate or final consumption as in the central framework.

Capital formation

29.66 Item 2 is capital formation in specific goods and services. Since, item 2 includes changes in inventories, if appropriate, it may cover work-in-progress in specific services. In an account for culture, for example, there may also be acquisition less disposals of valuables.

29.67 Item 3, fixed capital formation of characteristic activities in non-specific products and their acquisitions less disposals of non-produced non-financial assets is a bit more complex:

a. It does not cover the total fixed capital formation of these activities because that part consisting of specific products is already included in item 2.

b. Only the fixed capital formation of activities whose output consists of characteristic goods and services is covered in item 3. (If the exclusion of capital formation of activities whose output consists of connected goods and services proves important, the products and activities in question may have to be redefined to be characteristic.)

c. An analysis based on establishments may give a broader coverage than normal because they may cover some secondary activities.

d. Item 3 includes acquisitions less disposals of non-produced non-financial assets.

Transfers

29.68 Items 4 and 5, specific current transfers and specific capital transfers, are the most important components of national expenditure in cases such as social protection or development aid. In these fields, items 1 and 2 refer only to the administrative costs, both current and capital, of the agencies managing social protection or international aid. The core of the expenditure consists of transfers.

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29.69 In some situations, there may be subsidies designed to reduce the prices paid by final consumers for certain goods or services, such as food, transport services, or housing services. They are commonly called consumption subsidies. In the central framework, when these goods and services are considered market products, they are included in final consumption at purchasers' prices. In a satellite account there are two options: either consumption (item 1) is valued differently from the central framework in order to include the value of consumption subsidies or consumption is valued as it is in the central framework and specific current transfers (item 4) must include consumption subsidies. Subsidies included in item 4 may also be directed toward reducing the prices of intermediate consumption. Item 4 may also include other subsidies on production.

29.70 In each field a classification of specific transfers has to be established. As it is used for analysing both uses and financing, this classification covers all specific transfers, independently of whether they are counterparts of items 1 to 3 or not.

Total uses and national expenditure

29.71 The total uses of resident units are the sum of the five components above. From this, current uses financed by the rest of the world are deducted to reach national expenditure. National expenditure is thus equal to total uses of resident units financed by resident units. It is desirable if possible to distinguish between current and capital uses financed by the rest of the world.

29.72 National expenditure, as defined above, does not include transactions in financial instruments. However, for certain types of analysis, such as development aid, loans which are given or received at preferential conditions must be accounted for. Benefits or costs resulting from rates of interest lower than the market ones involve implicit transfers as described in chapter 22.

29.73 Uses/national expenditure may be shown by type of products and transfers or by type of purpose (programmes). The main emphasis may be put on one or the other of these two alternatives, or they might be used jointly, depending on the field covered or the aim of the analysis pursued. The approach by programme is particularly relevant in the case of environmental protection or social protection.

5. Users or beneficiaries

29.74 For users or beneficiaries, the terminology used may differ from one satellite account to another. "Users" is more relevant to tourism or housing for example, "beneficiaries" to social protection or development aid. In both cases, the terms refer to who is using the goods and services or benefitting from the transfers involved.

29.75 At the most aggregated level, the classification of users or beneficiaries is simply a rearrangement of the central framework classification of institutional sectors and types of producers, in which the production and consumption aspects are separated. It may be as follows:

a. Market producers;

b. Producers for own final use;

c. Non-market producers;

d. Government as a collective consumer;

e. Households as consumers;

f. Rest of the world.

29.76 Households as consumers are the most important type of users or beneficiaries in many satellite accounts. In order to be useful for social analysis and policy, a further breakdown of households is necessary. For this purpose, one of the sorts of subsectoring of households discussed in chapter 24 could be considered.

6. Financing

29.77 Because users do not always bear the expenses themselves, it may be desirable to try to analyse the units that ultimately bear the expenses. This is more feasible when the field of interest covers complete institutional units than when it concerns establishments (or units of homogeneous production) covering only part of the output of the whole enterprise.

29.78 One way to approach the question of financing is to first establish what types of financing are used and then identify which sorts of units provide each type of financing. The question of "ultimate" bearer of the cost also needs addressing. Some household consumption is provided by government as social transfers in kind, which in turn is largely financed by taxes received by government from households and enterprises. In one sense, therefore, it could be argued that social transfers in kind are ultimately financed by households and enterprises. Some conventions have to be established about how far back down the financing chain to go to determine the "ultimate", or perhaps more correctly the indirect, source of financing.

29.79 Another problem that arises is that, except in cases of transactions in kind, there is no necessary link between one source of funding and one type of expenditure. However, it is convenient to pair various types of financing and expenditure to see how far they correspond, as follows:

a. Intermediate consumption of market producers compared with revenue from sales;

b. Intermediate and final consumption of government compared with taxes;

c. Intermediate and final consumption of NPISHs compared with contributions received;

d. Final consumption expenditure by households compared with compensation of employees and transfers such as pensions.

29.80 Capital formation may be funded in a number of ways; from revenue from sales, from the disposal of assets (including financial assets), from the receipt of a transfer in

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kind or from borrowing. In the case of capital formation by government, this may be funded by the issue of securities or by capital transfers or loans from the rest of the world.

29.81 The source of financing of transfers depends in large part on the field being studied. If social benefits are included, they should be treated as mainly financed by social contributions from other households. Governments will be the provider of transfers in some cases (including subsidies) and the recipient in others (including taxes).

29.82 In a number of cases, it may be particularly relevant to identify financing from the rest of the world.

7. Production and products

29.83 As with key sector accounts, it will almost always be useful to develop a set of supply and use tables for the characteristic and connected products of interest and the producers of the characteristic products. This may be extended to cover the generation of income account also and non-monetary data concerning employment and indicators of output.

8. Physical data

29.84 Data measured in physical or other non-monetary units should not be considered a secondary part of a satellite account. They are essential components, both for the information they provide directly and in order to analyse the monetary data adequately.

F. Examples of satellite accounts

29.85 As explained in the introduction, there are two types of satellite accounts, serving two different functions. The first type, sometimes called an internal satellite, takes the full set of accounting rules and conventions of the SNA but focuses on a particular aspect of interest by moving away from the standard classifications and hierarchies. Examples are tourism, coffee production and environmental protection expenditure. The second type, called an external satellite, may add non-economic data or vary some of the accounting conventions or both. It is a particularly suitable way to explore new areas in a research context. An example may be the role of volunteer labour in the economy. Some sets of satellite accounts may include features of both internal and external satellites.

29.86 The boundary between satellite accounts and a straightforward elaboration of the SNA or even with other systems is not clear cut. The links to balance of payments and the international accounts as presented in *BPM6*, government finance statistics as in *GFSM2001* or *MFSM* could all be seen as a form of satellite account. The treatment of NPIs in chapter 23 and the informal sector in chapter 25 are clearly satellite accounts. Even the pension table in chapter 17 could be seen as a form of satellite account, even though its compilation is part of the central guidelines of the SNA.

29.87 In this section, some further satellite accounts are described. The descriptions are brief, being intended to give a flavour of the accounts only; references are given for further information. Four areas in total are described. For two of these, the tourism satellite account and the environmental satellite account, the international manuals are now in their second version. The health satellite account is still in a preliminary version but under active revision. The fourth area covers unpaid household production activities. This has been an area of interest for very many years but the difficulties in determining how to measure unpaid activities has so far been a stumbling block in reaching international agreement on how to proceed. Nevertheless, some of the most recent work in this is reviewed for those interested.

29.88 Other satellite accounts have been developed or are under development. Some, such as a satellite investigating productivity across a number of countries reported in *Productivity in the European Union: A Comparative Industry Approach* (EU KLEMS Project, 2003), have been conducted to date as a research exercise. Others, such as accounts for water and forests, have been developed as elaborations of the main environmental satellite account *SEEA* to the point where international guidelines on these are now accepted. Further satellite accounts for agricultural products would be useful for a number of developing countries. Here and elsewhere, as there is agreement on how to compile a new form of satellite account, new international guidelines can be developed. International guidelines on satellite accounts themselves may be subject to revision and may eventually move towards an accepted international standard as is planned for the *SEEA*.

1. Tourism satellite accounts

29.89 The tourism satellite account (*TSA*) is a long established satellite account with more than 70 countries having compiled one at some stage. A manual of international guidelines, known as the 2008 *Tourism Satellite Accounts: Recommended Methodological Framework* (Eurostat, Organisation for Economic Co-operation and Development, World Tourism Organization, United Nations, 2008) updates the first version of 2000. The coverage of second homes and the activity of meetings and conferences are extensions to the *TSA* made in the 2008 update.

29.90 The goal of the tourism satellite account is to provide the following information:

a. Macroeconomic aggregates that describe the size and the economic contribution of tourism such as tourism

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direct gross value added (TDGVA) and tourism direct gross domestic product (TDGDP), consistent with similar aggregates for the total economy and other productive economic activities and functional areas of interest;

b. Detailed data on tourism consumption, a more extended concept associated with the activity of visitors as consumers, and the description of how this demand is met by domestic supply and imports, integrated within tables derived from supply and use tables that can be compiled both at current values and in volume terms;

c. Detailed production accounts of the tourism industries, including data on employment linkages with other productive economic activities and gross fixed capital formation;

d. A link between economic data and non-monetary information on tourism such as number of trips (or visits), duration of stay, purpose of trip, modes of transport, etc. which are required to specify the characteristics of the economic variables.

Defining visitors and tourists

29.91 At the centre of the *TSA* is the idea of a visitor. A visitor is defined as someone who is outside their usual environment but not employed by an entity resident in the place he is visiting. The usual environment is not identical with country of residence. It refers to the area within which a person is normally to be found. It includes the area around the home and also the place of work. Thus border workers, although they cross a country boundary, are not visitors. Visitors are therefore a subset of travellers.

29.92 Visitors may be divided into two categories: those that are overnight visitors called tourists and those that are same day visitors called excursionists. Further, it is important to divide tourists according to their country of residence into domestic and external tourists. A resident visiting a country abroad is undertaking outbound tourism; a non-resident visiting the domestic economy is undertaking inbound tourism. The total amount of tourism undertaken by residents, known as national tourism, is the sum of domestic tourism (tourism within the domestic economy undertaken by residents) plus outbound tourism. Internal tourism is the sum of domestic tourism plus inbound tourism.

	Within the country	Outside the country	Total
Residents	Domestic tourism	Outbound tourism	National tourism
Non-residents	Inbound tourism		
Total	Internal tourism		

29.93 Tourism is not restricted to activities normally thought of as typical of recreation but includes all activities undertaken by the tourist. Travelling for business or for education or training is included. The purpose of the tourist's visit is categorized according to whether it is personal or business and professional. The personal heading is further divided into eight categories: holidays, leisure and recreation; visiting friends and relatives; education and training; health and medical care; religion or pilgrimages; shopping; transit and other.

Definition and scope of tourism expenditure

29.94 Tourism expenditure is defined as the amount paid for the acquisition of consumption goods and services as well as valuables for own use or to give away after or during tourism trips. It includes expenditures by visitors themselves as well as expenses that are paid for or reimbursed by others.

Definition and scope of tourism consumption

29.95 The concept of tourism consumption goes beyond that of tourism expenditure in that it also includes services associated with occasional accommodation on own account, tourism social transfers in kind and other imputed consumption. While information on tourism expenditure can be obtained by surveys of tourists, the adjustments to tourism consumption have to be estimated from other sources.

29.96 Tourism consumption can be characterized according to where the tourism takes place and whether the tourist is a resident or non-resident in a manner similar to that already described for tourism.

Characteristic products

29.97 The consumption products considered by the *TSA* are divided into tourism characteristic products and other consumption products. Tourism characteristic products are further subdivided into internationally comparable tourism characteristic products and country specific tourism characteristic products. The *TSA* manual includes a list of the first. Other consumption products are divided between tourism connected products and non-tourism related products. Non-consumption products include all products that do not constitute consumption goods and services. These include valuables, tourism gross fixed capital formation and collective consumption. A list of 12 classifications of products and activities characteristic of tourism are given in the *TSA* manual.

Tourism industries

29.98 A tourism industry represents the grouping of those establishments whose main activity corresponds to a characteristic product. Tourism industries cover accommodation for visitors, the food and beverage serving industry, railway, road, water and air passenger transport, transport equipment rental, travel agencies and other reservation service industries, the cultural industry, the sports and recreational industry, the retail trade of country specific tourism characteristic goods and country specific tourism characteristic industries.

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Table 29.1:Table 6 from the Tourism Satellite Accounts

Total domestic supply and internal tourism consumption (at purchasers' prices) (*)

Products	TOURISM INDUSTRIES												Other industries		Output of domestic producers (at basic prices)		imports*		Taxes less subsidies on products nationally produced and imported		Trade and transport margins		Domestic supply (at purchasers' prices)	Internal tourism consumption	Tourism ratios (%)
	1 - Accommodation for visitors		1 - a. accommodation services for visitors except in 1-b		1 - b. accommodation services associated with all types of vacation home ownership		...		12- Country specific tourism industries		TOTAL														
	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)	output	tourism share (in value)			
	(5.1)		(5.1a)		(5.1b)		(5...)		(5.12)		(5.13)		(5.14)		(5.15) = (5.13) + (5.14)		(6.1)		(6.2)		(6.3)		(6.4) = (5.15)+ (6.1) + (6.2) + (6.3)	(4.3)	(6.5)= (4.3) x 100 (6.4)
A. Consumption products (*)																									
A.1 Tourism characteristic products (d)																									
1 – Accommodation services for visitors																									
1.a – Accommodation services for visitors other than 1.b																									
1.b – Accommodation services associated with all types of vacation home ownership																									
2 – Food and beverage serving services																									
3 – Railway passenger transport services																									
4 – Road passenger transport services																									
5 – Water passenger transport services																									
6 – Air passenger transport services																									
7 – Transport equipment rental services																									
8 – Travel agencies and other reservation services																									
9 – Cultural services																									
10 – Sports and recreational services																									
11 – Country-specific tourism characteristic goods	X		X		X		X		X		X		X		X		X				X				
12 – Country-specific tourism characteristic services																					X				
A.2 Other consumption products (a) (d)																					X				
B. Non consumption products (d)																					X				
B.1 Valuables	X		X		X		X		X		X		X		X		X								
B.2 Other non consumption products (**) (b) (d)																					X				
I. TOTAL OUTPUT (at basic prices)																									
II. TOTAL INTERMEDIATE CONSUMPTION (at purchasers price) (c)																									
(I - II) TOTAL GROSS VALUE ADDED (at basic prices)																									
Compensation of employees																									
Other taxes less subsidies on production																									
Gross mixed income																									
Gross operating surplus																									

X does not apply

• • • Means that all tourism industries of the proposed list have to be considered one by one in the enumeration

***** Imports excludes direct purchase of residents abroad

(*) The value of **A. Consumption products**, is net of the gross service charges paid to travel agencies, tour operators and other reservation services.
(**) Includes all other goods and services that circulate in the economy of reference.
(a) If relevant and feasible, countries should separately identify both components ("tourism connected products" and "non-tourism related consumption products"). In both cases, goods and services should be separately identified, if possible (see para. 4.15.).
(b) Goods and services should be separately identified, if possible (see para. 4.16.)
(c) Breakdown should be provided, if possible (see para. 4.17.)
(d) For goods, the tourism share is to be established on the retail trade margin only (see Annex 4)

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29.99 Based on this information a full set of *TSA* accounts consisting of 10 tables can be compiled. The first three consist of tourism expenditure. Table 4 shows a breakdown between domestic and inbound tourism and the adjustments that need to be made to move from tourism expenditure to tourism consumption. Table 5 shows the supply of the tourism industry. Table 6 is the heart of the *TSA* and shows the main aggregates derived; the aggregates are listed below. Table 7 covers employment. Tables 8 and 9 cover fixed capital and collective consumption. Table 10 covers non-monetary information.

Main aggregates

29.100 The following aggregates are taken to be a set of relevant indicators of the size of tourism in an economy. They include:

a. Internal tourism expenditure;

b. Internal tourism consumption;

c. Gross value added of the tourism industry (GVATI);

d. Tourism direct gross value added (TDGVA);

e. Tourism direct gross domestic product (TDGDP).

29.101 The derivation of these items is shown in table 6 of the *TSA* manual which is included as table 28.1.

2. Environmental accounting

29.102 Environmental accounts aim to reflect within a framework based on the SNA the impacts of using (and sometimes using up) natural resources and the generation of residuals that pollute the air and water. They also identify specific activities undertaken to prevent or combat the environmental impacts of human activity.

29.103 An interim version of *SEEA*, the satellite for Integrated Environmental and Economic Accounts was published in 1993. An updated version was released in 2003. Work is in hand to revise this further with a view to publication in 2012. The goals of the *SEEA* are to assist in:

a. encouraging the adoption of standard classifications in environmental statistics, which extends the value and relevance of existing environmental information;

b. bringing a new dimension to environmental statistics by applying the economic accounting traditions linking stocks and flows;

c. providing a link with the economic information contained within the traditional economic accounts, leading to improvements in the reliability and coherence of both sets of information;

d. identifying use and ownership and hence responsibility for environmental impacts;

e. encouraging the development of comprehensive and consistent data sets over time;

f. facilitating international comparisons.

29.104 As with the SNA, the *SEEA* accounts provide a score-keeping function from which key indicators can be derived and a management function in that they can be used in the analysis of policy options. The accounts provide a sound basis for the calculation of measures which may already be included in sets of sustainable development indicators, but they may also be used to develop new indicators, such as environmentally adjusted macroaggregates which would not otherwise be available.

The different parts of the *SEEA*

29.105 The *SEEA* should be seen as a satellite account to the SNA with features of both internal and external satellites. The full system consists of three main sections, two of which can be implemented more or less independently and a third which is designed to integrate the first two with each other and with the SNA. The three sections consist of:

a. An extended form of supply and use tables capable of incorporating physical data alone or in addition to monetary data;

b. Elaborations of parts of the central framework of the SNA with some extensions; and

c. Consideration of extending the SNA to allow the effects of depletion and degradation to impact the macroaggregates such as GDP.

Physical and hybrid supply and use tables

29.106 Four different types of flows are distinguished in the *SEEA*.

a. ***Products*** are goods and services produced within the economic sphere and used within it, including flows of goods and services between the national economy and the rest of the world.

b. ***Natural resources*** cover mineral and energy resources, soil, water and biological resources.

c. ***Ecosystem inputs*** cover air and the gases necessary for combustion and the water to sustain life.

d. ***Residuals*** are the unintended and undesired outputs from the economy which have zero price and may be recycled or discharged into the environment. “Residuals” is the single word used to cover solid waste, effluents (discharges to water) and emissions (discharges to air).

29.107 The first set of environmental accounts consists of a link to environmental statistics formed by structuring physical environmental data in a supply and use or input-output framework. Physical flow accounts consist of merging accounts for products, natural resources, ecosystem inputs and residuals, each account being expressed in terms of

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supply to the economy and use by the economy. Purely physical accounts can show the relative importance of different economic activities in terms of their effect on the environment.

29.108 However, the power of this approach comes from being able to draw parallels between the physical and monetary flows to compare and contrast this environmental importance with the corresponding importance of the activities in economic terms. The hybrid supply and use or input-output tables superimpose monetary values for products on their physical equivalents and add the balancing item of value added. Hybrid input-output tables have been successfully used to explore environmental themes such as greenhouse effects or solid waste. Examples can be found in the *SEEA* manual.

29.109 An example of a hybrid *SEEA* input-output table is given in table 29.2.

Identifying environmental aspects of the central framework

29.110 The second strand of the accounting system is to identify precisely those monetary transactions in the SNA that are directly related to the environment. In terms of flows, this concerns environmental taxes, property income and property rights, and environmental protection, natural resource use and management expenditure.

Environmental taxes, property income and property rights

29.111 An environmental tax is one whose tax base is a physical unit (or proxy of it) that has a proven specific negative impact on the environment. Four types of taxes can be considered to be environmental; energy taxes, transport taxes, pollution taxes and resource taxes. As elsewhere in the SNA, care has to be taken to distinguish between taxes and fees for a service. Landfill charges, for example, may fall in the latter category even though levied by government.

29.112 Resource rent on natural assets is shown in the SNA as property income when paid to another unit. As shown in chapter 20, however, it is possible to identify the element of operating surplus corresponding to the resource rent on a natural asset used by the owner also.

29.113 Another aspect of importance for the use of natural resources is the question of permits to use these over an extended period, as discussed in chapter 17. Permits may relate to extraction of natural resources or the use of them as a sink.

A set of accounts for environmental protection expenditure

29.114 A set of environmental protection accounts can be compiled using fairly standard satellite account techniques according to the following steps:

a. Relevant ancillary activities should be treated as secondary products;

b. A set of characteristic products should be identified;

c. Transfers specific to environmental protection need to be identified;

d. National expenditure on environmental protection can be calculated;

e. The sectors financing the expenditure can be identified.

29.115 All these steps are described in detail in the *SEEA* manual. There is discussion there also on a set of characteristic products identified as the "environment industry" for comparable international use. An example of an environmental protection expenditure account is shown in table 29.3.

Asset accounts

29.116 For stocks and changes in stocks, the asset accounts described in chapter 11 are used for natural resources, in both value terms and physical units. In the *SEEA*, asset accounts may be compiled in physical terms for natural resources that have no monetary value and thus do not appear within the SNA asset boundary. For resources such as air and water that may not have a monetary value, nor even a stock value, accounts of changes in physical units may still be useful.

Integrating environmental adjustments in the flow accounts

29.117 The third and last main section of the *SEEA* is the external part of the satellite account. It relaxes the constraint which has been respected in the accounts described so far not to make any fundamental change to the SNA. The idea is simple, to convert hybrid tables to fully monetized tables by placing monetary values on those flows below and to the right of a hybrid table which have so far been expressed in physical terms only. However, although the idea is simple, implementing it is not. This part of the *SEEA* is more experimental and consensus on proposals made so far has not been reached.

Depletion

29.118 Valuing inputs into the economic system is the first and easier step. Since these inputs are incorporated into products which are sold in the market place, in principle it is possible to use direct means to assign a value for them based on market principles. Even within the SNA, such valuations are sometimes made though the results are placed in the other changes in assets account rather than in the flow accounts. Thus another way of looking at the process of incorporating the use of environmental inputs into the system is to relocate some of the other changes in assets items into the accounts portraying transactions. In particular, if an environmental resource is not being used sustainably, an alternative measure of income allowing for the consumption of natural capital as well as consumption

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Table 29.2:Example of a hybrid supply and use table from the *SEEA*

Monetary data (*in italics*) in billions of currency units; physical data (non-italic) in millions of tonnes

			Economy					Residuals			
		1. Products	2. Industries	3. Consumption	4. Capital	5. ROW (products)	*Total economy*	10. National destination	11. ROW destination	9. Material balance	Total use
		Physical / *Monetary*									
Economy	1. Products		Products used by industry	Products used for consumption	Products used for capital	Products used by ROW (exports)					
	Physical		442	39	119	101				0	701
	Monetary		*664*	*506*	*146*	*403*	*1 719*				
	2. Industries	Products supplied by industry						Residuals generated by industry	Residuals generated by industry in ROW		
		551 / *1 356*						275	5	0	831
	3. Consumption						*1 356*	Residuals generated by consumption	Residuals generated by consumption in ROW	Net material accumulation by consumption	
								47	1	17	65
	4. Capital							Residuals generated by capital		Net material accumulation by capital	
								73		72	145
	5. ROW (products)	Products supplied by ROW (Imports)						Residuals generated by non-residents		Net material accumulation by ROW economy	
		150 / *363*					*363*	6		- 52	104
	Value added		*692*				*692*				
	Total economy	*1 719*	*1 356*								
Natural resources	6. National environment		Natural resources supplied to industry	Natural resources supplied to consumption		Natural resources extracted by ROW				Net accumulation of natural resources in the national environment	
			256	1		1				- 258	0
	7. ROW origin		Natural resources supplied to industry	Natural resources supplied to consumption						Net accumulation of natural resources in the ROW	
			5	1						- 6	0
Ecosystem inputs	8. National environment		Ecosystem inputs to industry	Ecosystem inputs to consumption		Ecosystem inputs to ROW economy				Net accumulation of ecosystem inputs in the national environment	
			118	23		2				- 143	0
	9. ROW origin		Ecosystem inputs to industry	Ecosystem inputs to consumption						Net accumulation of ecosystem inputs in the ROW	
			3	1						- 4	0
Residuals	10. National origin		Residuals re-absorbed by production		Waste to landfill sites				Cross boundary residual out-flows	Net accumulation of residuals in the national environment	
			7		26				4	373	409
	11. ROW origin							Cross boundary residual in-flows		Net accumulation of residuals in the ROW	
								8		1	9
Total supply		701	831	65	145	104		409	9	0	2 264

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Table 29.3:Example of a combined supply and use table for environmental protection goods and services

Table 5.6 Combined supply and use table for environmental protection goods and services

Million currency units

	Government services	Specialist services	Ancillary services	Cleaner/connected products	Non-environmental protection goods and services	**Total**	Government producers of environment services	Specialist producers of environment services	Ancillary production of environment services	Producers of cleaner/connected products	Other producers	**Total intermediate consumption**	Government consumption	Household consumption	Capital formation	Exports	**Total**
Government services							1 500				3 400	**4 900**	1 800	1 320			**3 120**
Specialist services								400			4 000	**4 000**		1 650	100		**6 650**
Ancillary services											200	**600**		600			**1 200**
Cleaner/connected products							2 000	1 100	1 000	300	*	*					*
Non-environmental protection goods and services																	
Total							**2 000**	**3 000**	**1 000**	**300**	*	*	**1 800**	**3 570**			*
Government producers	3 000				0	**3 000**											
Specialist producers		6 500		0	0	**6 500**											
Ancillary production			4 000			**4 000**											
Producers of cleaner/connected products				1 000	0	**1 000**											
Other producers	0	0	0	0	*	*											
Total output							600	2 000	2 000	500	*	*					
Compensation of employees							400	1 000	1 000	200	*	*					
Consumption of fixed capital							0	0	0		*	*					
Taxes on production less subsidies on production							0	500	0		*	*					
Net operating surplus																	
Output at basic prices	**3 000**	**6 500**	**4 000**	**1 000**	*	*	**3 000**	**6 500**	**4 000**	**1 000**	*	*					
Imports	120	150		50	*	*											
Taxes and margins				150	*	*											
Output at purchasers' prices	**3 120**	**6 650**	**4 000**	**1 200**	*	*											
Gross fixed capital formation							1 100	1 000	2 500	1 500	*	*					
Capital stock							7 000	15 000	12 000	10 000	*	*					
Labour input							4 000	10 000	8 500	5 000	*	*					

Source: SEEAland data set.

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of fixed capital may be considered to take account of the depletion of natural resources.

Defensive expenditure

29.119 Some actions are already taken to limit residuals generation or to mitigate the impact of those which are emitted. These expenditures are sometimes referred to as defensive expenditures. One possible way to adjust the macroeconomic aggregates is to treat this expenditure as capital formation with offsetting depreciation.

Accounting for environmental degradation

29.120 This is the most difficult part of environmental accounting and one where there is still a wide divergence of views. There are two problems raised by the question of how to incorporate the effects of degradation in the SNA. The first is how to place a value on degradation; the second how to locate this valuation in the accounts.

29.121 The variety of approaches advocated can be illustrated briefly in terms of the focus of attention.

29.122 One approach is to focus on maintenance costing. (This is the approach taken in the 1993 version of the *SEEA*.) The object of the exercise is to answer the question: *What would the value of net domestic product have been if hypothetical environmental standards were met using current costs and current technologies?*

29.123 The problem with this approach is that if the question is posed in respect of significant changes in environmental standards, the resultant price rises involved are likely to bring about a change in behaviour that would affect the level of demand for those products. In turn this would show up either as a change in the level of output of those products or a change in the technology of production to reduce dependence on the newly expensive products. Nevertheless, for marginal changes in standards, this technique may be used to give an upper bound on the impact on NDP from moving to more rigorous environmental standards. The aggregates from such an exercise are referred to as "environmentally adjusted".

29.124 A second type of cost-based estimates, known as "greened economy modelling" attempts to resolve the problems raised by maintenance cost approaches for the non-marginal cases of changes in environment standards. They attempt to answer the question: *What level of GDP could be achieved if steps were taken to internalize maintenance costs?*

29.125 A particular application of greened economy models aims not just to determine a set of values for output, demand and so on which satisfy the national accounting balances but to determine levels of output which lead to levels of income that are sustainable over a given time period. It attempts to answer the question: *What level of income and environmental functions can be sustained indefinitely?*

29.126 Damage-based measures derive from the impact of actual residual generation. The biggest impact is on human health. They attempt to answer the question: *What is the impact on the level of NDP of environmental impacts on natural and man-made capital and on human health?*

29.127 "Damage-adjusted income" is thus a first step on the way to converting GDP-type measures to welfare indices but many other aspects of welfare are deliberately ignored.

3. Health satellite accounts

29.128 The health care industry is of significant size and importance in many countries in terms of the number of people employed and level of turnover and is always a matter of significant policy concern. The *System of Health Accounts (SHA)* (Organisation for Economic Co-operation and Development, 2000) builds on experience over the previous 15 years of information being collected on health care data. One of the main purposes of the manual was to provide a framework for analysing health care systems from an economic point of view, consistent with national accounting rules. As part of this, the conceptual links between the SHA and health satellite accounts were examined. The manual is currently in the process of being updated as a joint effort by the OECD, Eurostat and WHO, with a revised version expected about the end of 2010.

29.129 In order to see how a health satellite account can be developed it is useful to begin by looking at the *SHA*. There are four categories of information provided: a functional classification of health care, an analysis of health care provider units, information on expenditure on health care and information about the funding of health care. Each of these is described briefly in turn.

Functional classification of health care

29.130 The activities of health care cover the application of medical, paramedical and nursing knowledge and technology, either by institutions or individuals, in pursuit of the following goals:

a. Promoting health and preventing disease;

b. Curing illness and reducing premature mortality;

c. Caring for persons affected by chronic illness who require nursing care;

d. Caring for persons with health-related impairment, disability and handicaps who require nursing care;

e. Assisting patients to die with dignity;

f. Providing and administering public health;

g. Providing and administering health programmes, health insurance and other funding arrangements.

29.131 Following from this there are three main functional classifications of health care;

a. Personal health care services and goods;

b. Collective health care services;

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c. Health care related functions.

29.132 Each of these headings is broken down into a number of finer categories. Personal health care distinguishes services of curative care, services of rehabilitative care, services of long-term nursing care, ancillary services to health care and medical goods dispensed to outpatients. Collective health care services are divided between preventive and public health services on the one hand and health administration and health insurance on the other. Health-related functions include capital formation of health care provider institutions, education and training of health personnel, research and development in health, food, hygiene and drinking water control, environmental health, administration and provision of social services in kind to assist those living with disease and impairment, and administration and provision of health-related cash benefits.

Health care provider units

29.133 The providers of health care are divided into the following categories:

a. Hospitals;

b. Nursing and residential care facilities;

c. Providers of ambulatory health care;

d. Retailers and other providers of medical goods;

e. Provision and administration of public health programmes;

f. Health administration and insurance;

g. Other industries (rest of the economy);

h. Rest of the world.

29.134 Each of these providers can be allocated to one or more of the institutional sectors of the SNA.

Expenditure on health care

29.135 Total expenditure on health measures the final use by resident units of health care goods and services plus gross capital formation in health care provider industries (institutions where health care is the predominant activity).

29.136 Expenditure on health can be divided into the following categories;

a. Personal health care services;

b. Medical goods dispensed to outpatients;

c. Total personal expenditure on health;

d. Prevention and public health services;

e. Health administration and health insurance;

f. Total current expenditure on health (the sum of the above);

g. Gross capital formation in health care industries;

h. Total expenditure on health.

29.137 The production boundary of health care services is very close to that of the SNA but with two exceptions. Occupational health care is included within the SHA whereas it is treated as an ancillary service in the SNA. The cash transfers to private households (the caregivers at home) are treated as output of domestic services paid for by the transfers.

Funding of health care

29.138 The funding of health care is divided between that provided by general government, that from the private sector and that from the rest of the world. Within general government a distinction is made between the levels of government and social security funds. Within the private sector a distinction is made between private social insurance, other private insurance, private households, NPISHs and corporations excluding health insurance.

Converting the SHA to health satellite accounts

29.139 The following steps are required in order to translate the economic framework of the SHA into a health satellite account:

a. A comprehensive listing of goods and services considered specific to the production of health care services needs to be determined;

b. The boundary line of production to define total expenditure on health needs to be determined;

c. The activities for which capital formation will be recorded need to be determined;

d. Specific transactions need to be identified;

e. The detailed analysis of transfers as an integral part of health accounting needs to be provided;

f. Ultimate users and ultimate bearers of health expenses need to be identified.

29.140 One of the difficulties with establishing a list of characteristic products is that the *CPC* does not deal with categories of health care services in the detail that is required for health accounts. Therefore a more detailed classification is required. Further, since health care is often a public responsibility information drawn from administrative data is often inadequate to provide the degree of detail that is required for a satellite account.

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Table 29.4:Example of a supply and use table from the System of Health Accounts

Table 8.2. **SHA supply and use table (part 1)**

Resources	Total supply, purchasers' prices	Taxes on products minus subsidies on products*	Providers of health care services and goods					Other producers	Total economy	Imports of health care goods and services
			Total	Principal producers	Secondary producers	Occupational health care	Private households (home care)			
Goods and services supply:			Output							
Health care goods and services by function										
HC.1 Services of curative care										
HC.2 Services of rehabilitative care										
HC.3 Services of long-term nursing care										
HC.4 Ancilliary services to health care										
HC.5 Medical goods dispensed to out-patients										
Total supply of personal health care										
HC.6 Prevention and public health services										
HC.7 Health administration and health insurance										
Total supply of health care services and goods										
Other products										
Total										

(*): Including trade and transport margins which are of negligible magnitude for health care services and goods for final use.

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Table 29.4 (cont):Example of a supply and use table from the System of Health Accounts

Table 8.3. **SHA input-output table (part 2)**

Resources	Total uses in purchasers' prices	Taxes on products minus subsidies on products*	Providers of health care services and goods				Other producers	Total economy	Exports of health care goods and services	Final consumption expenditure			Gross capital formation
			Total	Principal producers	Secondary producers	Occupational health care	Private households (home care)				Households	NPISHs	Government	
Goods and services uses:			Intermediate consumption										
Health care goods and services by function													
HC.1 Services of curative care													
HC.2 Services of rehabilitative care													
HC.3 Services of long-term nursing care													
HC.4 Ancilliary services to health care													
HC.5 Medical goods dispensed to out-patients													
Total personal health care													
HC.6 Prevention and public health services													
HC.7 Health administration and health insurance													
Total health care services and goods													
Other products													
Total													
Total gross value added/GDP													
Compensation of employees													
Taxes on products													
Other taxes on production													
Subsidies on products													
Other subsidies on production													
Operating surplus, net													
Mixed income, net													
Consumption of fixed capital													
Operating surplus, gross													
Mixed income, gross													
Total													
Labour inputs													
Gross fixed capital formation													
Stock of fixed assets, net													

(*): Including trade and transport margins which are of negligible magnitude for health care services and goods for final use.

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29.141 Despite these difficulties it is proposed that four additional accounts would extend the SHA into a satellite account for health:

a. Production account and health care value added by the health care industry;

b. Intermediate inputs to the production of health care industries by type of input;

c. Gross capital stock of the health care industry;

d. An input-output table of health care industries.

29.142 Table 29.4 shows indicative supply and use tables that might be drawn up for health care.

4. Unpaid household activity

29.143 This section is not concerned with a normal satellite account. It is difficult to determine products that are characteristic solely of unpaid household activity nor are there agreed standard tables to be produced. However, it is an area of considerable analytical and policy interest and an area where there is considerable research work being undertaken currently. The purpose of this section therefore is simply to report on the approaches being considered and give some indication of where further information on ongoing research may be found.

29.144 It is convenient to separate the consideration into three areas;

a. unpaid household services;

b. a consideration of the treatment of consumer durables;

c. the question of volunteer labour in general.

Unpaid household services

29.145 The question of valuing household services produced for own consumption is interesting in its own right. In addition it is often argued that the growth of GDP in industrialized countries since the end of the Second World War is due in part to the increasing participation in the labour force of the women previously undertaking only household activities. It is often argued that, had household activities been valued, the women's change of occupation would not have led to such large increases in GDP. For long-term analysis therefore, there may be quite considerable interest in placing a value on unpaid household activities.

29.146 There is no ambiguity in the central framework of the SNA; unpaid household services are excluded from the production boundary. However, in a satellite account it is perfectly possible to extend the production boundary so that such services may be included. Even with an extended production boundary, however, it is unlikely that services that cannot be performed by a third party such as eating, sleeping and exercising would be treated as part of the production boundary. Some work has been done to estimate the value of leisure when some of these activities are valued but this is not considered in this section.

29.147 There is fairly widespread agreement that the way in which to start measuring household services for own consumption is by means of measuring the amount of time spent on them. There is increasing interest in conducting time use surveys that make such information available. Time use surveys, however, are not unambiguous. There is the question of multitasking. For example, it is possible for somebody to prepare a meal, keep an eye on a small child and help an older child with their homework all at the same time. Should the total amount of time be divided by three or should each activity count the whole amount of time spent?

29.148 There is a question about the borderline with leisure. Some people would regard gardening as a chore; others may see it as a leisure activity. While looking after children on a full-time basis clearly counts as a household service, does the amount of time grandparents spend with their grandchildren necessarily count as household services or is this a leisure activity?

29.149 There is a question about how to value household activity. One possibility is to have a complete production account and, for example, to consider the food purchased by a household as an input into the preparation of meals. In this way households would consume very few goods directly; many of them would be treated as intermediate consumption to some kind of service output. The alternative, which is usually the approach adopted, is to leave the inputs as household consumption expenditure and simply make separate estimates of the time that has not been previously valued.

29.150 The basic question in valuing the time spent on household services is whether to use the opportunity cost of the person performing the task or a comparator cost. Both of these present difficulties. The opportunity cost seems appealing because application of economic theory suggests that somebody capable of earning more money than the comparator would indeed earn the extra money and pay somebody else to undertake the household tasks. But this is clearly not what happens in practice. Comparator costs may be difficult to come by and may be unrealistic. A professional plumber, for example, may be able to fix a leaking tap in a matter of minutes whereas an amateur may spend an hour over it. If the plumber's wage is applied to the time spent by the amateur, clearly the amount of production estimated will be unrealistically high.

29.151 Various attempts to resolve the question of valuing output can be found in the literature. Examples include *Household Production and Consumption: Proposal for a Methodology of Household Satellite Accounts* (Eurostat, 2003), *Household Production and Consumption in Finland, 2001 - Household Satellite Account* (Statistics Finland and the National Consumer Research Centre, 2006) and *Beyond the Market: Designing Non-market Accounts for the United States* (United States National Research Council, 2005).

Consumer durables

29.152 It is frequently argued that consumer durables should be treated as a form of fixed capital formation by households

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and not simply as final consumption expenditure. It is true that there is a grey area concerning some household equipment. In some circumstances, the cost of a house may include all kitchen equipment such as cookers, refrigerators and washing machines; in other cases these appliances are treated as consumption expenditure.

29.153 The main reason for excluding consumer durables from the asset boundary is linked to the exclusion of household services. If washing clothes for the household were to be an activity within the production boundary when undertaken by machine, it is not clear why it would be excluded when undertaken by hand.

29.154 Nevertheless there is certainly interest in monitoring the acquisition of consumer durables. The acquisition is often cyclical in nature, although sometimes variation in expenditure may simply follow the introduction of a new product.

29.155 There are two approaches that could be taken in a satellite account. The first is to adopt an alternative treatment for consumer durables at the same time as valuing unpaid household production. The other is to leave unpaid household production excluded from the production boundary but consider replacing consumer durables by an estimate of the services they provide. Treating consumer durables as assets is also of interest in the context of measuring household saving and wealth. Examples of this type of analysis can be found in *Durable Goods and their Effect on Household Saving Ratios in the Euro Area* (Jalava et al, 2006).

Volunteer labour

29.156 The provision of unpaid services to households is excluded from the production boundary. This exclusion applies whether the household being provided with the services is the one to which the volunteer belongs or another.

29.157 If a volunteer is providing services to a non-market producer or to a market NPI, the activity in which they participate is included within the production boundary. However, the value of the services provided appears at cost. This may be strictly zero or it may be nominal, including wages and salaries in kind. For example, religious orders offering health and education services may not pay the individuals providing the services a wage but may provide them with food and accommodation. In principle, these costs should be treated as wages and salaries in kind.

29.158 It is possible for there to be some volunteer labour within government, for example teaching assistants. There may be some unpaid people working in corporations, for example as part of a work experience scheme, but volunteer labour in market NPIs is quite common, for example in a museum or art gallery as guides or custodians.

29.159 Even if the owner of a quasi-corporation or an enterprise does not take his salary, it could be argued that in principle this should be treated as first the receipt of compensation of employees and then an injection of capital of the same amount into the enterprise. It is unlikely to be recorded as such but this case is clearly different in kind from the normal understanding of voluntary labour.

29.160 The question of valuing volunteer labour is the same as that of valuing the time spent on unpaid household activities and the same alternatives are available. If voluntary labour were valued, the following accounting entries would be necessary:

a. compensation of employees of the unit employing the volunteer labour;

b. income for the household to which the volunteer belongs;

c. a transfer of the same amount by the volunteer to the employing unit;

d. final consumption expenditure of the employing unit;

e. almost always social transfers in kind.

This is the same as the way it is recommended that labour inputs to collective construction projects are measured.

29.161 Even in the case of market NPIs, as explained in chapter 23, it is possible that in a satellite context the market NPI could be regarded as undertaking non-market activity also and this would include the activity of volunteers.

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Annex 1: The classification hierarchies of the SNA and associated codes

A. Introduction

A1.1 As explained in chapter 2, the accounts of the SNA are built around a small number of conceptual elements, in particular sectors, transactions and classifications of the items subject to transactions and other flows, especially assets and liabilities. For each of these elements, a hierarchical classification exists. Accounts can be compiled at greater or lesser degrees of detail by using higher or lower levels of these hierarchies. In some cases, a full specification requires information about two or even three hierarchies. For example, entries in the accounts typically refer to a sector and a transaction or other flow and may specify what type of product or asset is the subject of the entry.

A1.2 As well as the classification hierarchies of the conceptual elements particular to the SNA, use is also made of other classification systems, including those describing the industrial classification used for production and classifications of goods and services, some of which describe the nature of the items and others that describe the purpose they are intended to serve.

A1.3 Summary accounts are regularly collected by international agencies and to facilitate this, a set of standardized codes is used to identify the items, usually in time series form, that are the subject of data transmission.

A1.4 The purpose of this annex is to provide more information on each of these aspects. Section B lists in full detail the various classification hierarchies of the system. International data collection does not cover all the detail shown but where collection is common and codes are developed, these are shown alongside the entries in the classification.

A1.5 The main international classification systems external to the SNA that are frequently used and referred to are the following:

COFOG, COICOP and COPNI

Publication reference: United Nations. 2000. Classification of expenditure according to purpose: Classification of the functions of government (COFOG), Classification of individual consumption according to purpose (COICOP), Classification of the purposes of nonprofit institutions serving households (COPNI), Classification of the outlays of producers according to purpose (COPP). Department of Economic and Social Affairs, Statistics Division, Statistical papers, Series M, No 84. United Nations, New York.
Web reference: **http://unstats.un.org/unsd/class/default.asp**

ISIC

Publication reference: United Nations. 2008. International Standard Industrial Classification of all Economic Activities (*ISIC*) Revision 4. Department of Economic and Social Affairs, Statistics Division, Statistical papers, Series M, No 4, Rev. 4. United Nations, New York.
Web reference: **http://unstats.un.org/unsd/class/default.asp**

CPC

Publication reference: United Nations. 2008. Central Product Classification (CPC) Version 2. Department of Economic and Social Affairs, Statistics Division, Statistical papers, Series M, No 77, Ver. 2. United Nations, New York.
Web reference: **http://unstats.un.org/unsd/class/default.asp**

SITC

Publication reference: United Nations. 2006. Standard Industrial Trade Classification Revision. Department of Economic and Social Affairs, Statistics Division, Statistical papers, Series M, No 34, Rev 4. United Nations, New York.
Web reference: **http://unstats.un.org/unsd/trade/default.htm**

HS

Publication reference: World Customs Organization. 2007. Harmonized Commodity Description and Coding System, Revision 4 Brussels.
Web reference: **http://publications.wcoomd.org/index.php**

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

B. The classification hierarchies of the SNA

A1.6 Four sets of hierarchies are described. The first of these relates to sectors. The second covers transactions and the third covers other flows. The last set relates to stocks. Each set is described in turn in the following sections.

1. Sectors (S codes)

A1.7 The sectoring principles of the SNA are described in chapter 4. The following list brings all the aspects of the potential types of disaggregation together in a comprehensive list. The list is extensive and it is unlikely that all aspects will be covered by any country in all periods as a matter of course. Some of the possible breakdowns may not contain any institutional units and others may contain so few that publication at this degree of detail is not possible. Nevertheless, the full list is shown for the sake of completeness.

A1.8 Some abbreviations, standard within the SNA, are used in detailing sector codes. A special group of units are those known as non-profit institutions, designated as NPIs. Within the corporations sectors, units that are not NPIs are referred to as for-profit institutions, or FPIs. It is worth reiterating that an NPI is not prohibited from making a profit, it is simply prohibited from distributing any profit it makes to its owners. Thus NPIs within the corporations sectors are market producers just as the FPIs are.

A1.9 Not all NPIs are market producers. Those that are not are divided between those controlled by government, where they are still referred to as NPIs, and those not controlled by government. All of these serve households and form a separate sector of their own. They are known as non-profit institutions serving households, or NPISHs.

A1.10 Not all entries in the classification have an assigned code; only those that are regularly used in international transmission programmes.

A1.11 The full list of institutional sectors and subsectors is shown below.

Total economy (S1)

Non-financial corporations (S11)

Non-financial corporations – NPIs
Non-financial corporations – FPIs

Public non-financial corporations
Public non-financial corporations – NPIs
Public non-financial corporations – FPIs
National private non-financial corporations
National private non-financial corporations – NPIs
National private non-financial corporations – FPIs
Foreign controlled non-financial corporations
Foreign controlled non-financial corporations – NPIs
Foreign controlled non-financial corporations – FPIs

Financial corporations (S12)

Central bank (S121)

Deposit-taking corporations, except the central bank (S122)
Deposit-taking corporations – NPIs
Deposit-taking corporations – FPIs
Public deposit-taking corporations
Public deposit-taking corporations – NPIs
Public deposit-taking corporations – FPIs
National private deposit-taking corporations
National private deposit-taking corporations – NPIs
National private deposit-taking corporations – FPIs
Foreign controlled deposit-taking corporations
Foreign controlled deposit-taking corporations – NPIs
Foreign controlled deposit-taking corporations – FPIs

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Money market funds (S123)
Money market funds – NPIs
Money market funds – FPIs
Public money market funds
Public money market funds – NPIs
Public money market funds – FPIs
National private money market funds
National private money market funds – NPIs
National private money market funds – FPIs
Foreign controlled money market funds
Foreign controlled money market funds – NPIs
Foreign controlled money market funds – FPIs

Non-MMF investment funds (S124)
Non-MMF investment funds – NPIs
Non-MMF investment funds – FPIs
Public non-MMF investment funds
Public non-MMF investment funds – NPIs
Public non-MMF investment funds – FPIs
National private non-MMF investment funds
National private non-MMF investment funds – NPIs
National private non-MMF investment funds – FPIs
Foreign controlled non-MMF investment funds
Foreign controlled non-MMF investment funds – NPIs
Foreign controlled non-MMF investment funds – FPIs

Other financial intermediaries, except insurance corporations and pension funds (S125)
Other financial corporations – NPIs
Other financial corporations – FPIs
Public other financial corporations
Public other financial corporations – NPIs
Public other financial corporations – FPIs
National private other financial corporations
National private other financial corporations – NPIs
National private other financial corporations – FPIs
Foreign controlled other financial corporations
Foreign controlled other financial corporations – NPIs
Foreign controlled other financial corporations – FPIs

Financial auxiliaries (S126)
Financial auxiliaries – NPIs
Financial auxiliaries – FPIs
Public financial auxiliaries
Public financial auxiliaries –NPIs
Public financial auxiliaries – FPIs
National private financial auxiliaries
National private financial auxiliaries – NPIs
National private financial auxiliaries – FPIs
Foreign controlled financial auxiliaries
Foreign controlled financial auxiliaries – NPIs
Foreign controlled financial auxiliaries – FPIs

Captive financial institutions and money lenders (S127)
Captive financial institutions – NPIs
Captive financial institutions – FPIs
Public captive financial institutions
Public captive financial institutions – NPIs
Public captive financial institutions – FPIs
National private captive financial institutions
National private captive financial institutions – NPIs
National private captive financial institutions – FPIs
Foreign controlled captive financial institutions
Foreign controlled captive financial institutions – NPIs
Foreign controlled captive financial institutions – FPIs

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Insurance corporations (S128)
Insurance corporations – NPIs
Insurance corporations – FPIs
Public insurance corporations
Public insurance corporations – NPIs
Public insurance corporations – FPIs
National private insurance corporations
National private insurance corporations – NPIs
National private insurance corporations – FPIs
Foreign controlled insurance corporations
Foreign controlled insurance corporations – NPIs
Foreign controlled insurance corporations – FPIs

Pension funds (S129)
Pension funds – NPIs
Pension funds – FPIs
Public pension funds
Public pension funds – NPIs
Public pension funds – FPIs
National private pension funds
National private pension funds – NPIs
National private pension funds – FPIs
Foreign controlled pension funds
Foreign controlled pension funds – NPIs
Foreign controlled pension funds – FPIs

A1.12 General government social security is organized differently in different countries and two coding systems of general government are presented to allow for this. When social security is organized by one unit for all levels of government, total general government consists of four subsectors, one for each level of government and one for the social security unit. When each level of government includes its own social security provision, then there are only three subsectors, one for each level of government including social security provision. The theoretical hierarchical structure for government is as follows.

General government (S13)

General government social security
General government excluding social security
General government non-profit institutions
Central government
Central government social security
Central government excluding social security
Central government non-profit institutions
State government
State government social security
State government excluding social security
State government non-profit institutions
Local government
Local government social security
Local government excluding social security
Local government non-profit institutions

A1.13 In practice, the alternative partial structures, with associated codes, are as follows.

General government (S13)

Social security is one separate institutional unit for all levels of general government

Central government *excluding social security* **(S1311)**
State government *excluding social security* **(S1312)**
Local government *excluding social security* **(S1313)**
General government social security (S1314)

General government (S13)

Social security is not a separate institutional unit but is included at the appropriate levels of general government

Central government *including social security* **(S1321)**
State government *including social security***(S1322)**
Local government *including social security* **(S1323)**

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Households (S14)

Employers (S141)
Own account workers (S142)
Employees (S143)
Recipients of property and transfer income (S144)
Recipients of property income (S1441)
Recipients of pensions (S1442)
Recipients of other transfers (S1443)

Non-profit institutions serving households (S15)

National private
Foreign controlled

Rest of the world (S2)

2. Classifications of transactions

A1.14 The transaction classifications relate to:

a. Products (including produced assets);

b. Non-produced assets;

c. Distributive transactions.

Transactions in products (P codes)

A1.15 Product codes are used to describe the supply and use of goods and services produced within the SNA. All the items listed appear in the goods and services account. In addition, output and intermediate consumption appear in the production account, final and actual consumption expenditure appear in the use of income accounts and capital formation appears in the capital account.

A1.16 All entries in the classification can be further elaborated by applying a second classification to that shown here. For capital formation the asset classification (codes AN1) is used within the accumulation accounts. For output, intermediate consumption and final consumption product codes as in the *CPC* could be used. For final consumption, functional codes could be used, COFOG for government consumption, COICOP for households and COPNI for NPISHs. For imports and exports, either SITC or HS codes could be used.

A1.17 Capital formation and fixed capital formation (as well as some of the balancing items) may be shown either gross or net of consumption of fixed capital. Gross entries are shown with a trailing g, net entries by a trailing n. The qualifier c is used for consumption of fixed capital, the difference between gross and net fixed capital measures.

Output (P1)

Market output (P11)
Output for own final use (P12)
Non-market output (P13)

Intermediate consumption (P2)

Final consumption expenditure (P3)

Individual consumption expenditure (P31)
Collective consumption expenditure (P32)

Actual final consumption (P4)

Actual individual consumption (P41)
Actual collective consumption (P42)

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Capital formation (P5)

Gross fixed capital formation (P51g)
Consumption of fixed capital (-) (P51c)
Consumption of fixed capital on gross operating surplus (-) (P51c1)
Consumption of fixed capital on gross mixed income (-) (P51c2)
Net fixed capital formation (P51n)
Acquisitions less disposals of fixed assets (P511)
Acquisitions of new fixed assets (P5111)
Acquisitions of existing fixed assets (P5112)
Disposals of existing fixed assets (P5113)
Costs of ownership transfer on non-produced assets (P512)
Changes in inventories (P52)
Acquisitions less disposals of valuables (P53)

Exports of goods and services (P6)

Exports of goods (P61)
Exports of services (P62)

Imports of goods and services (P7)

Imports of goods (P71)
Imports of services (P72)

Transactions in non-produced assets (NP codes)

A1.18 Non-produced assets can be the subject of some of the same transactions as products (capital formation, imports and exports). The codes used for transactions in non-produced assets can be further disaggregated if desired by appending the classification of non-produced non-financial assets, AN2.

Acquisitions less disposals of non-produced assets (NP)

Acquisitions less disposals of natural resources (NP1)
Acquisitions less disposals of contracts, leases and licences (NP2)
Purchases less sales of goodwill and marketing assets (NP3)

Distributive transactions (D codes)

A1.19 Distributive transaction codes appear in all the sequence of accounts from the generation of income account up to and including the capital account. As their name implies, they show the impact of distribution and redistribution of income (and saving in the case of capital transfers). For all distributive transactions, the receivable entries for all sectors including the rest of the world must balance the payable entries.

A1.20 Four groups of transactions appear in the generation of income account and the allocation of primary income account. These are compensation of employees, taxes on production and imports, subsidies and property income.

Compensation of employees (D1)

Wages and salaries (D11)
Employers' social contributions (D12)
Employers' actual social contributions (D121)
Employers' actual pension contributions (D1211)
Employers' actual non-pension contributions(D1212)
Employers' imputed social contributions (D122)
Employers' imputed pension contributions (D1221)
Employers' imputed non-pension contributions (D1222)

Taxes on production and imports (D2)

Taxes on products (D21)
Value added type taxes (VAT) (D211)
Taxes and duties on imports excluding VAT (D212)
Import duties (D2121)
Taxes on imports excluding VAT and duties (D2122)

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Export taxes (D213)
Taxes on products except VAT, import and export taxes (D214)
Other taxes on production (D29)

Subsidies (D3)

Subsidies on products (D31)
Import subsidies (D311)
Export subsidies (D312)
Other subsidies on products (D319)
Other subsidies on production (D39)

Property income (D4)

Investment income
Interest (D41)
Distributed income of corporations (D42)
Dividends (D421)
Withdrawals from income of quasi-corporations (D422)
Reinvested earnings on foreign direct investment (D43)
Investment income disbursements (D44)
Investment income attributable to insurance policyholders (D441)
Investment income payable on pension entitlements (D442)
Investment income attributable to collective investment fund share holders (D443)
Rent (D45)

A1.21 Four groups of transactions appear in the secondary distribution of income account. These are current taxes on income, wealth, etc., net social contributions, social benefits and other current transfers. Together they represent all current transfers in the SNA except social transfers in kind.

A1.22 Employers' contributions appear in both the generation of income account and allocation of primary income account as payable by employers and receivable by employees. In the secondary distribution of income account, these amounts are payable by households and receivable by those administering social insurance schemes. In order to show exactly the same value in each case, the deduction of the charge that represents part of the output of the schemes and final consumption of the beneficiary households is also shown in the secondary distribution of income account as a separate item. The item social insurance scheme service charges is thus an adjustment item only and not a distributive transaction in itself.

Current transfers (other than social transfers in kind)

Current taxes on income, wealth, etc. (D5)
Taxes on income (D51)
Other current taxes (D59)

Net social contributions (D61)
Employers' actual social contributions (D611 = D121)
Employers' actual pension contributions (D6111 = D1211)
Employers' actual non-pension contributions (D6112 = D1212)
Employers' imputed social contributions (D612 = D122)
Employers' imputed pension contributions (D6121 = D1221)
Employers' imputed non-pension contributions (D6122 = D1222)
Households' actual social contributions (D613)
Households' actual pension contributions (D6131)
Households' actual non-pension contributions (D6132)
Households' social contribution supplements (D614)
Households' pension contribution supplements (D6141)
Households' non-pension contribution supplements (D6142)
Social insurance scheme service charges(-)

Social benefits other than social transfers in kind (D62)
Social security benefits in cash (D621)
Social security pension benefits (D6211)
Social security non-pension benefits in cash (D6212)
Other social insurance benefits (D622)
Other social insurance pension benefits (D6221)

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Other social insurance non-pension benefits (D6222)
Social assistance benefits in cash (D623)

Other current transfers (D7)
Net non-life insurance premiums (D71)
Net non-life direct insurance premiums (D711)
Net non-life reinsurance premiums (D712)
Non-life insurance claims (D72)
Non-life direct insurance claims (D721)
Non-life reinsurance claims (D722)
Current transfers within general government (D73)
Current international cooperation (D74)
Miscellaneous current transfers (D75)
Current transfers to NPISHs (D751)
Current transfers between resident and non-resident households (D752)
Other miscellaneous current transfers (D759)

A1.23 Transactions concerning social transfers in kind and the adjustment for the change in pension entitlements appear in the redistribution of income in kind account, the use of income account and the use of adjustable disposable income account.

Social transfers in kind (D63)

Social transfers in kind - non-market production (D631)
Social transfers in kind - purchased market production (D632)

Adjustment for the change in pension entitlements (D8)

A1.24 Capital transfers appear in the capital account. By convention, as explained in chapter 10, all capital transfers are shown on the right-hand side of the account, with the payables having a negative sign. The codes for capital transfers, therefore, have either r for receivable or p for payable appended to the basic code.

Capital transfers, receivable (D9r)

Capital taxes (D91r)
Investment grants (D92r)
Other capital transfers (D99r)

Capital transfers, payable (D9p)

Capital taxes (D91p)
Investment grants (D92p)
Other capital transfers (D99p)

Transactions in financial assets and liabilities (F codes))

A1.25 The codes for transactions in financial assets and liabilities follow a slightly different pattern from those used for non-financial assets because there is only one type of transaction shown in the financial account, either acquisition of or disposals of financial assets and liabilities. The hierarchical element comes from itemizing the assets and liabilities concerned. There is a perfect match between the codes used for stock levels (positions) of financial assets and liabilities and the flows in them, except that the stocks have prefix AF and the transactions F.

A1.26 The full list of codes for transactions in financial assets and liabilities is shown below.

Net acquisition of financial assets/Net incurrence of liabilities (F)

Monetary gold and SDRs (F1)

Monetary gold (F11)
SDRs (F12)

Currency and deposits (F2)

Currency (F21)
Transferable deposits (F22)
Inter-bank positions (F221)

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Other transferable deposits (F229)
Other deposits (F29)

Debt securities (F3)

Short-term (F31)
Long-term (F32)

Loans (F4)

Short-term (F41)
Long-term(F42)

Equity and investment fund shares (F5)

Equity (F51)
Listed shares (F511)
Unlisted shares (F512)
Other equity (F519)
Investment fund shares/units (F52)
Money market fund shares/units (F521)
Non-MMF investment fund shares/units (F522)

Insurance, pension and standardized guarantee schemes (F6)

Non-life insurance technical provisions (F61)
Life insurance and annuity entitlements (F62)
Pension entitlements (F63)
Claims of pension funds on pension managers (F64)
Entitlements to non-pension benefits (F65)
Provisions for calls under standardized guarantees (F66)

Financial derivatives and employee stock options (F7)

Financial derivatives (F71)
Options (F711)
Forwards (F712)
Employee stock options (F72)

Other accounts receivable/payable (F8)

Trade credits and advances (F81)
Other accounts receivable/payable (F89)

3. Other flows

A1.27 Other flows comprise the entries appearing in the other changes in assets account and balancing and net worth items.

Entries in the other changes in assets account (K codes)

A1.28 Codes K1 to K6 relate to other flows in the changes in the volume of assets account. K7 codes show the holding gains and losses appearing in the revaluation account.

Economic appearance of assets (K1)

Economic disappearance of non-produced assets (K2)

Depletion of natural resources (K21)
Other economic disappearance of non-produced assets (K22)

Catastrophic losses (K3)

Uncompensated seizures (K4)

Other changes in volume n.e.c. (K5)

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Changes in classification (K6)

Changes in sector classification and structure (K61)
Changes in classification of assets and liabilities (K62)

Nominal holding gains and losses (K7)

Neutral holding gains and losses (K71)
Real holding gains and losses (K72)

Balancing and net worth items (B codes)

A1.29 The balancing items of the current accounts appear with codes B1 to B8. Each of these may be shown gross or net of consumption of fixed capital. To indicate which is the case, g or n is appended to the end of the code.

A1.30 The B10 codes all relate to changes in net worth. Like balancing items, these are accounting constructs derived by deducting entries on one side of the account from the entries on the other. However, while balancing items show the excess of right-hand side entries over those on the left-hand side, net worth items show the excess of entries on the left-hand side of the account over those on the right-hand side.

A1.31 Code B11, external balance of goods and services, is an item from the rest of the world account. It has no direct counterpart in the total economy sectors but added to gross (or net) domestic expenditure for the total economy gives gross (or net) domestic product. Code B12, current external balance, is also from the rest of the world account and is analogous to saving for a domestic sector when the external balance of goods and services is taken in place of value added.

A1.32 Code B90, unlike all the other codes in this section, relates to stock positions and not flows. It shows the value of net worth calculated as the excess of assets over liabilities.

A1.33 The full list of balancing and net worth items is shown below.

Value added, gross / Gross domestic product (B1g)

Operating surplus, gross (B2g)

Mixed income, gross (B3g)

Entrepreneurial income(B4g)

Balance of primary incomes, gross / National income, gross (B5g)

Disposable income, gross (B6g)

Adjusted disposable income, gross (B7g)

Saving, gross (B8g)

Net lending (+) / net borrowing (–) (B9)

Changes in net worth (B10)

Changes in net worth due to saving and capital transfers (B101)
Changes in net worth due to other changes in volume of assets (B102)
Changes in net worth due to nominal holding gains and losses(B103)
Changes in net worth due to neutral holding gains and losses (B1031)
Changes in net worth due to real holding gains and losses (B1032)

External balance of goods and services (B11)

Current external balance (B12)

Net worth (B90)

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4. Entries related to stocks of assets and liabilities

Balance sheet entries (L codes)

A1.34 For a single balance sheet, as for the financial account, the only codes necessary are those giving the details of assets by type, using AN and AF codes. However, an account can be drawn up showing the stock levels at the start (LS) and end (LE) of a period, and the total changes between them (LX). All three codes need to be qualified by asset types. The LX entries are the sum of the entries of P5, NP, F and K codes for the assets in question for the period covered.

A1.35 From the entries in the opening balance sheet a value of net worth (B90) can be calculated. The difference between this and the value of B90 in the closing balance sheet must be equal to the balance of all the LX codes, which must also be equal to the value for B10.

Opening balance sheet (LS)
Changes in balance sheet (LX)
Closing balance sheet (LE)

Non-financial assets (AN codes)

A1.36 Transactions in non-financial assets are classified by the purpose for which the assets are acquired. All assets serve as a store of value but, with the exception of valuables that are solely a store of value, other non-financial assets are primarily acquired for use in production. The AN codes, given in full below, combine some elements of function with a descriptive code. A desk, for example, could be part of AN113, machinery and equipment, or almost any of the inventory codes or even as a valuable.

A1.37 The classification of non-financial assets is split initially between produced (AN1) and non-produced assets (AN2). The three major subheadings for produced assets are fixed assets (AN11), inventories (AN12) and valuables (AN13). The three major subheadings for non-produced assets are natural resources (AN21), contracts, leases and licences (AN22) and purchases less sales of goodwill and marketing assets (AN23).

A1.38 The entry for costs of ownership transfer on non-produced assets (AN116) is anomalous. The flow exists and is treated as part of fixed capital formation, that is as the acquisition of fixed assets. However, when stock levels are itemized, the value of these costs of ownership transfer is included with the non-produced assets to which they refer and so are not shown separately as part of AN11. The item is included in the full list, shown below, for expository purposes only.

Produced non-financial assets (AN1)

Fixed assets by type of asset (AN11)
Dwellings (AN111)
Other buildings and structures (AN112)
Buildings other than dwellings (AN1121)
Other structures (AN1122)
Land improvements (AN1123)
Machinery and equipment (AN113)
Transport equipment (AN1131)
ICT equipment (AN1132)
Other machinery and equipment(AN1133)
Weapons systems (AN114)
Cultivated biological resources (AN115)
Animal resources yielding repeat products (AN1151)
Tree, crop and plant resources yielding repeat products (AN1152)
(Costs of ownership transfer on non-produced assets (AN116))
Intellectual property products (AN117)
Research and development (AN1171)
Mineral exploration and evaluation (AN1172)
Computer software and databases (AN1173)
Computer software (AN11731)
Databases(AN11732)
Entertainment, literary or artistic originals (AN1174)
Other intellectual property products (AN1179)
Inventories by type of inventory (AN12)
Materials and supplies (AN121)
Work-in-progress (AN122)
Work-in-progress on cultivated biological assets (AN1221)

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Other work-in-progress (AN1222)
Finished goods (AN123)
Military inventories (AN124)
Goods for resale (AN125)
Valuables (AN13)
Precious metals and stones (AN131)
Antiques and other art objects (AN132)
Other valuables (AN133)

Non-produced non-financial assets (AN2)

Natural resources (AN21)
Land (AN211)
Mineral and energy reserves (AN212)
Non-cultivated biological resources (AN213)
Water resources (AN214)
Other natural resources (AN215)
Radio spectra (AN2151)
Other (AN2159)
Contracts, leases and licences (AN22)
Marketable operating leases (AN221)
Permissions to use natural resources (AN222)
Permissions to undertake specific activities (AN223)
Entitlement to future goods and services on an exclusive basis (AN224)
Purchases less sales of goodwill and marketing assets (AN23)

Financial assets (AF codes)

A1.39 As explained in the section on transactions in financial assets and liabilities, conceptually there is a one-to-one match between those F codes and the stock levels or positions (AF codes). In practice, though, balance sheet data may be less detailed and not exist beyond the first-level breakdown, shown below. If desired, however, the AF codes can be disaggregated in line with the detail provided for F codes.

Monetary gold and SDRs (AF1)

Currency and deposits (AF2)

Debt securities (AF3)

Loans (AF4)

Equity and investment fund shares/units (AF5)

Insurance, pension and standardized guarantee schemes (AF6)

Financial derivatives and employee stock options (AF7)

Other accounts receivable/payable (AF8)

C. Supplementary items

A1.40 At various places, mention is made of the possibility of itemizing supplementary or memorandum items. A full list of such suggestions follows with an indication of how supplementary codes may be constructed. A general convention is that a supplementary code begins with X and is linked to the code of a standard item by building on the code of that item.

1. Non-performing loans

A1.41 The following codes apply to stocks and flows of non-performing loans mentioned in chapters 11 and 13. Since loans have the codes AF4 and F4, the supplementary codes begin XAF4 for stocks and XF4 for flows. The codes for stocks are:

XAF4_NNP Loans: nominal value, non-performing

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XAF4_MNP Loans: market value, non-performing

and the associated flows

XF4_NNP Loans: nominal value, non-performing
XF4_MNP Loans: market value, non-performing

In both sets of codes, the underscore is a placeholder for the detailed codes for loans where relevant, for example, on the balance sheet.

XAF41NNP Short-term loans: nominal value, non-performing
XAF42MNP Long-term loans: market value, non-performing

2. Capital services

A1.42 The following codes apply to capital services described in chapter 20.

XCS	Capital services
XCSC	Capital services – Corporations and general government
P51c1	Consumption of fixed capital
XRC	Return to capital
XOC	Other costs of capital
XCSU	Capital services – Unincorporated enterprises
P51c2	Consumption of fixed capital
XRU	Return to capital
XOU	Other costs of capital

3. Pensions table

A1.43 The following codes apply to the supplementary table described in part 2 of chapter 17. Different codes are proposed for the columns and rows of the table.

Columns

A1.44 In the Column description the letter “W” corresponds to “non-government” and the numbers in these codes refer to the corresponding institutional sectors.

a. Liabilities recorded in the main sequence of accounts

· Schemes where responsibility for the design and implementation lies outside general government

XPC1W Defined contribution schemes
XPB1W Defined benefit schemes
XPCB1W Total

· Schemes where responsibility for the design and implementation lies within general government

XPCG Defined contribution schemes

· General government employee defined benefit schemes

XPBG12 In the financial corporations sector
XPBG13 In the general government sector

b. Liabilities not recorded in the main sequence of accounts

XPBOUT13 In the general government sector
XP1314 Social security pension schemes
XPTOT Total pension schemes
XPTOTNRH Of which: Non-resident households

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Rows

a. Opening balance sheet

XAF63LS	Pension entitlements

b. Transactions

XD61p	Social contributions relating to pension schemes
XD6111	Employer actual social contributions
XD6121	Employer imputed social contributions
XD6131	Household actual social contributions
XD6141	Household social contribution supplements
XD619	Other (actuarial) accumulation of pension entitlements in social security funds
XD62p	Pension benefits
XD8	Adjustment for the change in pension entitlements
XD91	Change in pension entitlements due to transfers of entitlements
XD92	Changes in entitlements due to negotiated changes in scheme structure

c. Other economic flows

XK7	Revaluations
XK5	Other changes in volume

d. Closing balance sheet

XAF63LE	Pension entitlements

e. Related indicators

XP1	Output
XAFN	Assets held by pension schemes at end-year

4. Consumer durables

A1.45 Consumer durables are referred to in chapters 3 and 13. They are coded using X as a prefix plus DHHCE (durable household consumption expenditure) plus a one digit affix for subgroups and two digits for the items. The corresponding COICOP numbers are also provided.

COICOP	SNA codes	
	XDHHCE1	Furniture and household appliances
05.1.1	XDHHCE11	Furniture and furnishings
05.1.2	XDHHCE12	Carpets and other floor coverings
05.3.1	XDHHCE13	Major household appliances whether electric or not
05.5.1	XDHHCE14	Major tools and equipment for house and garden
	XDHHCE2	Personal transport equipment
07.1.1	XDHHCE21	Motor cars
07.1.2	XDHHCE22	Motor cycles
07.1.3	XDHHCE23	Bicycles
07.1.4	XDHHCE24	Animal drawn vehicles
	XDHHCE3	Recreational and entertainment goods
08.2.0	XDHHCE31	Telephone and telefax equipment
09.1.1	XDHHCE32	Equipment for the reception, recording and reproduction of sound and pictures
09.1.2	XDHHCE33	Photographic and cinematographic equipment and optical instruments
09.1.3	XDHHCE34	Information processing equipment
09.2.1	XDHHCE35	Major durables for outdoor recreation
09.2.2	XDHHCE36	Musical instruments and major durables for indoor recreation
	XDHHCE4	Other durable goods
12.3.1	XDHHCE41	Jewellery, clocks and watches
06.1.3	XDHHCE42	Therapeutic medical appliances and equipment

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5. Foreign direct investment

A1.46 Supplementary items for foreign direct investment (FDI), referred to in, for example, chapters 11 and 13, can be coded with X as prefix plus the F or AF code plus a FDI suffix, for example:

XF42FDI Foreign direct investment transaction in long-term loans

6. Contingent positions

A1.47 Supplementary codes for contingent positions, mentioned in chapters 11 and 12, can be coded with X as prefix plus the AF code plus a CP suffix, for example:

XAF11CP when the pledge of monetized gold may affect its usability as reserve asset

7. Currency and deposits

A1.48 Supplementary items for the classification of national and foreign denominated currency and deposits, as mentioned in chapter 11, can be coded with X as prefix plus the F or AF code plus a suffix NC indicating currency and deposits in national currency or an affix FC with an international currency code indicating currency and deposits in foreign currency, for example:

a. For transactions

XF21LC Local currency notes and coins
XF22FC Deposits in foreign currency

b. For stocks

XAF21LC Local currency notes and coins
XAF22FC Deposits in foreign currency

8. Classification of debt securities according to outstanding maturity

A1.49 Chapter 11 suggests classifying debt securities according to outstanding maturity. This can be achieved by using an X prefix plus the AF code plus a suffix indicating a maturity date, for example:

XAF32Y20 Debt securities maturing in 2020

9. Listed and unlisted debt securities

A1.50 Supplementary items on debt securities can be coded with X as prefix plus the F or AF code plus a 1 for listed and 2 for unlisted, for example:

a. For transactions

XF321 Listed debt securities
XF322 Unlisted debt securities

b. For stocks

XAF321 Listed debt securities
XAF322 Unlisted debt securities shares

10. Long-term loans with outstanding maturity of less than one year and long-term loans secured by a mortgage

A1.51 Long-term loans with outstanding maturity of less than one year and long-term loans secured by mortgage can be coded with X as prefix plus the F of AF code plus an affix L1 indicating outstanding maturity of less than one year and a suffix LM indicating loans secured by a mortgage, for example:

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a. For transactions

XF42L1 Long-term loans with outstanding maturity of less than one year
XF42LM Long-term loans secured by a mortgage

b. For stocks

XAF42L1 Long-term loans with outstanding maturity of less than one year
XAF42LM Long-term loans secured by a mortgage

11. Listed and unlisted investment shares

A1.52 Listed and unlisted investment fund shares can be coded with X as prefix plus the F or AF code plus 1 for listed and 2 for unlisted, for example:

a. For transactions

XF5291 Listed investment fund shares
XF5292 Unlisted investment fund shares

b. For stocks

XAF5291 Listed investment fund shares
XAF5292 Unlisted investment fund shares

12. Arrears in interest and repayments

A1.53 Arrears in interest and repayments can be coded with X as prefix plus the AF code plus an IA affix for interest arrears and PA affix for repayment arrears, for example:

XAF42IA Interest arrears on long term loans
XAF42PA Repayment arrears on long term loans

13. Personal and total remittances

A1.54 Personal remittances and total remittances between resident and non-resident households, mentioned in chapter 8, can be coded with X as prefix plus the current transfer code plus a suffix PR for personal remittances and TR for total remittances, as follows:

XD5452PR Personal remittances between resident and non-resident households
XD5452TR Total remittances between resident and non-resident households

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Annex 2: The sequence of accounts

The production account 562-3
The generation of income account 562-3
The allocation of primary income account 564-5
The entrepreneurial income account 564-5
The allocation of other primary income account 566-7
The secondary distribution of income account 566-7
The use of disposable income account 568-9
The redistribution of income in kind account 568-9
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The capital account 590-1
The financial account 592-3
The other changes in the volume of assets account 594-5
The revaluation account 596-7
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Shaded cells are those where the value is determined using the accounting rules of the system;
Cells with a zero entry are those where an entry is possible but in practice it may be negligible.
Blank cells indicate either an entry is not possible or a disaggregation is not provided.

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Production account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
P7	Imports of goods and services								499	499
P71	Imports of goods								392	392
P72	Imports of services								107	107
P6	Exports of goods and services							540		540
P61	Exports of goods							462		462
P62	Exports of services							78		78
P1	Output								3 604	3 604
P11	Market output								3 077	3 077
P12	Output for own final use								147	147
P13	Non-market output								380	380
P2	Intermediate consumption	1 477	52	222	115	17	1 883			1 883
D21	Taxes on products								141	141
D31	Subsidies on products (-)								- 8	- 8
B1g	Value added, gross / Gross domestic product	1 331	94	126	155	15	1 854			1 854
P51c	Consumption of fixed capital	157	12	27	23	3	222			222
B1n	*Value added, net / Net domestic product*	1 174	82	99	132	12	1 632			1 632
B11	*External balance of goods and services*							- 41		- 41

Generation of income account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
D1	Compensation of employees	986	44	98	11	11	1 150			1 150
D11	Wages and salaries	841	29	63	11	6	950			950
D12	Employers' social contributions	145	15	35	0	5	200			200
D121	Employers' actual social contributions	132	14	31	0	4	181			181
D1211	Employers' actual pension contributions	122	14	28	0	4	168			168
D1212	Employers' actual non-pension contributions	10	0	3	0	0	13			13
D122	Employers' imputed social contributions	13	1	4	0	1	19			19
D1221	Employers' imputed pension contributions	12	1	4	0	1	18			18
D1222	Employers' imputed non-pension contributions	1	0	0	0	0	1			1
D2	Taxes on production and imports						235			235
D21	Taxes on products						141			141
D211	Value added type taxes (VAT)						121			121
D212	Taxes and duties on imports excluding VAT						17			17
D2121	Import duties						17			17
D2122	Taxes on imports excluding VAT and duties						0			0
D213	Export taxes						1			1
D214	Taxes on products except VAT, import and export taxes						2			2
D29	Other taxes on production	88	4	1	0	1	94			94
D3	Subsidies						- 44			- 44
D31	Subsidies on products						- 8			- 8
D311	Import subsidies						0			0
D312	Export subsidies						0			0
D319	Other subsidies on products						- 8			- 8
D39	Other subsidies on production	- 35	0	0	- 1	0	- 36			- 36
B2g	Operating surplus, gross	292	46	27	84	3	452			452
B3g	Mixed income, gross				61		61			61
P51c1	Consumption of fixed capital on gross operating surplus	157	12	27	15	3	214			
P51c2	Consumption of fixed capital on gross mixed income				8		8			
B2n	*Operating surplus, net*	135	34	0	69	0	238			238
B3n	*Mixed income, net*				53		53			53

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Production account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
P7	Imports of goods and services							499		499
P71	Imports of goods							392		392
P72	Imports of services							107		107
P6	Exports of goods and services								540	540
P61	Exports of goods								462	462
P62	Exports of services								78	78
P1	Output	2 808	146	348	270	32	3 604			3 604
P11	Market output	2 808	146	0	123	0	3 077			3 077
P12	Output for own final use	0	0	0	147	0	147			147
P13	Non-market output			348		32	380			380
P2	Intermediate consumption								1 883	1 883
D21	Taxes on products						141			141
D31	Subsidies on products (-)						- 8			- 8

Generation of income account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B1g	Value added, gross / Gross domestic product	1 331	94	126	155	15	1 854			1 854
B1n	*Value added, net / Net domestic product*	1 174	82	99	132	12	1 632			1 632
D1	Compensation of employees									
D11	Wages and salaries									
D12	Employers' social contributions									
D121	Employers' actual social contributions									
D1211	Employers' actual pension contributions									
D1212	Employers' actual non-pension contributions									
D122	Employers' imputed social contributions									
D1221	Employers' imputed pension contributions									
D1222	Employers' imputed non-pension contributions									
D2	Taxes on production and imports									
D21	Taxes on products									
D211	Value added type taxes (VAT)									
D212	Taxes and duties on imports excluding VAT									
D2121	Import duties									
D2122	Taxes on imports excluding VAT and duties									
D213	Export taxes									
D214	Taxes on products except VAT, import and export taxes									
D29	Other taxes on production									
D3	Subsidies									
D31	Subsidies on products									
D311	Import subsidies									
D312	Export subsidies									
D319	Other subsidies on products									
D39	Other subsidies on production									

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Allocation of primary income account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
D1	Compensation of employees							6		6
D11	Wages and salaries							6		6
D12	Employers' social contributions							0		0
D121	Employers' actual social contributions							0		0
D1211	Employers' actual pension contributions							0		0
D1212	Employers' actual non-pension contributions							0		0
D122	Employers' imputed social contributions							0		0
D1221	Employers' imputed pension contributions							0		0
D1222	Employers' imputed non-pension contributions							0		0
D2	Taxes on production and imports									0
D21	Taxes on products									0
D211	Value added type taxes (VAT)									0
D212	Taxes and duties on imports excluding VAT									0
D2121	Import duties									0
D2122	Taxes on imports excluding VAT and duties									0
D213	Export taxes									0
D214	Taxes on products except VAT, import and export taxes									0
D29	Other taxes on production									0
D3	Subsidies									0
D31	Subsidies on products									0
D311	Import subsidies									0
D312	Export subsidies									0
D319	Other subsidies on products									0
D39	Other subsidies on production									0
D4	Property income	134	168	42	41	6	391	44		435
D41	Interest	56	106	35	14	6	217	13		230
D42	Distributed income of corporations	47	15				62	17		79
D421	Dividends	39	15				54	13		67
D422	Withdrawals from income of quasi-corporations	8	0				8	4		12
D43	Reinvested earnings on foreign direct investment	0	0				0	14		14
D44	Investment income disbursements		47				47	0		47
D441	Investment income attributable to insurance policy holders		25				25	0		25
D442	Investment income payable on pension entitlements		8				8	0		8
D443	Investment income attributable to collective investment funds share holders		14				14	0		14
D45	Rent	31	0	7	27	0	65			65
B5g	Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
B5n	Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642

Entrepreneurial account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
D4	Property income	87	153				240			240
D41	Interest	56	106				162			162
D42	Distributed income of corporations									
D421	Dividends									
D422	Withdrawals from income of quasi-corporations									
D43	Reinvested earnings on foreign direct investment									
D44	Investment income disbursements		47				47			47
D441	Investment income attributable to insurance policy holders		25				25			25
D442	Investment income payable on pension entitlements		8				8			8
D443	Investment income attributable to collective investment funds share holders		14				14			14
D45	Rent	31	0				31			31
B4g	Entrepreneurial income, gross	301	42				343			343
B4n	Entrepreneurial income, net	144	30				174			174

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Allocation of primary income account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B2g	Operating surplus, gross	292	46	27	84	3	452			452
B3g	Mixed income, gross				61		61			61
B2n	*Operating surplus, net*	135	34	0	69	0	238			238
B3n	*Mixed income, net*				53		53			53
D1	Compensation of employees				1 154		1 154	2		1 156
D11	Wages and salaries				954		954	2		956
D12	Employers' social contributions				200		200	0		200
D121	Employers' actual social contributions				181		181	0		181
D1211	Employers' actual pension contributions				168		168	0		168
D1212	Employers' actual non-pension contributions				13		13	0		13
D122	Employers' imputed social contributions				19		19	0		19
D1221	Employers' imputed pension contributions				18		18	0		18
D1222	Employers' imputed non-pension contributions				1		1	0		1
D2	Taxes on production and imports			235			235			235
D21	Taxes on products			141			141			141
D211	Value added type taxes (VAT)			121			121			121
D212	Taxes and duties on imports excluding VAT			17			17			17
D2121	Import duties			17			17			17
D2122	Taxes on imports excluding VAT and duties			0			0			0
D213	Export taxes			1			1			1
D214	Taxes on products except VAT, import and export taxes			2			2			2
D29	Other taxes on production			94			94			94
D3	Subsidies			- 44			- 44			- 44
D31	Subsidies on products			- 8			- 8			- 8
D311	Import subsidies			0			0			0
D312	Export subsidies			0			0			0
D319	Other subsidies on products			- 8			- 8			- 8
D39	Other subsidies on production			- 36			- 36			- 36
D4	Property income	96	149	22	123	7	397	38		435
D41	Interest	33	106	14	49	7	209	21		230
D42	Distributed income of corporations	10	25	7	20	0	62	17		79
D421	Dividends	10	25	5	13	0	53	14		67
D422	Withdrawals from income of quasi-corporations			2	7		9	3		12
D43	Reinvested earnings on foreign direct investment	4	7	0	3	0	14	0		14
D44	Investment income disbursements	8	8	1	30	0	47	0		47
D441	Investment income attributable to insurance policy holders	5	0	0	20	0	25	0		25
D442	Investment income payable on pension entitlements				8		8	0		8
D443	Investment income attributable to collective investment funds share holders	3	8	1	2	0	14	0		14
D45	Rent	41	3	0	21	0	65			65
										0
										0

Entrepreneurial account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B2g	Operating surplus, gross	292	46	27	84	3	452			452
B3g	Mixed income, gross				61		61			61
B2n	Operating surplus, net	135	34	0	69	0	238			238
B3n	Mixed income, net				53		53			53
D4	Property income	96	149				245			245
D41	Interest	33	106				139			139
D42	Distributed income of corporations	10	25				35			35
D421	Dividends	10	25				35			35
D422	Withdrawals from income of quasi-corporations						0			0
D43	Reinvested earnings on foreign direct investment	4	7				11			11
D44	Investment income disbursements	8	8				16			16
D441	Investment income attributable to insurance policy holders	5					5			5
D442	Investment income payable on pension entitlements						0			0
D443	Investment income attributable to collective investment funds share holders	3	8				11			11
D45	Rent	41	3				44			44

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Allocation of other primary income account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
D1	Compensation of employees							6		6
D2	Taxes on production and imports									
D3	Subsidies									
D4	Property income	47	15	42	41	6	151	63		214
D41	Interest			35	14	6	55	13		68
D42	Distributed income of corporations	47	15				62	17		79
D421	Dividends	39	15				54	0		54
D422	Withdrawals from income of quasi-corporations	8					8	36		44
D43	Reinvested earnings on foreign direct investment						0	14		14
D44	Investment income disbursements						0	0		0
D441	Investment income attributable to insurance policy holders						0	0		0
D442	Investment income payable on pension entitlements						0	0		0
D443	Investment income attributable to collective investment funds share holders						0	0		0
D45	Rent			7	27	0	34			34
B5g	Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
B5n	Balance of primary income, net / National income, net	97	15	171	1 358	1	1 642			1 642

Secondary distribution of income account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
	Current transfers	98	277	248	582	7	1 212	17		1 229
D5	Current taxes on income, wealth, etc.	24	10	0	178	0	212	1		213
D51	Taxes on income	20	7	0	176	0	203	1		204
D59	Other current taxes	4	3	0	2	0	9			9
D61	Net social contributions				333		333	0		333
D611	Employers' actual social contributions				181		181	0		181
D6111	Employers' actual pension contributions				168		168	0		168
D6112	Employers' actual non-pension contributions				13		13	0		13
D612	Employers' imputed social contributions				19		19	0		19
D6121	Employers' imputed pension contributions				18		18	0		18
D6122	Employers' imputed non-pension contributions				1		1	0		1
D613	Households' actual social contributions				129		129	0		129
D6131	Households' actual pension contributions				115		115	0		115
D6132	Households' actual non-pension contributions				14		14	0		14
D614	Households' social contributions supplements				10		10	0		10
D6141	Households' pension contribution supplements				8		8	0		8
D6142	Households' non-pension contribution supplements				2		2	0		2
	Social insurance scheme service charges				6		6	0		6
D62	Social benefits other than social transfers in kind	62	205	112	0	5	384	0		384
D621	Social security benefits in cash			53			53	0		53
D6211	Social security pension benefits			45			45	0		45
D6212	Social security non-pension benefits in cash			8			8	0		8
D622	Other social insurance benefits	62	205	7	0	5	279	0		279
D6221	Other social insurance pension benefits	49	193	5	0	3	250	0		250
D6222	Other social insurance non-pension benefits	13	12	2	0	2	29	0		29
D623	Social assistance benefits in cash			52			52			52
D7	Other current transfers	12	62	136	71	2	283	16		299
D71	Net non-life insurance premiums	8	13	4	31	0	56	2		58
D711	Net non-life direct insurance premiums	8	0	4	31	0	43	1		44
D712	Net non-life reinsurance premiums		13				13	1		14
D72	Non-life insurance claims		48				48	12		60
D721	Non-life direct insurance claims		45				45	0		45
D722	Non-life reinsurance claims		3				3	12		15
D73	Current transfers within general government			96			96	0		96
D74	Current international cooperation			31			31	1		32
D75	Miscellaneous current transfers	4	1	5	40	2	52	1		53
D751	Current transfers to NPISHs	1	1	5	29	0	36	0		36
D752	Current transfers between resident and non-resident households				7		7	1		8
D759	Other miscellaneous current transfers	3	0	0	4	2	9	0		9
B6g	Disposable income, gross	228	25	317	1 219	37	1 826			1 826
B6n	*Disposable income, net*	71	13	290	1 196	34	1 604			1 604

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Allocation of other primary income account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B4g	Entrepreneurial income, gross	301	42				343			343
B4n	Entrepreneurial income, net	144	30				174			174
D1	Compensation of employees				1 154		1 154	2		1 156
D2	Taxes on production and imports			235			235			235
D3	Subsidies			- 44			- 44			- 44
D4	Property income			22	123	7	152	38		190
D41	Interest			14	49	7	70	21		91
D42	Distributed income of corporations			7	20	0	27	17		44
D421	Dividends			5	13	0	18	14		32
D422	Withdrawals from income of quasi-corporations			2	7	0	9	3		12
D43	Reinvested earnings on foreign direct investment			0	3	0	3	0		3
D44	Investment income disbursements			1	30	0	31	0		31
D441	Investment income attributable to insurance policy holders			0	20	0	20	0		20
D442	Investment income payable on pension entitlements			0	8	0	8	0		8
D443	Investment income attributable to collective investment funds share holders			1	2	0	3	0		3
D45	Rent			0	21	0	21			21

Secondary distribution of income account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B5g	Balance of primary incomes, gross / National income, gross	254	27	198	1 381	4	1 864			1 864
B5n	*Balance of primary income, net / National income, net*	97	15	171	1 358	1	1 642			1 642
	Current transfers	72	275	367	420	40	1 174	55		1 229
D5	Current taxes on income, wealth, etc.			213			213	0		213
D51	Taxes on income			204			204	0		204
D59	Other current taxes			9			9			9
D61	Net social contributions	66	213	50	0	4	333	0		333
D611	Employers' actual social contributions	31	110	38	0	2	181	0		181
D6111	Employers' actual pension contributions	27	104	35	0	2	168	0		168
D6112	Employers' actual non-pension contributions	4	6	3	0	0	13	0		13
D612	Employers' imputed social contributions	12	2	4	0	1	19	0		19
D6121	Employers' imputed pension contributions	12	1	4	0	1	18	0		18
D6122	Employers' imputed non-pension contributions	0	1	0	0	0	1	0		1
D613	Households' actual social contributions	25	94	9	0	1	129	0		129
D6131	Households' actual pension contributions	19	90	6	0	0	115	0		115
D6132	Households' actual non-pension contributions	6	4	3	0	1	14	0		14
D614	Households' social contributions supplements		10				10	0		10
D6141	Households' pension contribution supplements		8				8	0		8
D6142	Households' non-pension contribution supplements		2				2	0		2
	Social insurance scheme service charges	2	3	1			6	0		6
D62	Social benefits other than social transfers in kind				384		384	0		384
D621	Social security benefits in cash				53		53	0		53
D6211	Social security pension benefits				45		45	0		45
D6212	Social security non-pension benefits in cash				8		8	0		8
D622	Other social insurance benefits				279		279	0		279
D6221	Other social insurance pension benefits				250		250	0		250
D6222	Other social insurance non-pension benefits				29		29	0		29
D623	Social assistance benefits in cash				52		52			52
D7	Other current transfers	6	62	104	36	36	244	55		299
D71	Net non-life insurance premiums		47				47	11		58
D711	Net non-life direct insurance premiums		44				44			44
D712	Net non-life reinsurance premiums		3				3	11		14
D72	Non-life insurance claims	6	15	1	35	0	57	3		60
D721	Non-life direct insurance claims	6		1	35		42	3		45
D722	Non-life reinsurance claims		15				15	0		15
D73	Current transfers within general government			96			96	0		96
D74	Current international cooperation			1			1	31		32
D75	Miscellaneous current transfers	0	0	6	1	36	43	10		53
D751	Current transfers to NPISHs					36	36			36
D752	Current transfers between resident and non-resident households				1		1	7		8
D759	Other miscellaneous current transfers			6			6	3		9

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Use of disposable income account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
P3	Final consumption expenditure			352	1 015	32	1 399			1 399
P31	Individual consumption expenditure			184	1 015	31	1 230			1 230
P32	Collective consumption expenditure			168		1	169			169
D8	Adjustment for the change in pension entitlements	0	11	0		0	11	0		11
B8g	Saving, gross	228	14	- 35	215	5	427			427
B8n	*Saving, net*	71	2	- 62	192	2	205			205
B12	*Current external balance*							- 13		- 13

Redistribution of income in kind account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
D63	Social transfers in kind			184		31	215			215
D631	Social transfers in kind - non-market production			180		31	211			211
D632	Social transfers in kind - purchased market production			4			4			4
B7g	Adjusted disposable income, gross	228	25	133	1 434	6	1 826			1 826
B7n	*Adjusted disposable income, net*	71	13	106	1 411	3	1 604			1 604

Use of adjusted disposable income account
Uses

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
P4	Actual final consumption			168	1 230	1	1 399			1 399
P41	Actual individual consumption				1 230		1 230			1 230
P42	Actual collective consumption			168		1	169			169
D8	Adjustment for the change in pension entitlements	0	11	0		0	11	0		11
B8g	Saving, gross	228	14	- 35	215	5	427			427
B8n	*Saving, net*	71	2	- 62	192	2	205			205
B12	*Current external balance*							- 13		- 13

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Use of disposable income account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B6g	Disposable income, gross	228	25	317	1 219	37	1 826			1 826
B6n	*Disposable income, net*	71	13	290	1 196	34	1 604			1 604
P3	Final consumption expenditure								1 399	1 399
P31	Individual consumption expenditure								1 230	1 230
P32	Collective consumption expenditure								169	169
D8	Adjustment for the change in pension entitlements				11		11	0		11

Redistribution of income in kind account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B6g	Disposable income, gross	228	25	317	1 219	37	1 826			1 826
B6n	*Disposable income, net*	71	13	290	1 196	34	1 604			1 604
D63	Social transfers in kind				215		215			215
D631	Social transfers in kind - non-market production				211		211			211
D632	Social transfers in kind - purchased market production				4		4			4

Use of adjusted disposable income account

Resources

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B7g	Adjusted disposable income, gross	228	25	133	1 434	6	1 826			1 826
B7n	*Adjusted disposable income, net*	71	13	106	1 411	3	1 604			1 604
P4	Actual final consumption								1 399	1 399
P41	Actual individual consumption								1 230	1 230
P42	Actual collective consumption								169	169
D8	Adjustment for the change in pension entitlements				11		11	0		11

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Capital account
Changes in assets

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
P5g	Gross capital formation	308	8	38	55	5	414			414
P5n	Net capital formation	151	- 4	11	32	2	192			192
P51g	Gross fixed capital formation	280	8	35	48	5	376			376
P511	Acquisitions less disposals of fixed assets	263	8	35	48	5	359			359
P5111	Acquisitions of new fixed assets	262	8	38	45	5	358			358
P5112	Acquisitions of existing fixed assets	5	0	0	3	1	9			9
P5113	Disposals of existing fixed assets	- 4		- 3	0	- 1	- 8			- 8
P512	Costs of ownership transfer on non-produced assets	17					17			17
P51c	Consumption of fixed capital	- 157	- 12	- 27	- 23	- 3	- 222			- 222
AN11	*Gross fixed capital formation by type of asset*									
AN111	*Dwellings*									
AN112	*Other buildings and structures*									
AN1121	*Buildings other than dwellings*									
AN1122	*Other structures*									
AN1123	*Land improvements*									
AN113	*Machinery and equipment*									
AN1131	*Transport equipment*									
AN1132	*ICT equipment*									
AN1139	*Other machinery and equipment*									
AN114	*Weapons systems*									
AN115	*Cultivated biological resources*									
AN1151	*Animal resources yielding repeat products*									
AN1152	*Tree, crop and plant resources yielding repeat products*									
AN116	*Costs of ownership transfer on non-produced assets*									
AN117	*Intellectual property products*									
AN1171	*Research and development*									
AN1172	*Mineral exploration and evaluation*									
AN1173	*Computer software and databases*									
AN11731	*Computer software*									
AN11732	*Databases*									
AN1174	*Entertainment, literary or artistic originals*									
AN1179	*Other intellectual property products*									
P52 *AN12*	Changes in inventories	26	0	0	2	0	28			28
AN121	*Materials and supplies*									
AN122	*Work-in-progress*									
AN1221	*Work-in-progress on cultivated biological assets*									
AN1222	*Other work-in-progress*									
AN123	*Finished goods*									
AN124	*Military inventories*									
AN125	*Goods for resale*									
P53 *AN13*	Acquisitions less disposals of valuables	2	0	3	5	0	10			10
NP	Acquisitions less disposals of non-produced assets	- 7	0	2	4	1	0			0
NP1	Acquisitions less disposals of natural resources	- 6	0	2	3	1	0			0
AN21	*Natural resources*									
AN211	*Land*									
AN212	*Mineral and energy reserves*									
AN213	*Non-cultivated biological resources*									
AN214	*Water resources*									
AN215	*Other natural resources*									
AN2151	*Radio spectra*									
AN2159	*Other*									
NP2	Acquisitions less disposals of contracts, leases and licences	- 1	0	0	1	0	0	0		0
AN22	*Contracts, leases and licences*									
AN221	*Marketable operating leases*									
AN222	*Permits to use natural resources*									
AN223	*Permits to undertake specific activities*									
AN224	*Entitlement to future goods and services on an exclusive basis*									
NP3 *AN23*	Purchases less sales of goodwill and marketing assets	0	0				0	0		0
D9r	Capital transfers, receivable									
D91r	Capital taxes, receivable									
D92r	Investment grants, receivable									
D99r	Other capital transfers, receivable									
D9p	Capital transfers, payable									
D91p	Capital taxes, payable									
D92p	Investment grants, payable									
D99p	Other capital transfers, payable									
B9	*Net lending (+) / net borrowing (–)*	- 56	- 1	- 103	174	- 4	10	- 10		0

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Capital account

Changes in liabilities and net worth

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B8n	*Saving, net*	71	2	- 62	192	2	205			205
B12	*Current external balance*							- 13		- 13
P5g	Gross capital formation								414	414
P5n	Net capital formation								192	192
P51g	Gross fixed capital formation								376	376
P511	Acquisitions less disposals of fixed assets								359	359
P5111	Acquisitions of new fixed assets								358	358
P5112	Acquisitions of existing fixed assets								9	9
P5113	Disposals of existing fixed assets								- 8	- 8
P512	Costs of ownership transfer on non-produced assets								17	17
P51c	Consumption of fixed capital								- 222	- 222
AN11	*Gross fixed capital formation by type of asset*									
AN111	*Dwellings*									
AN112	*Other buildings and structures*									
AN1121	*Buildings other than dwellings*									
AN1122	*Other structures*									
AN1123	*Land improvements*									
AN113	*Machinery and equipment*									
AN1131	*Transport equipment*									
AN1132	*ICT equipment*									
AN1139	*Other machinery and equipment*									
AN114	*Weapons systems*									
AN115	*Cultivated biological resources*									
AN1151	*Animal resources yielding repeat products*									
AN1152	*Tree, crop and plant resources yielding repeat products*									
AN116	*Costs of ownership transfer on non-produced assets*									
AN117	*Intellectual property products*									
AN1171	*Research and development*									
AN1172	*Mineral exploration and evaluation*									
AN1173	*Computer software and databases*									
AN11731	*Computer software*									
AN11732	*Databases*									
AN1174	*Entertainment, literary or artistic originals*									
AN1179	*Other intellectual property products*									
P52 *AN12*	Changes in inventories								28	28
AN121	*Materials and supplies*									
AN122	*Work-in-progress*									
AN1221	*Work-in-progress on cultivated biological assets*									
AN1222	*Other work-in-progress*									
AN123	*Finished goods*									
AN124	*Military inventories*									
AN125	*Goods for resale*									
P53 *AN13*	Acquisitions less disposals of valuables								10	10
NP	Acquisitions less disposals of non-produced assets								0	0
NP1	Acquisitions less disposals of natural resources								0	0
AN21	*Natural resources*									
AN211	*Land*									
AN212	*Mineral and energy reserves*									
AN213	*Non-cultivated biological resources*									
AN214	*Water resources*									
AN215	*Other natural resources*									
AN2151	*Radio spectra*									
AN2159	*Other*									
NP2	Acquisitions less disposals of contracts, leases and licences									
AN22	*Contracts, leases and licences*									
AN221	*Marketable operating leases*									
AN222	*Permits to use natural resources*									
AN223	*Permits to undertake specific activities*									
AN224	*Entitlement to future goods and services on an exclusive basis*									
NP3 *AN23*	Purchases less sales of goodwill and marketing assets									
D9r	Capital transfers, receivable	33	0	6	23	0	62	4		66
D91r	Capital taxes, receivable			2			2			2
D92r	Investment grants, receivable	23	0	0	0	0	23	4		27
D99r	Other capital transfers, receivable	10	0	4	23	0	37			37
D9p	Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1		- 66
D91p	Capital taxes, payable	0	0	0	- 2	0	- 2	0		- 2
D92p	Investment grants, payable			- 27			- 27			- 27
D99p	Other capital transfers, payable	- 16	- 7	- 7	- 3	- 3	- 36	- 1		- 37
B101	*Changes in net worth due to saving and capital transfers*	88	- 5	- 90	210	- 1	202	- 10		192

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Financial account
Changes in assets

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
	Net acquisition of financial assets	83	172	- 10	189	2	436	47		483
F1	Monetary gold and SDRs		- 1				- 1	1		0
F11	Monetary gold		0				0	0		0
F12	SDRs		- 1				- 1	1		0
F2	Currency and deposits	39	10	- 26	64	2	89	11		100
F21	Currency	5	15	2	10	1	33	3		36
F22	Transferable deposits	30	- 5	- 27	27	1	26	2		28
F221	Interbank positions		- 5				- 5			- 5
F229	Other transferable deposits	30	0	- 27	27	1	31	2		33
F29	Other deposits	4	0	- 1	27	0	30	6		36
F3	Debt securities	7	66	4	10	- 1	86	9		95
F31	Short-term	10	13	1	3	0	27	2		29
F32	Long-term	- 3	53	3	7	- 1	59	7		66
F4	Loans	19	53	3	3	0	78	4		82
F41	Short-term	14	4	1	3	0	22	3		25
F42	Long-term	5	49	2	0	0	56	1		57
F5	Equity and investment fund shares	10	28	3	66	0	107	12		119
F51	Equity	10	25	3	53	0	91	12		103
F511	Listed shares	5	23	1	48	0	77	10		87
F512	Unlisted shares	3	1	1	2	0	7	2		9
F519	Other equity	2	1	1	3	0	7	0		7
F52	Investment fund shares/units	0	3	0	13	0	16	0		16
F521	Money market fund shares/units	0	2	0	5	0	7	0		7
F522	Non MMF investment fund shares/units	0	1	0	8	0	9	0		9
F6	Insurance, pension and standardized guarantee schemes	1	7	1	39	0	48	0		48
F61	Non-life insurance technical reserves	1	2	0	4	0	7	0		7
F62	Life insurance and annuity entitlements	0	0	0	22	0	22	0		22
F63	Pension entitlements				11		11	0		11
F64	Claim of pension fund on pension managers		3				3	0		3
F65	Entitlements to non-pension benefits				2		2	0		2
F66	Provisions for calls under standardized guarantees	0	2	1	0	0	3	0		3
F7	Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
F71	Financial derivatives	3	8	0	1	0	12	0		12
F711	Options	1	3	0	1	0	5	0		5
F712	Forwards	2	5	0	0	0	7	0		7
F72	Employee stock options	0			2		2			2
F8	Other accounts receivable/payable	4	1	5	4	1	15	10		25
F81	Trade credits and advances	3		1	3		7	8		15
F89	Other accounts receivable/payable	1	1	4	1	1	8	2		10

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Financial account

Changes in liabilities and net worth

Code	Transactions and balancing items	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world	Goods and services	Total
B9	*Net lending (+) / net borrowing (–)*	- 56	- 1	- 103	174	- 4	10	- 10		0
	Net acquisition of liabilities	139	173	93	15	6	426	57		483
F1	Monetary gold and SDRs									
F11	Monetary gold									
F12	SDRs									0
F2	Currency and deposits		65	37			102	- 2		100
F21	Currency			35			35	1		36
F22	Transferable deposits		26	2			28	0		28
F221	Interbank positions		- 5				- 5			- 5
F229	Other transferable deposits		31	2			33			33
F29	Other deposits		39				39	- 3		36
F3	Debt securities	6	30	38	0	0	74	21		95
F31	Short-term	2	18	4	0	0	24	5		29
F32	Long-term	4	12	34	0	0	50	16		66
F4	Loans	21	0	9	11	6	47	35		82
F41	Short-term	4	0	3	2	2	11	14		25
F42	Long-term	17	0	6	9	4	36	21		57
F5	Equity and investment fund shares	83	22				105	14		119
F51	Equity	83	11				94	9		103
F511	Listed shares	77	7				84	3		87
F512	Unlisted shares	3	4				7	2		9
F519	Other equity	3					3	4		7
F52	Investment fund shares/units		11				11	5		16
F521	Money market fund shares/units		5				5	2		7
F522	Non MMF investment fund shares/units		6				6	3		9
F6	Insurance, pension and standardized guarantee schemes		48	0			48	0		48
F61	Non-life insurance technical reserves		7				7	0		7
F62	Life insurance and annuity entitlements		22				22	0		22
F63	Pension entitlements		11				11	0		11
F64	Claim of pension fund on pension managers		3				3	0		3
F65	Entitlements to non-pension benefits		2				2	0		2
F66	Provisions for calls under standardized guarantees		3	0			3	0		3
F7	Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
F71	Financial derivatives	2	7	0	0	0	9	3		12
F711	Options	2	2	0	0	0	4	1		5
F712	Forwards	0	5	0	0	0	5	2		7
F72	Employee stock options	1	1				2			2
F8	Other accounts receivable/payable	26	0	9	4		39	- 14		25
F81	Trade credits and advances	6	0	6	4	0	16	- 1		15
F89	Other accounts receivable/payable	20	0	3	0	0	23	- 13		10

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Other changes in the volume of assets account
Changes in assets

		S11	S12	S13	S14	S15	S1	S2		
	Other flows	Non-financial corporations	Financial corporations	General government	Households	NPISHs	Total economy	Rest of the world account	Goods and services account	Total
K1	Economic appearance of assets	26	0	7	0	0	33			33
AN1	Produced non-financial assets			3			3			3
AN2	Non-produced non-financial assets	26	0	4	0	0	30			30
AN21	Natural resources	22		4			26			26
AN22	Contracts, leases and licences	4					4			4
AN23	Goodwill and marketing assets						0			0
K2	Economic disappearance of non-produced non-financial assets	- 9	0	- 2	0	0	- 11			- 11
K21	Depletion of natural resources	- 6	0	- 2	0	0	- 8			- 8
AN21	Natural resources	- 6		- 2			- 8			- 8
K22	Other economic disappearance of non-produced non-financial assets	- 3	0	0	0	0	- 3			- 3
AN21	Natural resources						0			0
AN22	Contracts, leases and licences	- 1					- 1			- 1
AN23	Goodwill and marketing assets	- 2					- 2			- 2
K3	Catastrophic losses	- 5	0	- 6	0	0	- 11			- 11
AN1	Produced non-financial assets	- 5		- 4			- 9			- 9
AN2	Non-produced non-financial assets			- 2			- 2			- 2
AF	Financial assets/liabilities						0			0
K4	Uncompensated seizures	- 5	0	5	0	0	0			0
AN1	Produced non-financial assets	- 1		1			0			0
AN2	Non-produced non-financial assets	- 4		4			0			0
AF	Financial assets/liabilities						0			0
K5	Other changes in volume n.e.c.	1	1	0	0	0	2			2
AN1	Produced non-financial assets	1					1			1
AN2	Non-produced non-financial assets						0			0
AF	Financial assets/liabilities		1				1			1
K6	Changes in classification	6	- 2	- 4	0	0	0			0
K61	Changes in sector classification and structure	6	0	- 4	0	0	2			2
AN1	Produced non-financial assets	3		- 3			0			0
AN2	Non-produced non-financial assets	1		- 1			0			0
AF	Financial assets	2					2			2
K62	Changes in classification of assets and liabilities	0	- 2	0	0	0	- 2			- 2
AN1	Produced non-financial assets		- 2				- 2			- 2
AN2	Non-produced non-financial assets	0	0	0			0			0
AF	Financial assets	0	0	0			0			0
	Total other changes in volume	14	- 1	0	0	0	13			13
AN1	Produced non-financial assets	- 2	- 2	- 3	0	0	- 7			- 7
AN11	Fixed assets	1		- 3			- 2			- 2
AN12	Inventories	- 3					- 3			- 3
AN13	Valuables		- 2				- 2			- 2
AN2	Non-produced non-financial assets	14	0	3	0	0	17			17
AN21	Natural resources	10	0	1	0	0	11			11
AN22	Contracts, leases and licences	4		2			6			6
AN23	Goodwill and marketing assets	0					0			0
AF	Financial assets	2	1	0	0	0	3			3
AF1	Monetary gold and SDRs						0			0
AF2	Currency and deposits						0			0
AF3	Debt securities						0			0
AF4	Loans						0			0
AF5	Equity and investment fund shares/units	2					2			2
AF6	Insurance, pension and standardized guarantee schemes		1				1			1
AF7	Financial derivatives and employee stock options						0			0
AF8	Other accounts receivable/payable						0			0

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Other changes in the volume of assets account

Changes in liabilities and net worth

	Other flows	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world account	Goods and services account	Total
K1	Economic appearance of assets									
AN1	Produced non-financial assets									
AN2	Non-produced non-financial assets									
AN21	Natural resources									
AN22	Contracts, leases and licences									
AN23	Goodwill and marketing assets									
K2	Economic disappearance of non-produced non-financial assets									
K21	Depletion of natural resources									
AN21	Natural resources									
K22	Other economic disappearance of non-produced non-financial assets									
AN21	Natural resources									
AN22	Contracts, leases and licences									
AN23	Goodwill and marketing assets									
K3	Catastrophic losses									
AN1	Produced non-financial assets									
AN2	Non-produced non-financial assets									
AF	Financial assets/liabilities									
K4	Uncompensated seizures									
AN1	Produced non-financial assets									
AN2	Non-produced non-financial assets									
AF	Financial assets/liabilities									
K5	Other changes in volume n.e.c.	0	0	0	1	0	1			1
AN1	Produced non-financial assets									
AN2	Non-produced non-financial assets									
AF	Financial assets/liabilities	0	0	0	1	0	1			1
K6	Changes in classification	0	0	2	0	0	2			2
K61	Changes in sector classification and structure	0	0	2	0	0	2			2
AN1	Produced non-financial assets									
AN2	Non-produced non-financial assets									
AF	Financial assets	0	0	2	0	0	2			2
K62	Changes in classification of assets and liabilities	0	0	0	0	0	0			0
AN1	Produced non-financial assets									0
AN2	Non-produced non-financial assets									0
AF	Financial assets	0	0	0	0	0	0			0
	Total other changes in volume	0	0	2	1	0	3			3
AN1	Produced non-financial assets									
AN11	Fixed assets									
AN12	Inventories									
AN13	Valuables									
AN2	Non-produced non-financial assets									
AN21	Natural resources									
AN22	Contracts, leases and licences									
AN23	Goodwill and marketing assets									
AF	Financial assets	0	0	2	1	0	3			3
AF1	Monetary gold and SDRs									
AF2	Currency and deposits									
AF3	Debt securities									
AF4	Loans						0			0
AF5	Equity and investment fund shares/units			2			2			2
AF6	Insurance, pension and standardized guarantee schemes				1		1			1
AF7	Financial derivatives and employee stock options									
AF8	Other accounts receivable/payable									
B102	*Changes in net worth due to other changes in volume of assets*	14	- 1	- 2	- 1	0	10			

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Revaluation account
Changes in assets

		Other flows	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world account	Goods and services account	Total
Nominal holding gains and losses	*AN*	Non-financial assets	144	4	44	80	8	280			280
	AN1	Produced non-financial assets	63	2	21	35	5	126			126
	AN11	Fixed assets	58	2	18	28	5	111			111
	AN12	Inventories	4		1	2		7			7
	AN13	Valuables	1		2	5		8			8
	AN2	Non-produced non-financial assets	81	2	23	45	3	154			154
	AN21	Natural resources	80	1	23	45	3	152			152
	AN22	Contracts, leases and licences	1	1				2			2
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	8	57	1	16	2	84	7		91
	AF1	Monetary gold and SDRs		11	1			12			12
	AF2	Currency and deposits						0			0
	AF3	Debt securities	3	30		6	1	40	4		44
	AF4	Loans						0			0
	AF5	Equity and investment fund shares/units	5	16		10	1	32	3		35
	AF6	Insurance, pension and standardized guarantee schemes						0			0
	AF7	Financial derivatives and employee stock options						0			0
	AF8	Other accounts receivable/payable						0			0
Neutral holding gains	*AN*	Non-financial assets	101	3	32	56	6	198			198
	AN1	Produced non-financial assets	60	2	20	34	5	121			121
	AN11	Fixed assets	58	2	18	28	5	111			111
	AN12	Inventories	1		1	2		4			4
	AN13	Valuables	1		1	4		6			6
	AN2	Non-produced non-financial assets	41	1	12	22	1	77			77
	AN21	Natural resources	40	1	12	22	1	76			76
	AN22	Contracts, leases and licences	1					1			1
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	18	71	8	36	3	136	12		148
	AF1	Monetary gold and SDRs		14	2			16			16
	AF2	Currency and deposits	8		3	17	2	30	2		32
	AF3	Debt securities	2	18		4	1	25	3		28
	AF4	Loans	1	24	3			28	1		29
	AF5	Equity and investment fund shares/units	3	14		9		26	2		28
	AF6	Insurance, pension and standardized guarantee schemes	1	1		5		7	1		8
	AF7	Financial derivatives and employee stock options						0			0
	AF8	Other accounts receivable/payable	3			1		4	3		7
Real holding gains and losses	*AN*	Non-financial assets	43	1	12	24	2	82			82
	AN1	Produced non-financial assets	3	0	1	1	0	5			5
	AN11	Fixed assets	0	0	0	0	0				
	AN12	Inventories	3	0	0	0	0	3			3
	AN13	Valuables	0	0	1	1	0	2			2
	AN2	Non-produced non-financial assets	40	1	11	23	2	77			77
	AN21	Natural resources	40	0	11	23	2	76			76
	AN22	Contracts, leases and licences	0	1	0	0	0	1			1
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	- 10	- 14	- 7	- 20	- 1	- 52	- 5		- 57
	AF1	Monetary gold and SDRs	0	- 3	- 1	0	0	- 4	0		- 4
	AF2	Currency and deposits	- 8	0	- 3	- 17	- 2	- 30	- 2		- 32
	AF3	Debt securities	1	12	0	2	0	15	1		16
	AF4	Loans	- 1	- 24	- 3	0	0	- 28	- 1		- 29
	AF5	Equity and investment fund shares/units	2	2	0	1	1	6	1		7
	AF6	Insurance, pension and standardized guarantee schemes	- 1	- 1	0	- 5	0	- 7	- 1		- 8
	AF7	Financial derivatives and employee stock options	0	0	0	0	0				
	AF8	Other accounts receivable/payable	- 3	0	0	- 1	0	- 4	- 3		- 7

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Revaluation account

Changes in liabilities and net worth

		Other flows	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world account	Goods and services account	Total
Nominal holding gains and losses	*AN*	Non-financial assets									
	AN1	Produced non-financial assets									
	AN11	Fixed assets									
	AN12	Inventories									
	AN13	Valuables									
	AN2	Non-produced non-financial assets									
	AN21	Natural resources									
	AN22	Contracts, leases and licences									
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	18	51	7	0	0	76	15		91
	AF1	Monetary gold and SDRs							12		12
	AF2	Currency and deposits									
	AF3	Debt securities	1	34	7			42	2		44
	AF4	Loans									
	AF5	Equity and investment fund shares/units	17	17				34	1		35
	AF6	Insurance, pension and standardized guarantee schemes									
	AF7	Financial derivatives and employee stock options									
	AF8	Other accounts receivable/payable									
	B103	*Changes in net worth due to nominal holding gains/losses*	134	10	38	96	10	288	- 8		280
Neutral holding gains	*AN*	Non-financial assets									
	AN1	Produced non-financial assets									
	AN11	Fixed assets									
	AN12	Inventories									
	AN13	Valuables									
	AN2	Non-produced non-financial assets									
	AN21	Natural resources									
	AN22	Contracts, leases and licences									
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	37	68	13	5	3	126	22		148
	AF1	Monetary gold and SDRs							16		16
	AF2	Currency and deposits	1	26	2		1	30	2		32
	AF3	Debt securities	1	21	4			26	2		28
	AF4	Loans	18		7	3	1	29			29
	AF5	Equity and investment fund shares/units	14	14				28			28
	AF6	Insurance, pension and standardized guarantee schemes		7				7	1		8
	AF7	Financial derivatives and employee stock options									
	AF8	Other accounts receivable/payable	3			2	1	6	1		7
	B1031	*Changes in net worth due to neutral holding gains/losses*	82	6	27	87	6	208	- 10		214
Real holding gains and losses	*AN*	Non-financial assets									
	AN1	Produced non-financial assets									
	AN11	Fixed assets									
	AN12	Inventories									
	AN13	Valuables									
	AN2	Non-produced non-financial assets									
	AN21	Natural resources									
	AN22	Contracts, leases and licences									
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	- 19	- 17	- 6	- 5	- 3	- 50	- 7		- 57
	AF1	Monetary gold and SDRs	0	0	0	0	0	0	- 4		- 4
	AF2	Currency and deposits	- 1	- 26	- 2	0	- 1	- 30	- 2		- 32
	AF3	Debt securities	0	13	3	0	0	16	0		16
	AF4	Loans	- 18	0	- 7	- 3	- 1	- 29	0		- 29
	AF5	Equity and investment fund shares/units	3	3	0	0	0	6	1		7
	AF6	Insurance, pension and standardized guarantee schemes	0	- 7	0	0	0	- 7	- 1		- 8
	AF7	Financial derivatives and employee stock options	0	0	0	0	0	0	0		0
	AF8	Other accounts receivable/payable	- 3	0	0	- 2	- 1	- 6	- 1		- 7
	B1032	*Changes in net worth due to real holding gains/losses*	52	4	11	9	4	80	2		66

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		Stocks and changes in assets	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world account	Goods and services account	Total
Opening balance sheet	*AN*	Non-financial assets	2 151	93	789	1 429	159	4 621			4 621
	AN1	Produced non-financial assets	1 274	67	497	856	124	2 818			2 818
	AN11	Fixed assets	1 226	52	467	713	121	2 579			2 579
	AN12	Inventories	43		22	48	1	114			114
	AN13	Valuables	5	15	8	95	2	125			125
	AN2	Non-produced non-financial assets	877	26	292	573	35	1 803			1 803
	AN21	Natural resources	864	23	286	573	35	1 781			1 781
	AN22	Contracts, leases and licences	13	3	6			22			22
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	982	3 421	396	3 260	172	8 231	805		9 036
	AF1	Monetary gold and SDRs		690	80			770			770
	AF2	Currency and deposits	382		150	840	110	1 482	105		1 587
	AF3	Debt securities	90	950		198	25	1 263	125		1 388
	AF4	Loans	50	1 187	115	24	8	1 384	70		1 454
	AF5	Equity and investment fund shares/units	280	551	12	1 749	22	2 614	345		2 959
	AF6	Insurance, pension and standardized guarantee schemes	25	30	20	391	4	470	26		496
	AF7	Financial derivatives and employee stock options	5	13	0	3	0	21	0		21
	AF8	Other accounts receivable/payable	150		19	55	3	227	134		361
Total changes in assets	*AN*	Non-financial assets	300	- 2	57	116	11	482			482
	AN1	Produced non-financial assets	195	- 4	29	67	7	294			294
	AN11	Fixed assets	165	- 2	23	53	7	246			246
	AN12	Inventories	27	0	1	4	0	32			32
	AN13	Valuables	3	- 2	5	10	0	16			16
	AN2	Non-produced non-financial assets	105	2	28	49	4	188			188
	AN21	Natural resources	101	1	26	48	4	180			180
	AN22	Contracts, leases and licences	4	1	2	1	0	8			8
	AN23	Goodwill and marketing assets	0	0	0	0	0	0			0
	AF	Financial assets/liabilities	93	230	- 9	205	4	523	54		577
	AF1	Monetary gold and SDRs	0	10	1	0	0	11	1		12
	AF2	Currency and deposits	39	10	- 26	64	2	89	11		100
	AF3	Debt securities	10	96	4	16	0	126	13		139
	AF4	Loans	19	53	3	3	0	78	4		82
	AF5	Equity and investment fund shares/units	17	44	3	76	1	141	15		156
	AF6	Insurance, pension and standardized guarantee schemes	1	8	1	39	0	49	0		49
	AF7	Financial derivatives and employee stock options	3	8	0	3	0	14	0		14
	AF8	Other accounts receivable/payable	4	1	5	4	1	15	10		25
Closing balance sheet	*AN*	Non-financial assets	2 451	91	846	1 545	170	5 103			5 103
	AN1	Produced non-financial assets	1 469	63	526	923	131	3 112			3 112
	AN11	Fixed assets	1 391	50	490	766	128	2 825			2 825
	AN12	Inventories	70	0	23	52	1	146			146
	AN13	Valuables	8	13	13	105	2	141			141
	AN2	Non-produced non-financial assets	982	28	320	622	39	1 991			1 991
	AN21	Natural resources	965	24	312	621	39	1 961			1 961
	AN22	Contracts, leases and licences	17	4	8	1	0	30			30
	AN23	Goodwill and marketing assets	0	0	0	0	0	0			0
	AF	Financial assets/liabilities	1 075	3 651	387	3 465	176	8 754	859		9 613
	AF1	Monetary gold and SDRs	0	700	81	0	0	781	1		782
	AF2	Currency and deposits	421	10	124	904	112	1 571	116		1 687
	AF3	Debt securities	100	1 046	4	214	25	1 389	138		1 527
	AF4	Loans	69	1 240	118	27	8	1 462	74		1 536
	AF5	Equity and investment fund shares/units	297	595	15	1 825	23	2 755	360		3 115
	AF6	Insurance, pension and standardized guarantee schemes	26	38	21	430	4	519	26		545
	AF7	Financial derivatives and employee stock options	8	21	0	6	0	35	0		35
	AF8	Other accounts receivable/payable	154	1	24	59	4	242	144		386

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		Stocks and changes in liabilities	S11 Non-financial corporations	S12 Financial corporations	S13 General government	S14 Households	S15 NPISHs	S1 Total economy	S2 Rest of the world account	Goods and services account	Total
Opening balance sheet	*AN*	Non-financial assets									
	AN1	Produced non-financial assets									
	AN11	Fixed assets									
	AN12	Inventories									
	AN13	Valuables									
	AN2	Non-produced non-financial assets									
	AN21	Natural resources									
	AN22	Contracts, leases and licences									
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	3 221	3 544	687	189	121	7 762	1 274		9 036
	AF1	Monetary gold and SDRs						0	770		770
	AF2	Currency and deposits	40	1 281	102	10	38	1 471	116		1 587
	AF3	Debt securities	44	1 053	212	2		1 311	77		1 388
	AF4	Loans	897		328	169	43	1 437	17		1 454
	AF5	Equity and investment fund shares/units	1 987	765	4			2 756	203		2 959
	AF6	Insurance, pension and standardized guarantee schemes	12	435	19		5	471	25		496
	AF7	Financial derivatives and employee stock options	4	10				14	7		21
	AF8	Other accounts receivable/payable	237		22	8	35	302	59		361
	B90	*Net worth*	- 88	- 30	498	4 500	210	5 090	- 469		4 621
Total changes in liabilities and net worth	*AN*	Non-financial assets									
	AN1	Produced non-financial assets									
	AN11	Fixed assets									
	AN12	Inventories									
	AN13	Valuables									
	AN2	Non-produced non-financial assets									
	AN21	Natural resources									
	AN22	Contracts, leases and licences									
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	157	224	102	16	6	505	72		577
	AF1	Monetary gold and SDRs							12		12
	AF2	Currency and deposits	0	65	37	0	0	102	- 2		100
	AF3	Debt securities	7	64	45	0	0	116	23		139
	AF4	Loans	21	0	9	11	6	47	35		82
	AF5	Equity and investment fund shares/units	100	39	2	0	0	141	15		156
	AF6	Insurance, pension and standardized guarantee schemes	0	48	0	1	0	49	0		49
	AF7	Financial derivatives and employee stock options	3	8	0	0	0	11	3		14
	AF8	Other accounts receivable/payable	26	0	9	4	0	39	- 14		25
	B10	*Changes in net worth, total*	236	4	- 54	305	9	500	- 18		482
	B101	*Saving and capital transfers*	88	- 5	- 90	210	- 1	202	- 10		192
	B102	*Other changes in volume of assets*	14	- 1	- 2	- 1	0	10			10
	B103	*Nominal holding gains/losses*	134	10	38	96	10	288	- 8		280
	B1031	Neutral holding gains/losses	82	6	27	87	6	208	- 10		198
	B1032	Real holding gains/losses	52	4	11	9	4	80	2		82
Closing balance sheet	*AN*	Non-financial assets									
	AN1	Produced non-financial assets									
	AN11	Fixed assets									
	AN12	Inventories									
	AN13	Valuables									
	AN2	Non-produced non-financial assets									
	AN21	Natural resources									
	AN22	Contracts, leases and licences									
	AN23	Goodwill and marketing assets									
	AF	Financial assets/liabilities	3 378	3 768	789	205	127	8 267	1 346		9 613
	AF1	Monetary gold and SDRs							782		782
	AF2	Currency and deposits	40	1 346	139	10	38	1 573	114		1 687
	AF3	Debt securities	51	1 117	257	2	0	1 427	100		1 527
	AF4	Loans	918	0	337	180	49	1 484	52		1 536
	AF5	Equity and investment fund shares/units	2 087	804	6	0	0	2 897	218		3 115
	AF6	Insurance, pension and standardized guarantee schemes	12	483	19	1	5	520	25		545
	AF7	Financial derivatives and employee stock options	7	18	0	0	0	25	10		35
	AF8	Other accounts receivable/payable	263	0	31	12	35	341	45		386
	B90	*Net worth*	148	- 26	444	4 805	219	5 590	- 487		5 103

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Annex 3: Changes from the 1993 System of National Accounts

A. Introduction

A3.1 The System of National Accounts 2008 (2008 SNA) retains the basic theoretical framework of its predecessor, the System of National Accounts 1993 (*1993 SNA*). However, in line with the mandate of the United Nations Statistical Commission, the 2008 SNA introduces treatments for new aspects of economies that have come into prominence, elaborates on aspects that have increasingly become the focus of analytical attention and clarifies guidance on a wide range of issues. The changes in the 2008 SNA bring the accounts into line with developments in the economic environment, advances in methodological research and needs of users.

A3.2 In sections B through G, the changes in the 2008 SNA are grouped together in six sections. The descriptions given only highlight the main differences between the 1993 and 2008 SNA while refraining from exhaustive descriptions. The discussion of the changes also includes cross-references to the corresponding paragraphs in the chapters. In section H a check-list of changes by chapter is given.

B. Further specifications of statistical units and revisions in institutional sectoring

1. Producer unit undertaking ancillary activities to be recognized as a separate establishment in certain cases

Reference: chapter 5, paragraphs 5.41to 5.42

A3.3 The 2008 SNA recommends that if the activity of a unit undertaking purely ancillary activities is statistically observable, in that separate accounts for the production it undertakes are readily available, or if it is located in a geographically different location from the establishments it serves, it should be recognized as a separate establishment. When such an ancillary establishment is recognized, it is classified according to its own principal activity and seen as producing primary output.

A3.4 The value of output of an ancillary establishment should be derived on a sum of costs basis, including the costs of the capital used by the unit. The output of the ancillary unit is treated as intermediate consumption of the establishments it serves and the output should be allocated across those establishments using an appropriate indicator such as the output, value added or employment. The output is deemed to be market output when the parent enterprise is a market producer or producing for own final use and non-market otherwise. In the latter case, the cost of the capital should not be included in estimating the value of the output.

A3.5 In the *1993 SNA*, a producer unit undertaking purely ancillary activities was always regarded as an integral part of the establishments it served.

2. Artificial subsidiaries not regarded as institutional units unless resident in an economy different from that of their parents

Reference: chapter 4, paragraphs 4.62 to 4.64

A3.6 Ancillary corporations as described in the *1993 SNA* are named as artificial subsidiaries in the 2008 SNA. Artificial subsidiaries are subsidiary corporations wholly owned by the parent corporation and created to provide services to the parent corporation, or other corporations in the same group, often in order to avoid taxes, to minimize liabilities in the event of bankruptcy, or to secure other technical advantages under the tax or corporation legislation in force in a particular country. An artificial subsidiary is not treated as an institutional unit unless it is resident in an economy different from that of its parent.

3. Branch of a non-resident unit recognized as an institutional unit

Reference: chapter 4, paragraph 4.47

A3.7 The *1993 SNA* simply stated that an unincorporated enterprise owned by a non-resident institutional unit should be treated as a notional resident unit in the country where it is located. Such a unit is identified as a branch in the 2008 SNA and treated as an institutional unit. The 2008 SNA specifies indicative criteria to help recognize the branch of a non-resident unit as an institutional unit; namely, the unit engages in significant production of goods and services for

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a long period of time in that territory and is subject to the income tax laws, if any, of the economy in which it is located even if it may have a tax-exempt status.

4. Residence of multiterritory enterprises clarified

Reference: chapter 4, paragraph 4.13

A3.8 The 2008 SNA provides guidelines for determining the residence of multiterritory enterprises that operate a seamless operation over more than one economic territory. Such enterprises are typically involved in cross-border activities and include shipping lines, airlines, hydroelectric schemes on border rivers, pipelines, bridges, tunnels and undersea cables. When it is not possible to identify a parent or separate branches, it is recommended to prorate the total operations of a multiterritory enterprise by the individual economic territories in which it operates.

A3.9 The *1993 SNA* did not give explicit guidance for determining the residence of multiterritory enterprises.

5. Special purpose entities recognized

Reference: chapter 4, paragraphs 4.55 to 4.58; chapter 22, paragraphs 22.51 to 22.54

A3.10 The 2008 SNA provides guidance on the treatment of units with no employees and no non-financial assets, units known variously as special purpose entities (SPEs) or special purpose vehicles. There is no common definition of an SPE but some of its characteristics are that it has little physical presence, is always related to another corporation, often as a subsidiary, and it is often resident in a territory other than the territory of residence of its parent.

A3.11 Such a unit is treated as an institutional unit and allocated to sector and industry according to its principal activity unless it falls into one of three categories; (a) captive financial institutions, (b) artificial subsidiaries of corporations, and (c) special purpose units of government.

A3.12 The *1993 SNA* did not give explicit guidance for treatment of such units.

6. Holding company allocated to the financial corporations sector

Reference: chapter 4, paragraph 4.54

A3.13 *ISIC Rev. 4*, in section K class 6420, describes a holding company as one that holds the assets of subsidiary corporations but does not undertake any management activities. Such a unit, therefore, produces only a financial service. Accordingly, the 2008 SNA recommends that holding companies should always be allocated to the financial corporations sector and treated as captive financial institutions even if all of their subsidiary corporations are non-financial corporations.

A3.14 The *1993 SNA* recommended that holding companies were to be assigned to the institutional sector in which the main activity of the group of subsidiaries was concentrated. Consequently, they were to be classified as financial corporations only when the main activity of the group of corporations they controlled was financial.

7. Head office to be allocated to the institutional sector of the majority of its subsidiaries

Reference: chapter 4, paragraph 4.53

A3.15 The term "holding company" is sometimes mistakenly used where "head office" is more correct. The activities of a head office, as defined in section M class 7010 of the *ISIC Rev. 4*, includes the overseeing and managing of other units of the enterprise; undertaking the strategic or organizational planning and decision making role of the enterprise; exercising operational control and managing the day-to-day operations of their related units. Such a unit therefore, produces non-financial or financial services depending upon the type of output of its subsidiaries. The 2008 SNA recommends that the head office should be allocated to the non-financial corporations sector unless all or most of its subsidiaries are financial corporations, in which case it is treated by convention as a financial auxiliary in the financial corporations sector.

A3.16 The *1993 SNA* did not give explicit guidance for treatment of head offices.

8. Subsector for non-profit institutions introduced

Reference: chapter 4, paragraphs 4.35, 4.94, 4.103 and 4.128

A3.17 Like the *1993 SNA*, the 2008 SNA assigns non-profit institutions (NPIs) to different institutional sectors, regardless of motivation, tax status, type of employees or the activity they are engaged in. Recognizing the increasing interest in considering the full set of NPIs as evidence of "civil society", the 2008 SNA recommends that NPIs within the corporate and government sectors be identified in distinct subsectors so that supplementary tables summarizing all NPI activities can be separately derived in a straightforward manner as and when required.

9. Definition of financial services enlarged

Reference: chapter 4, paragraph 4.98 and chapter 6, paragraph 6.158

A3.18 The 2008 SNA defines financial services more explicitly than in the *1993 SNA* to ensure that the increase in financial services other than the financial intermediation, specifically financial risk management and liquidity transformation, are captured. Financial services include monitoring services, convenience services, liquidity provision, risk assumption, underwriting and trading services. Chapter 17 gives guidance on when both explicit and implicit financial services should be identified, including margins on foreign exchange dealing and dealing in securities.

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10. Subsectoring of the financial corporation sector revised to reflect new developments in financial services, markets and instruments

Reference: chapter 4, paragraphs 4.98 to 4.116.

A3.19 The 2008 SNA has introduced a slightly more detailed classification of the financial corporations sector to allow more flexibility and better consistency with other monetary and financial statistics systems such as those of the International Monetary Fund and the European Central Bank. The financial corporations sector is divided into nine subsectors (as opposed to five in the *1993 SNA*) according to the activity of the unit in the market and the liquidity of its liabilities. The subsectors are (i) Central Bank, (ii) Deposit-taking corporations except the central bank, (iii) Money market funds (MMFs), (iv) Non-MMF investment funds, (v) Other financial intermediaries except insurance corporations and pension funds, (vi) Financial auxiliaries, (vii) Captive financial institutions and money lenders, (viii) Insurance corporations (ICs) and (ix) Pension funds (PFs).

A3.20 Due to the substantial variations among countries in defining money, the 2008 SNA does not include a definition of money. However, the classification of financial corporations and instruments is designed to be compatible with national money definitions. Because "Money market funds" are separately distinguished, they can be included or excluded as desired.

C. Further specifications of the scope of transactions including the production boundary

1. Research and development is not an ancillary activity

Reference: chapter 6, paragraph 6.207

A3.21 The 2008 SNA does not treat the research and development activity as an ancillary activity. Research and development is creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and enable this stock of knowledge to be used to devise new applications. This does not extend to including human capital as assets within the SNA. It is recommended that a separate establishment should be distinguished for research and development when possible.

A3.22 The 2008 SNA recommends that the output of research and development should be valued at market prices if purchased (outsourced) or at the sum of total production costs plus an appropriate mark-up representing the costs of fixed assets used in production if undertaken on own account. Research and development undertaken by specialized commercial research laboratories or institutes is valued by receipts from sales, contracts, commissions, fees, etc. in the usual way. Research and development undertaken by government units, universities, non-profit research institutes, etc. is non-market production and should be valued on the basis of the total costs incurred excluding a return to capital used.

A3.23 The *1993 SNA* recognized that research and development is undertaken with the objective of improving efficiency or productivity, or deriving other future benefits. However, although these characteristics have the nature of investment activities, research and development was treated as part of intermediate consumption. It was recommended, though, that it should not be treated as an ancillary activity but that a separate establishment should be identified as secondary activity.

2. Method for calculating financial intermediation services indirectly measured (FISIM) refined

Reference: chapter 6, paragraphs 6.163 to 6.165.

A3.24 The method for calculating financial intermediation services indirectly measured, widely known as FISIM, has been refined in the light of experience in implementing the *1993 SNA* recommendations. By convention the 2008 SNA recommends that FISIM applies only to loans and deposits and only when those loans and deposits are provided by, or deposited with, financial institutions. The 2008 SNA calculates the output of FISIM on loans (y_L) and deposits (y_D) only, using a reference rate (rr). Assuming that these loans and deposits attract interest rates of r_L and r_D respectively, the output of FISIM should be calculated according to the formula $(r_L - rr)\, y_L + (rr - r_D)\, y_D$.

A3.25 The method recommended in the 2008 SNA for the calculation of FISIM implies several changes to the *1993 SNA* formula. For financial intermediaries, all loans and deposits are included, not just those made from intermediated funds. The reference rate should contain no service element and reflect the risk and maturity structure of deposits and loans. The rate prevailing for inter-bank borrowing and lending may be a suitable choice as a reference rate. However, different reference rates may be needed for each currency in which loans and deposits are denominated, especially when a non-resident financial institution is involved. For banks within the same economy, there is often little if any service provided in association with banks lending to and borrowing from other banks.

A3.26 The 2008 SNA recommends that the consumption of FISIM should be allocated between users (lenders as well as borrowers) treating the allocated amounts either as intermediate consumption by enterprises or as final consumption or exports.

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A3.27 The *1993 SNA* calculated FISIM as the difference between property income receivable and interest payable. The property income receivable excluded that part which was receivable from investment of own funds. The *1993 SNA* recognized that in practice it may be difficult to find any method of allocating FISIM among different users and, therefore, accepted that some countries may prefer to continue to use the convention whereby the whole of the services are allocated to intermediate consumption of a notional industry. This possibility has been removed in the 2008 SNA.

3. Output of central bank clarified

Reference: chapter 6, paragraphs 6.151 to 6.156; chapter 7, paragraphs 7.122 to 7.126

A3.28 The services produced by the central bank are identified in three broad groups, namely financial intermediation, monetary policy services and supervisory services overseeing financial corporations. The 2008 SNA recommends that separate establishments should be identified for units of the central bank undertaking production of these different services when the level of activity is significant for the accounts as a whole. This facilitates the distinction between the market and non-market output of the central bank. Financial intermediation services represent market production, monetary policy services represent non-market production and borderline cases, such as supervisory services, may be treated as market or non-market services depending on whether explicit fees are charged that are sufficient to cover the costs of providing such services or not.

A3.29 The 2008 SNA provides guidance that non-market activities are to be regarded as acquisition of collective services by general government with a matching transfer from the central bank to the government, so there is no net cost to the government for these services. Market output is provided on an individual basis to all sectors of the economy against payment for the services.

A3.30 In cases when the interest rate set by the central bank is so high or so low as to imply the inclusion of an implicit subsidy or tax, the 2008 SNA recommends that these should be explicitly recorded as such if they are significant. These taxes or subsidies should be shown as receivable by and payable by government but with a matching transfer from the government to the central bank in the case of a tax and a transfer from the central bank to government in the case of a subsidy.

A3.31 The *1993 SNA* recommended that the services of central banks be measured on the basis of receipts from fees, commissions, and financial intermediation services indirectly measured. Application of this method sometimes resulted in unusually large positive or negative estimates of output. For this reason, in 1995 the Inter-Secretariat Working Group on National Accounts (ISWGNA) revised the recommendation for measuring the output of central banks. If the traditional approach consistently leads to inappropriate results, countries may, as a second best option, measure output at cost as in the case for other non-market output. However, the ISWGNA did not provide further guidance on the implications of the cost based valuation on the recording of other transactions in which central banks are involved, such as interest payments and receipts. Neither did it indicate which unit or units use the output of central banks thus valued.

4. Recording of the output of non-life insurance services improved

Reference: chapter 6, paragraphs 6.184 to 6.190 and 6.199; chapter 17, paragraphs 17.13 to 17.42

A3.32 It is recognized that in cases of catastrophic losses the output of the insurance activity estimated using the basic algorithm of the *1993 SNA*, depending on the balance of premiums and claims (on an accrual basis), could be extremely volatile (even negative). The 2008 SNA, therefore recommends that the output of the non-life insurance activity should be calculated using adjusted claims and adjusted premiums supplements. With the application of this method, the net premiums receivable and adjusted claims due may no longer be necessarily equal for each period.

A3.33 The 2008 SNA recommends three approaches for estimating non-life insurance output, namely the "expectation approach", the "accounting approach" and the "cost approach". The expectation approach consists in replicating the *ex ante* model used by insurer corporations to set their premiums, on the basis of their expectations. In accepting risk and setting premiums, insurers consider both their expectation of loss (claims) and of income (premiums and premium supplements). This expected margin (premiums plus expected premium supplements minus expected claims) provides a much better measure of the insurance service than the *1993 SNA* formula applied *ex post*. Ideally, the micro data from the accounts of the insurance corporations could be used for the expectation approach for estimating output of the insurance corporation but this information is seldom available to the statistical organizations. In the absence of such data, the 2008 SNA recommends the application of a statistical technique to simulate this approach by using macrostatistics, and using smoothed past data to forecast the expected claims.

A3.34 Alternatively, an accounting approach may be used whereby output is calculated as: actual premiums earned plus premium supplements less adjusted claims incurred; where adjusted claims are determined by using claims due plus the changes in equalization provisions and, if necessary, changes to own funds.

A3.35 If the necessary accounting data are not available and the historical statistical data are not sufficient to allow use of an expectations approach to estimate the output, the output of non-life insurance may be estimated as the sum of costs (including intermediate costs, labour and capital costs) plus an allowance for "normal profit".

A3.36 For exceptionally large claims, such as those following a catastrophe, the claims may be recorded as capital transfers rather than, as normal, current transfers.

A3.37 The 2008 SNA changes the terminology from "claims due" to "claims incurred".

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5. Reinsurance similarly treated as direct insurance

Reference: chapter 6, paragraph 6.200; chapter 17, paragraphs 17.56 to 17.65

A3.38 The 2008 SNA recommends that reinsurance should be treated in the same way as direct insurance. The transactions between the direct insurer and the reinsurer are recorded as an entirely separate set of transactions and no consolidation takes place between the transactions of the direct insurer as issuer of policies to its clients on the one hand and the holder of a policy with the reinsurer on the other. The premiums are shown as being first payable to the direct insurer and then a lesser premium is payable to the reinsurer. This non-consolidation is referred to as gross recording on the part of the direct insurer.

A3.39 The services produced by the reinsurance corporation are treated as the intermediate consumption by the direct insurer.

A3.40 In the *1993 SNA* reinsurance transactions were consolidated with those for direct insurance so that the division between direct insurance and reinsurance was not shown.

6. Valuation of output for own final use by households and corporations to include a return to capital

Reference: chapter 6, paragraph 6.125

A3.41 The 2008 SNA recommends that when estimating the value of the output of goods and services produced by households and corporations for own final use, it is appropriate to include a return to capital as part of the sum of costs when this approach is used for estimating output in the absence of comparable market prices. However, no return to capital should be included when production for own final use is undertaken by non-market producers.

A3.42 The *1993 SNA* did not include the return to capital in estimating the output of goods and services produced for own final use by households and corporations when these were estimated as the sum of costs.

D. Extension and further specification of the concepts of assets, capital formation and consumption of fixed capital

1. Change of economic ownership introduced

Reference: chapter 3, paragraphs 3.21, 3.26, 3.169; chapter 10, paragraph 10.5

A3.43 The principle of change of ownership is central to the determination of the timing of recording of transactions in goods, services and financial assets. The term “economic ownership” better reflects the underlying reality economic accounts are attempting to measure. Economic ownership takes account of where the risks and rewards of ownership lie. A change in ownership from an economic point of view means that all risks, rewards, rights and responsibilities of ownership are transferred.

A3.44 The 2008 SNA gives guidance to distinguish between legal ownership and economic ownership and recommends that assets be recorded on the balance sheets of the economic rather than the legal owner. For a non-financial asset, the user and not the legal owner may assume economic ownership if the legal owner agrees that the user is entitled to the benefits deriving from using the asset in production in return for assuming the risks involved. Similarly when products change hands, it is the unit that assumes the risks in the case of destruction, theft, etc. that is the economic owner. Ownership is also associated with assuming risk in the case of financial assets. When the time of recording depends on change of ownership, it is the change of economic ownership that is intended, unless otherwise specified.

A3.45 The *1993 SNA* did not explicitly define ownership. Often it seemed to imply legal ownership, but in some instances it relied on the concept of change of economic ownership when legal ownership remained unchanged.

2. Asset boundary extended to include research and development

Reference: chapter 10, paragraphs 10.103 to 10.105

A3.46 As noted in section C, in the 2008 SNA the activity of research and development is not treated as an ancillary activity. The output of research and development should be capitalized as “intellectual property products” except in cases where it is clear that the activity does not entail any economic benefit to its producer (and hence owner) in which case it is treated as intermediate consumption. With the inclusion of research and development in the asset boundary, the *1993 SNA* asset category of patented entities as a form of non-produced assets disappears and is replaced by research and development under fixed assets.

A3.47 In order to treat R&D in this way, several issues have to be addressed. These include deriving measures of research and development, price indices and service lives. Specific guidelines, together with handbooks on methodology and practice, will provide a useful way of working towards solutions that give the appropriate level of confidence in the resulting measures.

A3.48 Treatment of research and development giving rise to produced assets has removed the *1993 SNA* inconsistency

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of treating the patented entities as non-produced assets but treating royalty payments as payments for services.

3. Revised classification of assets introduced

Reference: chapter 3, paragraphs 3.5, 3.30 to 3.31, 3.37 to 3.39; chapter 10, paragraph 10.8

A3.49 The definition of asset has been refined in the 2008 SNA, covering the issues such as risk, demonstrable value and constructive obligations. It is defined as a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of transferring value from one accounting period to another.

A3.50 With regard to the classification of assets, the 2008 SNA, like its predecessor, distinguishes at the first level of the classification between non-financial assets and financial assets/liabilities. Within non-financial assets, it distinguishes between produced and non-produced assets. Classification of produced and non-produced assets is no longer distinguished between tangible and intangible assets. Non-produced assets in the 2008 SNA are split into three categories, natural resources, contracts leases and licences, and purchase and sale of goodwill and marketing assets.

A3.51 The non-financial assets are classified in the 2008 SNA as follows:

Produced assets
- Fixed assets
  - Dwellings
  - Other buildings and structures
    - Non-residential buildings
    - Other structures
    - Land improvements
  - Machinery and equipment
    - Transport equipment
    - ICT equipment
    - Other machinery and equipment
  - Weapons systems
  - Cultivated biological resources
    - Animal resources yielding repeat products.
    - Tree, crop and plant resources yielding repeat products
  - Costs of ownership transfer on non-produced assets
  - Intellectual property products
    - Research and development
    - Mineral exploration and evaluation
    - Computer software and databases
      - Computer software
      - Databases
    - Entertainment, literary or artistic originals
    - Other intellectual property products
- Inventories
  - Materials and supplies
  - Work in progress
    - Work-in-progress on cultivated biological resources
    - Other work-in-progress
  - Finished goods
  - Military inventories
  - Goods for resale
- Valuables
  - Precious metals and stones
  - Antiques and other art objects
  - Other valuables

Non-produced assets
- Natural resources
  - Land
  - Mineral and energy resources
  - Non-cultivated biological resources
  - Water resources
  - Other natural resources
    - Radio spectra
    - Other
- Contracts, leases and licences
  - Marketable operating leases
  - Permits to use natural resources
  - Permits to undertake specific activities
  - Entitlement to future goods and services on an exclusive basis
- Goodwill and marketing assets

A3.52 In the 2008 SNA assets classification there are several changes within the fixed assets category.

a. Within buildings and structures, a category has been added for land improvements. This replaces the *1993 SNA* term "major improvements to non-produced non-financial assets". The costs of ownership transfer on all land are to be included with land improvements.

b. The information, computer and telecommunications (ICT) equipment has been included as a new category under machinery and equipment.

c. Weapons systems are recognized as produced assets and classified separately.

d. The term "intangible fixed assets" has been renamed as "intellectual property products". The word "products" is included to make clear that it does not include third party rights which are non-produced assets in the SNA.

e. Research and development products are included within intellectual property products. As a result patented entities no longer appear as non-produced assets and are subsumed in research and development.

f. The item "mineral exploration" has been renamed "mineral exploration and evaluation" to emphasize that the coverage conforms to the international accounting standards.

g. Computer software has been modified to include databases; software and databases are two sub-components.

h. The term "other intellectual property products" replaces "other intangible fixed assets".

A3.53 The only change to inventories is to show military inventories separately.

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A3.54 Changes within the non-produced assets category are as follows.

a. The "tangible non-produced assets" of the *1993 SNA* are renamed as "natural resources".

b. Other natural resources such as radio spectra have been added, and the heading "intangible non-produced assets" has been split into two subcategories, "contracts, leases and licences" and "goodwill and marketing assets".

· Contracts, leases and licences are split into four subcategories; marketable operating leases, permissions to use natural resources, permissions to undertake specific activities, and entitlement to future goods and services on an exclusive basis.

· The previous category of purchased goodwill is changed to purchased goodwill and marketing assets with changes in coverage as described below in item 11.

4. Extension of the assets boundary and government gross capital formation to include expenditure on weapons systems

Reference: chapter 10, paragraphs 10.87 and 10.144

A3.55 The military weapons systems comprising vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. are used continuously in the production of defence services, even if their peacetime use is simply to provide deterrence. The 2008 SNA, therefore, recommends that military weapons systems should be classified as fixed assets and that the classification of military weapons systems as fixed assets should be based on the same criteria as for other fixed assets; that is, produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year.

A3.56 Single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems are treated as military inventories. However, some single-use items, such as certain types of ballistic missiles with a highly destructive capability, may provide an ongoing service of deterrence against aggressors and therefore meet the general criteria for classification as fixed assets.

A3.57 Unlike in the *1993 SNA*, strategic inventories are no longer separated from other inventories of the same type of products.

A3.58 The *1993 SNA* treated as gross fixed capital formation only those expenditures by the military on fixed assets of a kind that could be used for civilian purposes of production. On the other hand, military weapons, and vehicles and equipment whose sole purpose was to launch or deliver such weapons, were not treated as gross fixed capital formation but as intermediate consumption.

5. The asset category "computer software" modified to include databases

Reference: chapter 10, paragraphs 10.110 to 10.114

A3.59 The *1993 SNA* asset category "computer software" has been modified in the 2008 SNA to include databases in the title as "computer software and databases" with a further split between "computer software" and "databases".

A3.60 The 2008 SNA gives explicit guidance for valuation of the computer software and databases purchased from the market or developed in-house. The computer software and databases purchased on the market should be valued at purchasers' prices, while those developed in-house should be valued at their estimated basic price or at their costs of production (including a return to capital for market producers) if it is not possible to estimate the basic price.

A3.61 The 2008 SNA recommends treating all databases holding data with a useful life of more than one year as fixed assets. Both databases created on own account and those for sale should be included if they meet this criterion.

A3.62 In the *1993 SNA* only "large" databases were recognized as assets.

6. Originals and copies recognized as distinct products

Reference: chapter 10, paragraphs 10.100 to 10.101

A3.63 The 2008 SNA provides guidance on the treatment of originals and copies of intellectual property products as distinct products. It recommends that if a copy is sold outright and is expected to be used in production for more than a year then it should be treated as a fixed asset. A copy made available under a licence to use should also be treated as a fixed asset if it will be used in production for a period in excess of one year and the licensee assumes all the risks and rewards of ownership.

A3.64 If the acquisition of a copy with a licence to use is purchased with regular payments over a multiyear contract and the licensee is judged to have acquired economic ownership of the copy, then it should be regarded as the acquisition of an asset. If regular payments are made for a licence to use without a long-term contract, then the payments should be treated as payments for a service of using the copy.

A3.65 If there is a large initial payment followed by a series of smaller payments in succeeding years, the initial payment should be recorded as gross fixed capital formation and the succeeding payments should be treated as payments for a service.

A3.66 If the licence allows the licensee to reproduce the original and subsequently assume responsibility for the distribution, support and maintenance of these copies, then this is described as a licence to reproduce and should be regarded as the sale of part or whole of the original to the unit holding the licence to reproduce.

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A3.67 The *1993 SNA* did not provide guidance on the treatment of originals and copies as distinct products.

7. The concept of capital services introduced

Reference: chapter 20

A3.68 Capital services for assets used in market production were implicitly included within the *1993 SNA* but were not separately identified. Given the importance of identifying them for productivity measurement and other analysis, a new chapter has been added in the 2008 SNA explaining the role of capital services and their appearance in the accounts. Details can be presented in a supplementary table for market producers, bringing into the SNA the advances in research in recent decades in the fields of growth and productivity and helping to satisfy the analytical needs of many users.

8. Treatment of costs of ownership transfer elaborated

Reference: chapter 10, paragraphs 10.48 to 10.52, paragraph 10.97 and paragraphs 10.158 to 10.162

A3.69 Like the *1993 SNA*, the 2008 SNA continues to treat the costs of ownership transfer as fixed capital formation. Costs of ownership transfer on acquisition of an asset should be written off over the period the asset is expected to be held by the purchaser rather than over the whole life of the asset (as was recommended in the *1993 SNA*). Costs of ownership transfer on the disposal of an asset should also be written off over the period the asset is held. Recognizing this recommendation may be difficult to implement when there is no adequate data, the 2008 SNA recommends that these costs should still be recorded as gross fixed capital formation but written off as consumption of fixed capital in the year they are incurred. Installation and de-installation costs should be included in the costs of ownership transfer when they are separately invoiced and in the purchaser's price of the asset otherwise.

A3.70 Terminal costs (for example dismantling costs) should be written off over the whole life of the asset, regardless of the number of owners during the life of the asset. In practice, it may be difficult to predict terminal costs accurately. Any amount not already covered by consumption of fixed capital during the life of the asset is written off at the time the costs are incurred as consumption of fixed capital.

A3.71 In the *1993 SNA*, costs of ownership transfer in acquiring an asset were recommended to be written down over the life of the asset. If the asset was sold before the end of its life, the remaining costs of ownership transfer on acquisition not already written off were written off in the other changes in volume of assets account.

A3.72 The *1993 SNA* was not explicit about the treatment of terminal costs.

9. Mineral exploration and evaluation

Reference: chapter 10, paragraphs 10.106 to 10.108

A3.73 The 2008 SNA maintains the distinction between the act of exploring for mineral resources (treated as a produced asset) and the mineral resources themselves (treated as non-produced assets). The term "mineral exploration" has been renamed as "mineral exploration and evaluation" to match the term used in the International Accounting Standards and has been defined accordingly.

A3.74 The 2008 SNA gives guidance that mineral exploration and evaluation should be valued at market prices if purchased or at the sum of costs plus an appropriate mark-up if undertaken on own account.

A3.75 The 2008 SNA recognizes that because the market price is seldom available for mineral resources, the default valuation is the present value of future receipts of resource rent.

A3.76 Payments by an extractor to the owner of the mineral resources corresponding to a share of the resource rent should be shown as property income even if they are described as taxes and treated as such in a government's own accounts.

A3.77 The *1993 SNA* recommended that when the legal owner of a mineral reserve contracts with another unit to undertake extraction, on pragmatic grounds the resource may continue to be shown on the balance sheet of the legal owner with payments by the extractor to the owner treated as property income.

10. Land improvements

Reference: chapter 10, paragraphs 10.79 to 10.81

A3.78 Land improvements continue to be treated as gross fixed capital formation. The 2008 SNA recommends treating land improvements as a category of fixed assets distinct from the non-produced land asset as it existed before improvement. In cases where it is not possible to separate the value of the land before improvement and the value of those improvements, the land should be allocated to the category that represents the greater part of the value. The costs of ownership transfer on all land are to be included in the land improvements.

A3.79 The *1993 SNA* recorded improvements to land as gross fixed capital formation, but in the balance sheet such improvements were included with land itself.

11. Goodwill and marketing assets

Reference: chapter 10, paragraphs 10.196 to 10.199

A3.80 The 2008 SNA renames "purchased goodwill" as "purchased goodwill and marketing assets". Purchased goodwill and marketing assets continue to be treated as non-produced assets, though at a higher level in the

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hierarchy than that in *1993 SNA*, specifically at the same level as natural resources and contracts, leases and licences.

A3.81 In the *1993 SNA*, goodwill was recorded only following the takeover of an enterprise. For that reason it was described as "purchased goodwill". Goodwill was not recognized in any other context. The 2008 SNA recognizes that this difference may actually include assets such as mastheads, logos, customer lists and so on which are described collectively as "marketing assets". Exceptionally, identified marketing assets may be sold individually and separately from the whole corporation in which case their sale should also be recorded under this item.

A3.82 The 2008 SNA recommends a consistent approach for calculating the value of the "purchased goodwill and marketing assets" as the excess of the value paid for an enterprise as a going concern over the sum of its assets less the sum of its liabilities, each item of which has been separately identified and valued irrespectively of whether the entity is a listed or unlisted corporation, a quasi-corporation or is unincorporated.

A3.83 In the *1993 SNA*, purchased goodwill was calculated differently depending on whether the business was an unincorporated enterprise or a corporation. For an unincorporated enterprise, purchased goodwill was derived as the excess of the purchase price over the separately identified and valued assets less liabilities. For corporations it was described as the difference between the share price immediately before the sale and the actual sale price per share, multiplied by the number of shares. It did not make any distinction between listed and unlisted corporations in the calculation of purchased goodwill.

12. Water resources treated as an asset in some cases

Reference: chapter 10, paragraph 10.184

A3.84 In the 2008 SNA the definition of water resources has been extended to potentially cover rivers, lakes, artificial reservoirs and other surface catchments in addition to aquifers and other groundwater resources. It consists of surface and groundwater resources used for extraction to the extent that their scarcity leads to the enforcement of ownership or use rights, market valuation and some measure of economic control.

A3.85 The 2008 SNA recommends that water bodies should in principle be valued in a manner parallel to the valuation of mineral resources but with an indication that more pragmatic alternatives may have to be used such as estimates based on access fees.

13. Consumption of fixed capital to be measured at the average prices of the period with respect to a constant-quality price index of the asset concerned

Reference: chapter 10, paragraph 10.156

A3.86 The 2008 SNA recommends that the consumption of fixed capital should be measured at the average prices of the period with respect to a constant-quality price index of the asset concerned.

A3.87 The *1993 SNA* did not give guidance about whether the prices to be used for measurement of the consumption of fixed capital should relate to the general price level or whether they should be asset specific.

14. Definition of cultivated biological resources made symmetric to uncultivated resources

Reference: chapter 10, paragraph 10.88

A3.88 The definition of cultivated biological resources in the 2008 SNA has been clarified making it specific that their natural growth and regeneration are treated as production only in cases where these are under the direct control, responsibility and management of institutional units.

A3.89 Cultivated assets of the *1993 SNA* have been renamed as cultivated biological resources in the 2008 SNA.

15. Intellectual property products introduced

Reference: chapter 10, paragraph 10.98

A3.90 The accounting treatment of assets previously called "intangible produced assets" and now labelled, more descriptively, "intellectual property products" has been clarified and expanded in the 2008 SNA. These assets are further split into research and development; mineral exploration and evaluation; computer software and databases; entertainment, literary or artistic originals; and other intellectual property products.

16. Concept of resource lease for natural resources introduced

Reference: chapter 7, paragraph 7.109

A3.91 The 2008 SNA introduces the concept of a resource lease to cover the situation where the natural resource continues to be shown in the balance sheet of the legal owner even though the lessee is the unit using the resource in production and is thus in effect the economic owner. In return, the lessee makes a regular payment recorded as property income and described as rent. By convention, no decline in the value of a natural resource is recorded in the SNA as a transaction similar to consumption of fixed capital. In the SNA the natural resource is effectively treated as having an infinite life as far as income generation is concerned. A resource lease may apply to any natural resource recognized as an asset in the SNA.

A3.92 The *1993 SNA* did not discuss the concept of a resource lease for natural resources.

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17. Changes in the items appearing in the other changes in the volume of assets account introduced

Reference: chapter 12

A3.93 With a view to giving more structural listing of possible causes for changes in assets other than transactions, the list of items appearing in the other changes in volume of assets account has changed in the 2008 SNA. The other changes in the volume of assets show changes in the assets/ liabilities in seven main categories and some subcategories as follows:

Economic appearance of assets
Economic disappearance of non-produced assets
    Depletion of natural resources
    Other economic disappearance of non-produced assets
Catastrophic losses
Uncompensated seizures
Other changes in volume n.e.c.
Changes in classification
    Changes in sector classification and structure
    Changes in classification of assets and liabilities
Nominal holding gains and losses
    Neutral holding gains and losses
    Real holding gains and losses

E. Further refinement of the treatment and definition of financial instruments and assets

1. Treatment of securities repurchase agreement clarified

Reference: chapter 11, paragraphs 11.74 to 11.77

The 2008 SNA adds explanation of securities repurchase agreement and gold loans and deposits. A securities repurchase agreement (repo) is an arrangement involving the sale of securities or other assets at a specified price with a commitment to repurchase the same or similar assets at a fixed price on a specified future date.

A3.94 The 2008 SNA continues to treat a repo as a collateralized loan and recognizes the possibility of on-selling of securities that have been repoed. In the case of on selling of the repoed security, a negative asset should be recorded for the lender to avoid double-counting.

A3.95 The *1993 SNA* text suggested that on-selling of securities that have been repoed is either not allowed or not practised.

2. Treatment of employee stock options described

Reference: chapter 11, paragraph 11.124; chapter 17, paragraphs 17.384 to 17.398

A3.96 Employee stock options are a common tool used by companies to motivate their employees. An employee stock option is an agreement made on a given date (the "grant" date) under which an employee may purchase a given number of shares of the employer's stock at a stated price (the "strike" price) either at a stated time (the "vesting" date) or within a period of time (the "exercise" period) immediately following the vesting date. The 2008 SNA recommends that transactions in employee stock options should be recorded in the financial account as the counterpart to the element of compensation of employees represented by the value of the stock option. Ideally the value of the option should be spread over the period between the grant date and vesting date; if this is not possible they may be recorded at the vesting date.

A3.97 The *1993 SNA* did not provide guidance on the treatment of employee stock options.

3. Treatment of non-performing loans elaborated

Reference: chapter 11, paragraph 11.129; chapter 13, paragraphs 13.66 to 13.68

A3.98 Guidance on the treatment of impaired (non-performing) loans has been elaborated in the 2008 SNA. It provides a definition of a non-performing loan as a loan on which payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons (such as a debtor filing for bankruptcy) to doubt that payments will be made in full.

A3.99 The 2008 SNA recommends that the non-performing loan should continue to be recorded at nominal value in the main accounts and interest should be shown accruing until a loan is repaid or the principal is written off by mutual agreement. Two memorandum items in respect of non-performing loans are recommended, the nominal value of loans deemed to be non-performing and the market equivalent value of these loans. The closest approximation to market equivalent value is fair or "mark-to-market" value, which is "the value that approximates the value that would arise from a market transaction between two parties". In the absence of fair value data, the memorandum item will have to use a second best approach and show nominal value less expected loan losses. In addition, interest receivable on the non-performing loans should be shown as an "of which" item.

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A3.100 The 2008 SNA recommends that these memorandum items should be standard for the government sector, the financial corporations sector and for the rest of the world.

A3.101 The *1993 SNA* did not give guidance on the criteria to be applied to the recording of non-performing loans.

4. Treatment of guarantees elaborated

Reference: chapter 17, paragraphs 17.207to 17.224

A3.102 The treatment of several classes of guarantees has been clarified in the 2008 SNA. It recognizes three classes of guarantees and provides guidance for their treatment. The first sort of guarantees are those provided by means of a financial derivative, such as a credit default swap. These derivatives are actively traded on financial markets and the derivative presents no new features for the SNA.

A3.103 The second class of guarantees, standardized guarantees, is composed of the sorts of guarantees that are issued in large numbers, usually for fairly small amounts, along identical lines, such as export credit guarantees and student loan guarantees. In this case, although it is not possible to establish the likelihood of any one loan defaulting, it is standard practice to estimate how many out of a batch of similar loans may default. It operates on the same principle as for non-life insurance and should be treated similarly. If the guarantor is part of general government and deliberately sets the fees below the level of expected defaults, a subsidy should be imputed to the guarantee holders.

A3.104 The third class of guarantees, described as one-off guarantees, consists of those where the risk is so particular that it is not possible for the probability of it being called to be estimated with any degree of accuracy. In most cases, the granting of a one-off guarantee is considered a contingency and is not recorded as a financial liability.

A3.105 The initial discussion was in terms of loan guarantees, but the extension of standardized guarantees to other financial instruments in late 2008 suggested generalizing this treatment.

A3.106 The *1993 SNA* treated guarantees as contingent liabilities and thus had no record of the existence of the guarantee until it was activated. Further, it did not provide explicit guidance for the treatment of flows arising at activation.

5. Treatment of index-linked debt securities elaborated

Reference: chapter 17, paragraph 17.274 to 17.282

A3.107 The issue concerns the case where the coupon or principal payments, or both, payable on securities such as bonds are determined by indicators agreed by to the parties, but the values of the indicators are not known when the agreement is made. Under such an arrangement, the amount of the increase in value of the security to be treated as interest cannot be known at the time of issue. The 2008 SNA recommends two approaches to determine the interest accrued in each accounting period.

A3.108 When the coupons are linked to a broad index, the full amounts paid as coupons, after indexation, are accrued as interest. When the value of the principal is index-linked the difference between the eventual redemption price and the issue price is treated as interest accruing over the life of the instrument.

A3.109 If the link is to a narrow index, interest accruals are determined by fixing the rate at which interest accrues at the time of issue. Any deviation of the index from the expected path is treated as holding gains or losses. Because the rate is settled at the time the security is issued, the holding gains and losses will not normally cancel out over the life of the instrument.

A3.110 In the *1993 SNA* the guidance about how transactions relating to index-linked debt securities should be recorded was not precise.

6. Treatment of debt instruments indexed to a foreign currency revised

Reference: chapter 17, paragraph 17.281

A3.111 The 2008 SNA recommends that debt instruments with both principal and coupon payments indexed to a foreign currency should be classified and treated as though the instrument is denominated in that foreign currency.

A3.112 The *1993 SNA* recommended that in the case of debt instruments denominated in a foreign currency, changes in the value of the principal in domestic currency terms that arise from exchange rate variations should be treated as holding gains (non-transactions). However, in the case of debt instruments indexed to a foreign currency, such changes are treated as interest (transactions). The 2008 SNA recommendation removes the anomaly by treating instruments that have economically equivalent characteristics identically.

7. Flexibility on valuation of unlisted equity

Reference: chapter 13, paragraphs 13.69 to 13.70

A3.113 Not all equity is listed and quoted on stock exchanges. This situation often arises for direct investment enterprises, private equity, equity in unlisted and delisted companies, listed but illiquid companies, joint ventures and unincorporated enterprises. The 2008 SNA provides guidance on alternative options of valuing such equity. Some of the alternative recommended options are recent transaction price, net asset value, present value or price to earnings ratios, book values reported by enterprises with macrolevel adjustments by the statistical compiler, own funds at book value and apportioning global value.

A3.114 The *1993 SNA* gave rather restricted guidance on how to value unlisted equity. It recommended that the value of shares in corporations that are not quoted on stock exchanges or otherwise traded regularly should be estimated using the prices of quoted shares that are comparable in earnings and dividend history and prospects, adjusting downward, if necessary, to allow for the inferior marketability or liquidity of unquoted shares.

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8. Unallocated gold accounts treated as financial assets and liabilities

Reference: chapter 11, paragraph 11.45

A3.115 The 2008 SNA recommends that the unallocated gold accounts should be treated as financial assets and liabilities and classified with deposits in foreign currency if these deposits denominated in gold are held with non-residents.

9. Definition of monetary gold and gold bullion revised

Reference: chapter 11, paragraph 11.45 and 11.46

A3.116 The definition of monetary gold has changed in the 2008 SNA in order to align with *BPM6*. The change stems from the recognition of allocated and unallocated gold accounts whereby the allocated gold account provides title to the physical gold and the unallocated gold account is a deposit denominated in gold. The latter is treated as foreign currency if held with non-residents. Gold bullion (that is, coins, ingots or bars with a minimum purity of at least 995 parts per thousand) is the only financial asset recognized with no corresponding liability when held as a reserve asset by the monetary authorities. Monetary gold is defined as gold to which the monetary authorities (or others who are subject to the effective control of the monetary authorities) have title and is held as a reserve asset and comprises gold bullion and unallocated gold accounts with non-residents.

A3.117 The *1993 SNA* does not discuss allocated or unallocated metal accounts.

10. Liability in special drawing rights recognized

Reference: chapter 11, paragraphs 11.47 to 11.49

A3.118 The 2008 SNA recommends to treat special drawing rights (SDRs) issued by the International Monetary Fund as being an asset of the country holding the SDR and a claim on the participants in the scheme collectively. Further, it is recommended that the allocation and cancellation of SDRs be recorded as transactions. The asset and liability aspects of SDRs should be recorded separately. As a result of the changed treatment of SDRs, it recommends that monetary gold and SDRs be shown as separate subitems.

A3.119 The *1993 SNA* classified SDRs as assets without corresponding liabilities.

11. Distinction made between deposits and loans

Reference: chapter 11, paragraph 11.56

A3.120 The 2008 SNA continues to distinguish between loans and deposits. With a view to avoiding ambiguity between loans and deposits when both parties to the transaction are banks, it introduces a category “inter-bank positions”.

12. Fees payable on securities lending and gold loans

Reference: chapter 17, paragraph 17.254

A3.121 The 2008 SNA recommends that all fees payable to the owners of securities used for securities lending and to the owners of gold used for gold loans (whether from allocated or non-allocated gold accounts) should be recorded by convention as interest. The interest may have a FISIM component, separately identified, if the unit providing the loan is classified as a financial institution.

A3.122 The *1993 SNA* did not give guidance on the issue of fees payable on securities lending and gold loans.

13. Financial asset classification

Reference: chapter 11

A3.123 To reflect the innovations in the financial market since the adoption of the *1993 SNA*, and to maintain its relevance, the financial asset classification has been changed in the 2008 SNA. The classification of financial assets and liabilities in the 2008 SNA is as follows:

- Monetary gold and SDRs
  - Monetary gold
  - SDRs
- Currency and deposits
  - Currency
  - Transferable deposits
    - Inter-bank positions
    - Other transferable deposits
  - Other deposits
- Debt securities
  - Short-term
  - Long-term
- Loans
  - Short-term
  - Long-term
- Equity and investment fund shares
  - Equity
    - Listed shares
    - Unlisted shares
    - Other equity
  - Investment fund shares/units
    - Money market fund shares/units
    - Other investment fund shares/units
- Insurance, pension and standardized guarantee schemes
  - Non-life insurance technical provisions
  - Life insurance and annuity entitlements
  - Pension entitlements
  - Claims of pension funds on pension managers
  - Entitlements to non-pension benefits
- Financial derivatives and employee stock options
  - Financial derivatives
    - Options
    - Forwards
  - Employee stock options
- Other accounts receivable/payable
  - Trade credits and advances
  - Other accounts receivable/payable

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A3.124 The 2008 SNA renames "securities other than shares" as "debt securities" and "shares and other equity" as "equity and investment fund shares". The category of financial derivatives introduced in an update to the *1993 SNA* is extended to include employee stock options.

14. Distinction between financial leasing and operating leasing based on economic ownership

Reference: chapter 17, paragraphs 17. 301 to 17.309

A3.125 The 2008 SNA presents an overview setting out the principles of the appropriate treatment of leases and licences. It recognizes the distinction between an operating lease and a financial lease according to whether the lessee is regarded as the economic owner of the asset or not.

A3.126 The distinction between operating leasing and the financial leasing in the *1993 SNA* was interpreted to be based simply on the length of the time of lease.

15. Changes in recommendations for recording pension entitlements

Reference: chapter 17, paragraphs 17. 116 to 17.206

A3.127 The 2008 SNA recognizes that employment-related pension entitlements are contractual engagements, that are expected or likely to be enforceable. They should be recognized as liabilities towards households, irrespectively of whether the necessary assets exist in segregated schemes or not.

A3.128 For pensions provided by government via social security however, countries have some flexibility to deviate from this procedure in the set of standard tables. This is because the division between which pensions are provided by social security and which by other employment-related schemes varies considerably from country to country. However, the full range of information required for a comprehensive analysis of pensions should be provided in a supplementary table that shows the liabilities and associated flows of all private and government pension schemes, whether funded or unfunded and including social security.

A3.129 The *1993 SNA* stated that the actual social contributions by employer and employee in a period should be the amount actually paid into a pension fund. For a defined contribution scheme, this is correct and complete since the eventual payment depends only on the amounts set aside in a pension fund. For a defined benefit scheme, however, there is no guarantee that the amounts set aside will exactly match the liability of the employer to the pension entitlements of employee.

A3.130 The 2008 SNA recommends a number of changes to the *1993 SNA* recommendations in the case of defined benefit schemes:

a. the level of the employer's contribution should be determined by assessing the increase in the net present value of the pension entitlement the employee has earned in the period in question, adding any costs charged by the pension fund for operating the scheme and deducting the amount of any contribution the employee makes;

b. this amount should be determined actuarially, taking into account only the life expectancy of the employee and not any future earnings or the impact of any future pay increases on the ultimate pension benefit;

c. an explicit liability of the pension fund to the employee should be shown in the financial account and balance sheet; and

d. the assets of the fund are then to be regarded as belonging to the fund and not (as stated in the *1993 SNA*) as belonging to the employee.

A3.131 Depending on the relationship between the fund and the employer, any excess of the liabilities over the available assets may represent a claim of the pension fund on the employer (and any excess of the assets over the liabilities a claim by the employer on the pension fund).

A3.132 The 2008 SNA recognizes that there is a cost to administering any pension scheme including non-autonomous schemes and unfunded schemes. In principle, there should be a value of output of the pension fund. This is to be determined on the basis of the sum of costs, and by convention is deemed to be payable by the employees holding the pension entitlements.

A3.133 The 2008 SNA recommends that when an obligation to pay pensions passes from one unit to another, this should be recorded as a transaction in pension liabilities even if neither unit has previously recorded such liabilities.

A3.134 The *1993 SNA* recognized pension obligations on the balance sheet only for funded "private" schemes. Hence, the activities of many pension schemes, such as social security and unfunded employer schemes, did not lead to recognition of financial assets/liabilities. Further, the pension liabilities recognized were limited to the funds available and were not determined by the claims of employees and others on the schemes.

A3.135 The *1993 SNA* treated the activity of non-autonomous pension funds and unfunded pension schemes as ancillary activities where the output was not separately recognized.

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F. Further specifications of the scope of transactions concerning government and public sector

1. The boundary between private/public/ government sectors clarified

Reference: chapter 4, paragraphs 4.25 and 4.77 to 4.80, chapter 22

A3.136 Recognizing the fact that the powers, motivation and functions of government are different from those of other sectors of the economy and that it organizes its operations through different institutional units, the 2008 SNA gives extra guidance for the distinction between general government and public corporations. It provides a decision tree to help clarify the conceptual basis for allocating the institutional units to one of the mutually exclusive institutional sectors and to identify government and other public units.

2. Treatment of restructuring agencies elaborated

Reference: chapter 22, paragraphs 22.47 to 22.50

A3.137 Some public units are involved in the restructuring of corporations that may or may not be controlled by government. Two examples of public restructuring agencies concern (a) the reorganization of the public sector and the indirect management of privatization, and (b) impaired assets, mainly in a context of a banking or other financial crisis. The 2008 SNA provides guidelines for the treatment of restructuring agencies.

A3.138 The *1993 SNA* did not provide guidance for the treatment of restructuring agencies.

3. Treatment of government issued permits clarified

Reference: chapter 22, paragraphs 22.88 to 22.90

A3.139 The 2008 SNA recommends that if a permit issued by the government does not involve the use of an underlying government owned asset, then the payment for the licence is a tax. Notwithstanding, if the licence is legally and practically transferable to a third party, then it acquires the characteristics of an asset and it may be classified as an asset in the category of contracts, leases and licences.

A3.140 When the licence is to make use of a natural resource (including natural resources that qualify as assets and which the government controls on behalf of the community), payments for the licence are treated either as the acquisition of an asset in the category of contracts, leases or licences or as the payment of rent.

4. Exceptional payments from public corporations should be recorded as withdrawals from equity

Reference: chapter 22, paragraphs 22.135

A3.141 The 2008 SNA recommends that exceptional payments from public corporations should be recorded as withdrawals from equity when these are made from accumulated reserves or sales of assets. Only regular distributions from the entrepreneurial income of corporations should be recorded as dividends.

A3.142 The *1993 SNA* guidance in this respect was different for corporations and quasi-corporations in that exceptional payments from a public corporation were recorded as regular payments of dividends while similar payments from public quasi-corporations were recorded as withdrawals from equity.

5. Exceptional payments from government to public quasi-corporations should be treated as capital transfers

Reference: chapter 22, paragraphs 22.138

A3.143 The 2008 SNA recommends that exceptional payments from government to public quasi-corporations to cover accumulated losses should be treated as capital transfers as for public corporations. However, exceptional payments by government to both public corporations and public quasi-corporations should be recorded as additions to equity when they are made with a clear commercial perspective reflected in a valid expectation of a return in the form of property income.

A3.144 In the *1993 SNA*, exceptional payments from government to public corporations were recorded as capital transfers but exceptional payments from government to public quasi-corporations were recorded as additions to equity.

6. Accrual recording of taxes

Reference: chapter 22, paragraphs 22.91 to 22.94

A3.145 The 2008 SNA confirms the accrual basis of recording of taxes. However, it allows some practical flexibility in two cases in order to ensure that uncollectible taxes are not shown as accruing. One of these relates to taxes on income to be recorded when the tax liability is assessed with some measure of certainty rather than when the income is earned. The other refers to taxes arising from activities in the "parallel" economy when the timing of the taxable event is unlikely to be known. In this case also the time of recording should be the time of assessment. The 2008 SNA also gives guidance that in assessing the amount of taxes accruing, care must be taken not to include tax unlikely ever to be collected.

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7. Tax credits

Reference: chapter 22, paragraphs 22.95 to 22.98

A3.146 Tax credits represent tax relief and so reduce the tax liability of the beneficiary. Some tax credits are payable, that is any credit in excess of the tax liability is payable to the beneficiary. Some subsidies or social benefits are made available via the tax system in the form of tax credits, and the incidence of linking payment systems with the tax collection system is increasing. The 2008 SNA recommends that the payable credits should be recorded on a gross basis even though this is counter to the recommendations in *GFSM2001* and *Revenue Statistics*. The presentation should permit the derivation of tax credits on a net basis also.

A3.147 The *1993 SNA* did not give guidance on the treatment of tax credits.

8. Treatment of ownership of fixed assets created through public-private partnerships clarified

Reference: chapter 22, paragraphs 22.154 to 22.163

A3.148 Public-private partnerships (PPPs) are long-term contracts between two units, whereby a private unit acquires or builds an asset or set of assets, operates it for period and then hands the asset over to a unit in the public sector. Such arrangements are usually between a private enterprise and government but other combinations are possible, with a public corporation as either party or a private NPI as the second party. The 2008 SNA provides indicative guidance on the characteristics to be examined to determine whether the private or public partner is the economic (as opposed to legal) owner of the assets in question.

A3.149 The *1993 SNA* did not give guidance on the treatment of public-private partnerships.

9. Taxes on holding gains continue to be shown as current taxes on income and wealth

Reference: chapter 8, paragraph 8.61

A3.150 The 2008 SNA recommends that taxes on holding gains continue to be shown as current taxes on income and wealth even though the tax base (the realized holding gains) is not included in the SNA definition of income. It recommends that where possible and relevant, it should be shown as a separate subcategory.

G. Harmonization between concepts and classifications of the SNA and *BPM6*

1. Centre of predominant economic interest as the basic criterion for determining the residence of the unit

Reference: chapter 4, paragraph 4.10

A3.151 With globalization, an increasing number of institutional units have connections to two or more economies. The 2008 SNA and *BPM6* use the concept of "centre of predominant economic interest" as the basic criterion for determining whether or not an entity is a resident in an economic territory.

A3.152 The *1993 SNA* recommended the centre of economic interest as the criterion to determine the residence of institutional units but did not give guidance on the treatment of the residence of individuals having several international residences where they may remain for short periods.

2. Individuals changing residence

Reference: chapter 26, paragraphs 26.37 to 26.39

A3.153 The 2008 SNA confirms that when persons change their country of residence, there is no change of ownership of the non-financial assets, financial assets and liabilities owned by those persons. All that is required is a reclassification of the appropriate country of residence of the (economic) owner of these items. The changes should be recorded in the other changes in the volume of assets account and not as capital transfers.

A3.154 The *1993 SNA* did not offer specific guidance on the treatment of flows of goods and changes in the financial account arising from a change in residence of individuals.

3. Goods sent abroad for processing are recorded on change of ownership basis

Reference: Chapter 6, paragraphs 6.85 to 6.86 and chapter 14, paragraphs 14.37 to 14.42

A3.155 The 2008 SNA recommends that imports and exports should be recorded on a strict change of ownership basis. That is, flows of goods between the country owning the goods and the country providing the processing services should not be recorded as imports and exports of goods. Instead the fee paid to the processing unit should be recorded as the import of processing services by the country owning the goods and an export of processing services by the country providing it.

A3.156 The same treatment is recommended for recording the goods of one establishment sent for processing to another establishment of the same enterprise within the same economy when the receiving establishment does not take on responsibility for the consequences of the continuation

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of the production process. In such a case, the only output of the establishment receiving the goods is providing the processing services.

A3.157 The *1993 SNA* treated goods that were sent abroad for processing and then returned to the country from where they were dispatched as undergoing an effective change of ownership. The goods were therefore recorded in exports when they left the first country and again in imports when they returned to the country. The country undertaking the processing was shown as producing goods that were recorded at their full value, even though the processor never had to pay for the value of the goods on entry.

4. Merchanting

Reference: chapter 14, paragraphs 14.73.

A3.158 Merchanting is defined as the purchase of a good by a resident (of the compiling economy) from a non-resident and the subsequent resale of the good to another non-resident, without the good entering the merchant's economy. The 2008 SNA recommends that goods acquired by global manufacturers, wholesalers and retailers and those cases of commodity dealing being settled in the commodity should be recorded as negative exports on acquisition and positive exports on disposal. The difference between the two appears in exports of goods but appears as the production of a service in the merchant's economy, analogous to trade margins applied to domestically traded goods. In the case where goods are acquired in one period and not disposed of until a subsequent period, they should appear in changes in inventories of the merchant even though these inventories are held abroad.

A3.159 The *1993 SNA* did not give guidance on the treatment of merchanting.

H. A check-list of changes in each chapter

1. Introduction

A3.160 The purpose of this section of the chapter is to list the issues affecting each of the chapters of the 2008 SNA relative to the text in the *1993 SNA*. There is no intention to give a detailed list of the impact of these changes, simply to itemize which items affect the previous text.

A3.161 Nothing is shown for chapters 1 and 2. Chapter 1, the introduction, is largely unaffected by the details of the changes. Chapter 2, the overview, effectively includes all of the changes that appear later.

A3.162 Chapters 3 to 13 correspond to chapters of the same number in the *1993 SNA*. Changes to those chapters are presented but not the main thrust of the chapters, assuming this is familiar to readers. Chapters 14 to 29 are reordered or contain new material or both. Lists of changes, where appropriate, and a brief synopsis of the coverage of these chapters are provided.

A3.163 References to chapters and annexes of the *1993 SNA* use Roman numerals, as in that publication. Chapters and annexes referenced by Arabic numerals relate to the 2008 SNA.

Chapter 3: Stocks and flows and accounting rules

- The major issue here is the introduction of the distinction between economic and legal ownership.

Chapter 4: Institutional units and sectors

- The description of residence is not changed in substance but wording has been used so that this concept is described in exactly the same way in the SNA and *BPM6*.
- Figure 4.1 is introduced to show in the form of a flow chart how institutional units are allocated to sectors.
- Both financial and non-financial corporations are now disaggregated to show non-profit institutions as separate subsectors to facilitate the derivation of a satellite account for NPIs.
- A similar distinction is made for general government were NPIs may also be separately identified.
- The text makes clear the difference between a head office and a holding company to clarify the situation where a head office is loosely described as a holding company.
- There is a section on special purpose entities making clear the sorts of considerations that need to be taken into account in order to classify them appropriately.
- The 2008 SNA avoids the expression "ancillary corporation" that was referred to in the *1993 SNA* and was the cause of some confusion.
- There is new text to identify a set of indicators which can be used to determine whether the government controls corporations and non-profit institutions.
- There has been an extension and refinement of the subsectors of financial corporations.
- At the end of the chapter there is a brief reference to central banks of currency boards.

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Chapter 5: Enterprises establishments and industries.

- Text referring to enterprises that are horizontally integrated is now consistent with *ISIC* Rev.4.
- On vertically integrated enterprises, the SNA recommends identifying establishments where *ISIC* simply classifies the enterprise as a whole to the principal activity contributing largest share to the value added.
- There is new and more extensive discussion on ancillary activities.

Chapter 6: The production account

- The term “knowledge-capturing products” has been introduced to cover those items that have some of the characteristics of goods and some of the characteristics of services.
- Reference is made to the non-observed economy. There is more extensive discussion on this in chapter 25.
- The text describes the revised treatment of deliveries between establishments of the same enterprise or indeed between different enterprises depending on whether there is a transfer of economic ownership and the degree of risk involved in further processing. (This is the domestic equivalent to goods sent abroad for processing.)
- The three-way distinction of production is now referred to as market production, production for own final use and non-market production.
- When output for own final use for market producers is estimated by the sum of costs it should now include a return to fixed capital.
- There is more discussion on how to measure output that takes a long time to complete.
- There is greater clarification on how to measure storage and how to identify when this is a productive activity rather than a holding gain. This subject is elaborated in an annex to chapter 6.
- There is more extensive discussion on how to measure the output of central banks.
- The treatment of financial services is treated in more detail in chapter 6 and in even greater detail in part 4 of chapter 17. Some of the developments since the publication of the *1993 SNA* on the treatment of financial intermediation service charges indirectly measured (FISIM) have been incorporated in the text.
- Revised text is available on the treatment of insurance taking account of the results of the task force on this subject.
- Similarly there is a revised treatment on reinsurance.
- There is discussion of how the output associated with the issuing of standardized guarantees should be treated.
- Research and development is no longer treated as intermediate consumption but in most cases as fixed capital formation.
- New text is presented on the appropriate treatment on originals and copies following the recommendations or of the Canberra group.
- Weapons systems are a new classification item within gross fixed capital formation.
- In describing consumption of fixed capital it is in now recommended that asset-specific prices should be used rather than a general deflation index to estimate the declining value of assets. The process of estimating consumption of fixed capital should be linked to estimates of capital stock. This subject is taken further in chapter 20.

Chapter 7: The distribution of income accounts

- The entrepreneurial accounts and thus the allocation of other primary income account are now restricted to financial and non-financial corporations.
- References to measures of employment have been updated to include the recommendations of the International Conference of Labour Statisticians (ICLS) that was held in late 2008.
- There are significant changes to the measurement of social contributions. The first of these is that the distinction is made between contributions relating to pensions and those relating to other benefits. Further, the fact that pension entitlements are now recorded in some cases even when there is no fund set aside to meet the needs has consequences for the measurement of social contributions.
- Investment income now includes the earnings on investment funds.
- Within taxes on production, taxi and casino licences are now included.
- Within property income, a new subheading of investment income has been introduced parallel to that used in *BPM6*.

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- The concept of the resource lease is introduced in relation to the payment of rent.
- The possibility of implicit taxes and subsidies being recorded in respect of interest rates charged and paid by central banks is introduced.
- The treatment of super dividends and withdrawals from income for both corporations and quasi-corporations has been rationalized. In connection with this, the term retained earnings has been introduced explicitly for all enterprises.
- The treatment for the investment income deemed payable under pensions is now changed in the case of defined benefit schemes to cover the whole of the increase in the entitlement regardless of whether such income is actually earned by the pension fund unit responsible.

Chapter 8: The redistribution of income accounts

- The changes relating to social contributions mentioned in connection with chapter 7 carry through to chapter 8.
- Within transfers there is explicit mention of household remittances payable to and receivable from individuals working abroad.
- The disaggregation of social transfers in kind has been simplified.

Chapter 9: The use of income accounts

- The distinction between individual and collective services has been changed to follow the changes made to the COFOG classification.
- It has been recognized that it is possible for NPISHs to have collective consumption though no excessive efforts should be made to try to identify such instances.

Chapter 10: The capital account

- Non-produced assets are distinguished into three categories: natural resources; contracts, leases and licences; and purchased goodwill and marketing assets.
- Improvements to land are treated as a fixed asset separately from the natural asset that represents the value of the land in its unchanged state.
- On costs of ownership transfer, there is clarification on the treatment of terminal costs and the time over which consumption of fixed capital of ownership costs should be written down.
- Information, computer and telecommunications equipment is introduced as a new category of gross fixed capital formation.
- Weapons systems are introduced as a new category.
- Intellectual property products are introduced as a new category.
- Research and development is now treated as fixed capital formation in most cases.
- The title for mineral exploration has been changed to include evaluation in line with data availability according to IASB recommendations.
- There has been a change to the software heading that now includes databases explicitly and greater clarification about when databases are included.
- Within inventories, a new category of military inventories is included.
- There is greater clarification on the treatment of contracts, leases and licences and a further explanation of this appears in part 5 of chapter 17.
- There is greater clarification on the measurement and inclusion of purchased goodwill and marketing assets.

Chapter 11: The financial account

- There is a changed treatment of monetary gold and of metal accounts in general.
- Liabilities are now recognized for SDRs.
- Within the new classification of financial assets, a category is introduced for inter-bank positions.
- A revised treatment of index-linked securities when they are linked to a narrow index has been introduced.
- Two items relating to investment funds have been introduced.
- Insurance technical reserves are increased to include pension entitlements even where there is no fund, possible claims on the manager of the pension fund and reserves for standardized guarantees.
- Employee stock options are included in a class along with financial derivatives.
- There are recommended memorandum items in respect of non-performing loans.

Chapter 12: The other changes in assets accounts

- A new classification of all the volume changes is presented each of which can be applied to any class of assets making the transition from one balance sheet to another simpler.

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- It is clarified that the only losses in inventories that appear in the other volume change account are those that are irregular. Even if the losses are very large, if these appear on a regular basis they are to be recorded as withdrawals from inventories.

Chapter 13: The balance sheet

- The concept of an asset account is presented in this chapter. Previously it appeared only in chapter 2.
- There is greater description of the possible ways to establish the valuation of equity.
- The flow of funds analysis has been moved to chapter 27.

Chapter 14: The supply and use tables and goods and services account

- The material here contains some from the previous chapter XV. The rest is covered in chapter 28.
- There is significant reformulation of the text in this chapter.
- There is a greater description of how transport charges are to be recorded in a supply and use table and how they affect producer and purchaser prices.
- The revised treatments for intra-enterprise deliveries and goods sent abroad for processing have major consequences for this chapter.
- There is a description of deflation of supply and use tables.

Chapter 15: Price and volume actions

- In the *1993 SNA*, chapter XVI was concerned with prices and volumes. The present chapter includes significant revisions in the light of the various manuals that have been issued since 1993, those on consumer prices, producer prices, import and export prices and the revised International Comparison Program manuals.
- The chapter includes text on the application of price indices to deflating national accounts.

Chapter 16: Summarizing and integrating the accounts

- This brings into the main run of chapters material previously only appearing in chapter II.

Chapter 17: Cross-cutting and other special issues

- This chapter replaces and extends in both the amount of detail and the range of subjects material included in annexes III and IV of the *1993 SNA*. It provides more detail on issues that were the subject of extensive consideration in the update. These subjects are:

a. insurance, including reinsurance and annuities;

b. social insurance schemes and in particular pensions including a supplementary table;

c. standardized guarantees;

d. financial services, showing where explicit and implicit charges are made on the complete set of financial instruments;

e. contracts, leases and licences, bringing together all aspects of such arrangements;

f. employee stock options.

Chapter 18: Elaborating and presenting the accounts

- Like chapter 16, this is new material about the synthesis of the accounts but concentrates mainly on practical issues.

Chapter 19: Population and labour inputs

- This chapter is based on the previous chapter XVII but is less dependent on flowcharts for explanation of different labour-related concepts.
- The consequences of the ICLS held in late 2008 are incorporated.
- There is a short section on volunteer labour.
- There is discussion of quality-adjusted labour inputs.
- There is a section on labour productivity.

Chapter 20: Capital services and the national accounts

- This is a new chapter in response to one of the items on the research agenda in the *1993 SNA*. It provides a non-technical introduction to the subject of capital services and the link to gross operating surplus. It suggests a supplementary table that may be included on an optional basis.

Chapter 21: Measuring corporate activity

- This is a new chapter discussing subjects such as mergers and acquisitions, globalization, the

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consequences of financial distress and a link to commercial accounting. The material on mergers and acquisitions is drawn from *The Benchmark Definition of Foreign Direct Investment.*

Chapter 22: The general government and public sectors

- This is a new chapter aimed at providing a link to government finance statistics, debt and deficit procedures and external debt in so far as the public sector is concerned.
- The subject of the public sector was not discussed in the *1993 SNA.*
- More specific information is given on how to determine when government controls corporations and non-profit institutions.
- The concept of economically significant prices is discussed and the definition provided.
- A link is presented to the government finance presentation of accounts.
- The treatment of tax credits is made explicit.
- Debt operations are discussed.
- The recording of government guarantees is discussed.
- There is a discussion of how the relationship between government and corporations should be recorded in the case of financial distress.
- Public-private partnerships are discussed.

Chapter 23: Non-profit institutions

- This also is a new chapter which provides a link between the SNA and the handbook on satellite accounts of the non-profit institutions.

Chapter 24: The household sector

- This provides an elaboration of the question of subsectoring households.
- It discusses some aspects of household production in detail.

Chapter 25: Informal aspects of the economy

- This item was also part of the research agenda of the *1993 SNA.*
- The chapter covers two themes, the non-observed economy and the informal sector. The latter follows the ILO initiative with emphasis on informal employment as well as on production. The subject remains on the research agenda.

Chapter 26: The rest of the world accounts and links to the balance of payments

- This chapter replaces the previous chapter XIV and annex II of the *1993 SNA*. It has been revised to be consistent with *BPM6*. There has been extensive collaboration in the drafting of *BPM6* and the SNA so that in many cases exactly the same wording is used in both manuals.
- *BPM6* introduces a new set of accounts closer to the SNA sequence of accounts making the bridge tables simpler from the SNA perspective.
- The functional categories of *BPM6*, direct investment, portfolio investment, financial derivatives, other investment and reserve assets, are introduced.

Chapter 27: Links to monetary statistics and the flow of funds

- Some of this text was in the previous chapters XI and XII but is expanded to show the connection with monetary and financial statistics.
- The flow of funds accounts are discussed here.

Chapter 28: Input-output and other matrix-based analysis

- This draws on the previous chapter XX and a research agenda item on the matrix presentation. It also draws on material in the Eurostat manual on input-output tables available only in 2008.
- The chapter includes the sector breakdown of the material in the supply and use table in order to provide a link to the sequence of accounts.

Chapter 29: Satellite accounts and other extensions

- The material in this chapter is drawn in part from the previous chapters XVIII, XIX and XXI. It also includes new material on satellite accounts that have been developed or revised since 1993.

2. Annexes and other items

A3.164 Annexes 1 and 2 correspond to the previous annex V.

A3.165 The present annex, annex 3, corresponds with the previous Annex I.

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A3.166 Annex 4 is new and includes information on the research agenda that was included in the front matter of the *1993 SNA*.

A3.167 There is a list of references included in the 2008 SNA; no external references were provided in the *1993 SNA*.

A3.168 The glossary is included with the publication instead of being a separate document.

A3.169 More information on the revision process is available on the United Nations Statistics Division website and further information about developments on the research agenda will be posted there.

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Annex 4: Research Agenda

A. Introduction

A4.1 The SNA is designed to give a realistic and compact view of the economy that is suitable for policy and analytical use. As the economy changes and policy and analytical needs evolve, the SNA must be reviewed to see if it is still relevant for these purposes. The most obvious example of a change in economic conditions that provokes a re-assessment of the adequacy of the national accounting framework is the financial crisis that evolved from late 2008 onwards. Luckily, it was possible to make this assessment before this publication was finished and only minor changes were found necessary in addition to those already proposed for the update, in particular the treatment of standardized guarantees. It had originally been proposed that these should apply only to loans; the events of the crisis suggested this should be applied to a wider range of financial instruments.

A4.2 It is unusual for economic perspectives to change so quickly and so dramatically as was the case in 2007-08. However, there are always some emerging features that may cause national accountants to re-assess their current methodology. One example is the introduction of tradable emission permits as one step to combat global warming. How to record transactions in them is not fully addressed in the 2008 SNA, and given their rapid uptake and the large values concerned it is clear that this shortcoming needs to be remedied quickly.

A4.3 While the 2008 SNA addresses some of the issues connected with globalization, such as the changed treatment of goods for processing in response to increased outsourcing of services, it is clear that there may be other aspects of this trend that may lead to a reconsideration of how the phenomenon is reflected in the accounts. One possibility is alternative, supplementary, presentations of multinational enterprises based on alternative definitions of residence and ownership.

A4.4 It is not possible to expect to capture all the issues that will arise even in the near future. The objective of this chapter is to list those that have emerged in the course of the present revision but where more extensive consideration is needed than was possible in the course of the revision. Some may result not in changes to the SNA but simply greater clarification of some points. This list will be kept on the United Nations Statistics Division website and updated as new items emerge and those recommendations on existing items are agreed.

A4.5 In assessing the priority to be given to an item, three questions need to be addressed.

a. How urgent and important is the topic to ensure that the SNA continues to be relevant to the users?

b. How widespread are the consequences of change and how complicated will implementation be?

c. Is the topic completely new or has much of the preparation for considering the item been completed?

The process of selecting items for investigation is one that will involve widespread consultation and involvement of both compilers and users in the review process.

A4.6 All attempts to update the SNA, including the experience of the 1993 and 2008 revisions, show that it is very difficult to update only parts of the system because of the integrated nature of the accounting rules. The list of issues that follows is grouped broadly by subject area but it should be recognized at the outset that each is likely to have consequences beyond the subject heading.

A4.7 The topics identified to date have been grouped into four broad headings. These are:

a. Basic accounting rules;

b. The concept of income;

c. Issues concerning financial instruments;

d. Issues involving non-financial assets.

Each of these is the subject of one of the following sections.

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B. Basic accounting rules

1. The relationship of SNA and IASB

A4.8 The International Accounting Standards Board is an independent, privately funded accounting standard-setter. The Board members come from nine countries and have a variety of functional backgrounds. The IASB is committed to developing, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require transparent and comparable information in general purpose financial statements.

A4.9 The IASB works with national commercial accounting standard-setters to achieve convergence in accounting standards around the world. Nearly one hundred countries currently require or permit the use of IFRSs (International Financial Reporting Standards) or have a policy of convergence with them. The development of IFRSs reflects the changing needs and circumstances of the global economy in ways that can be directly relevant to the use and requirements of the SNA. The adoption of IFRSs by corporations can have a major impact on corporate accounting and the data available from corporate accounts.

A4.10 The IASB works in a three-stage process to develop a new standard. The first is a draft with an invitation to comment (ITC); the second is an exposure draft (ED) also inviting comment; the third is the new standard. At each stage the background to the issue is clearly explained and the reasons are given for the choice recommended. In both the first two stages comments are invited from any interested party. The development of a regular dialogue between the national accounts community and the IASB would be a way to assure the needs of national accountants were represented to the IASB and national accountants were aware of the possible developments in the data sources. Already during the 2008 revision consultation of IASB standards and their counterpart for public accounting standards (the International Public Sector Accounting Standards Board, IPSASB) has been extremely beneficial. It is therefore desirable that a dialogue be established and maintained with the IASB with a view to amending the SNA to follow new accounting standards when appropriate.

A4.11 One area of developing interest in international accounting, relating back to the question of multinational enterprises, is that of mergers and acquisitions. The text in chapter 21 draws on information in the OECD *Benchmark Definition of Foreign Direct Investment.* IASB work in this area should be monitored to see if these recommendations need amending.

2. Consolidation of enterprise groups

A4.12 Many enterprises operating within an economy are linked with other enterprises by complete or partial common ownership and a shared management structure to form an enterprise group. Enterprises also often share common ownership and management with foreign affiliates. It is common for enterprises within an enterprise group to trade with each other, sometimes exclusively, as when they perform an intermediate stage in a vertically integrated production process, and share the outputs and costs of ancillary production. They may also share the outputs and costs of research and development activities. Given their close ties it may be sometimes desirable to consider an enterprise group as a single entity and to consolidate the accounts of its members. (This is already the practice in some other statistics such as AMNE, FATS and Bank for International Settlements (BIS) consolidated presentations.) Members of an enterprise group are usually engaged in different activities and sometimes in more than one sector, and so consolidation could affect aggregates, such as industry value added, and sectoral balance sheets. It is therefore probable that the most likely way forward would be by way of supplementary tables.

A4.13 Separate consideration needs to be given to the case where some parts of the group are non-resident.

3. Trusts

A4.14 The SNA recommends that trusts be treated as quasi-corporations. In some cases, though, when one is used in effect as an SPE for a corporation, it is not considered to be a separate institutional unit but is merged with its parent, so long as they are both resident in the same economy.

A4.15 No detailed description of trusts is given, though some may be owned by households and NPIs as well as by corporations. Further clarification on the nature of trusts and when their assets should be treated as belonging to separate units and when merged with the assets of their owners would be helpful.

4. Final consumption of corporations

A4.16 In the SNA, no final consumption is recorded for corporations because corporations are not considered to be final users of goods and services, except for capital products which, with the exception of valuables, are acquired for the purpose of production. However, large corporations often undertake sponsorship of cultural and sporting events. To date, the SNA regards the payments involved as a form of advertising but it could be argued that they are a form of individual consumption and could be treated as final consumption expenditure of corporations and social transfers in kind to households. Further, by imposing regulations such as environmental standards, the government may achieve the same effect as if they levied taxes and spent the income on environmental protection, which would be treated as collective consumption. There may thus be instances where it would be more appropriate to record some expenditures by corporations as final consumption.

5. Measuring the output of government services

A4.17 The SNA recommends that the value of non-market production provided without charge, or at prices that are not economically significant, should be estimated as the sum of the costs of production (paragraphs 6.128 to 6.132). The basis for this recommendation is the lack of market

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prices for non-market production. However, there is continuing research on trying to find alternative ways to measure the output of government.

6. The treatment of social transfers in kind to the rest of the world

A4.18 In the SNA, social transfers in kind only take place between government units, NPISHs and households. Paragraph 8.141 explains that it is assumed that the amount of social transfers in kind payable to the rest of the world are probably negligible and, in any case, are offset by similar benefits receivable from the rest of the world. In some cases, these assumptions may be inappropriate and an explicit way of recording these could be elaborated. Such an elaboration would have to consider the consequences of having a difference between total consumption expenditure and total actual consumption.

7. Output of central banks: taxes and subsidies on interest rates applied by central banks

A4.19 The treatment and measurement of the output of central banks is described in paragraphs 6.150 to 6.151. Three broad groups of financial services are identified: monetary policy services, financial intermediation and borderline cases.

A4.20 One of the borderline cases arises when the financial intermediation of central banks includes policy measures, such as setting interest rates higher or lower than market interest rates. This generates a number of issues. The first is how to measure the output of the central bank, because the use of off-market interest rates by the central bank may cause distortions in measuring its output and value added. The second issue concerns the use of off-market rates which implies that there are flows between the central bank and the counter-party in addition to those concerned with financial intermediation.

8. The treatment of establishments in the SNA

A4.21 At the present there are two reasons to have the concept of establishment within the SNA. The first of these is to provide a link to source information when this is collected on an establishment basis. In cases where basic information is collected on an enterprise basis, this reason disappears. The second reason is for use in input-output tables. Historically, the rationale was to have a unit that related as far as possible to only one activity in only one location so that the link to the physical processes of production was as clear as possible. With the change of emphasis from the physical view of input-output to an economic view, and from product-by-product matrices to industry-by-industry ones, it is less clear that it is essential to retain the concept of establishment in the SNA.

9. The inclusion of international organizations in the SNA

A4.22 In the SNA, international organizations are treated as units that are resident in the rest of the world (paragraphs 4.173 to 4.175). It would in principle be possible to treat international organizations as a standard subset of the rest of the world and indeed to compile a full set of accounts for them.

C. The concept of income

1. Clarification of income concept in the SNA

A4.23 As discussed in paragraph 8.24, the concept of income in the SNA differs from that generally understood in economics. In particular, holding gains and losses are not considered to form part of income in the SNA. It is not only economic theory that treats holding gains and losses as income, but also business accounting standards. The SNA excludes holding gains and losses from production and then extends this to an exclusion from most income flows, though not interest which continues to be recorded in nominal terms. A thorough review of the concept of income in the SNA, including the implications for all property income flows would be beneficial. Some particular aspects are covered in some of the following items.

2. GDP at basic prices

A4.24 Gross domestic product (GDP) is equal to the sum of the gross value added of all the institutional units resident in a territory engaged in production (that is, gross value added at basic prices) plus any taxes, minus any subsidies, on products not included in the value of their outputs. GDP is also equal to the sum of final expenditures minus expenditures on imports by institutional units resident in a territory. The “natural” valuation of the production measure of GDP is basic prices, while the “natural’ valuation of the expenditure measure of GDP is market prices. In the SNA it is the production measure that is adjusted (by adding taxes less subsidies on products) to achieve consistency. Implicit in this is the idea that taxes less subsidies on products are a form of income and not just a form of redistribution of income.

A4.25 If it were decided to value GDP at basic prices then the sequence of accounts would need to be modified, and there are various possibilities as to how this might be done. This might lead to showing the two primary functions of government, production of non-market services and redistribution of national income, separately.

3. The role of taxes in the SNA

A4.26 As just noted, taxes on products are treated as a form of income in the SNA. Most economists, however, tend to regard these as taxes on consumption. This category does

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not exist in the SNA and nor does consumer subsidies. Taxes on financial transactions (such as taxes on issue, purchase, and sale of securities) are treated as taxes on production even though there is often no service involved. It may be appropriate to review the SNA treatment of all taxes and subsidies to ensure that these accord with users' understanding and need, or if not that the rationale for any differences is made quite explicit and prominent.

4. Life insurance

A4.27 At present in the SNA there is an inconsistency between the treatment of property income accruing to pension beneficiaries under a defined benefit scheme and other forms of life insurance. For the pension beneficiaries, the amount of property income ascribed to them matches the increase in their claims with no reduction of property income made according to whether the source of funding is from holding gains or not. For life insurance policies, insurance companies retain part of the holding gains made on reserves belonging to the policyholders but this retention is not treated as part of the fee charged by insurance companies. Thus there may be an understatement of the output of insurance companies. This question needs addressing and also the appropriate treatment when holding losses occur.

5. Reinvested earnings

A4.28 The SNA recommends that the retained earnings of a foreign direct investment enterprise should be treated as if they were distributed to foreign direct investors in proportion to their ownership of the equity of the enterprise. These earnings are then reinvested by those owners as additions to equity in the financial account. This amount is in addition to any actual distributions made out of the distributable income. This approach is also adopted for the earnings of investment funds.

A4.29 It has been proposed that this treatment could be extended to other types of unit, particularly public corporations. If the attribution of retained earnings to the owners of corporations were adopted, it would mean that dividends would be replaced by reinvested earnings in the allocation of primary income account and this total less dividends actually paid would be shown as additions to (or in some case withdrawals from) equity in the financial account. This would mean that distribution of earnings from corporations was measured on a strict accrual basis but would also mean that the saving of corporations would always be zero. Such a change would have serious implications for interpretation of the accounts since it would be built on a different paradigm from the current treatment of dividends and corporate saving.

6. Accruing interest in the SNA

A4.30 Through the 1990s and into the 2000s a vigorous discussion was conducted among the international statistical community about the appropriate way to record interest on securities such as bonds. Two general approaches were identified in the discussion, the so-called debtor and creditor approaches.

A4.31 The ISWGNA established an Electronic Discussion Group (EDG) in 1999 to obtain the views of a broad group of users and compilers on how macroeconomic statistics should record the accrual of interest on bonds and other tradable debt securities. The moderator of the EDG provided a report in October 2002 that concluded that while the participants to the EDG were strongly divided, the majority were in favour of the debtor approach. The ISWGNA subsequently considered the report and supported its conclusion. It then made a recommendation to the UNSC proposing that the SNA should recommend the debtor approach and the UNSC agreed. The recommendation and descriptions of the two approaches can be found in paragraphs 17.252 to 17.254.

A4.32 Discussion of certain update issues, including the treatment of concessional loans, non-performing loans, interest on index-linked debt securities and interest in arrears, showed that the debtor/creditor debate has implications beyond the recording of interest on securities. A full consideration of the definition of income in the SNA would have to reconsider this issue.

7. Calculation of FISIM

A4.33 The treatment of financial intermediation services indirectly measured (FISIM) is described in paragraphs 6.163 to 6.169. The SNA recommends that FISIM should be calculated with respect to a reference rate that contains no service element and reflects the risk and maturity structure of deposits and loans. Different reference rates may be needed for domestic and foreign financial institutions. The assumption behind the FISIM approach is that it is the service element, and not the interest flows, that reflect varying degrees of risk, with riskier clients paying a higher service charge. This assumption has been queried and is being investigated.

8. High inflation

A4.34 It has long been recognized that high inflation can distort measures of interest, since a portion is required simply to counteract the real holding losses that occur for financial instruments that are not indexed for inflation. By the 1970s, when inflation was an important problem throughout much of the world, the treatment of interest under high inflation was considered an important issue for national accounts. However, contrary guidance is given by Annex B to chapter XIX of the *1993 SNA* and chapter 7 of *Inflation Accounting - A manual on National Accounting under Conditions of High Inflation* (Organisation for Economic Co-operation and Development, 1996). It is therefore recommended that the search for a single universally accepted treatment of interest under high inflation remains on the research agenda.

9. The measurement of neutral and real holding gains and losses

A4.35 The SNA recommends the nominal holding gains and losses recorded in the revaluation account should be decomposed into neutral and real holding gains and losses. In paragraph 12.85, the use of a comprehensive price index covering as wide a range of goods, services and assets as

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possible is recommended. Some national accountants have suggested that different price indices should be used for different classes of asset. The full impact of this suggestion requires investigation.

10. Income arising from assets

A4.36 The introduction of capital services into the SNA recognizes that part of value added is due to the contribution of fixed assets and other non-financial assets to the income generated by production. A question has been raised about whether some part of value added should also be attributable to the financial resources available to the producer.

11. Income from activities undertaken on an informal basis

A4.37 Establishing the connection between the work on the informal sector and the SNA was an important contribution of the 2008 update to the SNA. Interest in this area continues to attract considerable attention especially in developing countries. It is desirable that there should be continuing involvement of national accountants with the work of the Delhi Group and other initiatives in this field.

D. Issues involving financial instruments

1. Issues arising from a financial crisis

A4.38 As noted in the introduction, a financial crisis provides a crucial test of the robustness of the SNA and the adequacy of its recommendations in situations not encountered since the SNA was first adopted. Until all the consequences of the situation in 2008 are revealed, and indeed thereafter, there will be a need to continue to examine the steps taken in response to the crisis to ensure both the steps and their consequences are adequately captured in the national accounts.

2. Recognition of social security entitlements as liabilities

A4.39 As discussed in part 2 of chapter 17, social security entitlements are not recorded in the main accounts but they are shown in a supplementary table along with the pension entitlements of some other pension schemes managed by general government. Provisional criteria for determining whether the entitlements are shown in the main accounts or only in the supplementary table are described in paragraph 17.187. Work continues to refine these criteria and to find agreed methods to determine the value of these liabilities.

3. Wider use of fair value for loans

A4.40 The SNA recommends that the values of loans to be recorded in the balance sheets of both creditors and debtors should be at nominal value, that is, at the amounts of principal that the debtors are conceptually obliged to pay the creditors when loans mature. However, it is common for the fair value of loans to differ from the nominal value for a number of reasons. At present the SNA recommends memorandum items recording fair values only for loans specifically characterized as non-performing. The possibility of a more extensive use of fair value in place of nominal value could be considered.

4. Provisions

A4.41 In business accounting, there are three degrees of "promises": liabilities, provisions and contingent liabilities. Their definitions are the following.

a. A liability is a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits or service potential.

b. A provision is a liability of uncertain timing or amount.

c. A contingent liability is a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the entity.

A4.42 In the SNA, liabilities and provisions relating to financial instruments are generally recognized in the main accounts only if there is a corresponding financial asset of equal value held by a counter-party. However, it is recommended that certain provisions that do not satisfy this criterion, such as those for non-performing loans, should be recorded as memorandum items. Contingent liabilities are not recognized at all in the core accounts, except in the case of standardized guarantees.

A4.43 The problem is that recognition of a reduction in the value of an asset in the SNA necessarily implies a reduction in the corresponding liability but the asset holder may not wish to reveal to the counter-party the fact that they regard some of the claim as uncollectable. Not doing so however overstates the value of the assets.

5. Debt concessionality

A4.44 Further work is required to clarify whether concessional loans involve a subsidy on any service charge associated with interest payments or a transfer representing the difference between the market rate of interest and the agreed rate. If the latter, the next problem is whether the

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transfer should be paid period by period on an ongoing basis as a current transfer or as a one-off capital transfer at the time the loan is issued.

6. Equity valuation and its implications

A4.45 At the moment there are a number of alternatives for valuing equity given in the SNA. There is a question about whether more standardized recommendations can be made.

7. Reverse transactions

A4.46 Work on a complex group of transactions known as reverse transactions has been pursued for several years. These transactions take their name from two common characteristics: (i) a commitment to reverse the transaction on a specified future date (or on demand), and (ii) that, although legal ownership is transferred to the purchaser, many of the risks and benefits of ownership remain with the original owner. Reversible transactions include repurchase agreements, securities lending without cash collateral, gold swaps, and gold loans/deposits.

E. Issues involving non-financial assets

1. Tradable emission permits

A4.47 Tradable emission permits are a relatively new phenomenon, but they are gaining rapidly in importance. The full treatment of all types of permits is not explicitly described in the SNA, and in order to remove uncertainty, this shortcoming should be addressed as quickly as possible.

2. Leases to use or exploit natural resources

A4.48 Part 5 of chapter 17 deals with the treatment of licences and permits to use a natural resource. Because the treatment for individual resources was developed independently there are some inconsistent treatments recommended.

A4.49 In the case of a natural resource that has an infinite life and whose use in production does not affect the nature or value of the asset, the owner may allow the resource to be used for an extended period of time in such a way that, in effect, the user controls the use of the resource during this time with little if any intervention from the legal owner. In the case of land, the SNA recommends that the agreement between the owner and the user constitutes a sale of the land. In the case of a lease of the radio spectrum, the SNA recommends that the permission to use the spectrum does not change the ownership of the spectrum but constitutes a non-produced asset under the heading contracts, leases and licences. In the case of permission to use the atmosphere or a water body as an environmental sink, the SNA recommends that the payment be treated as a tax.

A4.50 In the case of a natural resource that is subject to replenishment and which can be used indefinitely providing the use is restricted and the owner extends or withholds permission to continued use of the asset from one year to the next, payments by the user to the owner are recorded as rent. No adjustment is made to the value of rent recorded as to whether the use is in fact sustainable or not. If it were not sustainable, part of the payment should be seen as being compensation for the non-sustainable use.

A4.51 In the case of a natural resource that is not capable of replenishment on a human time-scale and the use in production eventually exhausts it, the owner may permit the resource to be used to extinction. In this case the SNA recommends that economic ownership of the natural resource remains with the lessor while the lessee pays royalties recorded as rent. Only the lessee and not the lessor undertakes production. This means that the reduction in the value of capital due to production is recorded in the balance sheet of the owner as an other change in volume of assets. The link between the rundown in the value of the assets and its use in production is lost. As in the previous case, the fact that part of the rent paid is compensation for the reduction in the value of the asset is not recognized.

3. Broadening the fixed asset boundary to include other intellectual property assets

Innovation

A4.52 The fixed asset boundary of the SNA has been expanded to include the output of research and experimental development (R&D) that meets the general definition of an asset. It is evident that R&D captures part, but not all, of the innovation process. It may exclude many expenditures by the production and engineering departments of an enterprise. These same departments may also be responsible for identifying a potential new product and referring it to the R&D department to develop the science behind it. In addition, an enterprise may incur other expenditures before a new product goes to market. These include market research to determine the demand for a new product and marketing expenditures to promote it.

Marketing assets

A4.53 Marketing assets include brand names, mastheads, trademarks, logos and domain names. Marketing is a key driver of brand value and big corporations invest heavily in building and supporting their brands by advertising, sponsorship and other measures to build a positive image with customers. The SNA treats marketing assets as being non-produced and the expenditures incurred in their creation as intermediate consumption. They appear in the balance sheet only when they are sold. The major reason for not treating marketing assets as fixed assets is due to the difficulty of measuring their value.

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Human capital

A4.54 Apart from any staff training required in bringing a new product to market, innovation expenditures are disembodied from the people undertaking the innovation. Therefore they exclude to a large extent the "investment in human capital".

A4.55 Human input is the major input in most production processes, and the value of that input is to a large extent dependent on the knowledge that humans bring to the production process. It is well recognized that an educated population is vital to economic well-being in most countries. Despite the fact that there are major conceptual and practical problems with identifying the value of an educated labour force, there are repeated requests to address this issue within the SNA framework.

4. Costs of ownership transfer of valuables and non-produced assets

A4.56 The SNA draws a distinction between the costs of ownership transfer incurred in acquiring and disposing of non-financial assets on the one hand and financial assets on the other. Costs of ownership transfer incurred on transactions in non-financial assets are recorded as gross fixed capital formation, while costs of ownership transfer incurred on transactions in financial assets are recorded as intermediate consumption. The rationale for the different treatments is that non-financial assets are used in production and the income generated from production needs to be sufficient to cover the costs of using those assets, including costs of ownership transfer. Financial assets are not used in production and are held as stores of value, to earn property income or in the expectation of holding gains. It is also common for the ownership of financial assets and liabilities to change hands rapidly.

A4.57 Valuables are non-financial assets but they are held as stores of value and are not used in production. As such, they have more in common with financial assets than they do with other non-financial assets. Therefore, it is arguable that costs of ownership transfer on valuables should be recorded as intermediate consumption rather than, as at present, fixed capital formation.

A4.58 Costs of ownership transfer on fixed assets are not recorded separately but are added to the price paid by the purchaser and subtracted from the price received by the seller to obtain the acquisition and disposal values, respectively. The costs of ownership transfer on non-produced assets are recorded in a separate category of gross fixed capital formation. An exception is made in the case of land where costs of ownership transfer are treated by convention as land improvements.

A4.59 An overview and rationalization of these practices could be helpful.

5. Distinction between current maintenance and capital repairs

A4.60 The SNA draws a distinction between ordinary maintenance and repairs to fixed assets and major renovations, reconstructions or enlargements (see paragraphs 6.225 to 6.228), but acknowledges that the distinction is not clear-cut. The former are recorded as intermediate consumption and the latter as gross fixed capital formation.

A4.61 Major renovations or enlargements increase the performance or capacity of existing fixed assets or significantly extend the previously expected service life. Ordinary maintenance and repairs are required so that an asset can be utilized over the whole of the service life expected on acquisition. If the owner neglects maintenance and repairs, then the expected service life may be drastically reduced and unforeseen obsolescence must be recorded as an other volume change in the value of the asset.

A4.62 If the requirement for treatment as fixed capital were to prevent a reduction in service life, rather than necessarily extend it, the problem of the borderline between ordinary maintenance and major extensions would disappear and the problem that the consequences of the neglect of maintenance are not reflected in a reduction in net domestic product could be avoided.

6. Treatment of Private-Public Partnerships

A4.63 Public private partnerships (PPPs) are described in chapter 22. Further developments in their treatment in the SNA await the development and adoption of standards under development by the IASB and IPSASB. The ISWGNA is monitoring developments.

7. Transfer of ownership of an asset during its life

A4.64 Both the case where a natural resource is leased for an extended period of time and the case of PPPs are ones where the economic ownership of an asset effectively changes hands part way through its life. The terms of the arrangements are such that recompense from the initial user for the change of ownership to the second user is bundled into the arrangements for payments during the lease. The transfer of the ownership has to be recorded as an other change in the classification of assets and is not reflected in the production or distribution of income accounts. This is a deficiency that could be rectified by some elaboration of the concept of financial leasing.

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Glossary

A

Acquisitions of goods and services by institutional units occur when they become the new owners of the goods or when the delivery of services to them is completed. 9.36

Activity see also principal activity, secondary activity, ancillary activity

Actual final consumption measures the amount of consumption goods and services acquired. 9.7

Actual final consumption of general government is measured by the value of the collective consumption services provided to the community, or large sections of the community, by general government. 9.117

Actual final consumption of households is measured by the value of all the individual consumption goods and services acquired by resident households. 9.116

Actual final consumption of NPISHs is measured by the value of the collective consumption services provided to the community, or large sections of the community, by NPISHs. 9.118

Actual premium see premium

Adjusted disposable income is the balancing item in the redistribution of income in kind account. It is derived from the disposable income of an institutional unit or sector by adding the value of the social transfers in kind receivable by that unit or sector and subtracting the value of the social transfers in kind payable by that unit or sector. 8.32

Ancillary activity An ancillary activity is a supporting activity undertaken within an enterprise in order to create the conditions within which the principal or secondary activities can be carried out. 5.36

Animal resources yielding repeat products cover animals whose natural growth and regeneration are under the direct control, responsibility and management of institutional units. 10.92

Asset An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the entity over a period of time. It is a means of carrying forward value from one accounting period to another. 3.5, 3.30, 10.8, 11.3

Asset boundary for fixed assets The asset boundary for fixed assets consists of goods and services that are used in production for more than one year. 10.33

Asset-backed securities and collateralized debt obligations are arrangements under which payments of interest and principal are backed by payments on specified assets or income streams. 11.67

B

Balance of primary incomes The balance of primary incomes is defined as the total value of the primary incomes receivable by an institutional unit or sector less the total of the primary incomes payable. 7.18

Balance sheet A balance sheet is a statement, drawn up in respect of a particular point in time, of the values of assets owned and of the liabilities owed by an institutional unit or group of units. 13.2

Balancing item A balancing item is an accounting construct obtained by subtracting the total value of the entries on one side of an account (resources or changes in liabilities) from the total value of the entries on the other side (uses or changes in assets). It cannot be measured independently of the entries in the accounts. As a derived entry, it reflects the application of the general accounting rules to the specific entries on the two sides of the account. 3.9

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Banker's acceptance A banker's acceptance involves the acceptance by a financial corporation, in return for a fee, of a draft or bill of exchange and the unconditional promise to pay a specific amount at a specified date. 11.68

Barter A barter transaction is one where one basket of goods and services is exchanged for another basket of different goods and services without any accompanying monetary payment. 9.49

Basic price The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer. 6.51

Bills are defined as securities that give the holders the unconditional rights to receive stated fixed sums on a specified date. 11.64

Bonds and debentures are securities that give the holders the unconditional right to fixed payments or contractually determined variable payments, that is, the earning of interest is not dependent on earnings of the debtors. 11.64

Boundary see production boundary, asset boundary

Buildings other than dwellings include whole buildings or parts of buildings not designated as dwellings. Fixtures, facilities and equipment that are integral parts of the structures are included. 10.74

C

Capital taxes consist of taxes levied at irregular and infrequent intervals on the values of the assets or net worth owned by institutional units or on the values of assets transferred between institutional units as a result of legacies, gifts inter vivos or other transfers. 10.207

Capital transfers are unrequited transfers where either the party making the transfer realizes the funds involved by disposing of an asset (other than cash or inventories), relinquishing a financial claim (other than accounts receivable) or the party receiving the transfer is obliged to acquire an asset (other than cash) or both conditions are met. 8.10, 10.19

Captive financial institutions and money lenders consist of institutional units providing financial services, where most of either their assets or liabilities are not transacted on open financial markets. 4.113

Central bank The central bank is the national financial institution that exercises control over key aspects of the financial system. 4.104

Changes in inventories are measured by the value of the entries into inventories less the value of withdrawals and less the value of any recurrent losses of goods held in inventories during the accounting period. 10.118

Changes in net worth due to nominal holding gains/losses is defined as the algebraic sum of the positive or negative nominal holding gains on all the assets and liabilities of an institutional unit. 12.77

Changes in net worth due to saving and capital transfers represent the positive or negative amount available to the unit or sector for the acquisition of non-financial and financial assets. 10.21

Claim A claim (benefit) is the amount payable to the policy holder by the direct insurer or reinsurer in respect of an event covered by the policy occurring in the period for which the policy is valid. 6.187, 17.5

Claims outstanding cover claims that have not been reported, have been reported but are not yet settled or have been both reported and settled but not yet paid. 6.187, 17.5

Collective consumption service A collective consumption service is a service provided simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region. ... 9.4

Compensation of employees is defined as the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period. 7.5

Computer software consists of computer programs, program descriptions and supporting materials for both systems and applications software. 10.110

Consumer durable A consumer durable is a good that may be used for purposes of consumption repeatedly or continuously over a period of a year or more. 9.42

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Consumption good or service A consumption good or service is defined as a good or service that is used (without further transformation in production as defined in the SNA) by households, NPISHs or government units for the direct satisfaction of individual needs (or wants) or for the collective needs of members of the community. 9.2

Consumption of fixed capital is the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage. 6.240, 10.25

Consumption of goods and services is the act of completely using up the goods and services in a process of production or for the direct satisfaction of human needs or wants. 9.39

Consumption The activity of consumption consists of the use of goods and services for the satisfaction of individual or collective human needs or wants. 9.39

Contracts, leases and licences are treated as assets only when both the following conditions are satisfied. The terms of the contract, lease or licence specify a price for the use of an asset or provision of a service that differs from the price that would prevail in the absence of the contract, lease or licence. One party to the contract must be able legally and practically to realize this price difference. 10.16, 10.186

Corporation The term corporation covers legally constituted corporations and also cooperatives, limited liability partnerships, notional resident units and quasi-corporations. 4.7

Costs of ownership transfer The costs of ownership transfer consist of the following kinds of items (i) All professional charges or commissions incurred by both units acquiring or disposing of an asset such as fees paid to lawyers, architects, surveyors, engineers and valuers, and commissions paid to estate agents and auctioneers. (ii) Any trade and transport costs separately invoiced to the purchaser, (iii) All taxes payable by the unit acquiring the asset on the transfer of ownership of the asset. (iv) Any tax payable on the disposal of an asset. (v) Any delivery and installation or disinstallation costs not included in the price of the asset being acquired or disposed of. (vi) Any terminal costs incurred at the end of an asset's life such as those required to render the structure safe or to restore the environment in which it is situated. 10.51

Credit derivatives are financial derivatives whose primary purpose is to trade credit risk. 11.123

Cross-country interest rate swap A cross-currency interest rate swap, sometimes known as a currency swap, involves an exchange of cash flows related to interest payments and an exchange of principal amounts at an agreed exchange rate at the end of the contract. 11.121

Cultivated biological resources cover animal resources yielding repeat products and tree, crop and plant resources yielding repeat products whose natural growth and regeneration is under the direct control, responsibility and management of an institutional unit. 10.88

Currency consists of notes and coins that are of fixed nominal values and are issued or authorized by the central bank or government. 11.52

Current international cooperation consists of current transfers in cash or in kind between the governments of different countries or between governments and international organizations. 8.128

Current taxes on capital consist of taxes that are payable periodically, usually annually, on the property or net wealth of institutional units, excluding taxes on land or other assets owned or rented by enterprises and used by them for production, such taxes being treated as other taxes on production. 8.63

Current taxes on income, wealth, etc. consist mainly of taxes on the incomes of households or profits of corporations and of taxes on wealth that are payable regularly every tax period (as distinct from capital taxes levied infrequently). 8.15

Current transfer A current transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset directly in return as counterpart and does not oblige one or both parties to acquire, or dispose of, an asset. 8.10

Current transfers between households consist of all current transfers made, or received, by resident households to or from other resident or non-resident households. 8.133

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Current transfers to NPISHs consist of transfers received by NPISHs from other resident or non-resident institutional units in the form of membership dues, subscriptions, voluntary donations, etc. whether made on a regular or occasional basis. ... 8.132

Current transfers within general government consist of current transfers between different government units. 8.126

D

Databases consist of files of data organized in such a way as to permit resource-effective access and use of the data. 10.112

Debt reorganization (also referred as debt restructuring) is defined as arrangements involving both the creditor and the debtor (and sometimes third parties) that alter the terms established for servicing an existing debt. 26.106

Debt restructuring see debt reorganization

Debt securities are negotiable instruments serving as evidence of a debt. 11.64

Deductible VAT is the VAT payable on purchases of goods or services intended for intermediate consumption, gross fixed capital formation or for resale that a producer is permitted to deduct from his own VAT liability to the government in respect of VAT invoiced to his customers. 6.58

Defined benefit scheme A defined benefit scheme is one where the benefits payable to an employee on retirement are determined by the use of a formula, either alone or as a minimum amount payable. 17.129

Defined contribution scheme A defined contribution scheme is one where the benefits payable to an employee on retirement are defined exclusively in terms of the level of the fund built up from the contributions made over the employee's working life and the increases in value that result from the investment of these funds by the manager of the scheme. 17.128

Deposit-taking corporations except the central bank have financial intermediation as their principal activity. To this end, they have liabilities in the form of deposits or financial instruments (such as short-term certificates of deposit) that are close substitutes for deposits. 4.105

Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. 26.84

Disposable income is the balancing item in the secondary distribution of income account. It is derived from the balance of primary incomes of an institutional unit or sector by adding all current transfers, except social transfers in kind, receivable by that unit or sector and subtracting all current transfers, except social transfers in kind, payable by that unit or sector. ... 8.20

Distributable income of a corporation is equal to entrepreneurial income, plus all current transfers receivable, less all current transfers payable and less the adjustment for the change in pension entitlements relating to the pension scheme of that corporation. 7.131

Dividends are a form of investment income to which shareholders become entitled as a result of placing funds at the disposal of corporations. 7.128

Durable good A durable good is one that may be used repeatedly or continuously over a period of more than a year, assuming a normal or average rate of physical usage. A consumer durable is a good that may be used for purposes of consumption repeatedly or continuously over a period of a year or more. 9.42

Dwellings are buildings, or designated parts of buildings, that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. 10.68

E

Economic flows reflect the creation, transformation, exchange, transfer or extinction of economic value. They involve changes in the volume, composition, or value of an institutional unit's assets and liabilities. 3.6

Economic owner The economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity in question in the course of an economic activity by virtue of accepting the associated risks. 3.26

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Economic owner The economic owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled to claim the benefits associated with the use of the entity inquestion in the course of an economic activity by virtue of accepting the associated risks. 10.5

Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy. These prices normally result when (a) the producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs and (b) consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged. 6.95, 22.28

Employee stock option An employee stock option is an agreement made on a given date (the “grant” date) under which an employee may purchase a given number of shares of the employer’s stock at a stated price (the “strike” price) either at a stated time (the “vesting” date) or within a period of time (the “exercise” period) immediately following the vesting date. 11.125

Employees are persons who, by agreement, work for a resident institutional unit and receive remuneration for their labour. 19.20

Employers’ social contributions are social contributions payable by employers to social security funds or other employment-related social insurance schemes to secure social benefits for their employees. 7.56

Employment is defined as all persons, both employees and self-employed persons, engaged in some productive activity that falls within the production boundary of the SNA. 19.19

Enterprise An enterprise is the view of an institutional unit as a producer of goods and services. 5.1

Entertainment, literary and artistic originals consist of the original films, sound recordings, manuscripts, tapes, models, etc., on which drama performances, radio and television programming, musical performances, sporting events, literary and artistic output, etc., are recorded or embodied. 10.115

Entitlement to future goods and services on an exclusive basis relates to the case where one party which has contracted to purchase goods or services at a fixed price at a time in the future is able to transfer the obligation of the second party to the contract to a third party. 10.195

Equity comprises all instruments and records acknowledging claims on the residual value of a corporation or quasi-corporation after the claims of all creditors have been met. 11.83

ESO see employee stock option

Establishment An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added. 5.2, 5.14

Existing fixed asset An existing fixed asset is one whose value was included in the stock of fixed capital of at least one producer unit in the domestic economy at some earlier point in time either in the current period or in the immediately previous accounting period. 10.38

Expenditure measure of GDP The expenditure measure of gross domestic product (GDP) is derived as the sum of expenditure on final consumption plus gross capital formation plus exports less imports. 16.47

Expenditures on goods and services are defined as the values of the amounts that buyers pay, or agree to pay, to sellers in exchange for goods or services that sellers provide to them or to other institutional units designated by the buyers. 9.32

Export subsidies consist of all subsidies on goods and services that become payable by government when the goods leave the economic territory or when the services are delivered to non-resident units. 7.103

Export taxes consist of taxes on goods or services that become payable to government when the goods leave the economic territory or when the services are delivered to non-residents. 7.95

F

Final consumption expenditure is the amount of expenditure on consumption goods and services. 9.7

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Final consumption expenditure of households see household final consumption expenditure

Final consumption expenditure of general government see general government final consumption expenditure

Final consumption expenditure of NPISHs consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident NPISHs on individual consumption goods and services and possibly on collective consumption services. 9.115

Financial assets consist of all financial claims, shares or other equity in corporations plus gold bullion held by monetary authorities as a reserve asset. 3.36, 11.8

Financial auxiliaries consist of financial corporations that are principally engaged in activities associated with transactions in financial assets and liabilities or with providing the regulatory context for these transactions but in circumstances that do not involve the auxiliary taking ownership of the financial assets and liabilities being transacted. 4.111

Financial claim A financial claim is the payment or series of payments due to the creditor by the debtor under the terms of a liability. 3.35, 11.7

Financial corporations consist of all resident corporations that are principally engaged in providing financial services, including insurance and pension funding services, to other institutional units. 4.98

Financial derivatives are financial instruments that are linked to a specific financial instrument or indicator or commodity, through which specific financial risks can be traded in financial markets in their own right. 11.111

Financial intermediaries are institutional units that incur liabilities on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market. 4.101

Fines and penalties are compulsory payments imposed on institutional units by courts of law or quasi-judicial bodies. 8.135

Finished goods consist of goods produced as outputs that their producer does not intend to process further before supplying them to other institutional units. 10.142

Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year. 10.11

Foreign exchange swap A foreign exchange swap is a spot sale/purchase of currencies and a simultaneous forward purchase/sale of the same currencies. 11.121

Forward contract A forward contract is an unconditional financial contract that represents an obligation for settlement on a specified date. Futures and other forward contracts are typically, but not always, settled by the payment of cash or the provision of some other financial instrument rather than the actual delivery of the underlying item and therefore are valued and traded separately from the underlying item. 11.120

Forward foreign exchange contract A forward foreign exchange contract involves two counterparties who agree to transact in foreign currencies at an agreed exchange rate in a specified amount at some agreed future date. 11.121

Forward rate agreement A forward rate agreement (FRA) is an arrangement in which two parties, in order to protect themselves against interest rate changes, agree on an interest rate to be paid, at a specified settlement date, on a notional amount of principal that is never exchanged. 11.121

Full-time equivalent employment is the number of full-time equivalent jobs, defined as total hours actually worked by all employed persons divided by the average number of hours actually worked in full-time jobs. 19.43

G

GDP see expenditure measure of GDP, income measure of GDP, production measure of GDP

General government final consumption expenditure consists of expenditure, including expenditure whose value must be estimated indirectly, incurred by general government on both individual consumption goods and services and collective consumption services. 9.114

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GNI Gross national income (GNI) is defined as GDP plus compensation of employees receivable from abroad plus property income receivable from abroad plus taxes less subsidies on production receivable from abroad less compensation of employees payable abroad less property income payable abroad and less taxes plus subsidies on production payable abroad. 16.54

Goods and services account The goods and services account shows the balance between the total goods and services supplied as resources to the economy as output and imports (including the value of taxes less subsidies on products not already included in the valuation of output) and the use of the same goods and services as intermediate consumption, final consumption, capital formation and exports. 16.27

Goods are physical, produced objects for which a demand exists, over which ownership rights can be established and whose ownership can be transferred from one institutional unit to another by engaging in transactions on markets. 6.15

Goods for resale are goods acquired by enterprises, such as wholesalers or retailers, for the purpose of reselling them to their customers. 10.145

Goodwill and market assets The value of goodwill and marketing assets is defined as the difference between the value paid for an enterprise as a going concern and the sum of its assets less the sum of its liabilities, each item of which has been separately identified and valued. 10.199

Government units are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area. 4.9

Gross capital formation shows the acquisition less disposal of produced assets for purposes of fixed capital formation, inventories or valuables. 10.24

Gross fixed capital formation in a particular category of fixed asset consists of the value of producers' acquisitions of new and existing products of this type less the value of their disposals of fixed assets of the same type. 10.64

Gross fixed capital formation is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of non-produced assets. 10.32

Gross national income is the aggregate value of the gross balances of primary incomes for all sectors. 7.20

Gross national income see GNI

Gross or net national disposable income may be derived from gross or net national income by adding all current transfers in cash or in kind receivable by resident institutional units from non-resident units and subtracting all current transfers in cash or in kind payable by resident institutional units to non-resident units. 8.26

Gross value added at basic prices is defined as output valued at basic prices less intermediate consumption valued at purchasers' prices. 6.77

Gross value added at producers' prices is defined as output valued at producers' prices less intermediate consumption valued at purchasers' prices. 6.78

Gross value added is the value of output less the value of intermediate consumption. 6.8

H

Horizontal integration A horizontally integrated enterprise is one in which several different kinds of activities that produce different kinds of goods or services for sale on the market are carried out in parallel with each other. 5.21

Household A household is a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. 4.4

Household final consumption expenditure consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant and including consumption goods and services acquired abroad. 9.113

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Households' actual social contributions are social contributions payable on their own behalf by employees, self-employed or non-employed persons to social insurance schemes. 8.85

Households' social contribution supplements consist of the property income earned during the accounting period on the stock of pension and non-pension entitlements. 8.86

I

Import duties consist of customs duties, or other import charges, that are payable on goods of a particular type when they enter the economic territory. 7.93

Import subsidies consist of subsidies on goods and services that become payable when the goods cross the frontier of the economic territory or when the services are delivered to resident institutional units. 7.101

Income in kind received by employees is measured by the value of the goods and services provided by employers to their employees in remuneration for work done. 9.51

Income measure of GDP The income measure of gross domestic product (GDP) is derived as compensation of employees plus gross operating surplus plus gross mixed incomes plus taxes less subsidies on both production and imports. 16.48

Index-linked securities are instruments for which either the coupon payments (interest) or the principal or both are linked to an index such as a price index or the price of a commodity. 11.70

Individual consumption good or service An individual consumption good or service is one that is acquired by a household and used to satisfy the needs or wants of members of that household. 9.3

Industry An industry consists of a group of establishments engaged in the same, or similar, kinds of activity. 5.46, 5.2

Information, computer and telecommunications (ICT) equipment consists of devices using electronic controls and also the electronic components forming part of these devices. 10.85

Institutional unit An institutional unit is an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities. 4.2

Insurance claim see claim

Insurance corporations consist of incorporated, mutual and other entities whose principal function is to provide life, accident, sickness, fire or other forms of insurance to individual institutional units or groups of units or reinsurance services to other insurance corporations. 4.115

Insurance premium, see premium

Intellectual property products are the result of research, development, investigation or innovation leading to knowledge that the developers can market or use to their own benefit in production because use of the knowledge is restricted by means of legal or other protection. 10.98

Interest is a form of income that is receivable by the owners of certain kinds of financial assets, namely deposits, debt securities, loans and (possibly) other accounts receivable for putting the financial asset at the disposal of another institutional unit. 7.113

Interest rate swap An interest rate swap contract involves an exchange of cash flows related to interest payments, or receipts, on a notional amount of principal, which is never exchanged, in one currency over a period of time. 11.121

Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital. 6.213

Inventories are produced assets that consist of goods and services, which came into existence in the current period or in an earlier period, and that are held for sale, use in production or other use at a later date. 10.12

Investment funds are collective investment undertakings through which investors pool funds for investment in financial or non-financial assets. 11.94

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Investment grants consist of capital transfers made by governments to other resident or non-resident institutional units to finance all or part of the costs of their acquiring fixed assets. 10.208

Investment income is the income receivable by the owner of a financial asset in return for providing funds to another institutional unit. 7.108

Invoiced VAT is the VAT payable on the sales of a producer. It is shown separately on the invoice that the producer presents to the purchaser. 6.58

J

Joint venture A joint venture involves the establishment of a corporation, partnership or other institutional unit in which each party legally has joint control over the activities of the unit. 22.56

K

Kind-of-activity unit A kind-of-activity unit is an enterprise, or a part of an enterprise, that engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added. 5.12

L

Labour force The labour force consists of those who are actively prepared to make their labour available during any particular reference period for producing goods and services that are included within the production boundary of the SNA. 19.17

Land consists of the ground, including the soil covering and any associated surface waters, over which ownership rights are enforced and from which economic benefits can be derived by their owners by holding or using them. 10.175

Land improvements are the result of actions that lead to major improvements in the quantity, quality or productivity of land, or prevent its deterioration. 10.79

Lease see financial lease, operational lease, resource lease, contracts, leases and licences, permits

Lease - financial A financial lease is one where the lessor as legal owner of an asset passes the economic ownership to the lessee who then accepts the operating risks and receives the economic benefits from using the asset in a productive activity. 17.304

Legal entity A legal or social entity is one whose existence is recognized by law or society independently of the persons, or other entities, that may own or control it. 4.6

Legal owner The legal owner of entities such as goods and services, natural resources, financial assets and liabilities is the institutional unit entitled in law and sustainable under the law to claim the benefits associated with the entities. 3.21, 10.5

Legally constituted corporation A legally constituted corporation is a legal entity, created for the purpose of producing goods or services for the market, that may be a source of profit or other financial gain to its owner(s). It is collectively owned by shareholders who have the authority to appoint directors responsible for its general management. 4.39

Liability A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment or series of payments to another unit (the creditor). 3.5, 3.33, 11.5

Life insurance and annuities entitlements show the extent of financial claims policy holders have against an enterprise offering life insurance or providing annuities. 11.106

Licences see Contracts, leases and licences

Life insurance is an activity whereby a policy holder makes regular payments to an insurer in return for which the insurer guarantees to provide the policy holder (or in some cases another nominated person) with an agreed sum, or an annuity, at a given date or earlier if the policy holder dies beforehand. 17.6

Listed shares are equity securities listed on an exchange. 11.86

Loans are financial assets that are created when a creditor lends funds directly to a debtor, and are evidenced by documents that are not

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negotiable. 11.72

Local unit A local unit is an enterprise, or a part of an enterprise, that engages in productive activity at or from one location. 5.13

M

Machinery and equipment covers transport equipment, machinery for information, communication and telecommunications (ICT) equipment, and other machinery and equipment. 10.82

Market output consists of output intended for sale at economically significant prices. 6.99

Market producers are establishments, all or most of whose output is market production. 6.133

Marketable operating leases are third-party property rights relating to fixed assets. 10.190

Marketing assets consist of items such as brand names, mastheads, trademarks, logos and domain names. 10.198

Materials and supplies consist of all products that an enterprise holds in inventory with the intention of using them as intermediate inputs into production. 10.131

Military inventories consist of single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems. 10.144

Mineral and energy resources consist of mineral and energy reserves located on or below the earth's surface that are economically exploitable, given current technology and relative prices. 10.179

Mineral exploration and evaluation consists of the value of expenditures on exploration for petroleum and natural gas and for non-petroleum deposits and subsequent evaluation of the discoveries made. 10.106

Miscellaneous current transfers consist of current transfers other than insurance-related premiums and claims, current transfers within general government and current international cooperation. 8.129

Monetary gold is gold to which the monetary authorities (or others who are subject to the effective control of the monetary authorities) have title and that is held as a reserve asset. 11.45

Monetary transaction A monetary transaction is one in which one institutional unit makes a payment (receives a payment) or incurs a liability (receives an asset) stated in units of currency. 3.55

Money market fund shares or units represent a claim on a proportion of the value of an established money market fund. 11.99

Money market funds (MMFs) are collective investment schemes that raise funds by issuing shares or units to the public. The proceeds are invested primarily in money market instruments, MMF shares/units, transferable debt instruments with a residual maturity of not more than one year, bank deposits and instruments that pursue a rate of return that approaches the interest rates of money market instruments. MMF shares can be transferred by cheque or other means of direct third-party payment. 4.107

N

Natural resources consist of naturally occurring resources such as land, water resources, uncultivated forests and deposits of minerals that have an economic value. 10.15

NDP Net domestic product (NDP) is defined as gross domestic product (GDP) less the consumption of fixed capital. 16.52

Net borrowing see net lending

Net lending is defined as the difference between changes in net worth due to saving and capital transfers and net acquisitions of non-financial assets (acquisitions less disposals of non-financial assets, less consumption of fixed capital). If the amount is negative it represents net borrowing. 10.28

Net national disposable income see NNDI

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Net national income see NNI

Net non-life insurance premiums comprise both the actual premiums payable by policyholders to obtain insurance cover during the accounting period (premiums earned) and the premium supplements payable out of the property income attributed to insurance policyholders less the service charges payable to the insurance corporation. 8.117

Net social contributions are the actual or imputed contributions made by households to social insurance schemes to make provision for social benefits to be paid. Fees charged by the administrators of the schemes are excluded from contributions payable. 8.82

Net value added is the value of output less the values of both intermediate consumption and consumption of fixed capital. 6.8

Net worth is defined as the value of all the assets owned by an institutional unit or sector less the value of all its outstanding liabilities. 13.4

Neutral holding gains and losses A neutral holding gain (loss) over a period is the increase (decrease) in the value of an asset that would be required, in the absence of transactions and other changes in the volume of assets, to maintain command over the same amount of goods and services as at the beginning of the period. 12.75

NNDI Net national disposable income (NNDI) is defined as net national income (NNI) plus current transfers receivable from abroad less current transfers payable abroad. 16.57

NNI Net national income (NNI) is defined as gross national income (GNI) less the consumption of fixed capital. 16.55

Nominal holding gain - financial asset The nominal holding gain on a financial asset is the increase in value of the asset, other than transactions in the assets (including the accrual of interest over a period of time) and other changes in the volume of assets. 12.74

Nominal holding gain - liability The nominal holding gain on a liability is the decrease in value of the liability, other than by transactions or by other volume changes. 12.74

Nominal holding gain - non-financial asset The nominal holding gain on a non-financial asset is the value of the benefit accruing to the owner of that asset as a result of a change in its price over a period of time. 12.74

Non-cultivated biological resources consist of animals, birds, fish and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth and/or regeneration is not under the direct control, responsibility and management of institutional units. 10.182

Non-deductible VAT is VAT payable by a purchaser that is not deductible from his own VAT liability, if any. 6.58

Non-financial corporations are corporations whose principal activity is the production of market goods or non-financial services. 4.94

Non-life insurance claims are the amounts payable in settlement of damages that result from an event covered by a non-life insurance policy during the current accounting period. 8.118

Non-life insurance is an activity similar to life insurance except that it covers all other risks, accidents, sickness, fire, etc. 17.6

Non-life insurance technical reserves consist of prepayments of net premiums and reserves to meet outstanding non-life insurance claims. 11.105

Non-market output consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole. 6.128

Non-market producers consist of establishments owned by government units or NPISHs that supply goods or services free, or at prices that are not economically significant, to households or the community as a whole. 6.133

Non-monetary transactions are transactions that are not initially stated in units of currency. 3.75

Non-money-market (MMF) investment funds are collective investment schemes that raise funds by issuing shares or units to the public. The proceeds are invested predominantly in financial assets other than short-term assets and in non-financial assets

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(usually real estate). 4.108

Non-performing loan A loan is non-performing when payments of interest or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons (such as a debtor filing for bankruptcy) to doubt that payments will be made in full. 13.66

Non-produced assets consist of three categories (i) natural resources, (ii) contracts, leases and licences, and (iii) purchased goodwill and marketing assets. 10.14

Non-profit institutions are legal or social entities created for the purpose of producing goods and services but whose status does not permit them to be a source of income, profit or other financial gain for the units that establish, control or finance them. 4.8, 4.83

Non-profit institutions serving households (NPISHs) consist of non-market NPIs that are not controlled by government. 4.93

O

Operating lease An operating lease is one where the legal owner is also the economic owner and accepts the operating risks and receives the economic benefits from the asset by using it in a productive activity. 17.301

Options are contracts that give the purchaser of the option the right, but not the obligation, to buy (a “call” option) or to sell (a “put” option) a particular financial instrument or commodity at a predetermined price (the “strike” price) within a given time span (American option) or on a given date (European option). 11.117

Other buildings and structures comprise non-residential buildings, other structures and land improvements. 10.73

Other capital transfers consist of all capital transfers except capital taxes and investment grants. 10.210

Other current transfers consist of all current transfers between resident institutional units, or between resident and non-resident units, other than current taxes on income, wealth, etc., social contributions and benefits, and social benefits in kind. 8.19

Other deposits comprise all claims, other than transferable deposits, that are represented by evidence of deposit. 11.59

Other employment-related social insurance benefits are social benefits payable by social insurance schemes other than social security to contributors to the schemes, their dependants or survivors. 8.109

Other equity is equity that is not in the form of securities. 11.88

Other financial corporations are institutional units providing financial services, where most of their assets or liabilities are not available on open financial markets. 4.101

Other financial intermediaries except insurance corporations and pension funds consist of financial corporations that are engaged in providing financial services by incurring liabilities, in forms other than currency, deposits or close substitutes for deposits, on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market. 4.109

Other flows are changes in the value of assets and liabilities that do not result from transactions. 3.7, 3.99

Other intellectual property products include any such products that constitute fixed assets but are not captured as research and development, mineral exploration and evaluation, computer software and databases or entertainment, literary and artistic originals. 10.117

Other investment fund shares or units represent a claim on a proportion of the value of an established investment fund other than a money market fund. 11.100

Other investment is a residual category that includes positions and transactions other than those included in direct investment, portfolio investment, financial derivatives and employee stock options and reserve assets. 26.94

Other machinery and equipment consists of machinery and equipment not elsewhere classified. 10.86

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Other structures include structures other than buildings, including the cost of the streets, sewer, etc. 10.76

Other subsidies on production consist of subsidies except subsidies on products that resident enterprises may receive as a consequence of engaging in production. 7.106

Other subsidies on products consist of subsidies on goods or services produced as the outputs of resident enterprises, or on imports, that become payable as a result of the production, sale, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation. 7.105

Other taxes on production consist of all taxes except taxes on products that enterprises incur as a result of engaging in production. 7.97

Other transferable deposits are those where one party or both parties to the transaction, or either the creditor or debtor or both of the positions, is not a bank. 11.58

Other work-in-progress consists of output (other than on cultivated biological resources) that is not yet sufficiently processed to be in a state in which it is normally supplied to other institutional units. 10.141

Output for own final use consists of products retained by the producer for his own use as final consumption or capital formation. 6.114

Output is defined as the goods and services produced by an establishment, excluding the value of any goods and services used in an activity for which the establishment does not assume the risk of using the products in production, and excluding the value of goods and services consumed by the same establishment except for goods and services used for capital formation (fixed capital or changes in inventories) or own final consumption. 6.89

Owner, see legal owner, economic owner

P

Payments of compensation consist of current transfers paid by institutional units to other institutional units in compensation for injury to persons or damage to property caused by the former that are not settled as payments of non-life insurance claims. 8.140

Pension entitlements show the extent of financial claims both existing and future pensioners hold against either their employer or a fund designated by the employer to pay pensions earned as part of a compensation agreement between the employer and employee. 11.107

Pension fund sub-sector The pension fund sub-sector consists of only those social insurance pension funds that are institutional units separate from the units that create them. 4.116

Permit to undertake a specific activity A permit to undertake a specific activity is one where the permits are limited in number and so allow the holders to earn monopoly profits, the monopoly profits do not come from the use of an asset belonging to the permit-issuer, a permit holder is able both legally and practically to sell the permit to a third party. 10.192

Permits to use natural resources are third-party property rights relating to natural resources. 10.191

Permits see also Contracts, leases and licences

Population The population of a country is most simply defined as all those persons who are usually resident in the country. 19.10

Portfolio investment is defined as cross-border transactions and positions involving debt or equity securities, other than those included in direct investment or reserve assets. 26.91

Premium - actual The actual premium is the amount payable to the direct insurer or reinsurer to secure insurance cover for a specific event over a stated time period. 6.186, 17.4

Premium - earned The premium earned is the part of the actual premium that relates to cover provided in the accounting period. 17.5

Premium - net Net premiums are defined as actual premiums plus premium supplements less the insurance service charge payable by the policy holders. 17.35

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Premium - unearned The unearned premium is the amount of the actual premium received that relates to the period past the accounting point. 17.5

Premium earned The premium earned is the part of the actual premium that relates to cover provided in the accounting period. 6.187

Premium see actual premium, premium earned, unearned premium, net premium

Price The price of a good or service is defined as the value of one unit of that good or service. 15.11

Primary incomes are incomes that accrue to institutional units as a consequence of their involvement in processes of production or ownership of assets that may be needed for purposes of production. 7.2

Principal activity The principal activity of a producer unit is the activity whose value added exceeds that of any other activity carried out within the same unit. 5.8

Producer's price The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer. 6.51

Product balance The product balance for any product recognizes that the sum of output at basic prices plus imports plus trade and transport margins plus taxes on products less subsidies on products is equal to the sum of intermediate consumption, final consumption and capital formation, all expressed at purchasers' prices, plus exports. 14.5

Production boundary The production boundary of the SNA includes the following activities (a) The production of all goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services. (b) The own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation. (c) The own-account production of knowledge-capturing products that are retained by their producers for their own final consumption or gross capital formation but excluding (by convention) such products produced by households for their own use. (d) The own-account production of housing services by owner occupiers. (e) The production of domestic and personal services by employing paid domestic staff. 6.27

Production is an activity, carried out under the responsibility, control and management of an institutional unit, that uses inputs of labour, capital, and goods and services to produce outputs of goods and services. 6.2

Production measure of GDP The production measure of gross domestic product (GDP) is derived as the value of output less intermediate consumption plus any taxes less subsidies on products not already included in the value of output. 16.47

Products are goods and services (including knowledge-capturing products) that result from a process of production. 6.14

Property income is the sum of investment income and rent. 7.107

Provisions for calls under standardized guarantees consist of prepayments of net fees and provisions to meet outstanding calls under standardized guarantees. 11.110

Public monuments are identifiable because of particular historical, national, regional, local, religious or symbolic significance. 10.78

Purchased goodwill see goodwill and marketing assets

Purchaser's price The purchaser's price is the amount paid by the purchaser, excluding any VAT or similar tax deductible by the purchaser, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place. 6.64

Purchasing power parity A purchasing power parity (PPP) is defined as the number of units of B's currency that are needed in B to purchase the same quantity of individual good or service as one unit of A's currency will purchase in A. 15.199

Q

Quasi-corporation A quasi-corporation is either an unincorporated enterprise owned by a resident institutional unit that has sufficient

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information to compile a complete set of accounts and is operated as if it were a separate corporation and whose de facto relationship to its owner is that of a corporation to its shareholders, or an unincorporated enterprise owned by a non-resident institutional unit that is deemed to be a resident institutional unit because it engages in a significant amount of production in the economic territory over a long or indefinite period of time. 4.42

Quoted shares see listed shares

R

Real GDI Real gross domestic income (real GDI) measures the purchasing power of the total incomes generated by domestic production. 15.188

Real holding gains and losses A real holding gain (loss) is the amount by which the value of an asset increases (decreases) over the neutral holding gain for the period, in the absence of transactions and other changes in the volume of assets. 12.76

Realized holding gain A holding gain (loss) is realized when an asset that has increased (decreased) in value due to holding gains (losses) since the beginning of the accounting period is sold, redeemed, used or otherwise disposed of, or a liability incorporating a holding gain or loss is repaid. 12.80

Rent is the income receivable by the owner of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production. 7.109, 7.154

Rental The rental is the amount payable by the user of a fixed asset to its owner, under an operating lease or similar contract, for the right to use that asset in production for a specified period of time. 6.245

Repo A repo is a securities repurchase agreement where securities are provided for cash with a commitment to repurchase the same or similar securities for cash at a fixed price on a specified future date. 11.74

Research and development consists of the value of expenditures on creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and use of this stock of knowledge to devise new applications. This does not extend to including human capital as assets within the SNA. 10.103

Reserve assets are those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing). Reserve assets must be denominated and settled in foreign currency. 26.95

Residence The residence of each institutional unit is the economic territory with which it has the strongest connection, in other words, its centre of predominant economic interest. 4.10

Resource lease A resource lease is an agreement whereby the legal owner of a natural resource that the SNA treats as having an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent. 7.109, 17.310

Rest of the world The rest of the world consists of all non-resident institutional units that enter into transactions with resident units, or have other economic links with resident units. 4.172

Retained earnings of a corporation or quasi-corporation are equal to the distributable income less the dividends payable or withdrawal of income from the quasi-corporation respectively. 7.139

S

Saving represents that part of disposable income (adjusted for the change in pension entitlements) that is not spent on final consumption goods and services. 9.28

Secondary activity A secondary activity is an activity carried out within a single producer unit in addition to the principal activity and whose output, like that of the principal activity, must be suitable for delivery outside the producer unit. 5.9

Securities repurchase agreement A securities repurchase agreement is an arrangement involving the provision of securities in exchange for cash with a commitment to repurchase the same or similar securities at a fixed price either on a specified future date

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(often one or a few days hence, but also further in the future) or with an “open” maturity. 11.74

Self-employed persons are persons who are the sole or joint owners of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations. 19.25

Services are the result of a production activity that changes the conditions of the consuming units, or facilitates the exchange of products or financial assets. 6.17

Social assistance benefits in cash are current transfers payable to households by government units or NPISHs to meet the same needs as social insurance benefits but which are not made under a social insurance scheme requiring participation usually by means of social contributions. 8.110

Social benefits are current transfers received by households intended to provide for the needs that arise from certain events or circumstances, for example, sickness, unemployment, retirement, housing, education or family circumstances. 8.17

Social contributions are actual or imputed payments to social insurance schemes to make provision for social insurance benefits to be paid. 8.16

Social entity A legal or social entity is one whose existence is recognized by law or society independently of the persons, or other entities, that may own or control it. 4.6

Social insurance benefit A social insurance benefit is a social benefit payable because the beneficiary participates in a social insurance scheme and the social risk insured against has occurred. 17.89

Social insurance contribution A social insurance contribution is the amount payable to a social insurance scheme in order for a designated beneficiary to be entitled to receive the social benefits covered by the scheme. 17.89

Social insurance scheme A social insurance scheme is an insurance scheme where the following two conditions are satisfied, (a) the benefits received are conditional on participation in the scheme and constitute social benefits as this term is used in the SNA, and (b) at least one of the three conditions following is met. (i) Participation in the scheme is obligatory either by law or under the terms and conditions of employment of an employee, or group of employees. (ii) The scheme is a collective one operated for the benefit of a designated group of workers, whether employed or non-employed, participation being restricted to members of that group. (iii) An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, whether or not the employee also makes a contribution. 8.65, 17.88

Social security benefits in cash are social insurance benefits payable in cash to households by social security funds. 8.108

Social transfers in kind consist of goods and services provided to households by government and NPISHs either free or at prices that are not economically significant. 8.141

Special Drawing Rights (SDRs) are international reserve assets created by the International Monetary Fund (IMF) and allocated to its members to supplement existing reserve assets. 11.47

Stocks are a position in, or holdings of, assets and liabilities at a point in time. 3.4

Stripped securities are securities that have been transformed from a principal amount with coupon payments into a series of zero-coupon bonds, with a range of maturities matching the coupon payment date(s) and the redemption date of the principal amount(s). 11.69

Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services that they produce, sell or import. 7.98

Subsidy on product A subsidy on a product is a subsidy payable per unit of a good or service. 7.100

Supply table A supply table at purchasers’ prices consists of a rectangular matrix with the rows corresponding to the same groups of products as the matching use tables and columns corresponding to the supply from domestic production valued at basic prices plus columns for imports and the valuation adjustments necessary to have total supply of each 14.13

T

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Taxes and duties on imports consist of taxes on goods and services that become payable at the moment when those goods cross the national or customs frontiers of the economic territory or when those services are delivered by non-resident producers to resident institutional units. 7.90

Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units. 7.71, 8.52

Taxes less subsidies on production consist of taxes payable or subsidies receivable on goods or services produced as outputs and other taxes or subsidies on production, such as those payable on the labour, machinery, buildings or other assets used in production. 7.5

Taxes on imports, excluding VAT and duties consist of all taxes (except VAT and import duties) as defined in the GFSM/OECD classifications that become payable when goods enter the economic territory or services are delivered by non-residents to residents. 7.94

Taxes on income consist of taxes on incomes, profits and capital gains. 8.61

Taxes on products A tax on a product is a tax that is payable per unit of some good or service. 7.88

Taxes on products, excluding VAT, import and export taxes, consist of taxes on goods and services that become payable as a result of the production, sale, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation. 7.96

Terms of trade The terms of trade are defined as the ratio of the price of exports to the price of imports. 15.187

Total economy The total economy is defined as the entire set of resident institutional units. 4.23

Trade margin A trade margin is defined as the difference between the actual or imputed price realized on a good purchased for resale and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of. 6.146

Trading gain or loss The trading gain or loss from changes in the terms of trade is the difference between real GDI and GDP in volume terms. 15.188

Transaction A transaction is an economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that it is analytically useful to treat like a transaction, often because the unit is operating in two different capacities. 3.7, 3.51

Transaction, see also monetary transaction, non-monetary transaction

Transfer A transfer is a transaction in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any good, service or asset in return as a direct counterpart. 8.10, 8.34

Transferable deposits comprise all deposits that are exchangeable for bank notes and coins on demand at par and without penalty or restriction and directly usable for making payments by cheque, draft, giro order, direct debit/credit, or other direct payment facility. 11.54

Transport equipment consists of equipment for moving people and objects. 10.84

Tree, crop and plant resources yielding repeat products cover plants whose natural growth and regeneration are under the direct control, responsibility and management of institutional units. 10.95

U

Unearned premium The unearned premium is the amount of the actual premium received that relates to the period past the accounting point. 6.187

Unincorporated enterprise An unincorporated enterprise represents the production activity of a government unit, NPISH or household that cannot be treated as the production activity of a quasi-corporation. 5.1

Unlisted shares are equity securities not listed on an exchange. 11.87

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Unquoted shares see unlisted shares

Unrealized holding gain An unrealized holding gain is one accruing on an asset that is still owned or a liability that is still outstanding at the end of the accounting period. 12.80

Use table A use table at purchasers' prices consists of a set of product balances covering all products available in an economy arranged in the form of a rectangular matrix with the products, valued at purchasers' prices, appearing in the rows and the columns indicating the disposition of the products to various types of uses. 14.13

V

Valuables are produced goods of considerable value that are not used primarily for purposes of production or consumption but are held as stores of value over time. 10.13

Value added tax A value added type tax (VAT) is a tax on goods or services collected in stages by enterprises but that is ultimately charged in full to the final purchasers. 7.89

Vertical integration A vertically integrated enterprise is one in which different stages of production, which are usually carried out by different enterprises, are carried out in succession by different parts of the same enterprise. 5.23

Volume index A volume index is an average of the proportionate changes in the quantities of a specified set of goods or services between two periods of time. 15.13

W

Warrants are tradable instruments giving the holder the right to buy, under specified terms for a specified period of time, from the issuer of the warrant (usually a corporation) a certain number of shares or bonds. 11.119

Water resources consist of surface and groundwater resources used for extraction to the extent that their scarcity leads to the enforcement of ownership and/or use rights, market valuation and some measure of economic control. 10.184

Weapons systems include vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. 10.87

Withdrawal of income from a quasi-corporation consists of that part of distributable income that the owner withdraws from the quasi-corporation. 7.133

Work-in-progress consists of output produced by an enterprise that is not yet sufficiently processed to be in a state in which it is normally supplied to other institutional units. 10.134

Work-in-progress on cultivated biological resources consists of output that is not yet sufficiently mature to be in a state in which it is normally supplied to other institutional units. 10.140

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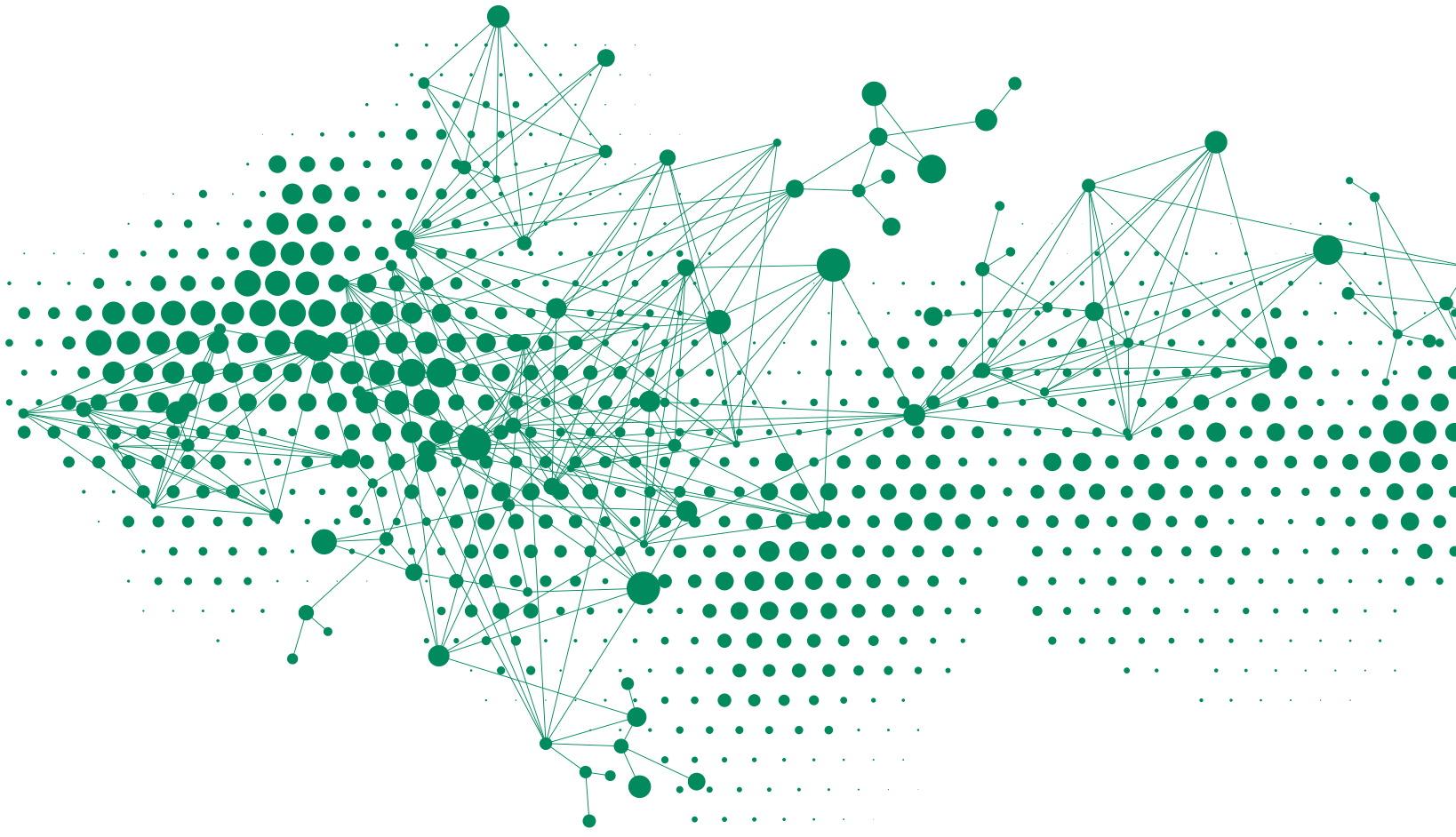


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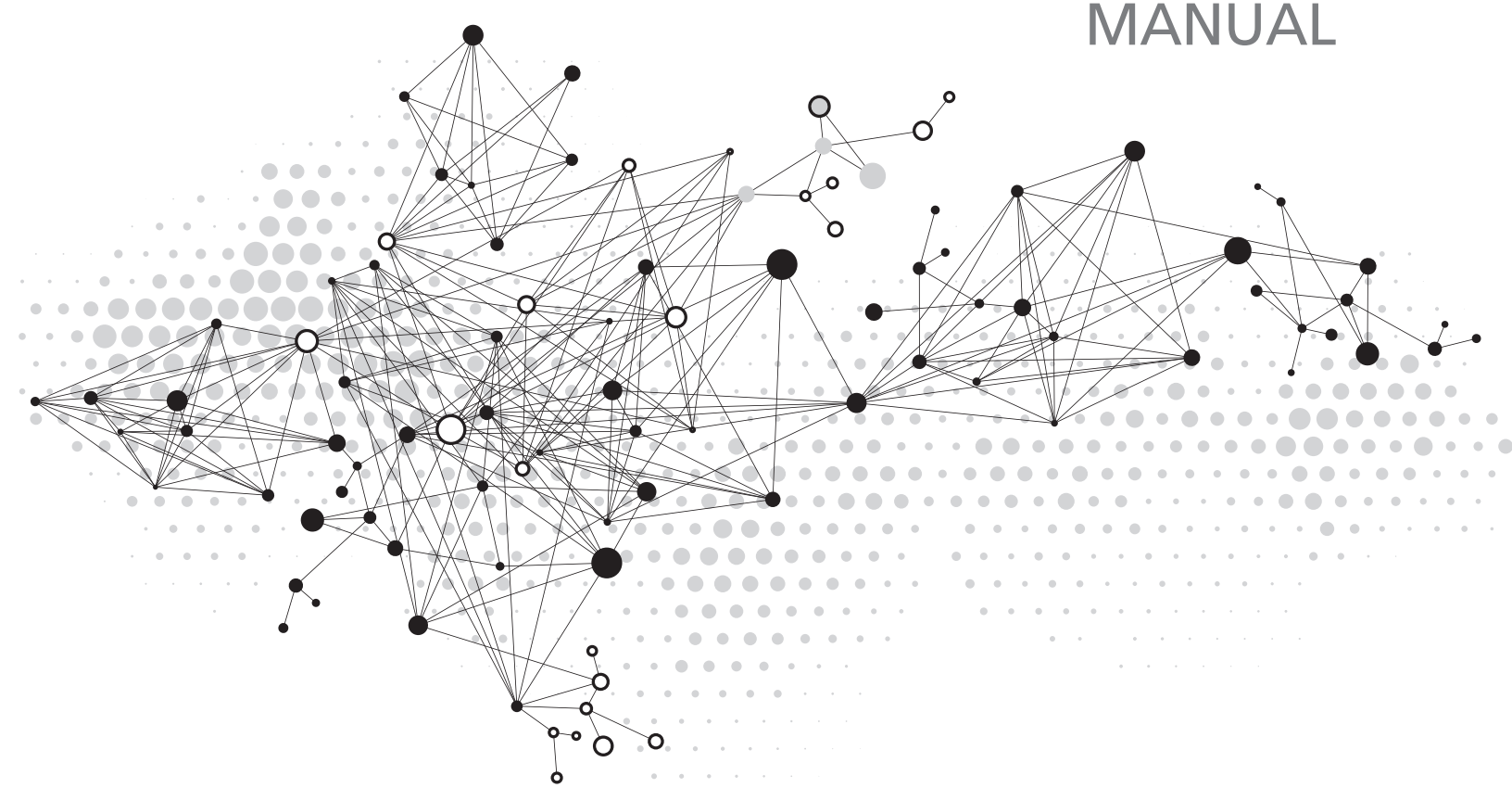
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INTERNATIONAL MONETARY FUND

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Foreword

The international financial crisis in recent years, and the associated large fiscal deficits and rising debt levels in many countries, underscored the importance of reliable and timely statistics on the general government and public sectors. These events have shown the importance of internationally comparable data that allow detecting sources of vulnerability early and taking timely corrective measures.

One focus of the IMF's work is on increasing the availability of key economic indicators. The IMF undertakes a range of activities for this purpose, including the IMF Statistics Department's work to prepare manuals describing methodologies that should be used to compile economic and financial statistics. In this regard, I am pleased to introduce the third edition of the *Government Finance Statistics Manual.* This manual takes its place alongside the other manuals prepared by the Statistics Department, including the *Balance of Payments and International Investment Position Manual*, the *Monetary and Financial Statistics Manual, Public Sector Debt Statistics: Guide for Compilers and Users*, and the *Quarterly National Accounts Manual*. Like the other manuals, this manual is harmonized with the *System of National Accounts 2008*.

This manual represents a major step forward in clarifying the standards for compiling and presenting fiscal statistics and strengthens the worldwide effort to improve public sector reporting and transparency. Government finance statistics are a basis for fiscal analysis, and they play a vital role in developing and monitoring sound fiscal programs and in conducting surveillance of economic policies. The Executive Board of the IMF approved the use of the government finance statistics framework as the standard for presenting the Fund's fiscal data. I therefore urge member countries to adopt the guidelines of the manual as the basis for compiling and disseminating government finance statistics, and for reporting this information to the Fund.

This manual has been prepared by the Statistics Department in close consultation with the Government Finance Statistics Advisory Committee, established to provide expert opinions from a broad range of countries and international organizations. The changes to the manual and revised text were posted on the website of the IMF for worldwide comments from compilers and users. The process underlying the revision of the manual demonstrates the spirit of international collaboration and cooperation. I would like to thank all of the experts involved for their invaluable assistance and for their collaborative and cooperative spirit.

Christine Lagarde
Managing Director
International Monetary Fund

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Preface

The *Government Finance Statistics Manual 2014* (*GFSM 2014*) is part of a series of international guidelines on statistical methodologies that have been issued by the International Monetary Fund. The *Manual* updates the *Government Finance Statistics Manual 2001*, and is the third edition of guidelines that describe a specialized macroeconomic statistical framework, the government finance statistics (GFS) framework, designed to support fiscal analysis. The *Manual* was produced by the IMF's Statistics Department in fulfillment of its mission to provide strong leadership for the development and application of sound statistical practices, and is published in service of the worldwide trend toward greater accountability and fiscal transparency.

The *Manual* is designed for use by compilers of GFS, fiscal analysts, and other users of fiscal data. It may also be informative to compilers and users of other macroeconomic statistics in understanding the relations between the various sets of macroeconomic statistics, in particular, to compilers of the national accounts who may depend on GFS as an input to their work. The guidelines also explain the relationship of GFS with internationally accepted accounting standards and may therefore be useful for those involved in reforming government accounting systems. The *Manual* is focused, however, on conceptual descriptions of definitions, classifications, and conceptual guidelines for compiling and disseminating GFS, and, as such, it does not describe the methods to be used to compile the statistics.

The *GFSM 2014* is supplemented by practical guidance on the compilation of the statistics provided in *Government Finance Statistics: Compilation Guide for Developing Countries 2011* and *Quarterly Government Finance Statistics: Guide for Compilers and Users*, as well as through technical assistance and training work with individual countries. However, the text of these practical guidelines is not intended to take precedence over the methodological guidance provided in the *Manual*. In addition to this English language version, the *Manual* will be published in Arabic, Chinese, French, Russian, and Spanish.

Fiscal analysis continues to evolve in response to the growing complexity of formulating and evaluating fiscal policies. In particular, globalization increases demands for internationally comparable data, while concerns about the sustainability of fiscal policies increase demands for information on the balance sheets of government and the broader public sector. Moreover, because of the demand for cross-sectoral consistency in macroeconomic data, the concepts and principles set out in the *Manual* are harmonized with those of the *System of National Accounts 2008* (*2008 SNA*) and the sixth edition of the *Balance of Payments and International Investment Position Manual* (*BPM6*). For consistent guidance on debt-related issues, the *GFSM 2014* is also supplemented with the *Public Sector Debt Statistics: A Guide for Compilers and Users* (*PSDS Guide*) and the *External Debt Statistics: Guide for Compilers and Users 2013* (*2013 EDS Guide*).

The *GFSM 2014* recommends disseminating fully integrated flows and stock positions, recorded on an accrual basis, while maintaining cash-flow data to allow an assessment of the liquidity constraints of government. It is recognized that the implementation of the fully integrated system described in the *Manual* will take some time and will need to progress at a pace determined by the differing needs and circumstances of the country involved. In particular, many countries will need to revise their underlying accounting systems to reflect the accrual basis of recording and revised classifications.

Acknowledgments

The preparation of *GFSM 2014* was a complex endeavor involving a number of people with different skills who were able to build on each other's work over an extended period. The *Manual* was produced under the direction of two directors of the Statistics Department: Ms. Adelheid Burgi-Schmelz (2009–2012) and Mr. Louis Marc Ducharme (2013–).

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The work was supervised by Mr. Robert Heath (Deputy Director), Ms. Claudia Dziobek (Chief, Government Finance Division), and Mr. Robert Dippelsman (former Deputy Chief, Government Finance Division), all from the Statistics Department. Ms. Sagé De Clerck (Senior Economist, Government Finance Division, Statistics Department) was the primary drafter and also coordinated and edited contributions to the *Manual*. Many staff in the Government Finance Division contributed to the project, in particular, Mmes. Majdeline El-Rayess, Viera Karolova, Phebby Kufa, and Kara Rideout, and Messrs. Miguel Alves, Alberto Jiménez de Lucio, Gary Jones, Mike Seiferling, Philip Stokoe, Deon Tanzer, and Tobias (Murto) Wickens. Contributions were also made by former staff members and experts in GFS including Mmes. Brigitte Batschi, Paola De Rita, Irina Dubinina, and Betty Gruber, and Messrs. Ismael Ahamdanech-Zarco, Johann Bjorgvinsson, Paul Cotterell, Jean-Pierre Dupuis, Cor Gorter, Carlos Gutierrez, Héctor Hernández, Ciaran Judge, Leonard Haakman, Brooks Robinson, and Vincent Marie. Mmes. Katy Hurston and Sheridan Parsonson supported the preparation of discussion papers and prepared drafts for publication. Current and former staff from other divisions of the Statistics Department also contributed to the project, including the Balance of Payments Division (Ms. Rita Mesias and Mr. Marcelo Dinenzon); Financial Institutions Division (Messrs. Jose Cartas, Thomas Elkjaer, and Richard Walton); and Real Sector Division (Messrs. Manik Shrestha and Daniel Smith).

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Government Finance Statistics Advisory Committee

The *GFSM 2014* greatly benefited from meetings of the Government Finance Statistics Advisory Committee that were convened in February 2011 and May 2012. The *GFSM 2014* benefited from the discussions, written contributions, and comments of members of the committee and the organizations they represented.

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An earlier draft of the *GFSM 2014* was circulated for worldwide comments and the final text benefited from the comments received from experts in member countries and other international organizations. The IMF Statistics Department gratefully acknowledges the important contribution by comments received in the process of finalizing the *GFSM 2014*.

Louis Marc Ducharme
Director
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1 Introduction

This chapter describes the purpose and evolution of this Manual, the uses of government finance statistics, the structure of the government finance statistics framework, major methodological changes from the previous editions of this Manual, the implementation of the methodology, and the structure of this Manual.

Purpose of the *Manual*

1.1 The *Government Finance Statistics Manual 2014* (*GFSM 2014*)—the third edition of this *Manual*[1]—describes a specialized macroeconomic statistical framework, the government finance statistics (GFS) framework, designed to support fiscal analysis. The *Manual* (i) provides the economic and statistical reporting principles to be used in compiling the statistics; (ii) describes guidelines for presenting fiscal statistics within an analytic framework that includes appropriate balancing items;[2] and (iii) is harmonized with other macroeconomic statistical guidelines. The *Manual* does not treat systematically the practical aspects of compiling the statistics.[3]

1.2 **Fiscal policy** is the use of the level and composition of the general government and public sectors' spending and revenue—and the related accumulation of government assets and liabilities—to achieve such goals as the stabilization of the economy, the reallocation of resources, and the redistribution of income. The primary purpose of the *GFSM 2014* is to provide a comprehensive conceptual and reporting framework suitable for analyzing and evaluating fiscal policy, especially the performance of the general government sector and the broader public sector of any economy. These concepts of sectors are described in Chapter 2. In short, the **general government sector** consists of resident institutional units that fulfill the functions of government as their primary activity. This sector includes all government units and all nonmarket, nonprofit institutional units (NPIs) that are controlled by government units. The function of government units, broadly described, is to implement public policy through the provision of primarily nonmarket goods and services and the redistribution of income and wealth, with both activities supported mainly by compulsory levies on other sectors. The **public sector** consists of all resident institutional units controlled directly, or indirectly, by resident government units—that is, all units of the general government sector and resident public corporations.

1.3 Fiscal statistics have traditionally been used to analyze the size of government; its contribution to aggregate demand, investment, and saving; the impact of fiscal policy on the economy, including resource use, monetary conditions, and national indebtedness; the tax burden; tariff protection; and the social safety net. In addition, analysts have become increasingly interested in fiscal rules, structural deficits, assessing the effectiveness of spending on poverty alleviation, the sustainability of fiscal policies, net debt, net wealth, and contingent claims against government, including the obligations for social security pensions. See the annex to Chapter 4 for the description of the use of GFS in fiscal analysis.

1.4 The *GFSM 2014* supports the compilation of internationally comparable statistics for the general government sector, the public sector, and their subsectors.

[1] The first edition was published in 1986 with the title *A Manual on Government Finance Statistics*. It is referred to as the *GFSM 1986*. The second edition was published in 2001 with the title *Government Finance Statistics Manual 2001*. It is referred to as the *GFSM 2001*.

[2] Balancing items summarize the net value of the activities covered by a set of reporting entries, such as the net value of total revenue minus total expense. Chapter 4 provides details on the GFS analytic framework and its balancing items.

[3] Guidance on compilation practices can be found in *Government Finance Statistics: Compilation Guide for Developing Countries, 2011, Quarterly Government Finance Statistics: Guide for Compilers and Users*, and other related material.

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Public corporations, nonfinancial as well as financial, can carry out government fiscal policies in a variety of ways, and analysis of their fiscal activities frequently requires statistics on all of their activities rather than statistics on specific transactions. Even when statistics are compiled for only the general government sector, some information on public corporations is required. To reflect transactions with public corporations, the change in the level of equity ownership held by units of the general government sector and the exposure to risks associated with guarantees provided to these corporations should be recorded.

1.5 The basic concepts, classifications, and definitions employed in this *Manual* reflect economic principles that should be universally valid regardless of the circumstances in which they are applied. Therefore, the GFS framework is applicable to all types of economies regardless of the institutional or legal structure of a country's government, the sophistication of its statistical development, the financial accounting system of government, or the extent of public ownership of for-profit entities. Nevertheless, the fact that the institutional and economic structures of countries differ greatly means that the various parts of this *Manual* will not be equally relevant.

The Evolution of International Statistical Guidelines on GFS

History

1.6 The evolution of international statistical guidelines for compiling GFS started in the early 1970s, with a draft of *A Manual on Government Finance Statistics*. This draft was circulated in English, Spanish, and French to governments, central banks, central statistical offices, and international organizations for comments, and was also discussed at several regional seminars. Based on comments received and the application of the earlier draft in compiling data for the IMF's *Government Finance Statistics Yearbook*, *A Manual on Government Finance Statistics, 1986* (*GFSM 1986*) was published. The *GFSM 1986* provided guidance to compile GFS but was not directly aligned with other macroeconomic statistics.

1.7 The *Government Finance Statistics Manual 2001* (*GFSM 2001*) updated the internationally recognized guidelines for compiling statistics required for fiscal analysis that were established by the *GFSM 1986*. The revised guidelines were harmonized with the corresponding standards of other internationally recognized macroeconomic statistical guidelines to the extent possible, consistent with the goal of supporting fiscal analysis. Also, the revised guidelines incorporated, for the first time, an integrated balance sheet approach to compiling and presenting GFS.

The Update of the GFSM 2001

1.8 The *GFSM 2014* updates the internationally recognized guidelines for compiling statistics required for fiscal analysis that were established by the *GFSM 2001*. The revised guidelines are harmonized with the updates in other macroeconomic statistical manuals and guides. The other statistical manuals are the overarching *System of National Accounts 2008* (*2008 SNA*)[4] and two specialized manuals: the sixth edition of the *Balance of Payments and International Investment Position Manual* (*BPM6*)[5] and the *Monetary and Financial Statistics Manual* (*MFSM*).[6] The updates to these manuals draw on the text of the *2008 SNA* to avoid an inference that a different meaning is intended.[7] For debt-related issues, the *GFSM 2014* is supplemented with the *Public Sector Debt Statistics: A Guide for Compilers and Users* (*PSDS Guide*) and the *External Debt Statistics: Guide for Compilers and Users, 2013* (*2013 EDS Guide*).

1.9 The revised manuals and guides address important international economic developments in recent years and take into account improved recording and methodological treatments of various types of events. Furthermore, the development of *International Public Sector Accounting Standards* and continued efforts to harmonize statistical reporting and financial reporting have led to additional changes incorporated in the

[4] Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank, *System of National Accounts 2008* (Brussels/Luxembourg, New York, Paris, Washington, 2009).
[5] International Monetary Fund, *Balance of Payments and International Investment Manual, 6th ed.* (Washington, 2009).
[6] *Monetary and Financial Statistics Manual* (Washington, 2000)—revision of the *MFSM, 2000 edition*, to also align with the *2008 SNA*, is pending at the time of publication of *GFSM 2014*.
[7] This manual also draws on United Nations, *Classifications of Expenditure According to Purpose* (New York, 2000) for the *Classification of Functions of Government* introduced in Chapter 6.

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GFSM 2014. The changes incorporated in *GFSM 2014* can broadly be summarized as[8]

- Methodological changes in the *2008 SNA*
- Clarifications of existing methodological guidelines
- Presentational changes
- Editorial changes.

Uses of the GFS Framework

1.10 The GFS framework is designed to provide statistics that enable policymakers and analysts to study developments in the financial operations and financial position of government. GFS also allow an assessment of the liquidity and sustainability of the finances of the general government sector or the public sector in a consistent and systematic manner. The GFS framework can be used to analyze the operations of a specific level of government, transactions between levels of government, and the public sector.

1.11 The GFS framework produces summary information on the overall performance and financial position of the general government or public sector through the use of balancing items, such as the net operating balance, net lending/net borrowing, and the change in net worth. These balancing items are defined and measured within the integrated and comprehensive GFS reporting framework.

1.12 In contrast to summary measures, the detailed data of the GFS framework can be used to examine specific areas of government operations. For example, one might want information about particular forms of taxation, the level of expense incurred on a type of social service, or the amount of government borrowing from deposit-taking corporations.

1.13 The harmonization of the GFS framework with other macroeconomic datasets means that data from GFS can be utilized as source data, or can be combined with data from other datasets to assess general government or public sector developments in relation to the rest of the economy. Similarly, the establishment of internationally recognized statistical guidelines permits GFS to be used in cross-country analyses of government operations and stock positions, such as comparisons of ratios of taxes, expense, or debt to gross domestic product.

Structure and Features of the GFS Framework

1.14 The GFS framework pertains to the general government and public sectors as defined in the *2008 SNA* and Chapter 2 of this *Manual*. These sectors are defined in terms of institutional units, which are economic entities that are capable, in their own right, of owning assets, incurring liabilities, and engaging in economic activities and transactions with other entities.

1.15 Stock positions and economic flows are integrated in the GFS framework and are presented in several statements, as described in Chapter 4. Two types of economic flows are recorded in the GFS framework: transactions and other economic flows.[9] For the most part, transactions are interactions between two institutional units that take place by mutual agreement. The *Statement of Operations* and the *Statement of Sources and Uses of Cash* record the results of all transactions during a reporting period. They are classified as revenue, expense, net investment in nonfinancial assets, net acquisition of financial assets, or net incurrence of liabilities. Transactions that generate revenue or expense result in a change in net worth. All other types of transactions result in equal changes to assets and/or liabilities and do not result in a change to net worth.

1.16 Other economic flows include price changes and a variety of other economic events that affect the holdings of assets and liabilities, such as debt write-offs and catastrophic losses. The *Statement of Other Economic Flows* summarizes these changes in assets, liabilities, and net worth.

1.17 The *Balance Sheet* for the general government or public sector is a statement of the stock positions of nonfinancial and financial assets owned, the stock positions of claims of other units on the general government or public sector in the form of liabilities, and the sector's net worth, equal to the total value of all assets minus the total value of all liabilities.

[8] The major changes are described in more detail in Appendix 1.

[9] Economic flows reflect the creation, transformation, exchange, transfer, or extinction of economic value. Transactions and other economic flows are defined and described in more detail in Chapter 3.

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1.18 In addition to the core statements in the GFS framework, two supplementary statements are included due to their analytic usefulness. To provide a clear statistical explanation of the factors causing changes in net worth, the *Statement of Total Changes in Net Worth* combines the results of the *Statement of Operations* and the *Statement of Other Economic Flows* in one statement.

1.19 Contingencies, such as loan guarantees and implicit guarantees to provide social benefits when various needs arise, can have important economic influences on the general economy but do not result in transactions or other economic flows recorded in the GFS framework until the event or condition referred to actually occurs. A second supplementary statement, the *Summary Statement of Explicit Contingent Liabilities and Net Obligations for Future Social Security Benefits*, summarizes the explicit and some implicit contingent liabilities.

1.20 The comprehensive treatment of transactions and other economic flows in the GFS framework provides a full explanation of the changes between the opening and closing balance sheet stock positions. That is, the stock position of a given type of asset or liability at the beginning of a reporting period plus the changes in that asset or liability indicated by transactions and other economic flows equals the stock position at the end of the period. Such an integrated statistical framework permits the effects of policies and specific economic events to be described and analyzed fully.

1.21 Various classifications are applied to the economic flows and stock positions recorded in the GFS framework. For example, each revenue transaction is classified according to whether it is a tax or another type of revenue; expense transactions are classified by purpose (functional classification) and by economic type (economic classification); assets are classified according to whether they are financial or nonfinancial; and financial assets and liabilities are classified by type of instrument, maturity, and the sector of the unit that issued the asset or that holds the liability.

1.22 Despite harmonization of the GFS framework with the *2008 SNA*, there are differences between the two statistical frameworks because of the different analytic purposes they serve. The most important difference is that the focus of the GFS framework is the impact of economic events on government finances—taxing, spending, borrowing, and lending—while the *2008 SNA* also focuses on the production and consumption of goods and services. As a result, the treatment of government production activities in GFS differs from the treatment of those activities in the *2008 SNA*. Significant differences relate to the treatment of own-account capital formation, and the degree of consolidation. In addition, the recording of pension schemes for government employees may be different from the *2008 SNA* in some circumstances (see Appendix 7 for more details on the relationship between GFS and other macroeconomic statistics).

1.23 In many cases, compiling GFS will be the first step in compiling statistics for the general government sector of the national accounts. For this reason, some data that normally would not appear in a standard GFS presentation should be maintained in underlying source data because they are needed for the national accounts. For example, the detailed classification of subsidies in GFS is based on the nature of the recipient of the subsidy, while classification in the *2008 SNA* is based on whether the subsidy is on a product or production.

1.24 Definitions of concepts in the GFS framework are the same as in the *2008 SNA*, but the coverage of a particular category of transactions may be slightly different. For example, compensation of employees recorded as an expense in GFS does not include the compensation of employees engaged in own-account capital formation, but can be reconciled with compensation of employees in the *2008 SNA* that includes the compensation of all employees. The definition and composition of compensation of employees, however, are identical in both frameworks. To note where the coverage or some other aspect of a concept differs from the same concept in the *2008 SNA*, the indicator "[GFS]" is added after the GFS title and an explanation of the difference is provided.

Methodological Differences with the *GFSM 1986*

1.25 The methodology for compiling GFS described in this *Manual* differs substantially from the methodology of the *GFSM 1986*. The following paragraphs summarize the major differences. Details are provided in Appendix 1.

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Coverage

1.26 The coverage of the GFS framework is the general government sector as defined in the *2008 SNA*, which is defined on the basis of institutional units. To capture the fiscal transactions and activities taking place outside the general government sector, the GFS framework should also be used to compile statistics for the public sector and its subsectors. The coverage of the *GFSM 1986* is defined on a functional basis under which general government data include all the relevant transactions of any unit carrying out a function of government. Therefore, some transactions of units of the broader public sector carrying out functions of government are included in general government data, unlike *GFSM 2014*. In addition, some transactions are excluded from general government data in *GFSM 1986* as they relate to production or market trading activities.

Basis of Recording Economic Events

1.27 The GFS framework records economic flows on an accrual basis, which means that flows are recorded at the time economic value is created, transformed, exchanged, transferred, or extinguished. However, the framework also encompasses the traditional cash-based reporting. In the *GFSM 1986*, transactions are recorded only when cash is received or paid.

1.28 Using the accrual basis of recording also means that nonmonetary transactions are fully integrated in the GFS framework. In the *GFSM 1986*, only selected nonmonetary transactions are recorded as memorandum items.

Valuation

1.29 Economic flows as well as assets, liabilities, and net worth are valued at current market prices in the GFS framework. While current market prices are readily available for assets and liabilities that are traded in active markets, valuation according to market-value equivalents is used for valuing assets and liabilities that are not traded in markets, or are traded only infrequently. In the *GFSM 1986*, debt securities are valued at the amount the government is obligated to pay when the debt matures (face value), which may differ from both the nominal value and the current market value.

Balance Sheets

1.30 Complete balance sheets, which include all stock positions of nonfinancial and financial assets, liabilities, and net worth, are included in the GFS framework. The *GFSM 1986* reports only on the stock positions of certain debt liabilities.

Integration of Flows and Stock Positions

1.31 The comprehensive recording of transactions and other economic flows permits a full integration of economic flows and stock positions and the reconciliation of differences between the opening and closing balance sheets. In the *GFSM 1986*, such a reconciliation of the stock positions of the debt liabilities is not possible without collecting additional information.

The Analytic Framework

1.32 In the GFS framework, several balancing items are introduced. The multiple balancing items facilitate analysis of the general government sector or the public sector based on a variety of considerations rather than a single measure. In the *GFSM 1986*, the emphasis of the analytic framework is focused on a single balancing item, the overall deficit/surplus.

1.33 The GFS framework's use of definitions of revenue and expense as transactions that bring about changes in net worth leads to a different treatment of transactions in nonfinancial assets. The *GFSM 1986* treats cash transactions in nonfinancial assets as capital revenue and expenditure, which affected the overall deficit/surplus. In the GFS framework, the difference between revenue and expense is a balancing item, the *net operating balance*, measuring the change in net worth resulting from transactions—it is a sustainability measure before considering the net investment in nonfinancial assets.

1.34 In the GFS framework, all transactions involving the acquisition or disposal of financial assets are treated as financing transactions, and *net lending (+) / net borrowing (–)* is a balancing item calculated as the *net operating balance* minus the *net investment in nonfinancial assets*. *Net lending/net borrowing* is also equal to the *net acquisition of all financial assets* minus the *net incurrence of all liabilities* from transactions. In the *GFSM 1986*, the net acquisition of financial assets for policy purposes is designated as lending minus repayments and treated like expenditure in deriving the overall deficit/surplus. In the *GFSM 2014* framework, the

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supplementary fiscal indicators include the calculation of an *overall fiscal balance* that treats the net acquisition of selected financial assets similarly to the net acquisition of financial assets for policy purposes in the *GFSM 1986* (see the annex to Chapter 4).

Harmonization with Other Methodologies

1.35 Recognizing the important linkages between GFS and other macroeconomic datasets, this *Manual* is more closely harmonized with the *2008 SNA* and *BPM6* than was the case for the *GFSM 1986*. Where differences exist due to the different analytic purposes of various datasets, guidance is provided on the reconciliation between datasets to ensure consistency (see Appendix 7). Also, recognizing the close relationship that exists between GFS and accruals-based public sector accounting standards, the systematic documentation of similarities and differences between statistical guidelines and accounting standards has informed changes in both. Therefore, the *GFSM 2014* is also more closely harmonized with accounting standards than was the case with the *GFSM 1986* (see Appendix 6).

Implementation of the GFS Framework

1.36 Some countries may be able, at least initially, to compile only a part of the integrated GFS framework. It is not feasible to lay down general priorities for data collection when economic circumstances may vary widely from one country to another. In practice, priorities usually are best established by national authorities that are familiar with the situation, needs, and challenges of their countries.

1.37 It is recognized that the implementation of the fully integrated GFS framework presented in this *Manual* will take some time. In particular, many countries will need to revise their underlying accounting systems to accommodate the accrual basis of reporting and fully reflect the revised classifications of the GFS framework.[10]

1.38 Nonetheless, it is likely that many countries will follow a similar path as they implement the GFS framework. For example, a possible first step on the migration path could be that countries would adopt the classification structure of the *Statement of Operations* or the *Statement of Sources and Uses of Cash* and adjust their cash-based statistics to address known deficiencies, such as by incorporating information on revenue or expense arrears. Another step could be the assembly of balance sheet information on financial assets and liabilities that would allow estimates to be made of the other economic flows as they relate to these financial instruments. A more difficult step is likely to be the collection of a complete set of information about the stock positions of nonfinancial assets held at a given time and their valuation at current market prices. Finally, a fully developed accrual accounting system could be introduced that provides for complete and fully integrated balance sheets to be prepared.

1.39 Good dissemination practices are essential in addition to good data compilation. As well as provision of metadata, aspects of good dissemination practices include a predictable release schedule, readily accessible published data, and identification of internal government access to statistics before public release. In recent years, international guidelines have been developed on good data dissemination practices—namely, the IMF's *General Data Dissemination System, Special Data Dissemination Standard*, and *Special Data Dissemination Standard Plus*.[11]

Structure of the *Manual*

1.40 The remainder of this *Manual* can be divided into two general topics. Chapters 2 through 4 develop the concepts used in the framework, and Chapters 5 through 10 describe the classifications used and the types of economic flows or stock positions included in each classification category.

1.41 Chapter 2 describes the coverage of the general government and public sectors, and their subsectors. Chapter 3 first explains the concepts of transactions, other economic flows, and stock positions of assets and liabilities. It then describes the accounting rules governing their recording, including timing, valuation, and consolidation. Chapter 4 presents the analytic framework, which is the integrated presentation of transactions, other economic flows, and stock

[10] Although the GFS framework uses some accounting terms, it is important to remember that it is a statistical reporting framework that might differ in important ways from the underlying financial accounting system from which most of GFS will be derived (see Appendix 6).

[11] http://dsbb.imf.org.

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positions in a manner that permits the calculation of aggregates and balancing items as summary measures of the activities of the general government and public sectors.

1.42 Chapters 5 through 10 describe the classifications of transactions, other economic flows, and stock positions of assets and liabilities. Chapter 5 is devoted to revenue transactions, which increase net worth. Chapter 6 is devoted to expense transactions, which decrease net worth. Chapter 7 describes the balance sheet and the classification of stock positions of assets and liabilities. Chapter 8 provides a classification of transactions in nonfinancial assets, while Chapter 9 provides a classification of transactions in financial assets and liabilities. Chapter 10 covers other economic flows.

1.43 An annex to Chapter 4 describes the use of GFS to build well-defined indicators for fiscal analysis, while an annex to Chapter 6 describes the *Classification of the Functions of Government* (*COFOG*).

1.44 This *Manual* includes nine appendixes. Appendix 1 lists the methodological changes from the *GFSM 2001* to this *Manual*, and the differences of the *GFSM 2014* framework from the *GFSM 1986*. Appendix 2 describes the various organizational structures used to provide social protection and the associated statistics compiled for the general government and public sectors. Appendix 3 provides guidance on selected public sector debt issues. Appendix 4 covers a description of cross-cutting issues such as the recording of leases, licenses, permits and other contracts, public-private partnerships, and insurance and standardized guarantee schemes. Appendix 5 elaborates on the implications of regional arrangements for GFS compilation. In Appendix 6, a description of the relationship between GFS and *International Public Sector Accounting Standards* is provided, while Appendix 7 describes the relationship between GFS and other macroeconomic statistics. Appendix 8 provides the classification codes used in the GFS framework. Appendix 9 contains a glossary of terms used in the GFS framework.

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2 Institutional Units and Sectors

This chapter defines and describes the concepts of residence, institutional units, and sectors, and then uses those concepts to delineate the general government and public sectors, and to discuss practical applications of sector classification principles.

Introduction

2.1 In principle, GFS should cover all entities that materially affect fiscal policies. Normally, fiscal policies are carried out by entities, established by political processes, wholly devoted to the economic functions of government (see paragraph 2.38), such as government ministries or municipal councils. The term "government" is often used as a collective noun for various combinations of entities in a country involved in the functions of government, or reference is made to the various individual governments of a country. For example, a country may have one central government; several state, provincial, or regional governments; and many local governments. Nonprofit institutions under government control may also exist. In addition to those entities, government-owned or controlled enterprises that engage in some commercial activities may be instruments of fiscal policy (see paragraphs 2.104–2.105). These government-owned enterprises, such as the central bank, post office, or railroad, which are often referred to as public corporations, state-owned enterprises, or parastatals in a legal sense, may be part of the general government or public sector, and statistics should be compiled for all of them.

2.2 Determining the coverage of the entities included in GFS requires determining economic territory, using the residence criteria (see paragraph 2.6), before considering two questions. First, what is the statistical unit for which it is feasible and meaningful to collect statistics? Second, which of those statistical units should be included in GFS?

2.3 The statistical unit employed in the institutional sector classification in GFS is the institutional unit, the same unit that is the foundation of the *2008 SNA* and other macroeconomic datasets.[1] This chapter therefore defines (see paragraph 2.22), and describes, types of institutional units (see paragraph 2.26).

2.4 Regarding the coverage of GFS, two principal constructs are used in macroeconomic datasets. First, the general government sector, which is primarily engaged in nonmarket activities, is defined (see paragraph 2.58). Second, the public sector is defined to also capture the market activities and the quasi-fiscal operations of public corporations (see paragraph 2.63) such as the central bank and other public corporations. **Quasi-fiscal operations** are government operations carried out by institutional units other than general government units. These quasi-fiscal operations have the same fiscal policy impact on the economy as those of government units (see paragraph 2.38). A number of subsectors of the general government and public sectors are also defined because of their analytical usefulness.

2.5 The remainder of this chapter defines the concept of residence to delineate an economy, and describes institutional units and the types of institutional units that exist in macroeconomic statistics before defining the institutional sectors. The chapter applies these concepts to delineate the general government sector and the public sector. Finally, a decision tree to assist with the classification of public sector entities and the application of sector classification principles to some examples are discussed.

[1] Maintaining a list or register of these units and their sector classification will ensure consistent classification in all macroeconomic datasets.

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Residence

2.6 An **economy** consists of a set of resident institutional units. As is the case for other macroeconomic statistics, the concept of residence is important for determining the coverage of institutional units and the classification of transactions. Also, as described in later chapters (see paragraphs 5.101–5.103, 6.93, and 7.264–7.265), some types of flows and stock positions of assets and liabilities of general government and public sector units are classified in GFS on the basis of the counterparty to a financial instrument, where one of the classification criteria is the residence of the counterparty.

2.7 The **residence** of each institutional unit is the economic territory with which it has the strongest connection (i.e., its center of predominant economic interest).[2] According to international statistical guidelines, residence is not based on nationality or legal criteria, although it may be similar to the concepts of residence used in many countries for exchange control, taxes, or other purposes. Nonresidents are units that are resident in any other economic territory, and for convenience they are referred to as the "rest of the world."

2.8 Economic territory, in its broadest sense, can be any geographic area or jurisdiction for which statistics are required. The most commonly used concept of economic territory is the area under the effective economic control of a single government. The concept of economic territory in GFS is the same as that used in other macroeconomic datasets. The connection of entities to a particular economic territory is determined from aspects such as physical presence and being subject to the jurisdiction of the government of the territory. However, economic territory need not be identical to its physical or political borders, and may be larger or smaller than this, as in a currency or economic union, or as part of an economy, region, or the world as a whole.

2.9 Economic territory includes:

- The land area
- Airspace
- Territorial waters, including areas over which jurisdiction is exercised over fishing rights and rights to fuels or minerals
- In a maritime territory, islands that belong to the territory
- Territorial enclaves in the rest of the world (such as embassies, consulates, military bases, scientific stations, information or immigration offices, aid agencies, central bank representative offices with diplomatic status).

2.10 Territorial enclaves are physically located in other territories and used by governments that own or rent them for diplomatic, military, scientific, or other purposes with the formal agreement of governments of the territories where the land areas are physically located. These areas may be shared with other organizations, but the operations must have a high degree of exemption from local laws to be treated as an enclave. Government operations that are fully subject to the laws of the host economy are not treated as enclaves, but as residents of the host economy. Conversely, the economic territory of a country does not include the territorial enclaves that are physically located within the geographical boundaries of that country that are used by foreign governments or international organizations and are not subject to the laws of that host country.

2.11 Sometimes a government has a separate physical or legal zone that is under its control, but for which, to some degree, separate laws are applied. For example, a free trade zone or offshore financial center may be exempt from certain taxation or other laws. Because of the need to view the whole economy, to have comprehensive global data, and to be compatible with counterpart data, these special zones should always be included in the economic statistics of the economy that exercises control over the separate physical or legal zone.[3]

2.12 An institutional unit has a **center of predominant economic interest** in an economic territory when there exists, within the economic territory, some location, dwelling, place of production, or other premises on which, or from which, the unit engages

[2] Residence is primarily defined in the *BPM6*, paragraphs 4.113–4.144, and also discussed in the *2008 SNA*, paragraphs 4.10–4.15, and Chapter 26.

[3] Where analytically useful, data for these zones could be presented separately, before they are consolidated with those of the remainder of the economy.

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and intends to continue engaging, either indefinitely or over a finite but long period of time, in economic activities and transactions on a significant scale. The location need not be fixed so long as it remains within the economic territory. Actual or intended location for one year or more is used as an operational definition; while the choice of one year as a specific period is somewhat arbitrary, it is adopted to avoid uncertainty and facilitate international consistency.

2.13 A **notional resident** unit is a unit identified for statistical purposes to be the resident owner of immovable assets legally owned by nonresidents. Immovable assets, such as land, other natural resources, buildings, and structures, are always treated as being owned by resident units. If the legal owner of these types of assets is a nonresident, a notional resident unit is created. The notional resident unit is recorded as owning the asset and receiving the rent or rentals that accrue to the asset. The legal owner is deemed to hold equivalent equity in the notional resident unit and then receives income from the notional resident unit in the form of property income paid abroad. If a building or structure is owned in part by a resident unit and in part by one or several nonresidents, there is one notional resident unit established. Each of the owners has a proportionate share of the equity of the notional resident unit. Land and buildings in extraterritorial enclaves of foreign governments (such as embassies, consulates, and military bases) that are subject to the laws of the home territory and not those of the territory where they are physically situated are part of the economic territory of the home economy (home territory).

2.14 On the basis of the definition of residence, all general government units are considered to be residents in their own country regardless of their physical location. Public corporations, however, are considered to be residents of the economies in whose territories they operate. Thus, a general government unit resident in one country can own a corporation resident in a second country. Corporations subject to the control of a government that is resident in a different economy are not classified as public corporations; these are classified as private corporations in the economy in which they are resident. This is because they are not public corporations related to the government of their economy of residence.

2.15 The case of "special purpose entities" (SPEs), "brass plate companies," or "shell companies" requires particular consideration. These entities may have little or no physical presence in the economy in which they are legally constituted or legally domiciled (e.g., registered or licensed), and any substantive work of the entity may be conducted in another economy. In such circumstances, residence is attributed to the economy in which the entity is legally constituted, or in the absence of legal incorporation, is legally domiciled. However, the fiscal activities of nonresident government-controlled SPEs should be reflected in GFS (see paragraphs 2.136–2.139).

2.16 The economic territory of an international organization that has all the essential attributes of an institutional unit (see paragraph 2.22) consists of the territorial enclaves over which it has jurisdiction. International organizations have the following special characteristics:

- The members of an international organization are either national states or other international organizations whose members are national states; they thus derive their authority either directly from the national states that are their members or indirectly from them through other international organizations.
- They are entities established by formal political agreements between their members that have the status of international treaties; their existence is recognized by law in their member countries.
- Because they are established by international agreement, they are accorded sovereign status—that is, international organizations are not subject to the laws or regulations of the country, or countries, in which they are located.
- They are created for various purposes, such as international financial organizations (e.g., the International Monetary Fund, World Bank, and Bank for International Settlements) or to provide nonmarket services of a collective nature for the benefit of their member states (e.g., peacekeeping, health, and governing certain aspects of the economic relationships or integration processes among the region's economies).

As a result, international organizations are not considered residents of any national economy, including the country in which they are located or conduct their affairs.

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2.17 International organizations may be global or regional. Regional organizations arise from regional arrangements such as customs unions, economic unions, and monetary and currency unions.[4] Regional organizations consist of those institutions whose members are governments or monetary authorities[5] of economies that are located in a specific region of the world. They can be financial, such as regional development banks, or nonfinancial, such as entities involved in the governance of economic unions. Regional organizations are not resident units of any country.

2.18 Some regional organizations have been endowed with the authority to raise taxes or other compulsory contributions within the territories of the countries that are members of the organization. These are sometimes described as "supranational authorities." Despite the fact that they fulfill some of the functions of government within each member country, they are not resident units of any country.

2.19 Financial positions between the regional organization and resident institutional units outside the general government or public sectors are not included in the public sector statistics of a member country because these organizations are not residents of that country. When GFS are compiled for regional organizations as if they constituted a separate government, this *Manual* recommends that financial positions be classified according to the member country that is the counterparty to allow individual countries to evaluate the impact of regional organizations on their economy.

2.20 In contrast to regional organizations, which perform governmental functions, there may be regional enterprises that are owned by two or more governments and that operate as market producers. If the enterprise has legal entities or separate branches in each economy in which it operates, then identification of these units and determination of their residence in the host economy of each of the branches are obvious. However, if they operate as a seamless entity in several economies, then the enterprise's operations are prorated between the economies, so that they are included in the public sector statistics in the national economies in which they operate. The procedures should be applied consistently with the recording in other macroeconomic statistics.[6]

2.21 A currency union central bank is an international financial organization that acts as a common central bank for a group of member countries. A currency union central bank is an institutional unit in its own right, owning assets and liabilities on own account, and is nonresident of any currency union member economy but resident in the currency union. Such a bank typically has the headquarters located in one country of the currency union and maintains national offices in each of the member countries to conduct some central bank functions. Each national office acts as the central bank for that country and is treated as a resident institutional unit in that country. The headquarters, however, is an international organization.

Institutional Units[7]

Definition of an Institutional Unit

2.22 An **institutional unit** is an economic entity that is capable, in its own right, of owning assets, incurring liabilities, and engaging in economic activities and in transactions with other entities. Some important features of institutional units are:

- The ability of an institutional unit to own goods or assets in its own right means that it is also able to exchange the ownership of goods or assets in transactions with other institutional units.
- An institutional unit is able to take economic decisions and engage in economic activities for which it is itself held directly responsible and accountable by law.
- An institutional unit is able to incur liabilities on its own behalf, to take on other obligations or future commitments, and to enter into contracts.

[4] The regional central decision-making body in a currency union is usually the currency union central bank (see paragraph 2.21). For a discussion of currency unions and other regional arrangements, see Appendix 5, and the *BPM6*, Appendix 3.

[5] Monetary authorities encompass the central bank (which subsumes other institutional units included in the central bank subsector, such as currency boards) and certain operations usually attributed to the central bank but sometimes carried out by other government institutions or commercial banks, such as government-owned commercial banks.

[6] See the *2008 SNA*, paragraph 4.13, and the *BPM6*, paragraphs 4.41–4.44.

[7] The definitions and descriptions of institutional units are fully consistent with the corresponding definitions and descriptions in the *2008 SNA*, Chapter 4. Hereafter, "unit" is used as a short form for "institutional unit" in some instances.

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- Either a complete set of accounts, including a balance sheet of assets, liabilities, and net worth, exists for an institutional unit, or it would be possible and meaningful, from both an economic and legal viewpoint, to compile a complete set of accounts if they were required.

2.23 Identifying the institutional unit is important for GFS compilation since it allows the sectorization of the economy, the identification of the counterparty to transactions and stock positions, and consolidation.[8] There are several reasons for choosing the institutional unit to work with:

- Statistics for the general government or public sector can be harmonized with the national accounts, balance of payments, international investment position, and monetary and financial statistics because the institutional units and sectors for which statistics are compiled are defined identically (see Appendix 7).
- These institutional units have legal responsibility for their actions, and are centers of decision-making in their own right.
- Statistics can be based on information from entities for which complete sets of accounts can be compiled, including balance sheets.
- The source data required for compiling statistics are usually readily available or can be made available.

2.24 An **establishment** is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added. There is a hierarchical relationship between institutional units and establishments. An institutional unit may contain one or more entire establishment(s), while an establishment can belong to only one institutional unit. The definition of an establishment implies that, at a minimum, complete accounting records about its production activities are available, including the value of its output and the cost of producing that output. An establishment can be an institutional unit if it satisfies the criteria as set out in paragraph 2.22.[9] Identifying establishments may be of particular interest in determining the market production of general government units (see paragraph 2.76).

2.25 An **enterprise** is the view of an institutional unit as a producer of goods and services. The term enterprise may refer to a corporation, a quasi-corporation, a nonprofit institution, or an unincorporated enterprise.[10]

Types of Institutional Units

2.26 In compiling macroeconomic data the classification of an institutional unit is determined by its objectives and functions and cannot always be inferred from its legal status or name. It is therefore necessary to closely examine the objectives and functions of the institutional unit before deciding which type of unit it is.

2.27 There are two main types of institutional units:

- Persons or groups of persons in the form of households
- Legal or social entities.

Households

2.28 A **household** is a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth, and who consume certain types of goods and services collectively, mainly housing and food. A household can be an individual household, or an institutional household. The latter comprises groups of persons staying for a very long or indefinite period of time, or who may be expected to reside for a very long or indefinite period of time in institutions such as hospitals, retirement homes, prisons, or religious communities such as convents, monasteries, and nunneries.

2.29 A household can have one member or could be a multiperson household. In a multiperson household, individual members are not treated as separate institutional units. Many assets are owned, or liabilities incurred, jointly by two or more members of the same household, while some or all of the income received

[8] Consolidation is a method of presenting statistics for a set of institutional units (or entities) as if they constituted a single unit (see paragraphs 3.152–3.168).

[9] If the establishment charges economically significant prices and meets the criteria to be classified as an institutional unit, it would be treated as a quasi-corporation (see paragraph 2.33).

[10] See the *2008 SNA*, paragraphs 5.1–5.2, for a detailed description of enterprises.

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by individual members of the same household may be pooled for the benefit of all members. Moreover, many expenditure decisions, especially those relating to the consumption of food or housing, may be made collectively for the household as a whole. It may be impossible, therefore, to draw up meaningful balance sheets or other accounts for individual members of a multiperson household. For these reasons, the household as a whole rather than the individual persons in it must be treated as the institutional unit.

Legal and social entities

2.30 A **legal or social entity** is one whose existence is recognized by law or society independently of the persons or other entities that may own or control it. Three types of legal or social entities are recognized as institutional units: corporations and nonprofit institutions are primarily created for purposes of production of goods or services; and government units are created by political processes.

Corporations

2.31 Corporations are defined as entities that are capable of generating a profit or other financial gain for their owners, are recognized by law as separate legal entities from their owners, and are set up for purposes of engaging in market production. The key to classifying a unit as a corporation in macroeconomic statistics is not its legal status but rather the economic substance of the nature of the entity. The laws governing the creation, management, and operations of legally constituted corporations and other entities may vary from country to country, so that it is not feasible to provide a legal definition of a corporation that would be universally valid. Therefore, in macroeconomic statistics, the term corporation is not necessarily used in the same way as in the legal sense.[11]

2.32 The key to classifying a unit as a corporation in macroeconomic statistics is the notion of being a market producer (see paragraph 2.65). Of particular importance are the characteristics to produce goods and services for the market at economically significant prices as explained in paragraph 2.66, and the potential to be a source of profit or other financial gain to the owners. Some nonprofit institutions and government units have the legal status of a corporation, but are not considered corporations for the purposes of macroeconomic statistics because they are not market producers. Other nonprofit institutions are legal corporations that produce for the market but they are not allowed to be a source of financial gain to their owners. Conversely, some entities with different legal titles, such as partnerships or a joint-stock company, could be considered corporations for economic statistics when they satisfy the definition of corporations.

2.33 A **quasi-corporation** is either (i) an unincorporated enterprise owned by a resident institutional unit that has sufficient information to compile a complete set of accounts, that is operated as if it were a separate corporation, and whose relationship to its owner is effectively that of a corporation to its shareholders, or (ii) an unincorporated enterprise owned by a nonresident institutional unit that is deemed to be a resident institutional unit because it engages in a significant amount of production in the economic territory over a long or indefinite period of time.[12] These entities are not incorporated or otherwise legally constituted, but function as if they were corporations. They are treated as corporations in GFS (see paragraphs 2.125–2.127).

2.34 An establishment or group of establishments engaged in the same kind of production activities should be treated as a quasi-corporation if the following criteria hold:

- The establishment charges prices for its outputs that are economically significant (see paragraph 2.66).
- The establishment is operated and managed in a similar way to a corporation.
- The establishment has a complete set of accounts, or is able to construct a complete set of accounts, that enable its stock positions and flows to be separately identified and measured.

[11] For a full discussion on the features of corporations, also see the *2008 SNA*, paragraphs 4.38–4.50.

[12] Unincorporated enterprises, such as some post offices or national railways, may exist in government ministries. When these unincorporated enterprises produce goods and services for the market at economically significant prices, and have separate sets of accounts, they are quasi-corporations and classified as part of public corporations. If not, they may be market establishments as discussed in paragraph 2.75.

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2.35 All corporations are part of the nonfinancial corporations sector or the financial corporations sector, depending on the nature of their primary activity. Institutional units that qualify as corporations and are controlled by government units or other public corporations are classified as public corporations (see paragraph 2.104).

Nonprofit institutions (NPIs)

2.36 Nonprofit institutions (NPIs) are legal or social entities created for the purpose of producing or distributing goods and services, but they cannot be a source of income, profit, or other financial gain for the institutional units that establish, control, or finance them. In practice, their productive activities generate either surpluses or deficits, but the surpluses cannot be appropriated by other institutional units. The articles of association by which they are established are drawn up in such a way that the institutional units that control or manage them are not entitled to a share in any profits or other income they generate.

2.37 NPIs may engage in market or nonmarket production, and may be created by households, corporations, or governments (see paragraph 2.83).

- NPIs engaged in market production charge economically significant prices for their services (see paragraph 2.66). Schools, colleges, universities, clinics, hospitals, etc. constituted as NPIs are market producers when they charge fees that are based on the majority of their production costs and that are sufficiently high to have a significant influence on the demand for their services. There are no shareholders with a claim on the profits or equity of the NPI. Because of their status as NPIs, they are also able to raise significant additional funds through donations from persons, corporations, or governments. Nevertheless, NPIs engaged in market production and controlled by government units must be treated as public corporations so long as they produce goods and services for the market at economically significant prices.
- Some market NPIs restrict their activities to serving a particular subset of other market producers. They consist of chambers of commerce, agricultural, manufacturing or trade associations, employers' organizations, research or testing laboratories, or other organizations or institutions that engage in activities that are of common interest or benefit to the group of enterprises that control and finance them. These NPIs are usually financed by contributions or subscriptions from the group of enterprises concerned. Such subscriptions are treated not as transfers but as payments for services rendered, and these NPIs are, therefore, classified as market producers. These market NPIs are, like corporations and quasi-corporations, members of either the nonfinancial corporations sector or the financial corporations sector.
- NPIs that are engaged in nonmarket production and are controlled by government are treated as government units (see paragraph 2.38 and Box 2.1). Therefore, schools, colleges, universities, clinics, hospitals, etc. constituted as NPIs are nonmarket producers when they charge fees that are not economically significant.
- The remaining NPIs, those that produce goods and services but do not sell them at economically significant prices and are not controlled by government, are classified as a special group of units called NPIs serving households.

Government units

2.38 Government units are unique kinds of legal entities established by political processes that have legislative, judicial, or executive authority over other institutional units within a given area. The principal economic functions of government units are to:

- Assume responsibility for the provision of goods and services to the community or individual households primarily on a nonmarket basis
- Redistribute income and wealth by means of transfers
- Engage primarily in nonmarket production[13]
- Finance their activities primarily out of taxation or other compulsory transfers.[14]

[13] The concepts of market and nonmarket producers are described in paragraph 2.65.

[14] The requirement of financing activities by compulsory transfers is necessary to differentiate a government from a nonprofit institution, which may carry out the same functions as a government but obtains its funds from voluntary transfers, property income, or sales. The receipt of compulsory transfers may be indirect. For example, a local government may finance its activities with grants receivable from the central government.

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A government unit may also finance a portion of its activities in a specific period by borrowing or by acquiring funds from sources other than compulsory transfers—for example, interest revenue, incidental sales of goods and services, or the rent of subsoil assets. All government units are part of the general government sector.

Application of the Definition of an Institutional Unit to Government

2.39 Depending on the complexity of a government's organization, the identification of government units may require careful consideration. Ministries, departments, agencies, boards, commissions, judicial authorities, legislative bodies, and other entities that make up a government are not institutional units if they do not have the authority to own assets, incur liabilities, or engage in transactions in their own right. In general, all entities funded by appropriations made in accordance with a budget controlled by the legislature are not separate institutional units and are treated as constituting a single institutional unit.

2.40 The geographic location of a government unit is not always limited to one location within the economic territory—for example, individual ministries or departments of a particular government may be deliberately dispersed throughout the area of the government's jurisdiction. They remain, nevertheless, part of the same institutional unit. Similarly, a given ministry or department may maintain branch offices or agencies in many different locations to meet local needs. These offices and agencies are part of the same institutional unit.

2.41 There may, however, be government entities with a separate legal identity and substantial autonomy, including discretion over the volume and composition of their expenditures and a direct source of revenue, such as earmarked taxes. Such entities are often established to carry out specific functions, such as road construction or the nonmarket production of health or education services. These entities should be treated as separate government units (often referred to as extrabudgetary units) if they satisfy the criteria to be an institutional unit (see paragraphs 2.22 and 2.80).

2.42 Sometimes governments establish legal entities that cannot act independently and are simply a passive holder of assets and liabilities. Such an entity is referred to as an **artificial subsidiary** and is not treated as a separate institutional unit, unless it is resident in an economy different from that of its parent unit (see paragraphs 2.6–2.20). Resident artificial subsidiary entities are classified as components of the level of government that controls them (i.e., as part of their parent unit or extrabudgetary units of the parent unit).

2.43 Government resident artificial subsidiaries are sometimes set up as SPEs. Although these resident artificial subsidiaries are often legally constituted corporations, to the extent that these entities are nonmarket producers and are controlled by another government unit, they should be classified within the general government sector, either as an extrabudgetary government unit, or with the parent government unit that controls the SPE. Resident SPEs acting independently, acquiring assets and incurring liabilities on their own behalf, and accepting the associated risk, are treated as separate institutional units and are classified by sector according to their principal activity. All nonresident SPEs are treated as separate institutional units resident in the economy where they are established, but the fiscal activities they carry out are reflected in the accounts of the government that controls them (see paragraphs 2.136–2.139).

2.44 Another example of a resident artificial subsidiary is where government establishes a central borrowing authority that appears to be a public financial corporation but is in fact part of a general government unit. These central borrowing authorities borrow on the market and then lend only to the parent unit or other general government units. However, because such entities are not treated as separate institutional units, and merely facilitate government borrowing, they should be classified in general government, either as an extrabudgetary unit, or with the government unit that controls the central borrowing authority. Where such a central borrowing authority is created as a resident in an economy different from that of its parent, it should be classified as a captive financial institution (see paragraphs 2.14 and 2.54) in the financial corporation sector of the host economy.

2.45 An **ancillary activity** is a supporting activity providing services within an enterprise in order to create the conditions within which the principal

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or secondary activities can be carried out.[15] The type of services referred to include keeping records, managing and paying employees, cleaning, maintenance, transportation, and security. An entity undertaking only ancillary activities will, in general, not satisfy the criteria to be an institutional unit.[16]

2.46 Many governments allocate substantial resources to social protection through the provision of social benefits (see paragraphs 6.96–6.105 and Appendix 2), to protect the entire population or specific segments of it against certain social risks. **Social risks** are events or circumstances that may adversely affect the welfare of the households concerned either by imposing additional demands on their resources or by reducing their income. Examples of social benefits are the provision of medical services, unemployment compensation, and social security pensions. Because of the large scale of social protection programs in many countries and the various organizational structures of such programs, Appendix 2 describes the institutional units involved in these programs and their effects on statistics of the general government sector.

2.47 Government usually comprises two or more institutional units, and there normally is one unit that controls the other units. The controlling unit most likely includes the legislature, head of state, and judiciary. In contrast to corporations (see paragraph 2.107), one government unit controls another government unit by appointing its managers and/or determining the laws and regulations that provide its finance rather than through equity ownership. Generally, government units do not issue shares. SPEs, wealth funds, or other entities of government that are legally constituted as corporations but do not satisfy the statistical definition of a corporation should be classified as government units in one of the subsectors of the general government. As a result, a liability for equity and investment fund shares could appear in the consolidated general government's balance sheet (see paragraphs 2.137 and 2.152–2.155).[17]

2.48 Public corporations, in contrast to general government units, are institutional units that are potential sources of financial gains or losses to the government units that own or control them. In some cases, the corporation issues shares, and thus the financial gain or loss is clearly allocated to the shareholders. In other cases, no shares are issued, but it is clear that a specific government unit controls the corporation's activities and is financially responsible for it. In those cases, the responsible government unit also owns equity and investment fund shares (see paragraphs 7.164–7.177).

Institutional Sectors[18]

2.49 An economy can be divided into institutional sectors.[19] It is therefore necessary to define institutional sectors and identify the type of sectors that exist.

Defining Institutional Sectors

2.50 An **institutional sector** groups together similar kinds of institutional units according to their economic objectives, functions, and behavior. Each sector consists of a number of institutional units that are resident in the economy and is intrinsically different from the other sectors. An economy is divided into five mutually exclusive institutional sectors. All resident institutional units are allocated to one of these institutional sectors. The five institutional sectors are:

- Nonfinancial corporations sector
- Financial corporations sector
- General government sector
- Households sector
- Nonprofit institutions serving households sector.

2.51 The relationship between these sectors of the economy and the types of institutional units (discussed in paragraphs 2.26–2.48) is depicted in Figure 2.1.

Nonfinancial corporations sector

2.52 The **nonfinancial corporations sector** consists of resident institutional units that are principally engaged in the production of market goods or

[15] Ancillary activities produce mainly services, but, as exceptions, goods that do not become a physical part of the marketable products produced by an enterprise.
[16] See the *2008 SNA*, paragraphs 5.35–5.45, for more details.
[17] Because of consolidation, GFS are not highly sensitive to the institutional unit borderline among the subsectors of the general government sector, as long as all general government units are fully covered.
[18] The definitions and descriptions of institutional sectors are fully consistent with the corresponding definitions and descriptions in the *2008 SNA*, Chapter 4.
[19] Hereafter, "sector" will often be used as a short form for "institutional sector."

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Figure 2.1 Types of Institutional Units and Their Relation to Sectors of the Economy

Sector / Type of unit	Nonfinancial corporations sector	Financial corporations sector	General government sector	Households sector	Nonprofit institutions serving households sector
Households				✓	
Corporations	✓	✓			
Nonprofit institutions	✓	✓	✓		✓
General government			✓		

√ Units included in sector

nonfinancial services. The sector includes public and private corporations and is composed of:

- All resident nonfinancial corporations (as defined in paragraphs 2.31–2.32), regardless of the residence of their owners
- The branches of nonresident enterprises that are engaged in nonfinancial production in the economic territory on a long-term basis
- All resident NPIs that are market producers of goods or nonfinancial services.

Financial corporations sector

2.53 The **financial corporations sector** consists of resident corporations that are principally engaged in providing financial services, including insurance and pension fund services, to other institutional units. The production of financial services is the result of financial intermediation, financial risk management, liquidity transformation, or auxiliary financial activities. In addition, the sector includes NPIs engaged in market production of a financial nature, such as those financed by subscriptions from financial enterprises whose role is to promote and serve the interest of those enterprises.

2.54 Financial corporations can be divided into three broad classes: financial intermediaries, financial auxiliaries, and captive financial institutions and money lenders.

- **Financial intermediaries** are institutional units that incur liabilities on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market. The assets and liabilities of financial intermediaries are transformed or repackaged with respect to maturity, scale, risk, and the like, in the financial intermediation process. The financial intermediation process channels funds between third parties with a surplus of funds and those with a demand for funds. A financial intermediary not only acts as an agent for these other institutional units, but also places itself at risk by acquiring financial assets and incurring liabilities on its own account. Financial intermediation is limited to acquiring assets and incurring liabilities with the general public or specified and relatively large groups thereof. Where the activity is limited to small groups, no intermediation takes place. Financial intermediaries include deposit-taking corporations, insurance corporations, and pension funds.
- **Financial auxiliaries** consist of financial corporations that are principally engaged in activities associated with transactions in financial assets and liabilities or with providing the regulatory context for these transactions but in circumstances that do not involve the auxiliary taking ownership of the financial assets and liabilities being transacted. They include brokers, managers of pension funds, mutual funds, etc. (but not the funds they manage), foreign exchange bureaus, and central supervisory authorities.
- **Captive financial institutions and money lenders** are institutional units providing financial services other than insurance, where most of their assets or liabilities are not available on open financial markets. These entities transact within only a limited group of units (such as with subsidiaries) or subsidiaries of the same holding

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corporations or entities that provide loans from own funds provided by only one sponsor. Captive insurance is the exception and is classified as an insurance corporation.

2.55 Financial intermediaries can be divided into seven subsectors according to the intermediary's activity in the market and the liquidity of its liabilities. These seven subsectors are: central bank; deposit-taking corporations except the central bank; money market funds; nonmoney market investment funds; other financial intermediaries except insurance corporations and pension funds; insurance corporations; and pension funds.

2.56 As indicated in Figure 2.3 and Table 7.11, in GFS the financial corporations are presented as follows for analytic purposes:

- The central bank
- Deposit-taking corporations except the central bank
- Other financial corporations—including all financial intermediaries except deposit-taking corporations, financial auxiliaries, and captive financial institutions and money lenders.

2.57 The financial corporations sector includes public and private financial corporations comprising:

- All resident financial corporations (as defined in paragraphs 2.31–2.35), regardless of the residence of their shareholders
- The branches of nonresident enterprises (see paragraph 2.20) that are engaged in financial activity in the economic territory on a long-term basis
- All resident NPIs that are market producers of financial services (see paragraph 2.36 – 2.37).

General government sector

2.58 The **general government sector** consists of resident institutional units that fulfill the functions of government as their primary activity. These institutional units perform the principal economic functions of government, as described in paragraph 2.38, in addition to fulfilling their political responsibilities and their role of economic regulator. The general government sector comprises:

- All government units of central, state, provincial, regional, and local government, and social security funds (see paragraphs 2.76–2.103) imposed and controlled by those units
- All nonmarket NPIs that are controlled by government units (see paragraph 2.83).

2.59 The general government sector does not include public corporations, even when all the equity of such corporations is owned by government units, nor quasi-corporations that are owned and controlled by government units. However, unincorporated enterprises owned by government units that are not quasi-corporations remain integral parts of those units and, therefore, must be included in the general government sector.

Households sector

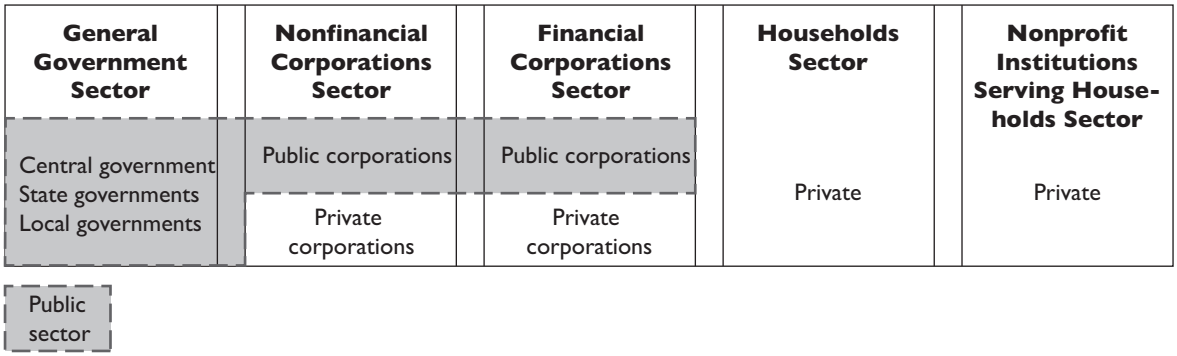
2.60 The **households sector** consists of all resident households (see paragraphs 2.28–2.29). Households may be of any size and take a variety of different forms in different societies or cultures. All physical persons in the economy must belong to one and only one household. Households supply labor, undertake final consumption, and, as entrepreneurs, produce market goods and nonfinancial (and possibly financial) services.

Nonprofit institutions serving households (NPISHs) sector

2.61 The **nonprofit institutions serving households (NPISHs) sector** consists of resident nonmarket nonprofit institutions (NPIs) that are not controlled by government. They provide goods and services to households for free or at prices that are not economically significant. One type of NPISHs is created by associations of persons to provide goods or, more often, services primarily for the benefit of the members themselves. For example, professional or learned societies, political parties, trades unions, consumers' associations, churches or religious societies, and social, cultural, recreational, or sports clubs. They do not include bodies serving similar functions that are controlled by government units. Religious institutions are usually excluded from general government and classified as NPISHs even when mainly financed by government units if this majority financing is not seen as empowering control by government. Political parties in countries with one-party political systems that are controlled by government units by means of providing the necessary finance are included in the general government sector. A second type of NPISHs consists of charities, and relief or aid agencies that are created for philanthropic purposes, while a third type provides collective services, such as research institutions that make their results freely available, environmental groups, etc. By convention, nonmarket NPIs controlled by foreign governments are classified as NPISHs in the host economy.

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Figure 2.2 The Public Sector and Its Relation to Other Institutional Sectors of the Economy



The Use of Subsectors

2.62 Each of the sectors of the economy may be divided into subsectors, and the subsectors can be combined in different ways to form other sectors. No single method of combining subsectors may be optimal for all purposes. Dividing the total economy into sectors and subsectors enhances the usefulness of the data for purposes of economic analysis and enables targeted monitoring of particular groups of institutional units for policy purposes. For example, the general government sector can be divided into central, state, and local government subsectors, while social security funds could be presented as a separate subsector or could be included in the subsector that organizes and manages them. The nonfinancial corporations subsector can be divided into public nonfinancial corporations, foreign-controlled nonfinancial corporations, and national private nonfinancial corporations.[20] The division of sectors into subsectors depends upon the type of analysis to be undertaken, the needs of policymakers, the availability of data, the economic circumstances, and the institutional arrangements within a country. Figure 2.2 shows the relationship between the general government sector, the public sector, and the other main sectors of the domestic economy.

Institutional Coverage and Sectorization of the Public Sector

2.63 The **public sector** consists of all resident institutional units controlled directly, or indirectly, by resident government units—that is, all units of the general government sector and resident public corporations. Figure 2.3 illustrates the main components of the public sector. Statistics should be compiled for the general government and public sectors, as well as for all the subsectors of the general government and the public corporations subsector.

Delineating General Government and Public Corporations

2.64 The general government sector consists of all government units and all resident nonmarket NPIs that are controlled by government units, while the public corporations subsector (see paragraph 2.104) consists of all corporations controlled by government units or other public corporations. General government also includes public enterprises, legally constituted as corporations, but that do not satisfy the statistical criteria to be treated as corporations (see paragraphs 2.31–2.35).[21] To determine which public enterprises are treated as general government units and which as public corporations, it is necessary to delineate nonmarket and market producers .

2.65 A **market producer** is an institutional unit that provides all or most of its output to others at prices that are economically significant. A **nonmarket producer** provides all or most of its output to others for free or at prices that are not economically significant.

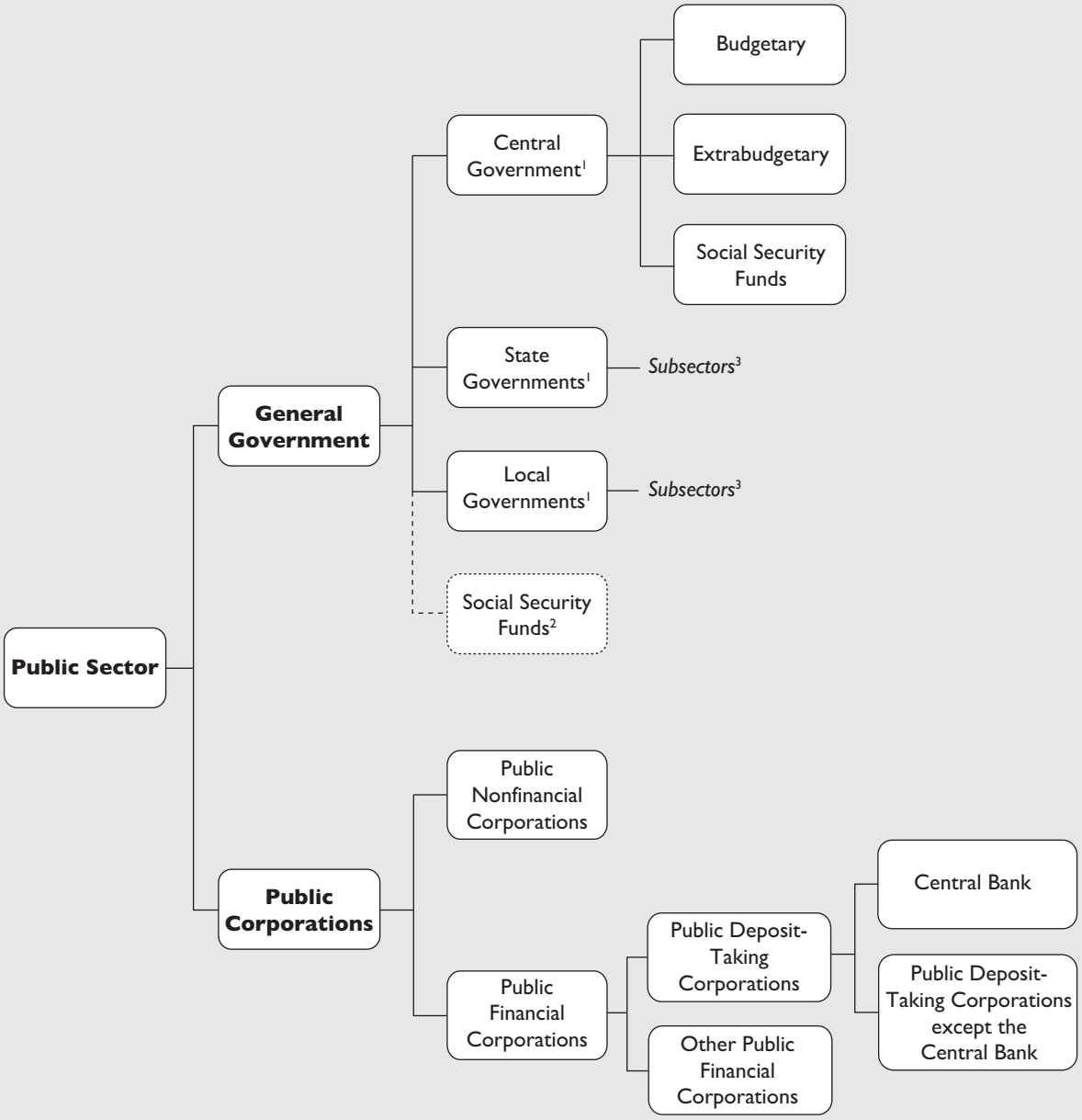
2.66 Economically significant prices are prices that have a significant effect on the amounts that producers

[20] Similarly, financial corporations can be divided into public, foreign-controlled, and national private financial corporations.

[21] Public enterprises are often also referred to as state-owned enterprises or parastatals.

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Figure 2.3 The Public Sector and Its Main Components



[1]Includes social security funds.
[2]Alternatively, social security funds can be combined into a separate subsector, as shown in the box with dashed lines.
[3]Budgetary units, extrabudgetary units, and social security funds may also exist in state and local governments.

are willing to supply and on the amounts purchasers wish to buy. These prices normally result when:

- The producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs.
- Consumers have the freedom to purchase or not purchase and make the choice on the basis of the prices charged.

These conditions usually mean that prices are economically significant if sales cover the majority of the

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producer's costs and consumers are free to choose whether to buy, and how much to buy, on the basis of the prices charged.

2.67 A price is not economically significant when it has little or no influence on how much the producer is prepared to supply and on the quantities demanded. Economically insignificant prices may be charged in order to raise some token revenue and/or reduce, but not eliminate, excessive demand that may occur if goods and services are provided free of charge. An economically insignificant price may be set on administrative, social, or political grounds for goods or services for which the amount to be supplied is fixed.

2.68 It can be presumed that prices are economically significant when the producers are private corporations. When there is public control, however, the unit's prices may be modified for public policy purposes. This may cause difficulties in determining whether the prices charged are economically significant. Public corporations are often established to provide goods and services in larger quantities than a private corporation would provide at the same selling price. Even when the sales of public corporations may cover a large portion of their costs, one can expect that they respond to market forces quite differently than would private corporations.

2.69 Although there is no prescriptive numerical relationship between the value of sales (excluding both taxes and subsidies on products) and the production costs, one would expect the value of the sales by public corporations to average at least half of the production costs over a sustained multiyear period.

2.70 In principle, the distinction between market and nonmarket producers should be made on a case-by-case basis. The classification of a producer as a market or nonmarket producer should be considered over a range of years.[22] Once classified, only if a change in pricing holds for several years or is expected to hold for several years should a reclassification of the entity be considered.

2.71 It is likely that corporations receiving substantial government financial support, or enjoying other risk-reducing factors such as substantial government guarantees, will respond to changes in the economic conditions differently from corporations without such advantages because their budget constraints are softer, and so are more likely to be classified as nonmarket producers.

2.72 The question arises whether government-owned entities supplying goods and services to government should be treated as market or nonmarket producers. The producer of these goods and services is not a market producer if it is a dedicated provider of ancillary services (see paragraph 2.45). These entities will, in general, not satisfy the criteria to be an institutional unit. Similarly, it can often be assumed that the producer is not a market producer if the unit provides the goods and services in the absence of competition[23] with private producers, and when the choice of supplier to government is not based on price. This is true regardless of whether the supplier is the only supplier and whether the government is the only customer of the supplier.

2.73 To assess whether a producer is a market producer, it is necessary to carry out a comparison between the receipts from sales and the production costs of the goods and services sold. Sales are measured before any taxes applicable to the products are added. Sales exclude all payments receivable from government unless they would be granted to any producer undertaking the same activity. Production for own use, known as own-account production, does not generate receipts from sales, and so it is not considered as part of sales in this context.

2.74 Production costs are calculated as the sum of compensation of employees, use of goods and services, consumption of fixed capital, and other taxes on production.[24] These concepts used in the calculation of production costs exclude all costs associated with own-account capital formation. Further, a return to capital is included in production costs if the unit is to be treated as a market producer. Subsidies receivable on production are not deducted from the production costs.

2.75 As a nonmarket producer, a general government institutional unit will have mostly nonmarket establishments (see paragraph 2.24), but it may have

[22] When a newly established unit needs to be classified to a sector, the classification as a market or nonmarket producer should be based on its intent regarding the prices it is to charge for its goods and services.

[23] Prices determined in a competitive market are highly likely to be economically significant prices.

[24] For a detailed breakdown of other taxes on production, see paragraph A7.41 and Table A7.3.

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one or more market establishments.[25] A **market establishment** is an establishment that charges economically significant prices. Where a general government unit sells some of its output at prices that are economically significant, it may be possible to identify market producers. Market establishments within government that satisfy the criteria to be separate institutional units are quasi-corporations (see paragraph 2.22), and are treated in the same way as corporations. The remaining market establishments would remain an integral part of the general government sector.

The General Government Sector and Its Subsectors

2.76 The **general government sector** consists of resident institutional units that fulfill the functions of government as their primary activity. This sector includes all government units and all nonmarket NPIs that are controlled by government units. For analytic purposes, it is often necessary or desirable to disaggregate the general government sector into subsectors.

2.77 Depending on the administrative and legal arrangements, there may be more than one level of government within a country, and statistics should be compiled for each level (also referred to as subsectors). However, because of these different arrangements, international comparison of data for each subsector of general government should be undertaken with some caution. In macroeconomic statistics, provision is made for three subsectors of general government: central, state, and local. Not all countries have all three levels; some may have only a central government or a central government and one level below. Other countries may have more than three levels. In that case, the various units should all be classified as one of the three subsectors suggested here. In addition to levels of government, the existence of social security funds and their role in fiscal policy may require that statistics for all social security funds be compiled as a separate subsector of the general government sector.

2.78 A full classification of the subsectors of the general government would allow for both NPIs and social security funds to be distinguished for each of central, state, and local government subsectors. In practice, though, it is usual to present social security funds in one of two alternative sets of subsectors, as illustrated in Figure 2.3.[26]

- All social security funds could be combined into a separate subsector and all other general government units could be classified according to their level. In that case, the central, state, and local government subsectors would comprise all government units other than social security funds; or
- Social security funds could be classified according to the level of government that organizes and manages them and therefore be combined with the other general government units at the respective subsectors. Thus, the general government would consist of central, state, and local governments, assuming that all three levels of government exist. To facilitate analysis of social security funds as a whole, separate statistics for them may be provided within the statistics for each level of government.

Countries may choose either presentation.

2.79 Classification problems may arise when government operations are carried out by a general government unit jointly accountable to two levels of government.[27] This classification decision may be especially difficult if the agency has its own source of funding, such as earmarked taxes. In some cases, an NPI might be controlled by two or more government units at different levels of government. For example, a state government unit might have the right to appoint the majority of officers managing an NPI but the financing might be provided mainly by the central government. General government units subject to dual control should be classified to the level of government that predominates in terms of control in accordance with all the indicators of control (see Boxes 2.1 and 2.2).

2.80 The central, state, and local government subsectors of general government are each made up of

[25] The *sales of goods and services* (142) include sales of market establishments and sales by nonmarket establishments, and are identified as specific categories of revenue (see paragraphs 5.136–5.141).

[26] The alternative methods of subsector classification are designed to accommodate different analytic needs. The decision as to which method is more appropriate in a given country depends on how significant social security funds are and on the extent to which they are managed independently of the government units with which they are associated.

[27] Also see the discussion on joint ventures in paragraphs 2.140–2.143.

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Box 2.1 Government Control of Nonprofit Institutions

Control of an NPI is defined as the ability to determine the general policy or program of the NPI. To determine if an NPI is controlled by the government, the following five indicators of control would be the most important and likely factors to consider:

- The appointment of officers—The government may have the right to appoint the officers managing the NPI under the NPI's constitution, its articles of association, or other enabling instrument.
- Other provisions of the enabling instrument—The enabling instrument may contain provisions other than the appointment of officers that effectively allow the government to determine significant aspects of the general policy or program of the NPI. For example, the enabling instrument may specify or limit the functions, objectives, and other operating aspects of the NPI, thus making the issue of managerial appointments less critical or even irrelevant. The enabling instrument may also give the government the right to remove key personnel or veto proposed appointments, require prior approval of budgets or financial arrangements by the government, or prevent the NPI from changing its constitution, dissolving itself, or terminating its relationship with government without government approval.
- Contractual agreements—The existence of a contractual agreement between a government and an NPI may allow the government to determine key aspects of the NPI's general policy or program. As long as the NPI is ultimately able to determine its policy or program to a significant extent, such as by being able to fail to comply with the contractual agreement and accept the consequences, to change its constitution, or to dissolve itself without requiring government approval other than that required under the general regulations, then it would not be considered controlled by government.
- Degree of financing by government— An NPI that is mainly financed by government may be controlled by that government. Generally, if the NPI remains able to determine its policy or program to a significant extent along the lines mentioned in the previous indicator, then it would not be considered controlled by government.
- Risk exposure—If a government openly allows itself to be exposed to all, or a large proportion of, the financial risks associated with an NPI's activities, then the arrangement constitutes control.

A single indicator could be sufficient to establish control in some cases, but in other cases, a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators will necessarily be judgmental in nature but clearly similar judgments must be made in similar cases.

institutional units. For each of these subsectors, it is often analytically useful to group its entities according to administrative, legislative, or funding arrangements. For example, governments may create specialized boards, commissions, or agencies either as part of their budgetary accounts or as separate units. It may be possible to create subsectors at each level of government based on whether the units in the subsector are financed by the legislative budgets of that level of government or by extrabudgetary sources—that is, distinguishing between budgetary and extrabudgetary units (irrespective of the treatment of social security funds—see paragraph 2.78). The budgetary component may comprise only the main (or general) budget, and the extrabudgetary component the remaining entities that constitute that level of government, excluding social security funds. Such a grouping of the subsectors allows for a more direct comparison between budget data and GFS. Whether units are classified as budgetary or extrabudgetary depends on country circumstances. What is important, though, is full coverage of the general government sector—that is, the statistics compiled for each level of government should cover all units that constitute that subsector of government (central, state, or local).

2.81 In all countries, there is an institutional unit of the general government sector particularly important in terms of size and power, in particular the power to exercise control over many other units and entities. The **budgetary central government** is often a single unit of the central government that encompasses the fundamental activities of the national executive, legislative, and judiciary powers. This component of general government is usually covered by the main (or general) budget. The budgetary central government's revenue and expense are normally regulated and controlled by a ministry of finance, or its functional equivalent, by means of a budget approved by

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the legislature. Most of the ministries, departments, agencies, boards, commissions, judicial authorities, legislative bodies, and other entities that make up the budgetary central government are not separate institutional units. This is because they generally do not have the authority to own assets, incur liabilities, or engage in transactions in their own right (see paragraph 2.42). The state or local government subsectors each have a budgetary state/local government component that includes the principal executive, legislative, and judicial powers for these levels of government.

2.82 General government entities with individual budgets not fully covered by the main (or general) budget are considered **extrabudgetary**.[28] These entities operate under the authority or control of a central, state, or local government. Extrabudgetary entities may have their own revenue sources, which may be supplemented by grants (transfers) from the general budget or from other sources. Even though their budgets may be subject to approval by the legislature, similar to that of budgetary accounts, they have discretion over the volume and composition of their spending. Such entities may be established to carry out specific government functions, such as road construction, or the nonmarket production of health or education services. Budgetary arrangements vary widely across countries, and various terms are used to describe these entities, but they are often referred to as "extrabudgetary funds" or "decentralized agencies."

2.83 Nonmarket NPIs controlled by government are typically classified as extrabudgetary units when they satisfy the criteria to be an institutional unit. More specifically, they are classified with the level of government that controls them—namely, central, state, or local governments. The most important and likely factors to consider in determining government control of NPIs are discussed in Box 2.1. All NPIs allocated to the general government sector should retain their identity as NPIs in statistical records, to facilitate the analysis of a complete set of NPIs.

2.84 The following sections further define the subsectors of government. These definitions apply whether social security funds are included with the level of government that organizes and manages them, or as a separate subsector of general government.

Central government

2.85 The **central government subsector** consists of the institutional unit(s) of the central government plus those nonmarket NPIs that are controlled by the central government. The political authority of the central government extends over the entire territory of the country. Central government has, therefore, the authority to impose taxes on all resident institutional units and on nonresident units engaged in economic activities within the country. Its political responsibilities include national defense, the maintenance of law and order, and relations with foreign governments. It also seeks to ensure the efficient working of the social and economic system by means of appropriate legislation and/or regulation. It is responsible for providing collective services for the benefit of the community as a whole, and for this purpose incurs expenditure on defense, public administration, etc. In addition, it may incur expenditure on the provision of services, such as education or health, primarily for the benefit of individual households, and it may make transfers to other institutional units, including other levels of government.

2.86 Compiling statistics for the central government is particularly important because of the special impact it has on monetary policy and economic growth. For example, it is mainly through central government finances that fiscal policy impacts on inflationary or deflationary pressures within the economy. It is generally at the central government level alone that a decision-making body can formulate and carry out public policies directed toward nationwide economic objectives. Other levels of government have neither national economic policies as their objective nor the central government's access to central bank credit.

2.87 In most countries, central government is a large and complex subsector. Nonetheless, as described in paragraph 2.80, based on administrative arrangements in a country, it is generally composed of a budgetary central government, extrabudgetary units, and social security funds (unless a separate subsector is used for social security funds, as described in paragraph 2.78).

[28] These entities are institutional units if they satisfy the criteria to be a separate institutional unit (see paragraph 2.22). If an entity does not qualify as a unit, it is considered as part of the unit that controls it.

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2.88 While the central government may also control nonfinancial or financial corporations, these corporations are classified outside of the central (and general) government sector(s), but are part of the public sector. However, if institutional units controlled by central government are legally constituted as corporations but are not market producers, they should be classified as part of the central government sector, not the public corporations sector. Similarly, unincorporated enterprises controlled by central government units that do not satisfy the criteria to be quasi-corporations (see paragraph 2.34) should remain integral parts of those units and, therefore, would be included in the central government subsector.

2.89 In some countries, central government may include units that engage in financial transactions that in other countries would be performed by central banks. In particular, units of central government may be responsible for the issue of currency, the maintenance of international reserves, the operation of exchange stabilization funds, and transactions with the International Monetary Fund. When the units in question remain financially integrated with central government and under the direct control and supervision of central government, they cannot be treated as separate institutional units. Accordingly, these monetary authority functions carried out by central government are recorded in the general government sector and not the financial corporations sector. However, because of the analytic importance of obtaining accounts covering the monetary authorities as a whole, and in order to provide links with other macroeconomic statistics such as the *2008 SNA*, the *BPM6*, and the *MFSM*, it is recommended that the transactions of central government agencies carrying out monetary authority and deposit-taking functions be separately identified, so that they can be combined with those of the central bank and other deposit-taking corporations in special tabulations if desired.

State governments

2.90 State governments consist of institutional units exercising some of the functions of government at a level below that of central government and above that of the government institutional units existing at a local level. State governments are distinguished by the fact that their fiscal authority extends over the largest geographical areas into which the country as a whole may be divided for political or administrative purposes. They are institutional units whose fiscal, legislative, and executive authority extends only to individual "states" into which the country as a whole may be divided. These states may be described by different names in different countries and the subsector may consist of state, provincial, or regional governments. For ease of expression, this level of government will be referred to hereafter as state governments. In many countries, especially smaller countries, state governments may not exist. However, in geographically large countries, especially those that have federal constitutions, considerable powers and responsibilities may be assigned to state governments.

2.91 A state government may consist of many institutional units and usually has the fiscal authority to levy taxes on institutional units that are resident in, or engage in economic activities or transactions within, its area of jurisdiction (but not other areas). It must also be entitled to spend or allocate some, or possibly all, of the taxes or other revenue that it receives according to its own policies, within the general rules of law of the country, although some of the transfers it receives from central government may be tied to certain specified purposes. It should also be able to appoint its own officers, independently of external administrative control. On the other hand, if a regional unit is entirely dependent on funds from central government, and if the central government also determines the ways in which these funds are to be spent at the regional level, it should be treated as an agency of central government for statistical purposes, rather than as a separate level of government.

2.92 In a few countries, more than one level of government exists between the central government and the smallest governmental institutional units at a local level; in such cases, for purposes of sector classification, these intermediate levels of government are grouped with the level of government—either state or local—with which they are most closely associated.

2.93 If a state government exists, then its principal departments and ministries will generally constitute a single institutional unit in a manner similar to the budgetary unit of the central government. In addition, there may be extrabudgetary agencies operating under the authority of a state government with a separate legal identity and enough autonomy to form

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additional institutional units (see paragraph 2.39). There may also be institutional units whose authority extends over two or more states, but are responsible to the respective state governments. Such units should also be included in the state government subsector.

2.94 State governments may control corporations in the same way as central government. They may also have unincorporated units that engage in market production. Such institutional units should be treated as quasi-corporations in line with the principles in paragraph 2.33. These corporations and quasi-corporations should be classified outside of the state government subsector (and general government sector) as part of public corporations.

Local governments

2.95 Local government units are institutional units whose fiscal, legislative, and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes. The local government subsector consists of local governments that are separate institutional units plus those nonmarket NPIs that are controlled by local governments. The scope of their authority is generally much less than that of central government or state governments, and they may, or may not, be entitled to levy taxes on institutional units resident in their areas. They are often heavily dependent on grants (transfers) from higher levels of government, and they may also act, to some extent, as agents of central or regional governments. They should also be able to appoint their own officers, independently of external administrative control. Even when local governments act as agents of central or state governments to some extent, they can be treated as a separate level of government, provided they are also able to raise and spend some funds on their own initiative and own responsibility.

2.96 Local governments are in closest contact with institutional units occupying their localities. They typically provide a wide range of services to local residents, some of which may be financed out of grants (transfers) from other levels of government. Statistics for the local government subsector may cover a wide variety of governmental units, such as counties, municipalities, cities, towns, townships, boroughs, school districts, and water or sanitation districts. Often, local government units with different functional responsibilities have authority over the same geographic areas. For example, separate government units representing a town, a county, and a school district may have authority over the same area. In addition, two or more contiguous local governments may organize a government unit with regional authority that is accountable to the local governments. Such units should also be included in the local government subsector.

2.97 Some of the most typical functions of local governments provide services for which users' fees are small in relation to the main costs borne by the local government. Local governments are typically involved in:

- Educational establishments
- Hospitals and social welfare establishments, such as kindergartens, nurseries, and welfare homes
- Public sanitation and related entities, such as water purification systems and plants, refuse collection and disposal agencies, cemeteries, and crematoria
- Culture, leisure, and sports facilities, such as theaters, concerts, music halls, museums, art galleries, libraries, parks, and open spaces.

2.98 The same rules governing the treatment of the production of goods and services by central and state government units are applied to local governments. If a market producer can be identified within a local government unit that satisfies the criteria to be a corporations or a quasi-corporation (see paragraph 2.34), it is classified as a public corporation. When market establishments[29] do not satisfy the criteria to be a quasi-corporation, they are included within local government. Units supplying services on a nonmarket basis, such as education or health, remain an integral part of the local government unit that controls them.

2.99 Government units serving both a state government and one or more local governments should be included with the level of government that predominates in its operations and finances. In some countries, more than one level of government exists between the central government and the smallest governmental institutional units at a local level. In such cases, these intermediate levels of government are grouped together with the level of government, either

[29] See paragraph 2.75 for a definition of market establishments.

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state or local, with which they are most closely associated. For some analyses, it may be useful to combine the statistics for state and local governments.

Social security funds

2.100 A **social security fund** is a particular kind of government unit that is devoted to the operation of one or more social security schemes.[30] In macroeconomic statistics, a social security fund is recognized if it meets the criteria to be an institutional unit and if it:

- Is organized and managed separately from the other activities of government units
- Holds its assets and liabilities separately from other government units
- Engages in financial transactions on its own account.

2.101 **Social security schemes** are social insurance schemes covering the community as a whole, or large sections of the community, and are imposed and controlled by government units. **Social insurance schemes** provide social protection and require formal participation by the beneficiaries, evidenced by the payment of contributions (actual or imputed). Participation in social security schemes is therefore also evidenced by the payment of contributions (actual or imputed) by the beneficiaries. These schemes cover a wide variety of programs, providing benefits in cash or in kind for old age, invalidity or death, survivors, sickness and maternity, work-related injury, unemployment, family allowance, health care, etc. There is not necessarily a direct link between the amount of the contributions payable by an individual and the benefits receivable.

2.102 However, not all social security schemes are organized and managed by social security funds; for example, a social security scheme for sickness may be operated by a national health ministry. If there is an autonomous employment-related pension fund (i.e., a separate institutional unit) to provide government employee pensions, this fund should be excluded from social security funds and be classified as a public financial corporation if under control of government, or otherwise as a private financial corporation (see paragraphs A2.47–A2.53). A nonautonomous employment-related pension scheme for government employees that is administered by a social security fund remains part of social security funds. However, if the conditions for participation and benefits payable, as determined by the employment contract, differ from those of the social security scheme for nongovernment employee participants, an employment-related pension scheme exists. GFS recognizes liabilities for employment-related pension entitlements. Therefore, economic flows and stock positions related to this pension scheme should be distinguished within the social security fund (see paragraphs 6.25 and 7.194).

2.103 Consistent with the *2008 SNA*, this *Manual* allows for social security funds to be accommodated in two alternative sets of subsectors of general government, as described in paragraph 2.78.

The Public Corporations Sector and Its Subsectors

The public corporations subsector

2.104 The **public corporations subsector** consists of all resident corporations controlled by government units or by other public corporations. It is possible that some entities that are legally constituted as corporations may not be classified as corporations for statistical purposes if they do not charge economically significant prices. Public corporations may be involved in quasi-fiscal operations (i.e., they carry out government operations at the behest of the government units that control them—see paragraph 2.4). As such, public corporations may exist to serve as an instrument of public (or fiscal) policy for government. Most directly, a public corporation can engage in specific transactions to carry out a government operation, such as lending to particular parties at a lower-than-market interest rate or selling their product, such as electric power, to selected customers at reduced rates. More generally, however, a public corporation can carry out fiscal policy by employing more staff than required, purchasing extra inputs, paying above-market prices for inputs, or selling a large share of its output for prices that are less than what the market price would be if only private producers were involved.

2.105 Public corporations may be created to: generate profits for general government; protect key resources; provide competition where barriers to entry may be large; and provide basic services where costs are prohibitive. These public corporations are often

[30] Appendix 2 provides a detailed description of the nature of social protection, including social security.

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large and/or numerous, and may have a significant economic impact—for example:

- Public corporations may be of significance to government because of the effects their magnitude or strategic position may have on macroeconomic objectives, such as bank credit, aggregate demand, borrowing abroad, and the balance of payments.
- Many public corporations may represent a sizeable investment of national resources, at considerable opportunity costs.
- Public corporations are a potential source of fiscal risk to the extent that their liabilities could be explicitly or implicitly guaranteed by government, or may hold reputational risks for government.
- Public corporations may over time become nonmarket units reclassified to the general government sector and vice versa; compilation of statistics on the public sector avoids the series breaks in general government data that may result from changes in the way they operate.

2.106 Statistics on public corporations are also likely to be needed to compile comprehensive statistics for the general government sector. GFS for the general government sector should reflect all transactions with public corporations, and changes in the net worth of public corporations are reflected in the value of the equity of those corporations owned by general government units. The accounts of public corporations will help explain the source of changes in these assets, and that information will be useful for an analysis of sustainability and other aspects of fiscal policy.

Government control of corporations

2.107 A corporation is a **public corporation** if a government unit, another public corporation, or some combination of government units and public corporations controls the entity. **Control of a corporation** is defined as the ability to determine general corporate policy of the corporation. The expression "general corporate policy" as used here is understood in a broad sense to mean the key financial and operating policies relating to the corporation's strategic objectives as a market producer.

2.108 Because the arrangements for the control of corporations can vary considerably, it is neither desirable nor feasible to prescribe a definitive list of factors to be taken into account. Although a single indicator could be sufficient to establish control, in other cases, a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators must necessarily be judgmental in nature, but clearly similar judgments must be made in similar cases. Box 2.2 presents the most important and likely factors to consider.

2.109 Because governments exercise sovereign powers through legislation, regulations, orders, and other arrangements, care needs to be applied in determining whether the exercise of such powers amounts to a determination of the general corporate policy of a particular corporation, and therefore control of the corporation. Laws and regulations applicable to all units as a class or to a particular industry should not be viewed as amounting to control of these units.

2.110 The ability to determine general corporate policy does not necessarily include the direct control of the day-to-day activities or operations of a particular corporation. The officers of such corporations would normally be expected to manage these in a manner consistent with and in support of the overall objectives of the particular corporation. Nor does the ability to determine the general corporate policy of a corporation include the direct control over any professional, technical, or scientific judgments, as these would normally be viewed as part of the core competence of the corporation itself. For example, the professional or technical judgments exercised by a corporation set up to certify aircraft airworthiness would not be considered controlled with respect to individual approvals and disapprovals. However, its broader operating and financial policies, including the airworthiness criteria, may well be determined by a government unit as part of the corporation's corporate policy.

2.111 Corporations subject to the control of a nonresident government unit (or a nonresident public corporation) are not classified as public corporations in the host economy, but would be part of the private corporations in that economy.[31]

2.112 Quasi-corporations and market NPIs (i.e., NPIs engaging in market production) under the control of government are classified as public corporations.

[31] Also see the discussion of residence in paragraphs 2.6–2.21 of this chapter and definitions of corporations in paragraphs 2.31–2.32.

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Box 2.2 Government Control of Corporations

Control of corporations is defined as the ability to determine the general corporate policy of the corporation. To determine if a corporation is controlled by the government, the following eight indicators of control would be the most important and likely factors to consider:

- Ownership of the majority of the voting interest—Owning a majority of shares will normally constitute control when decisions are made on a one-share, one-vote basis. The shares may be held directly or indirectly, and the shares owned by all other public entities should be aggregated. If decisions are not made on a one-share, one-vote basis, the classification should be based on whether the shares owned by other public entities provide a majority voice.
- Control of the board or other governing body—The ability to appoint or remove a majority of the board or other governing body as a result of existing legislation, regulation, contractual, or other arrangements will likely constitute control. Even the right to veto proposed appointments can be seen as a form of control if it influences the choices that can be made. If another body is responsible for appointing the directors, it is necessary to examine its composition for public influence. If a government appoints the first set of directors but does not control the appointment of replacement directors, the body would then be part of the public sector until the initial appointments had expired.
- Control of the appointment and removal of key personnel—If control of the board or other governing body is weak, the appointment of key executives, such as the chief executive, chairperson, and finance director, may be decisive. Nonexecutive directors may also be relevant if they sit on key committees, such as the remuneration committee determining the pay of senior staff.
- Control of key committees of the entity—Subcommittees of the board or other governing body could determine the key operating and financial policies of the entity. Majority public sector membership on these subcommittees could constitute control. Such membership can be established under the constitution or other enabling instrument of the corporation.
- Golden shares and options—A government may own a "golden share," particularly in a corporation that has been privatized. In some cases, this share gives the government some residual rights to protect the interests of the public by, for example, preventing the company selling off some categories of assets or appointing a special director who has strong powers in certain circumstances. A golden share is not of itself indicative of control. If, however, the powers covered by the golden share do confer on the government the ability to determine the general corporate policy of the entity in particular circumstances and those circumstances currently existed, then the entity should be in the public sector from the date in question. The existence of a share purchase option available to a government unit or a public corporation in certain circumstances may also be similar in concept to the golden share arrangement discussed earlier. It is necessary to consider whether, if the circumstance in which the option may be exercised exists, the volume of shares that may be purchased under the option and the consequences of such exercise mean that the government has "the ability to determine the general corporate policy of the entity" by exercising that option. An entity's status in general should be based on the government's existing ability to determine corporate policy exercised under normal conditions rather than in exceptional economic or other circumstances, such as wars, civil disorders, or natural disasters.
- Regulation and control—The borderline between regulation that applies to all entities within a class or industry group and the control of an individual corporation can be difficult to judge. There are many examples of government involvement through regulation, particularly in areas such as monopolies and privatized utilities. It is possible for regulatory involvement to exist in important areas, such as in price setting, without the entity ceding control of its general corporate policy. Choosing to enter into or continue to operate in a highly regulated environment suggests that the entity is not subject to control. When regulation is so tight as to effectively dictate how the entity performs its business, then it could be a form of control. If an entity retains unilateral discretion as to whether it will take funding from, interact commercially with, or otherwise deal with a public sector entity, the entity has the ultimate ability to determine its own corporate policy and is not controlled by the public sector entity.
- Control by a dominant public sector customer or group of public sector customers—If all of the sales of a corporation are to a single public sector customer or a group of public sector customers, there is clear scope for dominant influence. The presence of a minority private sector customer and/or open competition from private producers to supply goods and services to the public sector usually implies an element of independent decision-making by the corporation so that the entity would not be considered controlled. In general, if there is clear evidence that the corporation could not choose to deal with nonpublic sector clients because of the public sector influence, then public control is implied.
- Control attached to borrowing from the government—Lenders often impose controls as conditions of making loans. If the government imposed controls through lending or issuing guarantees that are more than would be typical when a healthy private sector entity borrows from a bank, control may be indicated. Similarly, control may be implied if only the government was prepared to lend to the corporation.

Although a single indicator could be sufficient to establish control, in other cases, a number of separate indicators may collectively indicate control. A decision based on the totality of all indicators must necessarily be judgmental in nature, but clearly similar judgments must be made in similar cases.

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Types of public corporations

2.113 Public corporations are classified as nonfinancial or financial corporations, depending on the nature of their primary activity.

Public nonfinancial corporations subsector

2.114 All resident nonfinancial corporations controlled by general government units or other public corporations are part of the **public nonfinancial corporations subsector**. **Nonfinancial corporations** are corporations whose principal activity is the production of market goods or nonfinancial services. Typical examples of public nonfinancial corporations are national airlines, national electricity companies, and national railways, if those entities charge economically significant prices. This category could also include public nonprofit institutions engaging in market production (such as hospitals, schools, or colleges) if they are separate institutional units and charge economically significant prices. However, entities that receive financial aid from government but are not controlled by government are not public corporations, but are classified as private corporations or NPISHs.

Public financial corporations subsector

2.115 All resident financial corporations controlled by general government units or other public corporations are part of the **public financial corporations subsector**. **Financial corporations** are corporations that are principally engaged in providing financial services, including insurance and pension fund services, to other institutional units (see paragraphs 2.53–2.57).

2.116 The financial corporations subsector can further be divided into subsectors according to the financial corporations' activity in the market and the liquidity of its liabilities.[32] However, for GFS purposes, the public financial corporations subsector can broadly be grouped into public deposit-taking corporations (central bank and public deposit-taking corporations except the central bank) and other public financial corporations. Relative to other subsectors of the public sector, public financial corporations may tend to have relatively large values of financial assets and liabilities because of their role in financial intermediation. Accordingly, separate data for public financial corporations may be useful in addition to the data consolidated with other components of the public sector.

Public deposit-taking corporations

2.117 Public deposit-taking corporations are financial corporations controlled by general government units or other public corporations whose principal activity is financial intermediation and who have liabilities in the form of deposits or financial instruments that are close substitutes for deposits. Two types of public deposit-taking corporations can be distinguished: the central bank and public deposit-taking corporations except the central bank.

The central bank

2.118 The **central bank** is the national financial institution that exercises control over key aspects of the financial system. In general, the following financial intermediaries are classified in this subsector:

- The national central bank, including where it is part of a system of central banks[33]
- Currency boards or independent currency authorities that issue national currency that is fully backed by foreign exchange reserves
- Central monetary agencies of essentially public origin (e.g., agencies managing foreign exchange or issuing banknotes and coins) that keep a complete set of accounts but are not classified as part of central government.

2.119 As long as the central bank is a separate institutional unit, it is always part of the financial corporations subsector, even if a case can be made that it is primarily a nonmarket producer. While a central bank may have a high degree of operational independence, it is a public corporation. Supervisory authorities that are mainly engaged in supervision of financial units and are separate institutional units from the central bank are included with financial auxiliaries.

Public deposit-taking corporations except the central bank

2.120 Public deposit-taking corporations except the central bank consist of all resident depository

[32] See paragraphs 2.53–2.57, and in the *2008 SNA*, paragraphs 4.98–4.116, for a detailed breakdown of these subsectors.

[33] In a currency union, in each member economy the monetary authority functions may be carried out by a national (resident) monetary authority (see paragraph 2.21).

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corporations, except the central bank, that are controlled by general government units or other public corporations. Examples are commercial banks, "universal" banks, "all purpose" banks, savings banks, post office giro institutions,[34] post banks, rural credit banks, agricultural credit banks, export-import banks, and specialized banks if they take deposits or issue close substitutes for deposits.

Other public financial corporations

2.121 Other public financial corporations comprise all resident financial corporations, except public deposit-taking corporations, controlled by general government units or other public corporations. This subsector includes units that raise funds in financial markets other than by deposits and use them to acquire financial assets. Examples of units in this subsector are money market funds, nonmoney market investment funds, insurance corporations, pension funds, and other financial intermediaries (except insurance corporations and pension funds). In addition, this subsector includes financial auxiliaries (including supervisory authorities that are separate institutional units), and captive financial institutions and money lenders.

Other groupings of public sector units

2.122 When compiling statistics of public corporations, various groupings—or subsectors of the public sector—may be desirable for analytical purposes. The four groupings of public corporations as illustrated in Figure 2.2 will likely form the foundation from which other groupings can be created. Other possible groupings include:

- The nonfinancial public sector—The general government sector plus public nonfinancial corporations
- The general government sector plus the central bank
- The central government public sector—The central government subsector plus public corporations controlled by the central government.[35]

[34]Giro institutions enable money to be transferred quickly and cheaply between accounts or between financial institutions.
[35]GFS for the central government public sector will be comparable to the consolidated financial statements prepared in accordance with accounting standards for the central government in cases where central government does not control state and local governments.

2.123 The term "sovereign" is often used by financial markets and fiscal analysts in the context of fiscal operations, borrowing, and debt. Unlike groupings of the public sector described earlier, which are based on institutional units, "sovereign" is defined on a functional basis and may be used in varying ways. To avoid confusion and, as a service to users, the presentation of "sovereign statistics" should indicate the institutional coverage of the statistics, and how this relates to the standard definitions of general government and/or public sector statistics.

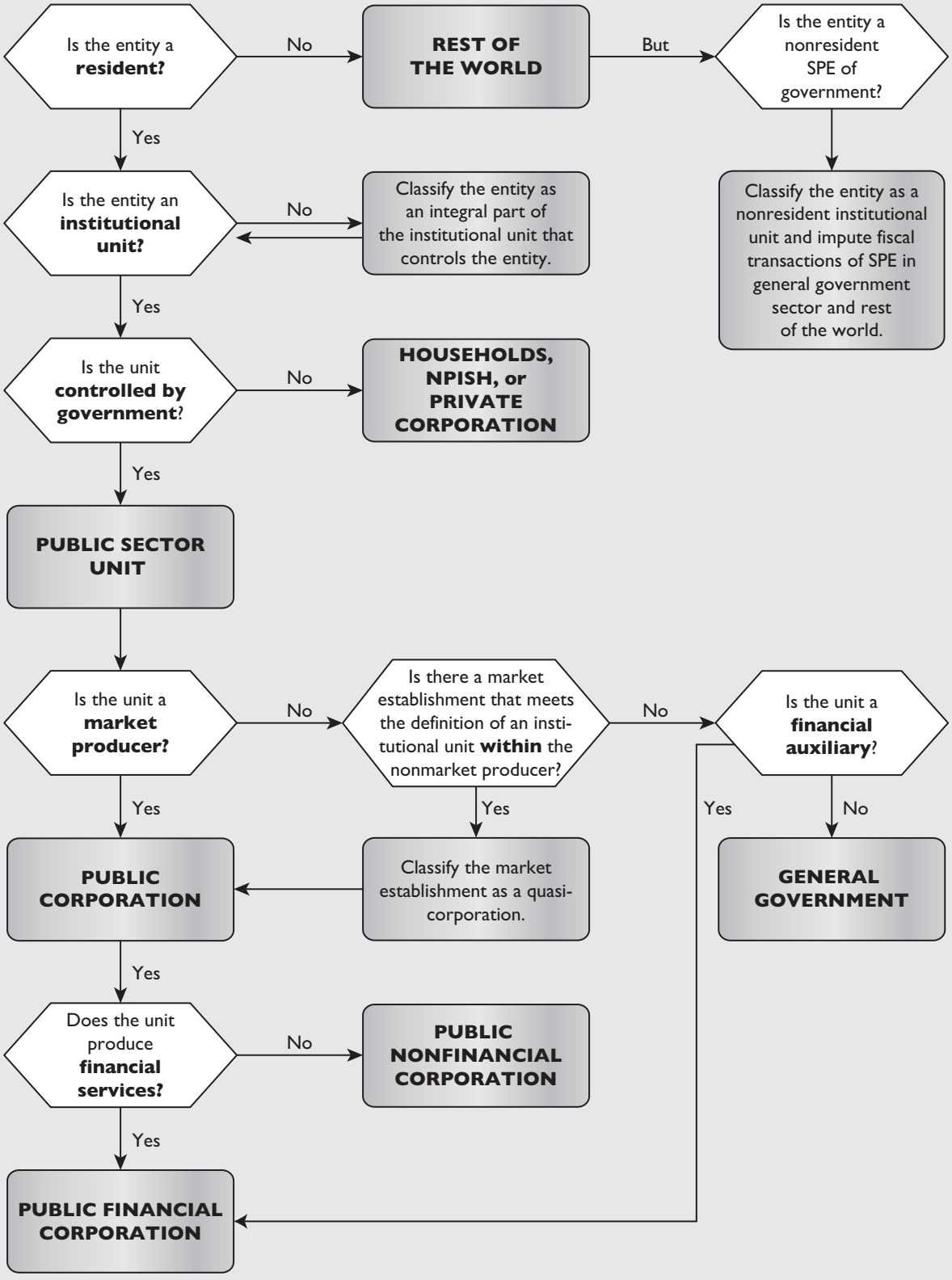
Decision Tree for Sector Classification of the Public Sector

2.124 Using the concepts of residence, institutional unit, control, and market versus nonmarket producers, the decision tree presented in Figure 2.4 facilitates the appropriate delineation of the public sector. In order to determine which entities belong to the general government sector and which to the public corporations subsector, the decision tree should be followed, using sequential questions:

- Is the entity a resident or a nonresident? Data for nonresident entities are recorded in data for the rest of the world (see paragraph 2.7).
- Is the entity an institutional unit? If it is resident but not an institutional unit, it is treated as an integral part of the institutional unit that controls it. If it satisfies the criteria to be an institutional unit, move on to the next decision point (see paragraph 2.22).
- Is the institutional unit controlled by government or another public corporation? The answer to this question will place the institutional unit in the public or private sector (see Boxes 2.1 and 2.2).
- Is the institutional unit a market or nonmarket producer? The answer to this question will place the institutional unit in the general government sector or the public corporations subsector (see paragraphs 2.65–2.75).
- If the institutional unit is in the general government sector, could any market establishments that satisfy the criteria to be an institutional unit be identified within the general government unit? Such market establishments should be classified as quasi-corporations in the public corporations subsector (see paragraphs 2.33–2.34).

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Figure 2.4 Decision Tree for Sector Classification of Public Entities



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- Is the institutional unit providing financial auxiliary services, such as supervisory authorities of financial intermediaries and financial markets? A positive answer to this question will place the institutional unit in the public financial corporations subsector (see paragraph 2.54).
- Is the public corporation involved in producing financial services? The answer to this question will place the institutional unit in the public financial or public nonfinancial corporations subsector (see paragraphs 2.114–2.121).

Practical Application of Sector Classification Principles

Identifying Quasi-corporations

2.125 Quasi-corporations (as defined in paragraph 2.33) satisfy the criteria to be separate institutional units and function as if they were corporations. They are treated in macroeconomic statistics as if they were corporations—that is, as institutional units separate from the units to which they legally belong. Thus, quasi-corporations owned or controlled by government units are grouped with public corporations in the public nonfinancial or public financial corporations sectors.

2.126 The existence of, or possibility to construct, a complete set of accounts, including balance sheets, for the enterprise is a necessary condition for the entity to be treated as a separate institutional unit. Also, the government must grant management of the enterprise discretion to operate as if it were a separate corporation. In practice this should apply with respect to both the management of the production process and the use of funds, including maintaining their own working balances and business credit, and being able to finance some or all of their capital formation out of their own saving, financial assets, or borrowing. The ability to distinguish flows of income and finance between quasi-corporations and general government units implies that, in practice, their operating and financing activities must be separable from government revenue or financing statistics, despite the fact that they are not separate legal entities.

2.127 Entities such as national railways, port authorities, post offices, government publishing offices, public theaters, museums, swimming pools, hospitals, education centers, and other entities that provide goods and services on a market basis should be treated as public corporations if these units satisfy the criteria to be quasi-corporations. Similar market producers that do not satisfy the requirements to be recognized as quasi-corporations are treated as market establishments integrated with the general government unit that controls them. In cases where government producers of similar goods and services sell their products at nonmarket prices, they remain a part of the nonmarket activities of general government.

Distinguishing Head Offices and Holding Companies

2.128 Large groups of corporations may be created whereby a parent corporation (or government in the case of public corporations) controls several subsidiaries, some of which may control subsidiaries of their own. Each individual corporation that satisfies the criteria to be an institutional unit should be classified as a separate institutional unit, regardless of whether it forms part of a group. The parent corporation in such circumstances is often referred to as a holding company. There are two different types of holding companies:

- The first type is the head office that is actively engaged in production by exercising some aspects of managerial control over its subsidiaries. This class of corporations includes overseeing and managing other units of the company or enterprise; undertaking the strategic or organizational planning and decision-making role of the company or enterprise; exercising operational control; and managing the day-to-day operations of their related units. Such units are allocated to the nonfinancial corporations subsector unless all or most of their subsidiaries are financial corporations, in which case they are treated by convention as financial auxiliaries in the financial corporations sector.
- The second type is a unit that holds the assets of subsidiary corporations but does not undertake any management activities. This class of corporations includes the activities of holding companies—that is, units that hold the assets (owning controlling-levels of equity) of a group of subsidiary corporations and whose principal activity is to own the group. The holding companies in this case do not provide any other service to the enterprises in which the equity is held—

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that is, they do not administer or manage other units. Such units are allocated to the financial corporations subsector and treated as captive financial institutions even if all the subsidiary corporations are nonfinancial. However, these holding companies should be distinguished from artificial subsidiaries and restructuring agencies (see paragraphs 2.42 and 2.129, respectively).

Restructuring Agencies

2.129 Restructuring agencies are entities set up to sell corporations and other assets, and for the reorganization of companies. They may also serve for defeasance of impaired assets or repayment of liabilities of insolvent entities, often in the context of a banking crisis. These entities are known by various names, such as restructuring corporations, privatization vehicles, asset management companies, liquidation corporations, bridge banks, or bad banks.

2.130 Some institutional units specialize in the restructuring of corporations, either nonfinancial or financial. These corporations may or may not be controlled by government. Restructuring agencies may be long-standing or created for this special purpose. Governments may fund the restructuring operations in various ways, either directly, through capital injections (capital transfer, loan, or acquisition of equity), or indirectly, through granting guarantees. If the restructuring agency is controlled by government or another public corporation, it is classified in the public sector (see Box 2.2). Whether a restructuring unit is part of the general government sector or is a public corporation is determined by whether it is a market or nonmarket producer. Given that the economically significant price criteria may be insufficient for this purpose, the following general criteria should be considered:[36]

- A unit that serves only government, or primarily government, is more likely to be included as a nonmarket producer within the general government sector than one that serves other units as well.
- A unit that sells or buys financial assets at a value other than market values is more likely to be in the general government sector than not.
- A unit that takes on low risks because it acts with strong public financial support and, by law or effectively, on behalf of the government, is likely to be included within the general government sector.

2.131 The following are two frequently observed examples that provide further guidance in the classification of restructuring agencies:

- A restructuring agency may undertake the reorganization of public or private sector entities or the indirect management of privatization. Two cases may be considered:
  - The restructuring unit is a genuine holding company controlling and managing a group of subsidiaries, and only a minor part of its activity is dedicated to channeling funds from one subsidiary to another on behalf of the government and for public policy purposes. This unit is more likely to be a market producer and classified as a financial corporation, and the transactions made on behalf of the government rerouted through the general government unit using the service provided.[37]
  - The restructuring unit, whatever its legal status, acts as a direct agent of the government and is not a market producer. Its main function is to redistribute national income and wealth, channeling funds from one unit to the other. The restructuring unit should be classified in the general government sector.
- Another example of a restructuring agency is one mainly concerned with impaired assets, mainly in the context of a banking or other financial crisis. Such a restructuring agency must be analyzed according to the degree of risk it assumes, considering the degree of financing provided by the government. Again, two cases may be considered:
  - The restructuring agency borrows on the market at its own risk to acquire financial or nonfinancial assets that it actively manages. In this case the unit is more likely to be a market producer and classified as a financial corporation.
  - The restructuring agency deliberately purchases assets at above-market prices with direct or indirect financial support from the government. It is primarily engaged in the redistribution of national income (and wealth), does not act independently

[36] This is because restructuring units have, by nature, little output.

[37] Rerouting is described paragraphs 3.28.

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of government or place itself at risk, and therefore is not a market producer and should be classified in the general government sector.

Financial Protection Schemes

2.132 The financial infrastructure of an economy may include financial protection schemes to protect the assets of financial institutions' clients. These schemes are often referred to as deposit guarantee schemes or deposit insurance schemes. The main types of schemes provide protection of deposits or protect policyholders against failing life and nonlife insurance schemes. These entities are known by various names, but to determine their sector classification, the nature of their activities should be considered on a case-by-case basis.

2.133 A financial protection scheme is classified as part of the general government, a public financial corporation, or a private financial corporation outside the public sector according to the same sectorization principles that apply to any other entity, as described earlier in this chapter (see paragraph 2.124).

2.134 A resident financial protection scheme may or may not satisfy the criteria to be an institutional unit. If it is not an institutional unit, it is treated as an integral part of the institutional unit that controls it.

2.135 If the fees are set by government, or when the government or a public corporation has control over the financial protection scheme through other means, the scheme is to be included in the public sector. The following criteria should be considered in determining whether the scheme is part of the general government sector:

- If fees payable to government for such a protection scheme are compulsory—that is, if beneficiaries cannot opt out of the scheme—the scheme is to be included in general government sector (see paragraph 5.74).
- If fees payable to government are clearly out of proportion to the service provided (fees are not determined based on the associated risks covered), the scheme is to be included in general government sector (see paragraph 5.74).
- If fees payable to government are not set aside in a fund, or can be used for other purposes, the scheme is to be included in general government sector.
- If the fees are proportional to the cost of the service provided, and the scheme is an institutional unit, it is classified as an insurance corporation; operating a fund that functions on insurance rules may indicate proportionality and the existence of a standardized guarantee scheme.

Special Purpose Entities

2.136 While there is no internationally agreed-upon definition of an SPE, some typical features are that it has little physical presence, is related to another corporation or government, and is often resident in a territory other than the territory of residence of its parent unit.[38]

2.137 Governments may set up SPEs for financial convenience. For example, the SPE may be involved in fiscal or quasi-fiscal activities (including securitization of assets, borrowing, etc.). Resident[39] SPEs that function only in a passive manner relative to general government and that carry out fiscal and quasi-fiscal activities do not satisfy the criteria to be institutional units and are therefore not treated as separate institutional units in macroeconomic statistics; they are treated as part of general government regardless of their legal status. Resident SPEs acting independently, acquiring assets and incurring liabilities on their own behalf, accepting the associated risk, are treated as separate institutional units and are classified to a sector according to their principal activity.

2.138 SPEs that are resident in a different country than their controlling government are always classified as separate institutional units in the economy where they are established. When such entities exist, care must be taken to reflect the fiscal activities of government accurately. All flows and stock positions between the general government unit and the nonresident SPE should be recorded in the accounts for general government and the rest of the world when they occur.[40]

2.139 A government may create a nonresident SPE to undertake government borrowing or incur

[38] SPEs are also discussed in the *2008 SNA*, paragraphs 4.55–4.58.
[39] For a definition of resident and nonresident units, see paragraphs 2.6–2.15.
[40] Examples of these imputations are described in the *PSDS Guide*, Box 4.12.

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government outlays abroad for fiscal purposes. Even if there are no actual economic flows recorded between the government and the SPE related to these fiscal activities, flows and stock positions should be imputed in the accounts of both the government and the rest of the world to reflect the fiscal activities of the government undertaken by the SPE.

Joint Ventures

2.140 Many public sector units enter into arrangements with private entities (e.g., a public-private partnership) or other public sector units to undertake a variety of activities jointly. The joint venture could be a market or nonmarket producer. Joint operations can be structured broadly as one of three types: jointly controlled units, referred to here as joint ventures; jointly controlled operations; and jointly controlled assets.

2.141 A **joint venture** involves the establishment of a corporation, partnership, or other institutional unit in which, legally, each party has joint control over the activities of the joint venture unit. The joint venture unit operates in the same way as other units except that a legal arrangement between the parties establishes joint control over the unit. As an institutional unit, the joint venture may enter into contracts in its own name and raise finance for its own purposes. Such a joint venture maintains its own accounting records.

2.142 The participants to a joint venture may be public sector and/or private sector units. To properly decide the sector classification of the joint venture in macroeconomic statistics, it must be determined which unit has economic control of the joint venture. Given the nature of a joint venture (created legally with joint control), the principal question to be considered here is whether the effective economic control of the joint venture establishes a public or a private unit:

- If a joint venture operates as a nonmarket producer, then government is in effective control and it is classified as part of the general government sector.
- If the joint venture is a market producer, it is treated as a public or private corporation according to whether it is controlled by a government unit. Normally, the percentage of ownership will be sufficient to determine control. If the public and private units own an equal percentage of the joint venture, the other indicators of control must be considered (see Box 2.2).

2.143 Joint operating arrangements can be in the form of jointly controlled operations or jointly controlled assets. When public sector units enter into joint operating arrangements without establishing separate institutional units, there are no units requiring classification; however, the recording should reflect the proper economic ownership of assets. Also, any sharing arrangements of revenue and expense should be recorded in accordance with their economic nature as determined by the provisions of the governing contract. For example, two units may agree to be responsible for different stages of a joint production process or one unit may own an asset or a complex of related assets, but both units agree to share revenue and expense.

Sinking Funds

2.144 A sinking fund is a separate account, which may, or may not be an institutional unit. A **sinking fund** is made up of segregated contributions provided by the unit(s) that makes use of the fund (the "parent" unit) for the gradual redemption of the parent unit's debt. A sinking fund may also be established to provide for major repairs or replacements. Aside from eventually extinguishing all government debt in a prudent and orderly manner, sinking funds may be meant to inspire confidence, supporting the market for government securities.

2.145 Public sector sinking funds are classified to sectors according to whether they are separate institutional units[41] and, if so, whether they provide their services at economically significant prices.

- Sinking funds that are separate institutional units and provide services as market producers are classified as public financial corporations.
- Sinking funds that are separate institutional units and provide services as nonmarket producers are classified as general government units. In particular, such sinking funds will be classified as extrabudgetary units of the unit that controls them (e.g., central government).
- Sinking funds that are not separate institutional units are classified with the unit that controls them (i.e., the "parent" unit).

[41] An institutional unit is defined in paragraph 2.22.

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2.146 A variety of practices exist among sinking funds as to both their operation and the degree of control exercised by the "parent" unit (such as government):

- Some sinking funds retire or purchase only the parent unit's securities for which they are established. Such sinking funds are normally not separate institutional units and are classified with the unit that controls them.
- Some sinking funds may have been assigned other responsibilities, such as the conduct of government lending programs or even the collection of earmarked taxes. Such sinking funds are normally not separate institutional units and are classified with the unit that controls them.
- Other sinking funds may purchase and sell securities of other governments or institutions—domestic or external debtors and creditors—usually seeking securities that have similar maturity dates. Such sinking funds may well be institutional units providing services on a market basis and are classified as public financial corporations.

Pension Schemes

2.147 The means by which pensions are provided to persons in retirement varies from country to country. Various types of pensions are provided by public sector units to individuals via social assistance, social security schemes, and employment-related schemes other than social security. Due to the complexities involved in the classification and sectorization of these arrangements, a detailed discussion is provided in Appendix 2.

Provident Funds

2.148 Provident funds are compulsory saving schemes that maintain the integrity of the contributions for individual participants. Some governments create provident funds rather than providing social insurance benefits. Under provident fund arrangements, the compulsory contributions of each participant and of their employer on behalf of each participant are kept in a separate account and could be withdrawn under specified circumstances, such as retirement, unemployment, invalidity, and death. These contributions are then managed and invested to obtain a return for each participant.

2.149 The establishment of a provident fund raises the issue of whether this fund is classified as a social security scheme elsewhere in the general government, as a public corporation, or outside the public sector. Provident fund arrangements as defined in the preceding paragraph are different from social security schemes insofar as for each contributor segregated assets exist and it is not foreseen for government to be able to alter the benefits. These provident funds thus are excluded from social security schemes.

2.150 The classification of a provident fund controlled by government in the general government sector or financial corporations subsector is determined by the same sectorization principles that apply to any other entity, as described earlier in this chapter:

- A resident provident fund controlled by government that satisfies the definition of an institutional unit is classified as a public financial corporation. Individual contributions determine individual benefits, and the entity is involved in financial intermediation by pooling the contributions from many households and investing them on their behalf similar to the case of investment funds and defined-contribution pension funds (see paragraphs 2.53–2.54). Therefore, these units are classified in the public financial corporations subsector as market producers.
- A resident provident fund controlled by government that does not satisfy the criteria to be an institutional unit is classified with the government unit that controls it.

2.151 It is possible that a provident fund may be established in such a way that it includes aspects of a social security scheme (social insurance) as well as aspects of a compulsory saving scheme. In such cases, the fund would be classified according to the scheme that predominates while still applying the sectorization principles outlined in this chapter.

Sovereign Wealth Funds

2.152 Some governments create special purpose government funds, usually called sovereign wealth funds (SWFs).[42] Created and owned by the general government for macroeconomic purposes, **SWFs** hold, manage, or administer assets to achieve financial objectives, and employ a set of investment strategies that include investing in foreign financial assets. The funds are commonly established out of balance of

[42] While these funds may have various names, this section refers to them as "sovereign wealth funds" for ease of reference.

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payments surpluses, official foreign currency operations, the proceeds of privatization, fiscal surpluses, and/or receipts resulting from commodity exports.

2.153 The establishment of an SWF raises the issue of whether this fund is classified as part of the general government, as a public corporation, or outside the public sector. The classification of a sovereign wealth fund controlled by government in the general government sector or financial corporations subsectors is determined by the same sectorization principles that apply to any other entity, as described earlier in this chapter (see paragraph 2.124).

2.154 A resident SWF controlled by government may, or may not satisfy the definition of an institutional unit:

- If the SWF is not an institutional unit, it is classified with the unit that controls it.
- If the resident SWF is an institutional unit, it is classified as:
  - A public financial corporation if it is providing financial services on a market basis
  - A general government unit (an extrabudgetary fund or social security fund[43]) if it satisfies the definition of a government unit (see paragraph 2.38) and is simply a passive holder of assets and liabilities (see paragraph 2.42).

2.155 If the SWF is an entity incorporated abroad or quasi-corporation located abroad, it is classified as a separate institutional unit in the financial corporations subsector of the economy in which the entity is legally constituted, or in the absence of legal incorporation, is legally domiciled. In such circumstances, all general government transactions and stock positions with the SWF should be reflected in the general government account with the rest of the world as the counterparty.

Market Regulatory Agencies

2.156 Market regulatory agencies act on behalf of a government (or a regional organization with governments as its members), and influence the market for specific goods or services directly and/or indirectly. These agencies may influence the market directly by acting as buyers and sellers of the goods or services and may influence the market indirectly through regulations, rulings, compliance laws, or standards, to impact the production, price, and marketing of specific products. The regulations may cover the terms and conditions of supplying the goods and services and in particular the price allowed to be charged and/or to whom the goods and services are distributed. It is most common for a regulatory agency to control agricultural products, monopolistic markets, or, in some cases, natural resources.

2.157 The nature of these market regulatory agencies may differ. The nature of each agency should be investigated to decide the sector classification according to sectorization principles. At one end of the spectrum, some agencies are merely distributing subsidies, while others may have an administrative, advisory, standard or price setting, or collective advertising function. At the other end of the spectrum, the agency may have total control over all aspects of the production and distribution process, including being the only legal buyer/seller of the products.

2.158 Following the residence principle, those market regulatory agencies that meet the definition of an international or regional organization are not included in the statistics of the individual member countries, but their activities should be reflected in regional data (see Appendix 5). By convention, financial regulatory (supervisory) bodies are considered as financial corporations, specifically as financial auxiliaries when they are separate institutional units. For those resident market regulatory agencies involved with nonfinancial goods and services, the following guidance applies:

- Those agencies that do not satisfy the criteria to be an institutional unit remain an integral part of the general government unit that controls them. This would usually be the case for those agencies exclusively or principally involved in the distribution of subsidies on behalf of government.
- Those agencies that satisfy the criteria to be institutional units, and that are mainly nonmarket producers, such as performing some administrative functions, setting standards, or overseeing and regulating the production process, should be classified in the general government sector. Although the agency may have active participation of members from the market it serves, government

[43] SWFs that hold and manage wealth designated to provide social benefits will be included in social security funds.

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control is established by the enabling instruments and nonmarket nature of these entities.

- Those agencies that satisfy the criteria to be an institutional unit and that are mainly a market producer should be classified in the nonfinancial corporations subsector. These market regulatory agencies' sole or principal activity is to buy, hold, and sell the goods or services at economically significant prices..

2.159 Where market regulatory agencies are involved in a mixture of activities, such as distributing subsidies and buying, holding, and selling goods and services, the sector classification may require careful consideration. If it is possible to separately identify a quasi-corporation that is undertaking market activities, it should be classified in the nonfinancial corporations subsector. The nonmarket activities should be classified in the general government sector. If it is not possible to distinguish two institutional units, the majority of the activities of the entity should determine the sector classification.

Development Funds and/or Infrastructure Companies or Entities

2.160 Some governments create special entities/funds to finance and develop the economy in general, develop specific sectors of the economy, or upgrade specific facilities, such as infrastructure. These types of agencies/funds may be involved in various aspects of development, ranging from only providing the finances for development activities to being involved in all aspects of the actual development and construction of the infrastructure or facilities. Various terms, such as "development banks," "investment funds," "fiscal stabilization funds," or "infrastructure companies," are used to describe these agencies. Whatever they are called, the sector classification should be based not on their description but rather on the economic nature of the entities.

2.161 Using the usual criteria (see paragraph 2.22), compilers should determine whether the entity is a separate institutional unit in the public sector, or whether it is not an institutional unit and should be classified as an integral part of the unit that controls it.

2.162 These entities may be established in the legal form of a corporation, but it is necessary to decide whether to classify them as institutional units. The financing arrangements of these entities usually involve the issuance of debt instruments, but could also include some other sources of financing. The customers that they serve, the financing arrangements, and the economic ownership of the assets created by these entities could often be indicative of the risks assumed by these entities, and could help to determine their status as an institutional unit. The following guidance applies:

- If the entity cannot act independently from its parent and is a passive holder of assets and liabilities, it is an artificial subsidiary. If it is a resident unit, it is classified as a component of the level of government that controls it (i.e., as part of the parent unit). These entities are not treated as separate institutional units, unless they are resident in an economy different from that of their parent unit (see paragraphs 2.6–2.15).
- If the entity borrows on the market and then lends only to general government units, it is not involved in financial intermediation and should be regarded as a resident artificial subsidiary (see paragraphs 2.42–2.44).
- If government assumes economic ownership of the nonfinancial assets created, it is an indication that the development fund is just a device to borrow and acquire the assets, and the entity should be treated as a resident artificial subsidiary.
- If these entities meet the definition of an institutional unit (see paragraph 2.22) and are government-controlled market producers of goods or services, they should be classified as a corporation. More specifically, they will be a public financial corporation only if they are involved in providing financial services (see paragraph 2.53).[44] They will be public nonfinancial corporations only if they produce and sell the infrastructure assets at economically significant prices in market transactions.

[44] Providing concessionary loans does not necessarily mean that an institutional unit is not a market producer (e.g., some development banks are providing concessionary loans but are still considered financial intermediaries).

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3 Economic Flows, Stock Positions, and Accounting Rules

This chapter describes the economic flows and stock positions of the government finance statistics framework and the accounting rules used to determine all aspects of their recording.

Introduction

3.1 Entries recorded in GFS are either **economic flows** or **stock positions**.[1] Flows are monetary expressions of economic actions and effects of events that result in changes in economic value within a reporting period. Stock positions measure economic value at a point in time. More specifically, stock positions refer to a unit's holdings of assets and liabilities at a specific time and the unit's resulting net worth, equal to total assets minus total liabilities.

3.2 The flows and stock positions recorded in the GFS framework are integrated, which means that all changes in stock positions can be fully explained by the flows. In other words, the following relationship is valid for each stock position:

$$S_0 + F = S_1$$

where S_0 and S_1 represent the values of a specific stock position at the beginning and end of a reporting period, respectively, and F represents the net value of all flows during the period that affected that particular stock. More generally, the value of any stock position held by a unit at a given time is the cumulative value of all flows affecting that stock position that have occurred since the unit first acquired the particular type of asset or liability.

3.3 The GFS framework includes a great diversity of economic flows. This chapter first describes several important characteristics of economic flows that underlie their classification and treatment. It then describes in a general way the accounting rules used for recording these flows and stock positions in GFS. Descriptions of specific categories of flows and stock positions and the application of the general rules to their recording are discussed in Chapters 5 through 10.

Economic Flows

3.4 Economic flows reflect the creation, transformation, exchange, transfer, or extinction of economic value; they involve changes in the volume, composition, or value of a unit's assets, liabilities, and net worth. A flow can be a single event, such as the purchase of goods, or the cumulative value of a set of events occurring during a reporting period, such as the continuous accrual of interest expense on a government bond. All flows are classified as transactions or as other economic flows. The following sections describe these two types of economic flows.

Transactions

3.5 A **transaction** is an economic flow that is an interaction between institutional units by mutual agreement or through the operation of the law, or an action within an institutional unit that is analytically useful to treat like a transaction, often because the unit is operating in two different capacities.[2] This definition of a transaction stipulates that an interaction between institutional units occurs by mutual agreement. Mutual agreement means that there was prior knowledge and consent by the units, but it does not mean that both units entered into the transaction voluntarily. Some transactions, such as the payment of taxes, are imposed by force of law. Although individual units are not free to determine the amount of taxes they pay,

[1] In macroeconomic statistics, the term "flows" will often be used as a short form for "economic flows," and "stocks" will often be used as a short form for "stock positions."

[2] For example, *consumption of fixed capital* (23) and the use of inventories in the production of *goods and services* (22) (see paragraphs 6.27 and 6.53, respectively).

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there is collective recognition and acceptance by the community of the obligation to pay taxes. Thus, payments of taxes are considered transactions despite being compulsory. Similarly, the actions necessary to comply with judicial or administrative decisions may not be undertaken voluntarily, but they are taken with prior knowledge and consent of the parties involved.

3.6 The treatment of some activities in GFS takes a different perspective from the treatment of the same activities in the *2008 SNA*. GFS is focused on the impact of economic events on the finances of government. In contrast, the *2008 SNA* is focused on measuring production, consumption, distribution of income, and investment. Appendix 7 contains a complete description of the implications of these different perspectives. Despite different treatments of some activities, both frameworks include all flows that change stock positions so that all changes in the balance sheet can be explained by the flows.

3.7 Transactions may take on many different forms. In GFS, all transactions are classified according to their economic nature, while transactions in expenditure are also classified according to their functions (see Chapters 5, 6, 8, and the annex to Chapter 6). To give more precision to the classification of transactions, the characteristics of transactions have to be systematically described.

Monetary transactions

3.8 A **monetary transaction** is one in which one institutional unit makes a payment (receives a payment) or incurs a liability (acquires an asset) to (from) another institutional unit stated in units of currency. In GFS, all flows are recorded in monetary terms, but the distinguishing characteristic of a monetary transaction is that the parties to the transaction express their agreement in monetary terms. For example, goods or services are usually purchased or sold at a given number of units of currency per unit of the good or service, social security benefits are often payable in fixed amounts of currency, and taxes receivable are measured and payable in units of currency. All monetary transactions are interactions between two institutional units, recorded as either an *exchange* or a *transfer*.

3.9 An **exchange** is a transaction in which one unit provides a good, service, asset, or labor to a second unit and receives a good, service, asset, or labor of the same value in return.[3] Compensation of employees, purchases of goods and services, the incurrence of interest expense, and the sale of an office building are all exchanges.

3.10 A **transfer** is a transaction in which one institutional unit provides a good, service, or asset to another unit without receiving from the latter any good, service, or asset in return as a direct counterpart. This kind of transaction is also referred to as being unrequited, a "something for nothing" transaction, or a transaction without a quid pro quo. Transfers can also arise where the value provided in return for an item is not economically significant or is much below its value. Typically, general government units engage in a large number of transfers, which may be compulsory or voluntary. Taxes and most social security contributions are compulsory transfers imposed by government units on other units. Subsidies, grants, and social assistance benefits are transfers from general government units to other units. Public corporations are, to a lesser extent, involved in transfers—they may receive subsidies or capital transfers from government and may also be involved in transfers payable resulting from their quasi-fiscal activities.

3.11 Some transactions appear to be exchanges but are actually combinations of an exchange and a transfer. In such cases, the actual transaction should be partitioned and recorded as two transactions, one that is only an exchange and one that is only a transfer. For example, a general government unit might sell an asset at a price that is clearly less than the market value of the asset, or may buy an asset at a price that is clearly above the market value of the asset. The transaction should be divided into an exchange at the asset's market value and a transfer equal in value to the difference between the actual transaction value and the market value (see paragraph 3.107) of the asset.[4]

3.12 Exchange transactions do not include entitlements to collective services or benefits—these are

[3] The term "provides a good, service, asset . . ." is meant to include one unit allowing a second unit to use an asset owned by the first unit or a change in the ownership of an asset. Interest and other property income transactions are exchanges because they are receivable by a unit in return for putting assets at the disposal of another unit.

[4] See paragraph 3.29 for a general statement on partitioning of transactions.

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considered transfers. The amount of collective service or benefit that may eventually be receivable by an individual unit is not proportional to the amount payable. Taxes and nonlife insurance premiums are examples of such transactions classified as transfers due to the collective nature of the benefits (see paragraphs 5.23 and 5.149, respectively).

3.13 Taxes are treated as transfers even though the units making these payments may receive some benefits from services provided by the government unit receiving the taxes. For example, in principle, no one can be excluded from sharing in the benefits provided by collective services such as public safety. In addition, a taxpayer may even be able to consume certain individual services provided by government units. However, it is usually not possible to identify a direct link between the tax payments and the benefits received by individual units. Moreover, the value of the services received by a unit usually bears no relation to the amount of the taxes payable by the same unit.

3.14 Nonlife insurance premiums and claims are also treated as transfers in GFS.[5] This type of premium entitles the units making the payment to benefits only if one of the events specified in the insurance contract occurs. That is, one unit pays a second unit for accepting the risk that a specified event may occur to the first unit. These transactions are considered transfers[6] because in the nature of the insurance business, they distribute income between policyholders to those who claim, as opposed to all policyholders who contribute. There is uncertainty whether the contributing unit will receive any benefits and, if it does receive benefits, they may bear no relation to the amount of the premiums previously paid. Nonlife insurance includes social security schemes and employer social insurance schemes for government employees that do not provide retirement benefits. Thus, social security contributions receivable and social security benefits payable by government units, which are not for employment-related pensions, are treated as transfers in GFS.

3.15 Transfers may be either current or capital. To distinguish current transfers from capital transfers, it is preferable to focus on the special characteristics of capital transfers.

3.16 Capital transfers are transfers in which the ownership of an asset (other than cash or inventories) changes from one party to another, or that oblige one or both parties to acquire or dispose of an asset (other than cash or inventories), or where a liability is forgiven by the creditor. Cash transfers involving disposals of noncash assets (other than inventories) or acquisition of noncash assets (other than inventories) are also capital transfers. A capital transfer results in a commensurate change in the stock position of assets of one or both parties to the transaction. Capital transfers are typically large and infrequent, but capital transfers cannot be defined in terms of size or frequency. A transfer in kind without a charge is a capital transfer when it consists of: the transfer of ownership of a nonfinancial asset (other than inventories); and the forgiveness of a liability by a creditor when no corresponding value is received in return. Major nonrecurrent payments in compensation for accumulated losses or extensive damages or serious injuries not covered by insurance policies are also capital transfers. A transfer of cash is a capital transfer when it is linked to, or conditional on, the acquisition or disposal of an asset by one or both parties to the transaction.

3.17 Current transfers consist of all transfers that are not capital transfers. Current transfers directly affect the level of disposable income and influence the consumption of goods or services. That is, current transfers reduce the income and consumption possibilities of the donor and increase the income and consumption possibilities of the recipient. For example, social benefits, subsidies, and food aid are current transfers.

3.18 It is possible that some cash transfers may be regarded as capital by one party to the transaction and as current by the other party. So that a donor and a recipient do not treat the same transaction differently, a transfer should be classified as capital for both parties even if it involves the acquisition or disposal of an asset, or assets, by only one of the parties. When there is doubt about whether a transfer should be treated as current or capital, it should be treated as a current transfer.

Nonmonetary transactions

3.19 Nonmonetary transactions are transactions that are not initially stated in units of currency. These

[5] The prepayment of a premium is the acquisition of a financial asset by the insured (see paragraph A4.76), which reduces as insurance coverage is provided.

[6] In the *2008 SNA*, nonlife insurance premiums are partitioned into a sale of a service and a transfer. In GFS, the entire premium is considered a transfer (see paragraph 5.149).

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include all transactions that do not involve any cash flows, such as barter, in-kind transactions, and certain internal transactions. They must be assigned a monetary value as GFS record flows and stock positions expressed in monetary terms. The entries therefore represent values that are indirectly measured or otherwise estimated. The values assigned to nonmonetary transactions have a different economic implication than do monetary payments of the same amount, as they are not freely disposable sums of money. Nevertheless, to have a comprehensive and integrated set of accounts, it is necessary to assign the best estimate of market values to the items involved in nonmonetary transactions.

3.20 Nonmonetary transactions can be either two-party transactions or actions within an institutional unit that are used to construct an internal transaction.

Two-party nonmonetary transactions

3.21 These nonmonetary transactions can be exchanges or transfers. Barter, remuneration in kind, and other payments in kind are nonmonetary exchanges. Transfers in kind are nonmonetary transfers.

3.22 In a **barter** transaction, two units exchange goods, services, or assets other than cash of equal value. For example, a government unit may agree to trade a parcel of land in an industrial area to a private corporation for a different parcel of land that the government will use as a national park. Between nations, governments may trade strategic natural resources for another kind of product or service.

3.23 Remuneration in kind occurs when an employee is compensated with goods, services, or assets other than money. Types of compensation that employers commonly provide without charge or at reduced prices to their employees include meals and drinks, uniforms, housing services, transportation services, and child care services (see paragraph 6.17–6.18).

3.24 Payments in kind other than remuneration in kind occur when any of a wide variety of payments is made in the form of goods and services rather than money. A payment to settle a liability can be made in the form of goods, services, or noncash assets rather than money. For example, a government unit may agree to settle a claim for past-due taxes if the taxpayer transfers ownership of land or fixed assets to the government, or inheritance taxes may be payable by making donations of paintings or other valuables to government.

3.25 Transfers in kind may be used to increase efficiency, or to insure that the intended goods and services are consumed. For example, aid after a natural disaster may be delivered faster and be more effective if it is provided in the form of medicine, food, and shelter instead of money. Also, a general government unit might provide medical and educational services in kind to ensure that the need for those services is met.

Internal transactions

3.26 Internal or intra-unit transactions take place when a single unit acts in two different capacities, and it is analytically useful to record this act as a transaction. The choice of which internal actions to treat as transactions is subjective to the purpose of recording these actions. GFS follows the *2008 SNA* by treating consumption of fixed capital as an internal transaction to allow the calculation of the operating costs of government. Similarly, the transfer of materials and supplies from inventories to use of goods and services and other internal changes in inventories are treated as internal transactions (see paragraph 8.46–8.47).[7]

Rearrangements of some transactions

3.27 Some transactions are not recorded in the form in which they appear to take place. Instead, they are modified in macroeconomic statistics to bring out their underlying economic relationships more clearly. There are three kinds of rearrangements employed in GFS: rerouting, partitioning, and reassignment.

Rerouting

3.28 Rerouting records a transaction as taking place through channels that differ from the actual ones, or as taking place in an economic sense when no actual transactions take place. Rerouting is often required when a unit that is a party to a transaction does not appear in the actual accounting records because of

[7] Internal transactions are described in the *2008 SNA*, paragraphs 3.85–3.90. GFS does not record all the internal transactions that relate to production processes.

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administrative arrangements. Two kinds of rerouting occur:

- In the first kind of rerouting, a direct transaction between unit A and unit C is recorded as taking place indirectly through a third unit B. For example, if government employees are enrolled in a social security or retirement scheme, accounting records may show the government unit making contributions directly to the social security fund or retirement scheme on behalf of its employees. However, these contributions are part of the compensation of employees and should be recorded as being paid to the employee. In such a case, it is necessary to reroute the payments so that the government is seen as paying the employees, who then are deemed to make payments of the same amount to the social security or retirement scheme (see paragraph 6.19). As a result of the rerouting, these contributions are included as part of the labor cost of government. Rerouting may also be necessary when recording the distribution of profits of fiscal monopolies (see paragraph 5.68).
- In the second kind of rerouting, a transaction of one kind from unit A to unit B is recorded with a matching transaction of a different kind from unit B to unit A. For example, when a nonresident special purpose entity (SPE) of government borrows abroad for fiscal purposes, transactions should be imputed in the accounts of both the government and the nonresident SPE as if the SPE has extended a loan to government and government has invested the corresponding amount in the SPE (see paragraphs 2.136–2.139). This rearrangement of the transactions reflects government's involvement in the nonresident SPE, which would otherwise not be captured in government accounts.

Partitioning

3.29 Partitioning records a transaction that is a single transaction from the perspective of the parties involved as two or more differently classified transactions. For example, when a general government unit acquires an asset below or above its current market price, the division of the actual transaction into an exchange and a transfer is an example of partitioning (see paragraph 3.11**).**

Reassignment

3.30 Reassignment records a transaction arranged by a third party on behalf of others as taking place directly by the two principal parties involved. Reassignment is required when one unit arranges for a transaction to be carried out between two other units, generally in return for a fee from one or both parties to the transaction. In this case, one unit acts as an agent for another unit. In such a case, the transaction is recorded exclusively in the accounts of the two parties engaging in the transaction and not in the accounts of the third party facilitating the transaction. The accounts of the agent show only the fee charged for the facilitation services rendered. For example, reassignment may occur when one government unit collects taxes and then transfers some or all of the taxes to another government unit. In some arrangements of this nature, the collecting unit retains a small portion of the tax collected in return for its collection efforts. The amount retained is treated as the sale of a service by the collecting unit, while the total amount of taxes collected is shown as revenue for the beneficiary government unit. For guidelines on the reassignment or attribution of taxes to collecting or beneficiary governments, see paragraphs 5.33–5.38.

Other Economic Flows

3.31 Other economic flows are changes in the volume or value of assets or liabilities that do not result from transactions. These other economic flows are not transactions because they do not meet one or more of the characteristics of transactions. For example, the institutional units involved may not be acting by mutual agreement, as in the case of an uncompensated seizure of assets, or changes due to natural events, such as an earthquake or a flood. Alternatively, the value of an asset expressed in foreign currency may change as a result of exchange rate changes, or the value of an asset may change due to the passing of time.

3.32 There are two major categories of other economic flows, described as *holding gains and losses*, and *other changes in the volume of assets and liabilities*.[8]

Holding gains and losses

3.33 A holding gain or loss[9] is a change in the monetary value of an asset or liability resulting from changes in the level and structure of prices, excluding qualitative or quantitative changes in the asset or liability. Holding gains and losses on assets and

[8] References to changes in the valuation or volume of assets also apply to liabilities.
[9] Holding gains and losses are also referred to as revaluations in the *2008 SNA* and in generally accepted accounting standards.

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liabilities include changes resulting from exchange rate movements. In concept, holding gains and losses are continuously recorded as market prices change.

3.34 A holding gain or loss accrues continuously, purely as a result of holding an asset or liability over time without transforming it in any way. Holding gains/losses can apply to virtually any type of asset or liability, and they may accrue on an asset held for any length of time during the reporting period. (See paragraphs 10.05–10.45 for a complete discussion.)

Other changes in the volume of assets/ liabilities

3.35 Other changes in the volume of assets are any changes in the value of an asset or liability that do not result from a transaction or a holding gain/loss. Other changes in the volume of assets cover a wide variety of specific events. These events are divided into three main categories:[10]

- The first category consists of events that involve the appearance or disappearance of economic assets other than by transactions. In other words, certain assets and liabilities enter and leave the GFS balance sheet through events other than by transactions. (See paragraphs 10.48–10.58 for a complete discussion.)
- The second group consists of the effects of external events—exceptional and unexpected—on the economic benefits derivable from assets and corresponding liabilities. (See paragraphs 10.59–10.75 for a complete discussion.)
- The final group is made up of changes in classifications. (See paragraphs 10.76–10.84 for a complete discussion.)

Stock Positions

3.36 A **stock position** is the total holdings of assets and/or liabilities at a point in time. Stock positions are recorded in the balance sheet of the GFS framework (see Chapter 7). The integrated GFS framework shows stock positions at the beginning and end of a reporting period. Stock positions at these two points in time are connected by flows during that period because changes in positions are caused by transactions and other economic flows. In order to discuss stock positions, it is necessary to determine the asset boundary in macroeconomic statistics from which the definition of assets and liabilities is derived. The coverage of assets in GFS is limited to economic assets from which economic benefits may flow to the owners.

Economic Benefits

3.37 Economic benefits arise from owning and using economic assets. The economic benefits of ownership usually include the right to use, rent out, or otherwise generate income, or to sell the asset. Different kinds of economic benefits that may be derived from an asset include:

- The ability to use assets, such as buildings or machinery, in production
- The generation of services (e.g., renting out produced assets to another entity)
- The generation of property income (e.g., interest and dividends received by the owners of financial assets)
- The potential to sell and thus realize holding gains.

Ownership

3.38 Two types of ownership can be distinguished in macroeconomic statistics: legal ownership and economic ownership. The **legal owner** of resources such as goods and services, natural resources, financial assets, and liabilities is the institutional unit entitled by law and sustainable under the law to claim the benefits associated with the resource. Sometimes government may claim legal ownership of a resource on behalf of the community at large. To be recognized in the GFS framework, a resource must have a legal owner, on either an individual or a collective basis.

3.39 The **economic owner** of resources such as goods and services, natural resources, financial assets, and liabilities is the institutional unit entitled to claim the benefits associated with the use of these resources by virtue of accepting the associated risks. In most cases, the economic owner and the legal owner of a resource are the same. Where they are not, the legal owner has passed responsibility for the risk involved in using the resource in an economic activity to the economic owner as well as associated benefits. In return, the legal owner accepts another package of risks and benefits from the economic owner. In GFS, when the expression "ownership" or "owner" is used and the

[10] The distinctions made are only for purposes of description; the GFS framework and classification system does not allow for this breakdown.

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legal and economic owners are different, the reference should generally be understood to be to the economic owner. Appendix 4 discusses a number of cases where legal and economic ownership are different.

3.40 Sometimes government may claim legal ownership of a resource on behalf of the community at large, such as territorial waters. If so, the benefits also accrue to the government on behalf of the community at large. Thus, government is both the legal and economic owner of these resources. However, governments may share the benefits with other entities but, by virtue of accepting the majority of the risks, become the economic owner of a resource. For example, in the case of public-private partnerships, economic ownership can be vested with government when government accepts the majority of the risks (see paragraphs A4.58–A4.65).

3.41 The benefits inherent in financial assets and liabilities are seldom transferred from a legal owner to an economic owner in exactly the same state. They are usually transformed to new forms of financial assets and liabilities by the intermediation of a financial institution that assumes some of the risk and benefits while passing the financial instrument on to other units.

Definition of Assets and Liabilities

3.42 An **asset** is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the resource over a period of time. It is a means of carrying forward value from one reporting period to another.

3.43 Only economic assets are recorded in the macroeconomic statistical systems (i.e., included within the asset boundary) and they appear in the balance sheet of the unit that is the economic owner of the asset. **Economic assets** are resources over which ownership rights are enforced and from which economic benefits may flow to the owners. Personal attributes such as reputation or skill, which are sometimes described as an asset, are not recognized as such in GFS because they are not economic assets as defined earlier. A distinction is made between nonfinancial and financial assets. All financial assets have liabilities as counterparts, except for gold bullion held as a reserve asset, which, by convention, is a financial asset (7.128).

Financial assets and liabilities

3.44 A particularly important mechanism in the economy is the device whereby one economic unit exchanges a particular set of benefits with another economic unit for future payments. From this a financial claim, and hence a liability, can be defined. There are no nonfinancial liabilities recognized in the GFS framework, and thus the term liability necessarily refers to a liability that is financial in nature.[11]

3.45 A **liability** is established when one unit (the debtor) is obliged, under specific circumstances, to provide funds or other resources to another unit (the creditor). Normally, a liability is established through a legally binding contract that specifies the terms and conditions of the payment(s) to be made and payment according to the contract is unconditional. These are typically established through the provision of economic value by one institutional unit, the creditor, to another, the debtor, normally under a contractual arrangement. Liabilities can also be created by the force of law, and by events that require future transfer payments. In many cases, liabilities (and their corresponding financial claims) are explicitly identified by formal documents expressing the debtor-creditor relationship. In other cases, liabilities are imputed to reflect the underlying economic reality of a transaction, such as the creation of a notional loan when an asset is acquired under a financial lease.

3.46 Liabilities created by the force of law include those arising from taxes, penalties (including penalties arising from commercial contracts), and judicial awards at the time they are imposed. Liabilities established by events that require future transfer payments include claims on nonlife insurance companies, claims for damages not involving nonlife insurance companies, and claims arising from winnings from lottery and gambling activities.

3.47 Whenever a liability exists, the creditor has a corresponding financial claim on the debtor. A **financial claim** is an asset that typically entitles the owner of the asset (the creditor) to receive funds or other resources from another unit, under the terms of a liability. Like liabilities, financial claims are unconditional. A financial claim provides benefits to the creditor, such as by acting as a store of value, or by generating

[11] In contrast, accounting standards recognize nonfinancial liabilities under certain conditions.

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interest, other property income, or holding gains. Financial claims consist of equity and investment fund shares, debt instruments, financial derivatives and employee stock options, and monetary gold in the form of unallocated gold accounts (see paragraphs 7.15, 7.127, and 7.139).

3.48 Financial assets consist of financial claims and gold bullion held by monetary authorities as a reserve asset. For a complete discussion of financial assets and liabilities, see paragraphs 7.118–7.227.

3.49 This *Manual* follows the *2008 SNA* by not treating guarantees other than derivatives and the provision for calls under standardized guarantee schemes as financial assets or liabilities. However, it is recommended to report these guarantees as memorandum items to the balance sheet. (See paragraphs 4.48 and 7.251–7.261.)

Nonfinancial assets

3.50 Nonfinancial assets are economic assets other than financial assets. Nonfinancial assets are further subdivided into those that are produced (fixed assets, inventories, and valuables) and those that are nonproduced (land, mineral and energy resources, other naturally occurring assets, and intangible nonproduced assets). For a complete description of the nature of nonfinancial assets, see paragraphs 7.34–7.117.

Accounting Rules

3.51 All entries in GFS have to be measured in monetary terms. In some cases, the amounts entered are the actual payments that form part of flows, and in other cases the amounts entered are estimated by reference to monetary values. Money is thus the unit of account in which all stocks and flows are recorded.

3.52 In principle, a reporting period can cover any period of time. Periods that are too short have the disadvantage that statistical data are influenced by incidental factors, while long periods may not adequately portray changes in the economy in a timely manner. Merely seasonal effects can be avoided by having the reporting period cover a whole cycle of regularly recurrent economic phenomena. In general, calendar years, financial years, and quarters are well suited for drawing up a complete set of GFS for the consolidated general government or public sectors, while monthly data with the broadest institutional coverage possible provide a good high-frequency indicator of fiscal performance. Country-specific circumstances will influence the coverage, frequency, and periodicity of fiscal reporting. However, in deciding these, data reporting guidelines and standards, such as the *General Data Dissemination System* (GDDS), *Special Data Dissemination Standard* (SDDS), *SDDS Plus*, and *Code on Good Practices on Fiscal Transparency*, should also be considered.[12]

3.53 The GFS framework is well suited to cover all economic activities in such a way that it is possible to compile GFS statements for individual units, groups of units, or all units in the general government or public sectors. To permit this, the accounting rules for recording flows and stock positions in the GFS framework are designed to ensure consistency in the data generated, and to conform to accepted standards for compiling other macroeconomic statistics. With the exception of consolidation, as noted later in this chapter, the accounting rules of the GFS framework are the same as those of the *2008 SNA* (see Appendix 7). There are also many similarities between the rules used in the GFS framework and those applied by businesses and governments in their financial statements.[13] The following sections describe the type of accounting system used, the accounting rules governing topics such as the time of recording, and the valuation of flows and stock positions.

Type of Accounting System

3.54 The recording of economic events underlying GFS derives from general bookkeeping principles. Double-entry recording is used for recording all flows. In a **double-entry system**, each transaction gives rise to at least two equal-value entries, traditionally referred to as a credit entry and a debit entry. This principle ensures that the total of all credit entries and that of all debit entries for all transactions are equal, thus permitting a check on consistency of the GFS accounts for a unit, subsector, or sector. Other economic flows also lead to debit and credit entries. These flows have their corresponding entries directly in changes in net worth. As a result, double-entry recording ensures the fundamental identity of a balance sheet—that

[12] http://dsbb.imf.org.

[13] Appendix 6 presents a broad description of linkages with financial accounting standards. It is recommended that the financial statements of government entities compiled in accordance with international accounting standards for governments be harmonized to the extent possible, and where differences remain, be reconciled with the equivalent GFS statements.

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is, the total value of assets equals the total value of liabilities plus net worth.

3.55 A **debit** entry is an increase in an asset, a decrease in a liability, or a decrease in net worth. A **credit** entry is a decrease in an asset, an increase in a liability, or an increase in net worth. Revenue entries result in an increase in assets or decrease in liabilities, which ultimately increase net worth; therefore, revenue entries are recorded as credits. Conversely, expense entries result in a decrease in assets or increase in liabilities, which ultimately decrease net worth; therefore, expense entries are recorded as debits. Other economic flows can increase or decrease assets and liabilities, thereby directly impacting net worth. In the case of the reclassification of assets or liabilities, a change occurs in the stock positions of two categories of assets or liabilities with no impact on net worth (e.g., an increase in one category of asset is paired with a decrease in another category of asset).

3.56 A **balance sheet** is a statement of the values of the stock positions of assets owned and of the liabilities owed by an institutional unit or group of units, drawn up in respect of a particular point in time. The fundamental identity of the balance sheet and of accounting in general is that the total value of the assets always equals the total value of the liabilities plus net worth. Use of the double-entry recording ensures that this identity is maintained. There are several possible combinations of debits and credits affecting assets, liabilities, and net worth. For example, the purchase of a service by a general government unit with payment to be made in 30 days would be recorded on an accrual basis as an *expense* (debit) and an increase in the liability, *other accounts payable* (credit). Thus, net worth, through the expense, decreases by the same amount that liabilities increase, and assets are not affected. The subsequent payment at the end of the 30 days would be recorded on an accrual basis as a decrease in *currency and deposits* (credit) and a decrease in *other accounts payable* (debit). In this case, both assets and liabilities decrease by the same amount and net worth is unaffected.

Time of Recording Flows

3.57 Once a flow has been identified, the time at which it occurred must be determined so that the results of all flows within a given reporting period can be reported. Although this section is concerned with the time assigned to flows, the integrated nature of the GFS framework means that the stock positions recorded on the balance sheet are also influenced by the timing of flows.

3.58 One of the problems in determining the timing of transactions is the frequent existence of a long period between the initiation of an action and its final completion. For instance, many purchases of goods commence with the signing of a contract between a seller and a buyer, followed by the initiation and completion of production of the item ordered, shipment from the seller's location, arrival at the buyer's location, preparation and mailing the invoice, receipt of the invoice, approval of payment, the beginning of interest accruing on a late payment or the expiration of a discount for prompt payment, signing a check for payment, mailing of the check by the buyer, receipt of the check by the seller, deposit of the check in the seller's bank, and finally the check is paid by the buyer's bank. Even then, the transaction may not be complete as there may be rights of return or warranty claims. Each of these distinct moments is to some extent economically relevant and may result in multiple transactions being recorded in GFS, but only one time can be attributed to each transaction.

3.59 Similarly, in analyzing government expense and acquisition of nonfinancial assets, one can distinguish the day that a budget is voted upon by the legislature, the day on which the ministry of finance authorized a department to pay out specified funds, the day a particular commitment is entered into by the departments, the day deliveries take place, and finally, the day payment orders are issued and checks are paid. With regard to taxes, for example, important moments are the day or the period in which the liability arises, the moment the tax liability is definitively assessed, the day that it becomes due for payment without penalty, and the day the tax is paid or refunds are made.

3.60 In summary, when using the accrual basis of recording, transactions are recorded when economic ownership changes hands for goods, nonproduced nonfinancial assets and financial assets and liabilities, when services are provided, and for distributive transactions when the related claims arise. On the other hand, when using the cash basis of recording, flows are recorded when cash is received and disbursed.

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These alternative recording bases are discussed in more detail in paragraphs 3.61–3.68.

Alternative recording bases

3.61 While making entries for all successive stages discernible within the activities of institutional units may be possible, it could severely overburden compilers, so a choice has to be made. Broadly, the time of recording could be determined on four bases: the accrual basis, the commitments basis, the due-for-payment basis, and the cash basis. In practice though, many variations on these bases of recording may exist. Accounting systems may use a mixed basis of recording; for example, tax revenue may be recorded on a cash basis while other transactions are recorded on an accrual basis.

3.62 In the **accrual basis of recording**, flows are recorded at the time economic value is created, transformed, exchanged, transferred, or extinguished. In other words, the effects of economic events are recorded in the period in which they occur, irrespective of whether cash was received or paid, or was due to be received or paid. Nevertheless, the time at which the economic events occur is not always clear. In general, the time attributed to events is the time at which economic ownership of goods changes, services are provided, the obligation to pay taxes is created, the claim to a social benefit payment is established, or other unconditional claims are established.

3.63 If an economic event requires a subsequent cash flow, such as purchases of goods and services on an installment plan, then the length of time between the time attributed to an event with the accrual basis and the time of the cash flow is bridged by recording *other accounts receivable/payable*. For example, when a general government unit purchases goods on credit, it records a debit to an inventory account and a credit to *other accounts payable* when ownership of the goods shifts. When the cash payment is made, the general government unit records a debit to *other accounts payable* and a credit to *currency and deposits*.

3.64 All events that result in the creation, transformation, exchange, transfer, or extinguishment of economic value are recorded on an accrual basis in the GFS *Statement of Operations* or *Statement of Other Economic Flows* (see paragraphs 4.16–4.31 and 4.36–4.38). Thus, all monetary and nonmonetary transactions are included in statistics compiled on the accrual basis.

3.65 In the **commitments basis of recording**, flows are recorded when an institutional unit has committed itself to a transaction. This basis often applies only to purchases of assets, goods, services, and to compensation of employees. The time of recording generally is when approval for the purchase was issued, which results in funds being earmarked for a specific transaction. Flows for which the commitments basis is not applicable, such as revenue, must be recorded using one of the other three bases of recording. In-kind transactions may or may not be recorded.

3.66 In the **due-for-payment basis of recording**, flows that give rise to cash payments are recorded at the latest times they can be paid without incurring additional charges or penalties or, if sooner, when the cash payment is made.[14] The period of time (if any) between the moment a payment becomes due and the moment it is actually made is bridged by recording *other accounts receivable/payable*, just as with the accrual basis. If a payment is made before it is due, then no receivable is necessary. Although due-for-payment recording furnishes a more comprehensive description of monetary flows than cash accounting, recording is limited to monetary flows and therefore does not capture all economic events.

3.67 In the **cash basis of recording**, flows are recorded when cash is received or disbursed. The cash basis of recording provides analytically useful information on the liquidity position of government, which allows for liquidity management. All events resulting in a cash flow are recorded in the GFS *Statement of Sources and Uses of Cash* (see paragraphs 4.32–4.35). Nonmonetary flows are not recorded, since no cash flows are involved in these transactions. Therefore, the cash basis of recording does not fully record all economic activity and resource flows.

3.68 Cash flows determine the government's ability to pay its bills and, by influencing the liquidity of the community, activate or validate the demand for goods and services in the rest of the economy. Traditionally, payments data form the basis for most government accounting systems and often represent the most readily available estimates generated by the

[14] Another basis of recording is when flows are recorded at the time legal controls that are necessary to authorize a payment have been completed. This basis of recording is entitled "due-and-payable."

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administrative accounting system. For instance, data on payments for the delivery of goods and services may frequently be more readily available than data on the time of delivery. But while statistics based on cash flows are of analytical value in their own right they do not fully meet the government's reporting needs. Therefore, the statistics on the accrual basis should be seen as necessary for the proper recording of all governments' operations.

Using the accrual basis of recording in the Statements of Operations and Other Economic Flows, and Balance Sheet of the GFS framework

3.69 Using the accrual basis of reporting provides the most comprehensive information because all economic events and resource flows are recorded, including internal transactions, in-kind transactions, and other economic flows. Moreover, it is only this comprehensive recording framework that permits the full integration of all flows with stock positions in the balance sheet. In general, accounts using the commitment, due-for-payment, or cash basis are restricted to monetary transactions.

3.70 The integrated framework of GFS uses the accrual basis, primarily because the time of recording matches the time of the actual resource flows and economic events. As a result, the accrual basis provides the best estimate of the macroeconomic impact of government fiscal policy. With the cash basis, the time of recording may diverge significantly from the time of the economic activities and the transactions to which they relate. For example, the interest accrued on a zero-coupon bond would not be recorded until the bond matures, which could be many years after the expense was incurred. The due-for-payment basis will frequently record transactions after the resource flows have taken place, although the very long delays permitted by the cash basis would, in most cases, be reduced. The timing of the commitments basis will precede the actual resource flow.

3.71 The accrual basis of recording also fully captures all amounts receivable or payable in arrears. **Arrears** are defined as amounts that are both unpaid and past the due date for payment. Because the due-for-payment date is always the same or later than the date attributed to a flow under the accrual basis, all arrears will be included in statistics compiled using the accrual basis. Without supplementary information, however, it may be difficult to estimate the share of total accounts payable that is in arrears as opposed to the share that exists because of normal payment delays. By definition, the due-for-payment basis will clearly show the arrears arising from purchases on installment plans, but arrears from the failure to repay debt obligations as scheduled, such as loans and debt securities, will not always be apparent without supplemental information. With the commitments basis, the availability of information on arrears will be the same as with the accrual basis. With the cash basis, there is no impact on the accounts when a unit does not pay for purchases made or comply with the terms for the repayment of debt. Thus, there will be no information on arrears unless special compilation effort is made.

3.72 In accrual accounting systems, provision is usually made for a separate statement of cash flows to be prepared as part of the comprehensive suite of statements—implementing accruals accounting systems therefore usually maintains some information on cash flows. Managing liquidity is crucial for the operation of any unit, and information on cash flows helps meet this need. Moreover, it may be difficult to assess solvency and future cash flows without an accrual-based system because information on arrears and on *other accounts payable/receivable*, such as trade credits and advances, is missing.

3.73 Accounts using the due-for-payment, commitments, or cash basis normally do not differentiate between the time of payment, acquisition, and use of resources. With the accrual basis, acquisitions of nonfinancial assets are recorded separately and the expense of using those assets in operating activities is matched with the period of their use through the consumption of fixed capital.

3.74 Additionally, the other major macroeconomic statistical frameworks (national accounts, balance of payments, and monetary and financial statistics) use the accrual basis. Thus, the consistency of statistics from the different systems is facilitated greatly by sharing the use of the accrual basis for all the macroeconomic frameworks.

3.75 Despite the advantages of the accrual basis of recording, its implementation is likely to be more complex than the other bases of recording and may require additional estimates. For example, it may

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be difficult for a government unit to know the full amount of tax revenue to which it is entitled because these amounts may depend on transactions and other events to which the government is not a party.

Application of the accrual principles

3.76 As a general rule, a flow is recorded under the accrual basis of recording when economic ownership changes or another economic event has occurred. More specific guidelines for the application of the accrual recording basis are described in the following paragraphs.

Time of recording and measurement of taxes and other compulsory transfers

3.77 The general principle is that taxes and other compulsory transfers should be recorded when the underlying activities, transactions, or other events occur that give rise to the liability to pay (i.e., the moment when it creates the government's unconditional claim to the taxes or other payments) (see paragraphs 5.10–5.20). This time is not necessarily the time at which the event being taxed occurred. For example, the obligation to pay tax on capital gains normally occurs when an asset is sold, not when the asset's value appreciated.

3.78 Estimating the revenue from taxes and compulsory social insurance contributions must take many uncertainties into account. The primary uncertainty is that the government unit receiving the revenue is usually not a party to the transaction or other event that creates the obligation to pay the taxes or social insurance contributions. Consequently, many of these transactions and events permanently escape the attention of the tax authorities. The amount of revenue from taxes and social insurance contributions should exclude the amounts that possibly could have been received from such unreported events, had the government learned about them. In other words, only those taxes and social insurance contributions that are evidenced by tax assessments and declarations, customs declarations, and similar documents are considered to create revenue for government units.

3.79 In addition, it is typical that some of the taxes and social insurance contributions that have been assessed will never be collected. Uncollectable taxes include amounts deemed uncollectable due to noncompliance with tax laws or insolvency of taxpayers. Taxes should also exclude contested tax assessments, which are treated as contingencies. It would be inappropriate to accrue revenue for an amount that the government unit does not realistically expect to collect. Thus, the difference between assessments and expected collections represents a claim that has no real value and should not be recorded as revenue (see paragraph 5.20). The amount of taxes and social insurance contributions that is recorded as revenue should be the amount that is realistically expected to be collected. The actual collection, however, may be in a later period, possibly much later.

3.80 To ensure that the amount of taxes and social contributions recorded on an accrual basis is equivalent to the corresponding amounts actually received over a reasonable amount of time, the following possibilities for the accrual recording of taxes could be considered:

- Amounts to be recorded are assessed amounts adjusted by coefficients reflecting the assessments not likely to be collected. The coefficients are estimated on the basis of past experience and current expectations in respect of assessed amounts never collected.
- Cash amounts are recorded in the accounts, but they are time-adjusted so that they are attributed to the period when the activity took place to generate the liability.

3.81 If taxes are imposed on specific transactions or events, they are recorded at the time the underlying transaction or event occurs, even though these times may not coincide with the actual payment of the tax to the government. This implies that taxes on products and imports are recorded at the time the products in question are produced, imported, or sold, depending on the basis of the taxation. Examples include sales taxes, value-added taxes, import duties, and estate and gift taxes.

3.82 In principle, income taxes and social contributions based on income should be attributed to the period in which the income is earned, even though there may be a significant delay between the end of the reporting period and the time at which it is feasible to determine the actual liability. In practice, however, some flexibility is permitted. In particular, as a practical deviation from the general principle, income taxes deducted at source, such as pay-as-you-earn taxes and regular prepayments of income taxes,

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may be recorded in the periods in which they are paid, and any final tax liability on income may be recorded in the period in which it is determined.

3.83 Income taxes are normally imposed on the income earned during an entire year. If monthly or quarterly statistics are compiled in the absence of monthly accrual administrative records, indicators of seasonal activity or other appropriate indicators may be utilized to allocate the annual totals.

3.84 Taxes on the ownership of specific types of property may be based on the value of the property at a particular time, but are deemed to accrue continuously over the entire year or the portion of the year that the property was owned, if less than the entire year. Similarly, taxes on the use of goods or the permission to use goods or perform activities usually relate to a specific time period, such as a license to operate a business during a specific period.

3.85 Some compulsory transfers, such as fines, penalties, and property forfeitures, are determined at a specific time. These transfers are recorded when the government has an unconditional legal claim to the funds or property, which usually is when a court renders judgment or an administrative ruling is published. If such judgment or ruling is subject to further appeal, then the time of recording is when the appeal is resolved.

3.86 Determining the time of recording for grants and other voluntary transfers is influenced by a wide variety of eligibility conditions that have varying legal powers. In some cases, a potential grant recipient has a legal claim when it has satisfied certain conditions, such as the prior incurrence of expenses for a specific purpose or the passage of legislation. These transfers are recorded by recipient and donor when all conditions are satisfied. In other cases, the grant recipient never has a claim on the donor, and the transfer should be attributed to the time at which the cash payment is made, or when the goods or services are delivered (see paragraph 5.105).

Time of recording dividends

3.87 Dividends and withdrawals of income from quasi-corporations are distributive transactions for which the time of recording depends on the unit's decision regarding when to distribute income (see paragraphs 5.111–5.119). The level of dividends is not unambiguously attributable to earnings of a particular period, and dividends are to be recorded as of the moment the associated share starts to be quoted "ex-dividend." Withdrawals of income from quasi-corporations are recorded on the date the payment actually occurs.

Time of recording transactions in goods, services, and nonfinancial assets

3.88 The time of recording transactions (including by barter, payment in kind, or transfer in kind)[15] in goods and nonfinancial assets is, in principle, when economic ownership changes, which depends on the provisions in the sales contract (see paragraphs 8.13–8.17). When change of ownership is not obvious, the time of recording by the transaction partners[16] may be a good indication and, failing that, the moment when there is a change in physical possession or control. For example, a change of ownership is imputed to have taken place under a financial lease when the lessee takes control of the asset.

3.89 Transactions in services normally should be recorded when the services are provided. If a service, such as transportation, is provided at a specific time, then the transaction is recorded at that time. Some services are supplied or take place on a continuous basis. For example, insurance, and rental of housing services are continuous flows and should be recorded continuously for as long as they are being provided. More practically, the value of the services attributed to a reporting period is based on the quantity supplied during the period rather than the payments required.

3.90 Several other transactions also relate to flows that take place continuously or over extended periods. For example, operating leases and consumption of fixed capital accrue continuously over the whole period a fixed asset is used and interest[17] accrues continuously over the period that the financial claim exists. These flows are recorded as being provided

[15] These transactions are excluded from a pure cash basis of recording.

[16] To maintain symmetry in the macroeconomic statistical system, the time of recording should be the same for both parties to the transaction.

[17] The counterpart entry to accruing interest expense is a simultaneous increase in the amount of liability outstanding. Periodic payments reduce the liability that has accrued and are not expense transactions.

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continuously over the whole period the contract lasts or the asset is available for use.

3.91 Inventories may be materials and supplies held as input for producing goods and services, work-in-progress, or finished goods held for resale or distribution. Additions to inventories are recorded when products are purchased, produced, or otherwise acquired. Withdrawals from inventories are recorded when products are sold, used up in production, or otherwise relinquished. Additions to work-in-progress inventories are recorded continuously as work proceeds. When production is completed, the goods valued at costs accumulated to that point are transferred to inventories of finished goods.

3.92 *Use of goods and services* is recorded when the good or service enters the process of production, as distinct from the time it was acquired. For goods, this time may be quite different from the time they were acquired. In the meantime, they are classified as inventories.

Time of recording transactions in financial assets and liabilities

3.93 Transactions in many types of financial assets and liabilities, such as debt securities, loans, currency, and deposits, are recorded when economic ownership changes (see paragraphs 9.13–9.16). This date may be specified according to a contract to ensure matching entries in the books of both parties. If no precise date is fixed, the date on which the creditor receives payment, or some other financial claim, is the determining factor. For example, loan drawings are entered in the accounts when actual disbursements are made and financial claims are established, which is not necessarily when an agreement is signed. On practical grounds, public sector liabilities may have to take account of the time of recording from the viewpoint of the public sector unit.

3.94 In some cases, the parties to a transaction may perceive ownership to change on different dates because they acquire the documents evidencing the transaction at different times. This variation usually is caused by the process of clearing, or the time checks are in the mail. The amounts involved in such a "float" may be substantial in the case of transferable deposits and *other accounts receivable* or *payable*. If there is disagreement on a transaction between two units, the date on which the transaction is fully completed, which is the day the creditor regards change of ownership to have taken place, is the date of record; this date could be when the creditor receives payment or some other financial claim.

3.95 Some financial claims or liabilities, in particular the various types of *other accounts payable* and *receivable*, such as trade credit and advances, general accounts payable, and wages payable, are the result of a nonfinancial transaction and are not otherwise evidenced. In these cases, the financial claim is created when the counterpart transaction (such as the purchase of a good on credit or provision of labor) occurs.

3.96 For securities, the transaction date (i.e., the time of the change in ownership of the securities) may precede the settlement date (i.e., the time of the delivery of the securities). Both parties should record the transactions at the time ownership changes, not when the underlying financial asset is delivered. Any significant difference between transaction and settlement dates gives rise to *other accounts payable* or *receivable*. In practice, when the delay between the transaction and settlement is short, the time of settlement may be considered an acceptable proxy.

3.97 According to the accrual basis of recording, repayments of debts are recorded when they are extinguished (such as when they are paid, or rescheduled, or forgiven by the creditor). When arrears occur, no transactions should be imputed, but the arrears should continue to be included in the same instrument until the liability is extinguished. If the contract provided for a change in the characteristics of a financial instrument when it goes into arrears, this change should be recorded as a reclassification in the other changes in volume of the financial assets and liabilities account. The reclassification applies to situations where the original contract remains, but the terms within it change (e.g., interest rates, repayment periods, etc.).[18] If a new contract is negotiated or the nature of the instrument changes from one instrument category to another (e.g., from bonds to equity), transactions should be recorded to reflect the redemption of the old instrument and to create a new instrument.

[18] Charging a penalty interest rate on arrears that was stipulated in the original contract is not in itself a reason to reclassify the debt.

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Time of recording other economic flows

3.98 Other changes in the volume of assets are usually discrete events that occur or accrue at particular moments or within fairly short periods of time (see paragraphs 10.46–10.47). For example, the destruction of an asset by fire happens at a specific time, and the impact of a natural disaster can be allocated to a specific period.

3.99 Changes in prices often have a more continuous character, particularly in respect of assets for which active markets exist. In practice, holding gains or losses will be computed between two points in time. The starting point will be the moment at which:

- The reporting period begins
- Ownership is acquired from other units (through purchase or a transaction in kind)
- An asset is produced.

The end point in time will be the moment at which:

- The reporting period ends
- Ownership of an asset is relinquished (through a sale or a transaction in kind)
- An asset is consumed in the production process.

3.100 Holding gains and losses are not calculated over a period beginning the moment two units agree to a mutual exchange of assets. Instead, the calculation of the holding gains and losses starts when economic ownership of the assets is acquired. The signing of the contract fixes the market price for the transaction. A unit can incur holding gains and losses only on the assets or liabilities over which it has economic ownership. This implies that during the period between the signing of a contract and the date on which the first party delivers, the second party cannot incur any price risks on this contract; the second party neither owns the assets to be delivered nor owns a claim on the first party to be recorded in the financial accounts.[19]

3.101 Other changes in volume, including reclassifications, are recorded as these changes occur. An integrated stock-flow framework requires that both the removal of an existing asset or liability from the original category and its inclusion in the new category are recorded at the same time.

3.102 Reclassifications should be recorded when the change in the nature of the asset, liability, or entity occurs. Although one might be tempted to stockpile major reclassifications for a number of years and enter them as one block at the end of this period, this procedure does not conform to the accrual principles of GFS, which aim for correct estimates at all times. Keeping records of reclassifications makes it possible to reconstruct supplementary time series based on the situation before the reclassification, if needed.

Using the cash basis of recording in the Statement of Sources and Uses of Cash

3.103 GFS includes a *Statement of Sources and Uses of Cash*. For this statement, statistics on monetary flows should be based on transactions as close to the payment/receipt stage as possible. These statistics, based on cash payments/receipts, measure in aggregate the government's impact on the liquidity conditions in the economy (see paragraph 3.67). Although these cash-based data lack an integration of flows with stock positions, they are complementary to the accrual data and form an integral part of the complete GFS framework.

3.104 For expense and the acquisition of nonfinancial assets, data at the stage of payment by cash disbursed, or checks or warrants issued, represent the most desirable basis on which to record the cash-based data.[20] For revenue, data representing the tax payments received by government, net of refunds paid out during the period covered should be reported. These data will include taxes paid after the original assessment, taxes paid or refunds deducted from taxes after subsequent assessments, and taxes paid or refunds deducted after any subsequent reopening of the accounts. In the reporting of tax revenue, the use of payment basis data is often the first best estimate for a cash statement.

3.105 In the case of government borrowing, the cash basis of recording will report borrowing when funds are received by government, or when lenders

[19] For example, a sales contract to the value of 100 is agreed on day 1, when the market price of the transaction is 100, for delivery on day 5. On day 5, the price of the item prevailing on the market is 102—the buyer records a transaction of 100 and immediately revalues the item.

[20] Cash accounting that allows back-dated transactions (known as complementary periods), may distort actual cash flows. Recording of cash transactions in such a manner should be disclosed.

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pay government suppliers on behalf of government. Government lending should be recorded when the government makes payment, or when funds are provided to a borrower.

3.106 However, payments data must be adjusted to an accrual basis to permit the measurement of production, income, consumption, capital accumulation, and finance in the national accounts. To reconcile data extracted from cash-based data and data maintained on an accrual basis, the cash flows must be adjusted for accrued revenue not yet received and accrued expense not yet paid, respectively.

Valuation

General rule

3.107 All flows and stock positions should be measured at market prices. **Market prices** refer to current exchange value—that is, the value at which goods, services, labor, or assets are exchanged or else could be exchanged for cash (currency or transferable deposits). Flows recorded in the *Statement of Operations* should be valued at the market prices at which these flows take place, while flows recorded in the *Statement of Sources and Uses of Cash* should be valued at the monetary value of the cash flows. Stock positions should be valued at the market prices prevailing on the balance sheet date. Valuation of specific types of flows and stock positions are discussed in further detail in the remainder of this section.

Valuation of transactions

3.108 Market prices for transactions are defined as amounts of money that willing buyers pay to acquire something from willing sellers; the exchanges are made between independent parties and on the basis of commercial considerations only, sometimes called "at arm's length." Thus, according to this strict definition, a market price refers only to the price for one specific exchange under the stated conditions. A second exchange of an identical unit, even under circumstances that are almost exactly the same, could result in a different market price. A market price defined in this way is to be clearly distinguished from a price quoted in the market, a world market price, a going price, a fair market price, or any price that is intended to express the generality of prices for a class of supposedly identical exchanges rather than the price actually applying to a specific exchange. Furthermore, a market price should not necessarily be construed as equivalent to a free market price; that is, a market transaction should not be interpreted as occurring exclusively in a purely competitive market situation. In fact, a market transaction could take place in a monopolistic, monopsonistic, or any other market structure. Indeed, the market may be so narrow that it consists of a sole transaction of its kind between independent parties.

3.109 When a price is agreed to by both parties in advance of a transaction taking place, this agreed or contractual price is the market price for that transaction regardless of the prices that prevail when the transaction takes place.

3.110 Actual exchange values, expressed in monetary terms, are presumed to be the market prices in most cases. Paragraph 3.122 describes those cases where actual exchange values do not represent market prices. Transactions that involve dumping and discounting represent market prices. Transaction prices for goods and services are inclusive of appropriate taxes and subsidies. A market price is the price payable by the buyer after taking into account any rebates, refunds, adjustments, etc., from the seller.

3.111 Transactions in financial assets and liabilities are recorded at the prices at which they are acquired or disposed of. Transactions in financial assets and liabilities should be recorded exclusive of any service charges, commissions, fees, taxes, and similar payments for services that would be necessary to require the asset or incur the liability. These costs of ownership transfers are excluded regardless of whether these are charged explicitly, included in the purchaser's price, or deducted from the seller's proceeds. This is because both debtors and creditors should record the same amount for the same financial instrument. The commissions, fees, and/or taxes should be recorded separately from the transaction in the financial asset and liability, under appropriate categories of revenue or expense. The valuation of financial instruments, which excludes commission charges, differs from the valuation of nonfinancial assets (excluding land), which includes any costs of ownership transfer. Costs of ownership transfer on land are included in the value of land improvements (see paragraphs 8.6–8.8).

3.112 When market prices for transactions are not observable, such as for some barter or transfers-in-kind transactions, valuation according to market

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price-equivalents provides an approximation to market prices. In such cases, market prices of the same or similar items, when such prices exist, will provide a good basis for applying the principle of market prices. Generally, market prices should be taken from the markets where the same or similar items are currently traded in sufficient numbers and in similar circumstances. If there is no appropriate market in which a particular good or service is currently traded, the valuation of a transaction involving that good or service may be derived from the market prices of similar goods and services by making adjustments for quality and other differences.

Valuation of stock positions

3.113 Stock positions should be valued at **market value**—that is, as if they were acquired in market transactions on the balance sheet reporting date (reference date). Market prices are readily available for assets and liabilities that are traded in active markets, most commonly certain financial assets and their corresponding liabilities. Market values of other assets and liabilities need to be estimated in a manner similar to nonmonetary flows, as described in paragraphs 3.118–3.125 and 7.20–7.33.

3.114 Valuation according to market-value equivalent is needed for valuing assets and liabilities that are not traded in markets or are traded only infrequently. For these assets and liabilities, it will be necessary to estimate values that, in effect, approximate market prices (see paragraph 3.125).[21]

3.115 It may also be analytically useful and appropriate, in some circumstances, to use alternative valuation methods and to compare these with market values. Market values, fair values, and nominal values should be distinguished from such notions as amortized values, face values, book values, and historic cost.

- **Fair value** is a market-equivalent value defined as the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's-length transaction. It thus represents an estimate of what could be obtained if the owner sold the asset or the debtor settled the liability.
- **Nominal value** at any moment in time is the amount that the debtor owes to the creditor. It reflects the value of the instrument at creation and subsequent economic flows, such as transactions, valuation changes (excluding market price changes), and other changes, such as exchange rate changes. For financial instruments other than debt securities, equity, and financial derivatives, the lack of generally available market values means that these values are estimated by using the nominal value.
- The **amortized value** of a loan reflects the gradual elimination of the liability by regular payments over a specified period of time. On the date of each scheduled payment, the amortized value is the same as the nominal value, but it may differ from the nominal value on other dates because the nominal value includes interest that has accrued.
- The **face value** of a debt instrument is the undiscounted amount of principal to be repaid at (or before) maturity.[22] The use of face value as a proxy for nominal value in measuring the gross debt position can result in an inconsistent approach across all instruments and is not recommended. For example, the face value of deep-discounted bonds and zero-coupon bonds includes interest not yet accrued, which runs counter to accrual principles.
- **Written-down replacement cost** is the current acquisition price of an equivalent new asset minus the accumulated consumption of fixed capital, amortization, or depletion.
- **Book value** generally refers to the value recorded in the entities' records. Book values may have different meanings because their values are influenced by accounting standards, rules, and policies, as well as the timing of acquisition, company

[21] International statistical manuals consider that for nonnegotiable instruments, nominal value is an appropriate proxy for market value (see paragraph 7.30). Nonetheless, the development of markets, such as for credit derivatives linked to the credit risk of individual entities, is increasing the likelihood that market prices can be estimated even for nonnegotiable instruments. As these markets extend, consideration might be given to compiling additional information on market values of nonnegotiable debt.

[22] In some statistical databases, face value is also called nominal value. However, in GFS, nominal value is understood to be different from face value, except on the date of maturity of the instrument.

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takeovers, frequency of revaluations, and tax and other regulations.

- **Historic cost,** in its strict sense, reflects the cost at the time of acquisition, but sometimes it may also reflect occasional revaluations.

3.116 The valuation of assets and liabilities based on accounting standards may not fully reflect the market prices of the assets and liabilities. In such cases, the source data for GFS should be adjusted to reflect, as closely as possible, the market value of the assets and liabilities.[23]

3.117 Some financial assets and liabilities, such as bonds, have a nominal value, face value, and market value, and for some purposes, supplementary data on the nominal and face values of stock positions may be useful.[24] However, transactions in these assets and liabilities should be valued at the prices actually paid. Similarly, to attain integration between stock positions and flows, the stock positions of debt securities should be valued at their market value when recorded on the balance sheet.

Valuation adjustments in special cases

3.118 When a unit sells an item and does not expect to receive payment, or the corresponding payment is not due for an unusually long time,[25] the value of the principal (recorded in other accounts payable/receivable) is reduced by an amount that reflects the time to maturity using an appropriate discount rate, such as the contractual rate for similar debt instruments. If payment is not due for an unusually long period of time, this reduction is by partitioning the market price of the item purchased, which equals the reduced principal amount, and accrued interest, the assumption being that the amount to be paid includes an allowance for interest. If payment is not expected for an unusually long period of time, such as due to the circumstances of the debtor, a reduction in the principal to be paid is recorded through a valuation change in other accounts payable/receivable, with interest accruing on the reduced principal amount, reflecting the time delay in payment. In both the circumstances described in this paragraph, interest should accrue until payment is made, at the rate used to discount the principal.

3.119 Flows and stock positions expressed in a foreign currency are converted to their value in the domestic currency at the rate prevailing at the moment they are entered in the accounts—that is, the moment the transactions or other flow takes place, and stock positions are converted at the rate prevailing on the balance sheet date. The midpoint between the buying and selling spot rates should be used so that any service charge is excluded. When a multiple exchange rate system is in operation, the valuation should be based on the rate applicable to the type of asset in question. The valuation in the domestic currency of a purchase or sale on credit expressed in a foreign currency may differ from the value in domestic currency of the subsequent cash payment because the exchange rate changed in the interim. Both transactions should be valued at their market values as of the dates they actually occurred, and a holding gain or loss resulting from the change in the exchange rate should be recorded for the period or periods in which it occurs.

3.120 For some transactions in goods, contracts establish a quotation period often months after the goods have changed hands. In such cases, market value at the time of the change of ownership of the goods should be initially estimated, and revised with the actual market value, when known. Market value is given by the contract price even if it is unknown at the time of change of ownership.

3.121 Transfers in kind should be valued at the market prices that would have been receivable if the resources had been sold in the market. In the absence of a market price, the donor's view of the imputed value of the transaction will often be quite different from that of the recipient. The suggested rule of thumb is to use the value assigned by the donor as the basis of recording.

3.122 In some cases, actual exchange values may not represent market prices. Examples are transactions involving transfer prices between affiliated units, manipulative agreements with third parties, and certain noncommercial transactions. Prices may be under- or overinvoiced, in which case an assessment

[23] More information on the valuation rules and numerical examples are in the *PSDS Guide*, paragraphs 2.115–2.123, and the *2013 EDS Guide*.

[24] The *PSDS Guide* recommends that debt instruments should be valued at nominal value, while debt securities should be valued at market value as well.

[25] What constitutes an unusually long time in this context will depend on the circumstances. For example, for any given time period, the higher the level of interest rates or the longer the delay in payment, the greater is the opportunity cost of delayed payment.

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of a market-equivalent price needs to be made. Although, conceptually, adjustment should be made when actual exchange values do not represent market prices, this may not be practical in many cases. In some cases, transfer pricing may be motivated by income distribution or equity buildups or withdrawals. Replacing book values with market-value equivalents is desirable in principle, when the distortions are large and when the availability of data (such as adjustments by customs or tax officials or from partner economies) makes it feasible to do so. Selection of the best market-value equivalents to replace book values is an exercise calling for cautious and informed judgment. In many cases, compilers may have no choice other than to accept valuations based on explicit costs incurred in production or any other values assigned by the unit.

3.123 While some nonmarket transactions, such as grants in kind, have no market price, other nonmarket transactions may take place at implied prices that include some element of grant or concession so that those prices also are not market prices (see paragraphs 3.10–3.11). Examples of such transactions could include negotiated exchanges of goods between governments and governments' concessional lending. While there is no precise definition of concessional loans, it is generally accepted that they occur when units lend to other units and the contractual interest rate is intentionally set below the market interest rate that would otherwise apply. The degree of concessionality can be enhanced with grace periods (see paragraph 6.69), frequencies of payments, and a maturity period favorable to the debtor. Since the terms of a concessional loan are more favorable to the debtor than market conditions would otherwise permit, concessional loans effectively include a transfer from the creditor to the debtor. However, except for the case of concessional lending to government employees (see paragraph 6.17 and Chapter 6, footnote 11) and concessional lending by central banks (see Box 6.2), the means of incorporating the impact of concessional lending into GFS have not been fully developed. Accordingly, until the appropriate treatment of concessional debt is resolved, information on concessional debt should be provided as supplementary information (see paragraph 7.246).

3.124 Where a single amount payable/receivable refers to more than one transaction category, the individual flows should be partitioned and recorded separately (see paragraph 3.29). In such a case, the total value of the individual transactions after partitioning must equal the market value of the exchange that actually occurred.

3.125 The value of flows that are not already expressed at their market value, such as barter transactions, must be estimated. In addition, market values for many stock positions will not be readily available and must be estimated. The following list suggests several estimation possibilities. The choice of which method to use in a given circumstance depends on the information available.

- It may be possible to estimate the values of transactions based on values taken from markets in which similar transactions take place under similar conditions. The value of certain stock positions, primarily financial assets, may also be estimated using market transactions involving similar assets that take place at the end of the reporting period.
- Flows and stock positions involving existing fixed assets can be valued using the market price for similar new goods, properly adjusted for consumption of fixed capital and other events that may have occurred since they were produced.
- If there is no appropriate market in which a particular good or service is currently traded, the valuation of a flow involving that good or service may be derivable from the market prices of similar goods and services by making adjustments for quality and other differences.
- The value of flows and stock positions of assets may be estimated on the basis of the historic or acquisition cost of the item, adjusted for all changes that have occurred since it was purchased or produced, such as consumption of fixed capital, holding gains or losses, depletion, exhaustion, degradation, unforeseen obsolescence, and exceptional losses.[26]
- Goods and services can be valued by the amount that it would cost to produce them in the current reporting period. For market producers, the market value of a nonfinancial asset valued in this way should include a mark-up that reflects the net operating surplus attributable to

[26] This estimate is also referred to as the "written-down current acquisition" value.

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the producer. For nonmarket goods and services produced by general government units or nonprofit institutions serving households (NPISHs), however, no allowance should be made for any net operating surplus in the calculation of the market price.

- Assets can be valued at the discounted present value of their expected future returns. This method is particularly prominent for a number of financial assets, natural assets, and intangible assets. For some financial assets, the present market value is established by discounting future payments or receipts to the present, using the market interest rate. In principle, therefore, if a reasonably robust estimate of the stream of future earnings to come from an asset can be made, along with a suitable discount rate, this method allows an estimate of the present value. However, it may be difficult to determine the future earnings with the appropriate degree of certainty, given that assumptions are also needed about the asset's life span and the discount factor to be applied. Because of these uncertainties, the other possible sources of valuation described in the preceding paragraphs should be exhausted before resorting to this method.

Valuation of other economic flows

3.126 Apart from transactions, the change in the value of assets and liabilities between two end-periods also results from holding gains and losses, and other changes in volume of assets and liabilities. The valuation of these other economic flows is discussed in the remainder of this section.

Holding gains and losses

3.127 Holding gains and losses accrue continuously and apply to both nonfinancial and financial assets and liabilities. Since all financial assets, except gold bullion, are matched by liabilities either within the domestic economy or with the rest of the world, it is important that holding gains/losses are recorded symmetrically. A holding gain occurs when an asset increases in value or a liability decreases in value; a holding loss occurs when an asset decreases in value or a liability increases in value. Holding gains and losses during a reporting period are shown separately for assets and liabilities. In practice, the value of holding gains and losses is calculated for each asset and liability between two points in time: the beginning of the period or when the asset or liability is acquired or incurred, and the end of the period or when the asset or liability is sold or extinguished.

Other changes in the volume of assets

3.128 In order to determine the valuation of the other changes in the volume of nonfinancial assets, it is usually necessary to determine the market value of the asset before and after the economic event, such as its appearance, disappearance, catastrophic loss, or reclassification (see paragraphs 10.46–10.84). The value of the other change in volume is calculated as the difference in the market value of the asset immediately before and after the event.

3.129 Other changes in the volume of financial assets and liabilities are recorded at the market or market-equivalent prices of similar instruments. For writing-off of marketable financial instruments that are valued at their market values, the value recorded in the other changes in the volume of asset account should correspond to their market values prior to being written off. For nonmarketable financial instruments that are recorded at nominal values, the value recorded in the other changes in the volume of assets account should correspond to their nominal value prior to being written off. For all reclassifications of assets and liabilities, values of both the new and old instruments should be the same.

Currency

Unit of account

3.130 The compilation of GFS, particularly transactions and stock positions with nonresidents, is complicated by the fact that the values may be expressed initially in a variety of currencies or perhaps in other standards of value, such as Special Drawing Rights (SDRs). The conversion of these transactions and stock positions expressed in another currency, or a commodity into a reference unit of account, is a requisite for the construction of consistent and analytically meaningful statistics. If financial assets or liabilities are in foreign currency units, data in a single currency unit are needed for compiling meaningful statistics.

3.131 From the perspective of the national compiler, the domestic currency unit is the obvious choice for measuring transactions and stock positions. Denominating government finance transactions and

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stock positions in such a way is compatible with the national accounts and most of the economy's other economic statistics. Where a foreign currency is used to settle domestic transactions, such as with "dollarized" economies, this foreign currency may be the relevant currency unit for the compilation of GFS.

Currency conversion

3.132 The most appropriate exchange rate to be used for conversion of transactions and stock positions is the market (spot) rate prevailing on the transaction or balance sheet date. The midpoint between buying and selling rates should be used.

3.133 For debt transactions, in principle, the actual exchange rate applicable to each transaction should be used for currency conversion. The use of a daily average exchange rate for transactions usually provides a good approximation. If daily rates cannot be applied, average rates for the shortest period should be used. Some transactions occur on a continuous basis, such as the accrual of interest over a period of time. For such flows, therefore, an average exchange rate for the period in which the flows occur should be used for currency conversion. More details on currency conversion are given in the *BPM6*, paragraphs 3.104–3.108.

Domestic and foreign currency

3.134 For an economy, a domestic currency is distinguished from foreign currency. **Domestic currency** is that which is legal tender in the economy and issued by the monetary authority for that economy—that is, either that of an individual economy or, in a currency union, that of the common currency area to which the economy belongs. All other currencies are **foreign currencies**.

3.135 Under this definition, an economy that uses as its legal tender a currency issued by a monetary authority of another economy—such as U.S. dollars—or of a common currency area to which it does not belong should classify the currency as a foreign currency, even if domestic transactions are settled in this currency. Unallocated gold accounts and other unallocated accounts in precious metals giving title to claim the delivery of gold or precious metal are treated as denominated in foreign currency.

3.136 SDRs are considered to be foreign currency in all cases, including for the economies that issue the currencies in the SDR basket. Any other currency units issued by an international organization, except in the context of a currency union, are considered foreign currency.

Currency of denomination and currency of settlement

3.137 For debt statistics, a distinction should be made between the currency of denomination and the currency of settlement. The currency of denomination is determined by the currency in which the value of flows and stock positions is fixed as specified in the contract between the parties. Accordingly, all cash flows are determined using the currency of denomination and, if necessary, converted to the domestic currency or another unit of account for the purpose of settlement or compilation of accounts. The currency of denomination is important for distinguishing transaction values and holding gains and losses.

3.138 The currency of settlement may be different from the currency of denomination. Using a currency in settlement that is different from the currency of denomination simply means that a currency conversion is involved each time a settlement occurs. The currency of settlement is important for international liquidity and measurement of potential foreign exchange drains.

3.139 A financial instrument may be settled in domestic currency with both the amount to be paid at maturity and all periodic payments (such as coupons) linked (or indexed) to a foreign currency. In this instance, the currency of denomination is the foreign currency. Some instruments are denominated in more than one currency. However, if the amounts payable are linked to one specific currency, then the liability should be attributed to that currency.

Derived Measures

3.140 Derived measures consist of aggregates and balancing items. They are important analytic tools that summarize the values of selected flows or stock positions that have been individually recorded in the GFS framework. These derived measures are the sum or the balance of two or more flows or stock positions.

3.141 Aggregates are summations of individual entries and elements in a class of flows or stock positions. They allow for these data to be arranged in a

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manageable and analytically useful way. For example, tax revenue is the sum of all flows that are classified as taxes, and data for social security funds are the aggregations of the data for all institutional units in the economy that are classified as social security funds. Aggregates and classifications are closely linked in that classifications are designed to produce the aggregates thought to be most useful. Conceptually, the value for each aggregate is the sum of the values for all items in the relevant category. However, estimates of some aggregates may be needed due to deficiencies in source data, such as missing information on individual transactions, other economic flows, and asset and liability positions that may be incomplete or even nonexistent.

3.142 Balancing items are economic constructs obtained by subtracting one aggregate from a second aggregate. For example, the net operating balance is obtained by subtracting the total expense aggregate from the total revenue aggregate. Net worth is the balancing item equal to total assets minus total liabilities (see Chapter 4).

Netting of Flows and Stock Positions

3.143 It is feasible to present many categories of flows and stock positions on a gross or net basis. An item presented on a net basis is calculated as the sum of one set of flows or stock positions minus the sum of a second set of a similar kind. For example, total tax revenue could be presented on a gross basis as the total amount of all taxes accrued, or on a net basis as the gross amount minus tax refunds. Similarly, interest can be presented on a gross basis as interest revenue and interest expense, respectively, while it is feasible to calculate the net interest. The choice depends on the category of flows or stock positions, the nature of the items that might be subtracted to obtain the net value, and the analytic utility of the gross and net values. The choices for gross and net presentations as used in the GFS framework are discussed in paragraphs 3.144–3.151.

3.144 In GFS, revenue categories are presented gross of expense categories for the same or related category and likewise for expense categories. In particular, interest revenue and interest expense are presented gross rather than as net interest expense or net interest revenue. Similarly, social benefits and social contributions, grant revenue and expense, and rent revenue and expense are presented gross. Also, sales of goods and services are presented gross of the expenses incurred in their production.

3.145 In the case of the correction of erroneous or unauthorized transactions, revenue categories are presented net of refunds of the relevant revenue, and expense categories are presented net of inflows from the recovery of the expense. For example, refunds of income taxes may be paid when the amount of taxes withheld or otherwise paid in advance of the final determination exceeds the actual tax due. Such refunds are recorded as a reduction in tax revenue. Similarly, if social benefits that were paid in error are recovered, then such recoveries are recorded as a reduction in expense.

3.146 Acquisitions and disposals of nonfinancial assets other than inventories are presented gross. For example, acquisitions of land are presented separately from disposals of land. For analytic presentations, the net acquisition of each category of nonfinancial asset may be preferable and can be derived easily.

3.147 Netting is implicit in the presentation of some specific transactions categories in GFS—for example, *changes in inventories*. Changes in each type of inventories are presented net rather than tracking daily additions and withdrawals. That is, the change in materials and supplies is presented in the GFS framework as the net value of additions minus withdrawals. Nonetheless, full inventory accounting could allow for the gross recording of all the movements in inventories in the underlying administrative records. Similarly, tax revenue is presented net of nonpayable tax credits (see paragraphs 5.29–5.32).

3.148 Acquisitions and disposals of each category of financial assets/liabilities are also presented net in the GFS framework, to reflect the nature of the financial flows. For example, only the net change in the holding of assets related to *currency and deposits* is presented, not gross receipts and disbursements. Similarly, additions to liabilities in the form of *loans* are presented net of repayments. However, for analytical and administrative reasons, it may be useful to develop source data on the gross acquisitions and the gross disposals of each financial instrument as separate data categories.

3.149 Other economic flows are presented net. That is, the net holding gain for each asset and liability is presented, not gross holding gains and gross

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holding losses. Similarly, other changes in the volume of assets and liabilities are presented net, rather than recording increases and decreases in volume changes on a gross basis.

3.150 Stock positions held for the same type of financial instrument, both financial assets or liabilities, are presented gross. For example, a unit's holding of *debt securities* as financial assets is presented separately from its liabilities for *debt securities* issued.

3.151 In the GFS framework the terms "gross" and "net" are used in a very specific manner. Apart from the balancing items *net worth*, *net operating balance*, and *net lending/net borrowing*, the GFS classifications employ the word "gross" and "net" to indicate the value of the operating balance and investment in nonfinancial assets before or after deduction of *consumption of fixed capital*. The framework also uses the term "net" to indicate that the *net acquisition of financial assets* represents both acquisition and disposal of assets, while the *net incurrence of liabilities* represents both incurrence and repayment of liabilities.

Consolidation

3.152 A consolidated set of accounts for a group of units, subsectors, or sectors, is produced by, first, an aggregation of all flows and stock positions within the GFS analytical framework, followed by the elimination, in principle, of all flows and stock positions that represent relationships among the units or entities being consolidated. In other words, consolidation eliminates the double-count because a flow or stock position of one unit is paired with the corresponding flow or stock position recorded for the second unit with which it is being consolidated, and both flows and/or stock positions are eliminated. For example, if one general government unit owns a bond issued by a second general government unit, and data for the two units are being consolidated, then the stock positions of bonds held as assets and liabilities of the consolidated unit are reported as zero (i.e., as if the bond position between them did not exist). At the same time, the interest related to this bond is consolidated, so that the interest revenue and expense of the consolidated account exclude the interest paid by the debtor general government unit to the creditor general government unit. Similarly, sales of goods and services between consolidated units are also eliminated.[27]

Definitions

3.153 Consolidation is a method of presenting statistics for a set of units (or entities) as if they constituted a single unit. In the GFS framework, the data presented for a group of units are consolidated. In particular, statistics for the general government sector and each of its subsectors are presented on a consolidated basis. When units of the public sector are included in a presentation, the data for public corporations should be presented in two ways: as separate subsectors for the financial public corporations and for the nonfinancial public corporations; and together with general government units for the consolidated public sector. In both cases, the statistics should be presented on a consolidated basis within each group.

3.154 When compiling general government or public sector statistics, two types of consolidation may be necessary—namely, intrasectoral consolidation and intersectoral consolidation.

3.155 Intrasectoral consolidation is consolidation within a particular subsector to produce consolidated statistics for that particular subsector—for example, within the central government subsector or within the public nonfinancial corporations subsector. This consolidation may be required at two stages. A single institutional unit may require consolidation when the unit has multiple funds and accounts to carry out its operations and there are flows and stock positions among those funds. For example, a country may have a core central government institutional unit that has one or more departmental accounts, as well as special funds and accounts established for specific purposes. There are often flows and stock positions held between these accounts and funds that are recorded on a gross basis in the respective accounts. Failure to eliminate these transfers would yield aggregates that result from the accounting device, and not from interaction with units outside of the central government.

3.156 Intersectoral consolidation is consolidation between subsectors of the public sector to produce consolidated statistics for a particular grouping of public

[27] See *PSDS Guide*, Box 8.1 and Table 8.2, for examples of consolidation.

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sector units—for example, consolidation between central, state, and local governments, and between general government and public nonfinancial corporations.

3.157 Intrasectoral consolidation is always done before intersectoral consolidation—for example, where more than one central government social security fund exists, the data for all social security funds should be consolidated before the consolidated social security data is presented as a subsector of the central government. Subsequently, data for all the subsectors of the central government will be subject to intersectoral consolidation to produce data for the consolidated central government.

Reasons for consolidation

3.158 The main reason for consolidation lies in the analytical usefulness of the consolidated statistics: consolidation eliminates the distorting effects on aggregates of differing administrative arrangements across countries or over time. The main impact of consolidation on the statistics is on the magnitude of aggregates. To relate government aggregates to the economy as a whole (e.g., revenue, expense, or debt to gross domestic product (GDP) ratios), it is better to eliminate the internal movement of economic value and include only those flows and stock positions that actually cross the boundaries with other sectors or nonresidents. The same arguments apply to why public corporations and public sector statistics should be consolidated.

3.159 By eliminating all reciprocal flows and stock positions among the units being consolidated, consolidation has the effect of measuring only flows or stocks of the consolidated units versus units outside the boundary. Consolidation excludes the economic interaction within the grouping of institutional units, and presents only those flows or stocks that involve interactions with all other institutional units in the economy, and the rest of the world.

3.160 Consolidation avoids double-counting of flows or stock positions among a grouping of institutional units, thus producing statistics that exclude these internal flows or stock positions. It is the avoidance of double-counting that produces the increased analytical usefulness of consolidated statistics in cases where it makes sense to view the consolidated group as acting as if it were a single entity.

Conceptual guidelines

3.161 Conceptually, consolidation entails the elimination of all intra- and intergovernmental flows and all debtor-creditor relationships among the units or entities that are combined. Consolidation requires a review of the accounts to be consolidated to identify inter- and intrasectoral flows and stock positions. The goal is to eliminate, in a consistent manner, flows and stock positions that will have a significant effect on the final derived measures. However, two types of transactions that appear to take place between two government units are never consolidated because they are rerouted in GFS (see paragraph 3.28):

- Employer social contributions, whether paid to social security or government pension funds, are treated as being payable to the employee in the household sector as part of compensation and then payable by the employee to the social security scheme.
- Taxes withheld by government units from the compensation of their employees, such as pay-as-you-earn taxes, and paid to other government units should be treated as being paid directly by the employees. The government employer is simply the collecting agent for another government unit, and is acting on behalf of the employees in the household sector.

3.162 Consolidation covers a range of categories of flows that may vary greatly in importance. The major transactions, in likely order of importance, cover:

- Grants (current and capital) among general government units or entities
- Interest income/expense
- Taxes paid by one government unit or entity to another (except those taxes withheld on behalf of the household sector)
- Purchases/sales of goods and services
- Acquisitions/disposals of nonfinancial assets.

3.163 The following major transactions, other economic flows, and stock positions in financial assets and liabilities, in likely order of importance, should be consolidated:

- Loans
- Debt securities
- Other accounts receivable/payable.

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3.164 For the public sector, in addition to the foregoing financial instruments, the following flows and stock positions should also be eliminated—in principle—in both intra- and intersectoral consolidation:

- Equity and investment fund shares
- Currency and deposits
- Insurance, pension, and standardized guarantee schemes.

Implementing consolidation

3.165 This *Manual* recommends that, based on Table 3.1, counterparty flows and stock position information be identified that will be eliminated in consolidation. But practicality should be kept in mind: the resources devoted to consolidation and the level of detail applied in consolidation should be in direct proportion to their fiscal significance. Suggestions for the sequence of analysis are:

- Begin all consolidation exercises with an analysis of the accounts involved to determine whether there are flows or stock positions internal to the unit(s) to be consolidated. This will depend on knowledge of the relationships among the units involved. Do some of the units incur expense or receive revenue from the other units? Do some units extend loans to the other units? Do they buy debt securities issued by the other units? Do they have currency and deposits held by the other units?
- Once these relationships are established, compilers must determine whether the intra- and/or intersectoral flows and stock positions can be measured or estimated, and whether the amounts will be significant in terms of analytical importance.
- If the amounts are likely to be significant, are they large enough to justify the effort to collect the data and other information for consolidation purposes? The effort and cost to identify an amount to be consolidated should be directly proportional to the expected amount and its impact on the aggregates.
- The "one-side" rule of thumb is commonly used. That is, if there is convincing evidence from the one institutional unit that a flow or stock position exists, it should be imputed to the counterparty. The imputation should be recorded even if there is no record of the flow or stock position in the counterparty's accounts. When such an adjustment is made in the data for a unit where the flow or stock position cannot be directly identified, it will be necessary to ensure that the records for that unit are properly modified.
- For flows and stock positions in financial assets and liabilities, normally the creditor can be expected to maintain the most reliable records. For loans, the creditor unit usually maintains the most complete records, but, with the international emphasis on proper debt recording, the debtor unit may be equally reliable. For debt securities, especially bearer instruments, only the creditor may have the information needed for consolidation. For example, when a central government issues bearer securities, some of which are acquired by public corporations, the central government may have no direct information on who is holding the securities, especially if they can be acquired on secondary markets. It is therefore necessary to rely on the creditor's records.
- Sometimes discrepancies exist between data for two units that are being consolidated. There are many reasons for such discrepancies, such as coverage, time of recording, valuation, and classification. Resolving these discrepancies will promote proper consolidation and improve the overall

Table 3.1 Detailed Classification of Counterparty Information

Code	Sector[1]
	General government
	Central government
	State governments
	Local governments
	Social security funds[2]
	Corporations
	Private corporations
	Private nonfinancial corporations
	Private financial corporations
	Public corporations
	Public nonfinancial corporations
	Public financial corporations

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units.

[2]Social security funds are presented as a subsector only if their data are excluded from the data of the government level at which they are organized (see paragraph 2.78).

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quality of GFS compiled. However, where a discrepancy cannot be resolved, decisions need to be made about which unit or group of units has the most reliable source data. Generally, the higher level of government is considered to have more reliable records than the lower levels of government.

- To create consistency with other macroeconomic datasets, components of the data for the public sector should be presented in such a way that they show the data before consolidation and after consolidation. This will allow for the unconsolidated data to be consistent with the data required in the national accounts and other datasets that are presented before consolidation (see paragraph 3.168).

3.166 Consolidation does not affect balancing items. In other words, the balancing items that are produced by simple aggregation are the same as those produced by consolidation. This is a result of the symmetry of the consolidation process, wherein the two sides of the consolidation adjustment fall within the same section of the analytical framework. When consolidated data produce different balancing items from the unconsolidated data, recording errors have been made. Therefore, when intra- or intersectoral flows and stock positions to be consolidated are not measured in the same amount by the units or subsectors involved, a consolidation method must be chosen that does not affect balancing items (see paragraph 3.165).

Consolidation in other datasets

2008 System of National Accounts

3.167 The *2008 SNA* recommends, as a matter of principle, that statistics of institutional units should not be consolidated in the national accounts, but that consolidated accounts may be compiled for complementary presentations and analyses. Even then, transactions appearing in different accounts of the national accounts are never consolidated. The difference between the *2008 SNA* and this *Manual* reflects the different uses of the statistics. The GFS framework is designed to produce statistics suitable for use in the analysis of the net relations between government and the rest of the economy. In particular, assessing the overall impact of government operations on the total economy or the sustainability of government operations is more effective when the measure of government operations is a set of consolidated statistics rather than unconsolidated statistics. The GFS framework also is not intended to produce a measure of production. The *2008 SNA*, on the other hand, serves a range of other uses, including a comprehensive measure of production and relations among all the sectors of the economy.

Financial statements

3.168 In financial statements, compiled in accordance with accounting standards, accounting entries are often presented on a consolidated basis for the reporting entity and all of its controlled entities. This is done without regard to whether the controlled entities are general government units or public corporations, as those terms are used in this *Manual*, or whether the controlled entities are residents or nonresidents. This use of consolidation attempts to portray the operations and financial position of a parent and its subsidiaries as though the group of enterprises were a single unit. For example, a financial report for a state government unit would include all public corporations controlled by that government unit but would not include the statistics of any other state governments. In contrast, the consolidated statistics of the state government subsector in the GFS framework would include all state government units of the country, but would exclude all public corporations owned or controlled by those state governments.

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4 The Government Finance Statistics Analytic Framework

This chapter introduces the government finance statistics analytic framework[1] *and describes the relationships among its elements and use of government finance statistics in fiscal analysis.*

Introduction

4.1 Government units and public corporations carry out a multitude of activities. To manage the internal operations of government and assess their impact on the economy, these activities—resulting in transactions and other economic flows—must be organized into a framework within which they can be summarized and analyzed. For accountability purposes, these activities may be organized according to the government unit that carries them out. For managerial or planning purposes, these activities may be organized by the kind of item purchased/sold or service provided/acquired. For billing or control purposes, these activities may be organized by the particular transactors with whom the government deals. The GFS framework, on the other hand, is designed to facilitate fiscal analysis in a broader macroeconomic context. While there is clearly a close link between accounting data and macroeconomic statistics, they do not serve the same objectives and may differ in the treatment of particular items.[2]

4.2 Traditionally, governments have recorded their activities on a cash basis; this is reflected in the analytic framework of the *GFSM 1986*. Including only cash revenue and expenditure has the advantage of focusing the government's attention on its financing/liquidity constraint, which has traditionally been viewed as its most binding priority. However, governments have become less liquidity-constrained in carrying out fiscal policy and have become more adept at separating the time of a fiscal action from the time it is paid for, so that cash transactions do not adequately capture either the timing of activities or their economic impact. In consequence, there has been increasing recognition worldwide of the need to adopt the accrual system of recording, which includes a cash-flow statement for assessing fiscal policy.[3]

4.3 The GFS analytic framework introduced in the *GFSM 2001*, and as updated in this *Manual*, reflects these developments and is presented in the form of a set of interrelated accrual-based statements. These statements are harmonized with the *2008 SNA*, that integrate flows and stock positions, and are supplemented with a cash-flow statement. The GFS analytic framework facilitates a more comprehensive assessment of the economic impact of government activity and the resulting changes on liquidity and the implications for the sustainability of fiscal policy. More specifically, the use of accrual-based statements and the integration of balance sheets with flows are consistent with the need for government behavior to be determined in the context of its intertemporal budget constraint. For example, a government's policies will not be sustainable if they significantly reduce its net worth. The framework also provides an improved basis for monitoring efficiency in the allocation and use of all government resources. The analytic framework set out in this *Manual* encompasses the traditional cash-based fiscal reporting, to support liquidity analysis.

[1] The GFS analytic framework refers to the structure of accounts and their relationships as a body of thought, while the term GFS framework more generally refers to the framework for the compilation and dissemination of GFS data.

[2] See Appendix 6 for a detailed description of the linkages between GFS and international accounting standards, and see Appendix 7 for linkages between GFS and other macroeconomic statistics.

[3] For example, see Study 11, Part III of International Federation of Accountants, *Government Financial Reporting: Accounting Issues and Practices* (New York, 2000), and IFAC Recommendations to G-20 meeting, New York, 2010 and 2012.

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Analytic Objectives

4.4 The GFS analytic framework is a quantitative tool that supports fiscal analysis. To permit effective analysis of fiscal policy, the GFS framework must facilitate the identification, measurement, monitoring, and assessment of the impact of a government's economic policies and other activities on the economy.

4.5 To achieve the analytic objectives, the GFS framework should generate data that:

- Are sufficiently detailed and effectively organized to allow an assessment of management and policy decisions
- Are closely linked to other macroeconomic statistical frameworks (national accounts, balance of payments and international investment position, and monetary and financial statistics)
- Enable analysts to assess the financial soundness of the general government and public sectors in ways commonly applied to other organizations in the economy[4]
- Enable assessment of sustainability over the long term
- Enable assessment of liquidity constraints and financing needs.

Construction of the Analytic Framework: Relation to the *GFSM 1986*

4.6 The analytic framework of this *Manual* builds on the *GFSM 1986* framework, and extends it by incorporating additional elements that are useful in assessing fiscal policy. There are three types of modifications:

- The definitions of individual statistical variables are closely aligned with economic concepts. An important example is the treatment of nonfinancial assets, where the sale of such assets is no longer included in revenue and their purchase is no longer included in expense.
- Concepts are harmonized with the *2008 SNA*. These include: the shift from a functional-based definition of general government and public sectors to one built on institutional units (see paragraphs 2.22–2.48); a switch from using only the cash basis of recording to a framework of accounts using the accrual basis of recording, while maintaining a cash-flow statement (see paragraphs 3.70–3.72); and the complete integration of flows and stock positions (see paragraphs 3.2–3.3).
- The *GFSM 1986* framework has been extended to include nonmonetary transactions, such as in-kind and imputed transactions (see paragraphs 3.19–3.20), flows other than transactions (see paragraphs 3.31–3.35), and a balance sheet (see paragraphs 3.36–3.50).

4.7 In principle, the coverage of GFS encompasses all institutional units that materially affect fiscal policies. Therefore, two principal constructs are used for which GFS should be compiled. The general government sector captures those institutional units primarily involved in nonmarket activities of government, while the public sector captures all the activities of public corporations, including their market and quasi-fiscal activities (see Chapter 2). Once an institutional unit has been classified to a sector, all its flows and stock positions are recorded in that sector. Thus, statistics for the general government sector as well as for the public sector should be compiled. The analytic framework described in this chapter can be applied to both sectors, and their subsectors.

Components and Concepts of the Analytic Framework

4.8 The core of the analytic framework is a set of four financial statements. Three of the statements can be combined to show that all changes in stock positions result from flows (see Figure 4.1 and paragraph 3.4). These are the:

- *Statement of Operations*
- *Statement of Other Economic Flows*
- *Balance Sheet*.

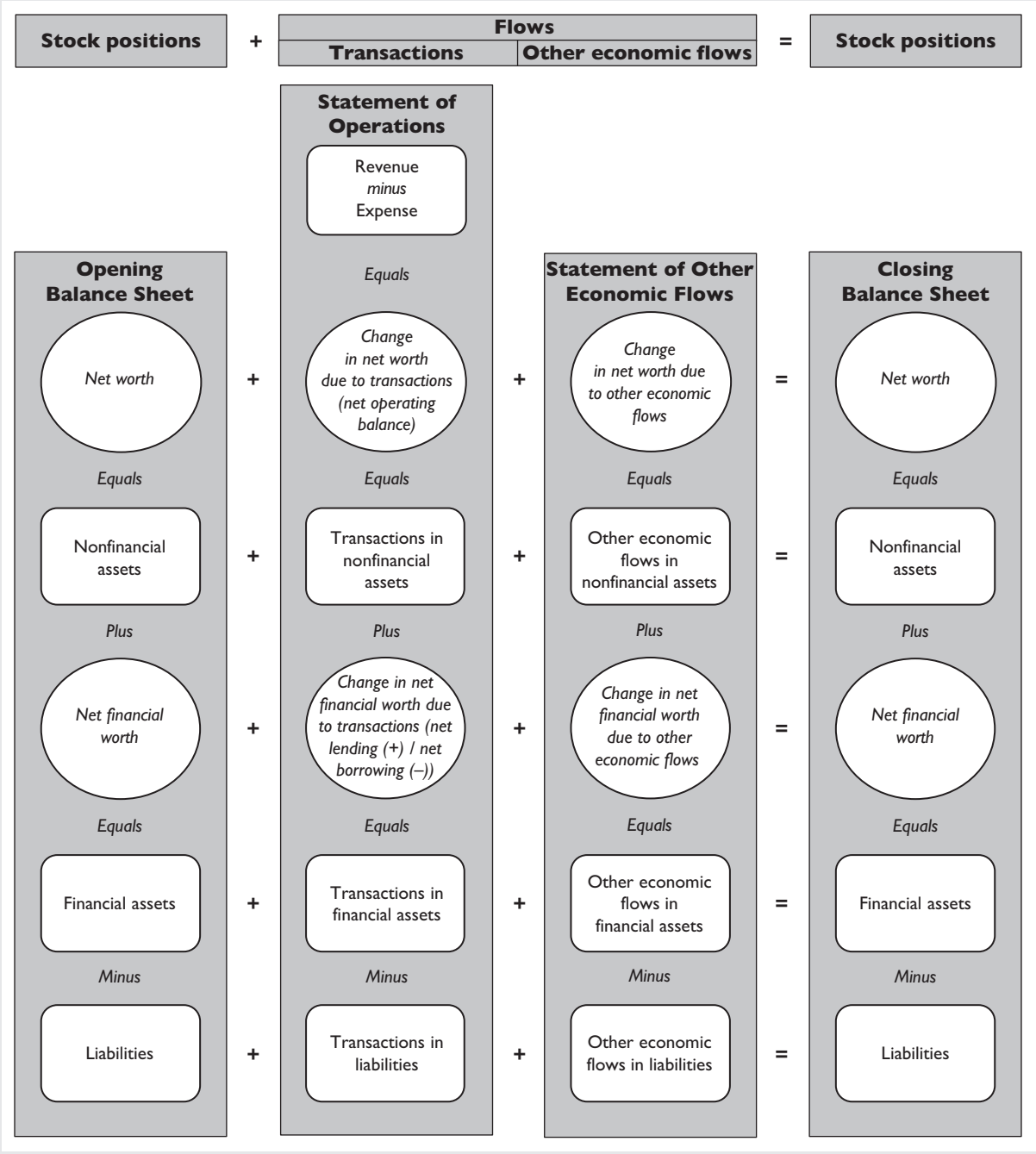
In addition, the core framework includes a *Statement of Sources and Uses of Cash* to provide key information on liquidity.

4.9 The *Statement of Operations* is a summary of the transactions of a sector or subsector in a given reporting period. In essence, transactions represent changes to stock positions that arise from mutually agreed interactions between institutional units, such

[4] Organizations in other sectors of the economy record their operations in the form of integrated accounting systems that include income statements, balance sheets, and cash-flow statements.

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Figure 4.1 Structure of the GFS Analytic Framework



as the sale of a good or service by one unit and its purchase by another (see paragraph 3.5). The framework also recognizes that a unit can act in two capacities of economic interest and includes as transactions some items that do not involve another institutional unit. For example, consumption of fixed capital recognizes that a unit is both the owner of a fixed asset and the consumer of the services provided by the asset. Taken together, transactions constitute the largest share of the flows associated with the implementation of fiscal policy. As described in the following section, transactions are classified to demonstrate how general government and public sector units raise revenue and spend it, and to show the effects of fiscal

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policy decisions on the net worth of the sector, on its demand for credit, and on its ability to invest in assets.

4.10 The *Statement of Other Economic Flows* tabulates changes to stock positions of assets, liabilities, and net worth that come about for reasons other than transactions. More specifically, *holding gains and losses* represent changes to stock positions that arise from price movements, including exchange rate movements.[5] *Other changes in the volume of assets* represent changes to stock positions arising from events such as the discovery of new assets/liabilities (e.g., mineral deposits), depletion or destruction of assets, or reclassification of assets/liabilities.

4.11 The *Balance Sheet* records the stock positions of assets, liabilities, and net worth of the sector or subsector at the end of each reporting period.

4.12 The *Statement of Sources and Uses of Cash* records cash inflows and outflows using a classification similar to that of the *Statement of Operations*, but with a focus on the net change in cash flows arising from transactions during the reporting period.

4.13 In addition to the core statements of the GFS framework, two supplementary statements are included in the framework due to their analytic usefulness. These statements are the:

- *Statement of Total Changes in Net Worth*
- *Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits*.

4.14 The *Statement of Total Changes in Net Worth* combines the revenue and expense transactions from the *Statement of Operations* with the *Statement of Other Economic Flows* in one statement. In its summary format, this supplementary statement serves to highlight the total changes in net worth of government.

4.15 The *Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits* summarizes the explicit and implicit guarantees outstanding. Contingent liabilities create fiscal risks and may arise from deliberate public policy or from unforeseen events. The stock positions of explicit and some implicit contingent liabilities are recorded as memorandum items to the GFS balance sheet (see paragraphs 7.251–7.261). For details on the recording of contingent liabilities, also see paragraphs 7.251–7.259 and the *PSDS Guide*, paragraphs 4.3–4.26.

[5] "Holding gains" is used as a short form of the more general term "holding gains and losses."

The Statement of Operations

4.16 The *Statement of Operations* (see Table 4.1) presents details of transactions in revenue and expense, as well as the net investment in nonfinancial assets, the net acquisition of financial assets, and the net incurrence of liabilities.[6] Revenue is defined as the increase in net worth resulting from transactions, and expense as the decrease in net worth resulting from transactions. The net investment in nonfinancial assets equals the acquisitions minus disposals of fixed assets, minus consumption of fixed capital, plus changes in inventories, plus the net acquisition (acquisitions minus disposals) of valuables and nonproduced assets.

4.17 Two important analytic balances are derived in the *Statement of Operations*. Revenue minus expense equals the *net operating balance*, reflecting the total change in net worth due to transactions. The subsequent deduction of the net investment in nonfinancial assets results in *net lending (+) / net borrowing (–)*, which is also equal to the net result of transactions in financial assets and liabilities. In addition to these balances, the annex to Chapter 4 describes a number of other important fiscal indicators that could be derived from GFS and that are used in fiscal analysis.

4.18 The *net operating balance* is a summary measure of the sustainability of the reporting sector or subsector's operations. It is comparable to the national accounts concept of saving plus net capital transfers receivable. The net operating balance as defined here excludes gains and losses resulting from changes in price levels and other changes in the volume of assets. The component of the change in net worth that

[6] As explained in paragraph 3.69, the *Statement of Operations* is intended to be compiled using the accrual basis of recording transactions. It is recognized, however, that many governments may be able to compile statistics only on the cash or partial accrual basis for some time. If only cash data are available, the classification of cash flows shown in Table 4.2 should be used. Otherwise, with accrual or partial accrual (noncash) source data, the classification of transactions shown in Table 4.1 should be used. With the exception of consumption of fixed capital, in-kind and imputed transactions, and other accounts receivable/payable, all of the line items in Table 4.1 can be applied to both cash and accrual data. However, the benefits of the fully integrated GFS framework can be derived only when using the accrual basis of recording.

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is due to transactions can largely be attributed directly to government policies since governments have direct control over the decisions that lead to the interaction with other units by mutual agreement. The same cannot always be said for the other components of the total change in net worth. For example, changes in the market prices or events that impact on the volume of assets or liabilities are not in the direct control of government. Still, these risks need to be monitored so that governments can manage them proactively to minimize their potential fiscal impact.

4.19 *Net lending (+) / net borrowing (–)* is a summary measure indicating the extent to which government is either putting financial resources at the disposal of other sectors in the economy or abroad, or utilizing the financial resources generated by other sectors in the economy or from abroad. It may therefore be viewed as an indicator of the financial impact of government activity on the rest of the economy and the rest of the world. While this balancing item is conceptually the same as in the *2008 SNA*, amounts reported as net lending/net borrowing may differ to the extent that a government maintains an unfunded pension scheme for its employees (see paragraphs 5.95, 7.192–7.193 and Appendixes 2 and 7).

4.20 The *gross operating balance* as presented in the *Statement of Operations* differs from the net operating balance in that it does not include consumption of fixed capital as an expense. *Consumption of fixed capital* can be difficult to measure in practice and a satisfactory estimate may not be available. If so, the gross operating balance may be more practical for analysis than the net operating balance.[7] The net operating balance is, however, preferred in principle because it captures all costs of operations during the reporting period.

4.21 Expenditure is the sum of expense and the net investment in nonfinancial assets and is presented as an additional aggregate in the *Statement of Operations*. This aggregate is not influenced by the level of consumption of fixed capital and is therefore suitable for international comparisons between countries even if they cannot reliably measure consumption of fixed capital.

[7] The availability of data on *consumption of fixed capital* has no influence on net lending/net borrowing. The counterpart entry for the expense recorded for consumption of fixed capital reduces the value of investment in fixed assets—thereby neutralizing the impact on *net lending/net borrowing*.

Table 4.1 Statement of Operations

Transactions Affecting Net Worth:	
1	**Revenue**
11	Taxes
12	Social contributions [GFS]
13	Grants
14	Other revenue
2	**Expense**
21	Compensation of employees [GFS]
22	Use of goods and services
23	Consumption of fixed capital [GFS]
24	Interest [GFS]
25	Subsidies
26	Grants
27	Social benefits [GFS]
28	Other expense
NOB/GOB	***Net/gross operating balance*** (1–2)[1]
Transactions in Nonfinancial Assets:	
31	Net/gross investment in nonfinancial assets[2]
311	Fixed assets
312	Inventories
313	Valuables
314	Nonproduced assets
2M	***Expenditure*** (2+31)
NLB	***Net lending (+) / Net borrowing (–) [GFS]*** (1–2–31 = 1–2M = 32–33)
Transactions in Financial Assets and Liabilities (Financing):	
32	Net acquisition of financial assets
321	Domestic[3]
322	External[3]
33	Net incurrence of liabilities
331	Domestic[3]
332	External[3]

[1] The net operating balance equals revenue minus expense. The gross operating balance equals revenue minus expense other than consumption of fixed capital.

[2] The net investment in nonfinancial assets equals acquisitions minus disposals minus consumption of fixed capital. The gross investment in nonfinancial assets equals acquisitions minus disposals.

[3] Classified by instrument and/or sector of the counterparty (see Tables 9.1 and 9.2).

4.22 As illustrated in Table 4.1, the *Statement of Operations* is divided into three sections that present: revenue and expense transactions; transactions in nonfinancial assets; and transactions in financial assets and liabilities. The following paragraphs follow this structure in providing an overview of the various categories of transactions. These definitions and descriptions are not intended to be comprehensive.

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In each section, reference is made to the chapter that contains more detailed information.

Revenue and Expense

4.23 Revenue is an increase in net worth resulting from a transaction.[8] The major types of revenue are *taxes* (11), *social contributions* (12), *grants* (13), and *other revenue* (14).[9] The detailed classification of revenue is described in Chapter 5. The disposal of a nonfinancial asset by sale or barter is not revenue because it has no effect on net worth. Rather, it changes the composition of the balance sheet by exchanging one asset (the nonfinancial asset) for another (the proceeds of the sale). Similarly, amounts receivable from loan repayments and loan disbursements are not revenue. These are transactions in assets or liabilities as described in Chapters 8 and 9.

4.24 Expense is a decrease in net worth resulting from a transaction.[10] The major types of expense are *compensation of employees* (21), *use of goods and services* (22), *consumption of fixed capital* (23), *interest* (24), *subsidies* (25), *grants* (26), *social benefits* (27), and *other expense* (28). In addition, expense can be classified according to the functions of government, such as health or social protection. The economic and functional classifications of expense are described in Chapter 6. The acquisition of a nonfinancial asset by purchase or barter is not an expense because it has no effect on net worth. Rather, it changes the composition of the balance sheet by acquiring one asset (the nonfinancial asset) against the disposal/reduction in another asset or by incurring a liability (the payable for the asset). Similarly, amounts payable on loans extended and repayments on loans incurred are not classified as expense. These are transactions in assets or liabilities as described in Chapter 8 and 9.

Transactions in Nonfinancial Assets[11]

4.25 The second section of the *Statement of Operations* (see Table 4.1) records transactions that change a government's net investment in nonfinancial assets. **Nonfinancial assets** are economic assets other than financial assets. Nonfinancial assets are stores of value and provide benefits either through their use in the production of goods and services or in the form of property income and holding gains. These assets are classified as *fixed assets* (311), *inventories* (312), *valuables* (313), and *nonproduced assets* (314). The classification of nonfinancial assets is described in Chapter 7 and transactions in nonfinancial assets are discussed in Chapter 8.

Transactions in Financial Assets and Liabilities

4.26 The third section of the *Statement of Operations* (see Table 4.1) records financing transactions, which are transactions that change a government's holdings of financial assets and liabilities (financial assets and liabilities are defined in paragraphs 3.48 and 3.45, respectively). The classification of financial assets and liabilities is described in Chapter 7 and transactions in financial assets and liabilities are discussed in Chapter 9.

4.27 Transactions in financial assets can be classified in multiple ways; for ease of presentation, Table 4.1 indicates a classification of financial assets according to whether the counterpart liability was incurred by a resident (indicated by "domestic" in the table) or a nonresident (indicated by "external") and similarly for the classification of liabilities.

4.28 There are additional classifications of transactions in financial assets and liabilities in GFS. The first classification is based on the type of financial instruments involved in the transactions. The instruments are: *monetary gold and SDRs*; *currency and deposits*; *debt securities*; *loans*; *equity and investment fund shares or units*; *insurance, pension, and standardized*

[8] In general, transactions that increase net worth result from current operations. Capital transfers are an exception. Capital transfers are defined in paragraph 3.16. In GFS, capital transfers receivable are classified as revenue because they increase the recipient's net worth and they are often indistinguishable from current transfers in their effect on government operations.

[9] The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in the GFS system.

[10] As with revenue, transactions that decrease net worth result mainly from current operations. Capital transfers payable or otherwise obligated are an exception. See footnote 8.

[11] This section deals only with the net investment in nonfinancial assets (acquisitions minus disposals of nonfinancial assets, minus consumption of fixed capital) by the reporting unit or sector. Government or public sector institutional units may also facilitate public capital formation by transferring funds to other governments or to public corporations with a requirement that the funds be used to acquire nonfinancial assets. Rather than being considered transactions in nonfinancial assets, these transactions are included in *capital transfers*, either as *capital grants* or *other expense*, as relevant.

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Box 4.1 Policy Lending

Whether to consider the acquisition of a financial asset or assumption of a liability as being for public policy purposes, for liquidity management, or for other purposes rests largely on an assessment of the particular purpose for acquiring the instrument.[1]

Some fiscal policies that may lead to the ownership of financial claims include fostering new industries, assisting ailing government corporations, or helping particular businesses that are experiencing economic adversity. For example, a government unit may provide loans at favorable rates to particular economic sectors, acquire shares in a corporation active in a particular geographical region or in a function that the government wishes to promote, or sell shares in a public corporation for less than their market value.

Liquidity management, on the other hand, refers to actions taken to ensure the availability of financial assets to fulfill requirements for short-term funds and to ensure that such funds earn the best available rate of return. Prudent financial management requires that government units acquire and dispose of financial assets in the process of their financing operations. The motive underlying these transactions is the effective management of finances.

Other purposes for acquiring financial assets, and perhaps incurring related liabilities, include the need to make a long-term provision for society, such as acquiring financial assets derived from the sale of natural resource assets to hold in a special-purpose government fund.

Some factors that should be considered when identifying policy-related financial instruments are as follows:

- Nonnegotiable financial assets are usually held for policy-related purposes, as are negotiable financial claims issued by a lower level of government and held by a higher level of government.
- Financial assets issued by a public corporation—for example, shares and other equity, debt securities, or loans—and held by government are typically held for public policy purposes.
- A government statement about the acquisition of a financial asset may indicate that the purpose is policy-related.
- Noncommercial terms favoring the borrower generally indicate a policy-related purpose, such as concessional interest rates on loans or arrangements for repayment that do not meet normal commercial standards.
- Assets acquired as a result of government units acting as guarantors are likely to be policy-related.
- Assets acquired through nationalization are policy-related.
- Holdings of monetary gold, SDRs, currency, and nonlife insurance technical reserves are always liquidity-related.
- Deposits may be acquired for policy or liquidity purposes.

[1]As explained in paragraph 6.91 and Box 6.3, under some circumstances, "capital or equity injections" are considered to be expense (i.e., when they do not result in an effective financial claim on the debtor).

guarantee schemes; *financial derivatives and employee stock options*; and *other accounts receivable/payable* (see Table 9.1). The second classification is based on the sector of the counterparty of the transactions in financial instruments. That is, transactions in liabilities are classified according to the sector of the institutional unit conducting the counterpart transaction in financial assets, such as financial corporations, nonfinancial corporations, households, and nonprofit institutions serving households (see Table 9.2).

4.29 Another possible classification of transactions in financial assets and liabilities is whether they were acquired or disposed of for the purpose of public policy or liquidity management. This distinction is not included in the *Statement of Operations*, but is used to define the *overall fiscal balance*, as described in the annex to Chapter 4, Table 4A.2.

4.30 Public policy-related assets or liabilities (also called policy lending—see Box 4.1) may be acquired for a variety of reasons, such as fostering new industries, assisting ailing government corporations, or helping particular businesses suffering economic adversity. Such transactions can take a variety of forms, including loans, equity securities, and debt securities. Given that there is often a concessional element to such transactions, it is useful to identify them in a

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separate category so that for some analyses the fiscal impact of these policy-related transactions in assets could be assessed separately.[12]

4.31 All other transactions in financial assets are assumed to be for liquidity management or other purposes. That is, the assets are acquired to earn a market rate of return while keeping sufficient funds on hand to finance day-to-day operations, or to meet the long-term needs of society, such as through a special-purpose government fund.

The Statement of Sources and Uses of Cash

4.32 Information on the sources and uses of cash is important for assessing the liquidity of the general government and public sectors. The *Statement of Sources and Uses of Cash* (see Table 4.2) shows the total amount of cash generated or absorbed by current operating activities, transactions in nonfinancial assets, and transactions involving financial assets and liabilities other than the financial asset *currency and deposit* (cash) itself. The net change in the stock of cash is the sum of the net cash received from these three sources.

4.33 The net change in the stock of cash refers to the financial asset *currency and deposits* (3202). **Currency** consists of notes and coins that are of fixed nominal values and are issued or authorized by the central bank or government. **Deposits** are all claims, represented by evidence of deposit, on the deposit-taking corporations (including the central bank) and, in some cases, general government or other institutional units. The classification of this financial asset is described in Chapter 7 and transactions are discussed in Chapter 9.

4.34 The *Statement of Sources and Uses of Cash* (Table 4.2) reflects transactions when using the cash basis of recording. This, in effect, means that transactions are captured only when cash is received or when cash payments are made (see paragraphs 3.67 and 3.103–3.105).

Table 4.2 Statement of Sources and Uses of Cash

Cash Flows from Operating Activities:	
C1	**Revenue cash flows**
C11	Taxes
C12	Social contributions
C13	Grants
C14	Other receipts
C2	**Expense cash flows**
C21	Compensation of employees
C22	Purchases of goods and services
C24	Interest
C25	Subsidies
C26	Grants
C27	Social benefits
C28	Other payments
CIO	***Net cash inflow from operating activities*** (1–2)
Cash Flows from Transactions in Nonfinancial Assets:	
C31	Net cash outflow from investment in nonfinancial assets[1]
C311	Fixed assets
C312	Inventories[2]
C313	Valuables
C314	Nonproduced assets
C2M	**Expenditure cash flows** (2+31)
CSD	***Cash surplus (+) / Cash deficit (–)*** (1–2–31 = 1–2M = 32–33)
Cash Flows from Transactions in Financial Assets and Liabilities (Financing):	
C32x	Net acquisition of financial assets other than cash
C321x	Domestic[3]
C322x	External[3]
C33	Net incurrence of liabilities
C331	Domestic[3]
C332	External[3]
NFB	***Net cash inflow from financing activities*** (33–32x)
NCB	***Net change in the stock of cash*** (CSD+NFB = 3202 = 3212+3222)

[1]The net cash outflow from investment in nonfinancial assets equals purchases minus sales.

[2]On a cash basis, the category *inventories* (C312) is limited to changes in strategic stocks. Other inventories are, by definition of the cash basis of recording, considered an expense when acquired.

[3]Classified by instrument and/or sector of the counterparty (see Tables 9.1 and 9.2).

4.35 Additional useful information for fiscal analysis is obtained from an analysis of the differences between amounts reported in the *Statement of Operations* and the *Statement of Sources and Uses of Cash*.

[12] The net acquisition of financial assets for policy purposes was called "lending minus repayments" in the *GFSM 1986* and was often referred to as "net lending." These terms should not be confused with the term "net lending/net borrowing" used in this *Manual*.

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There are some broad types of transactions that are recorded in Table 4.1 but not in Table 4.2:

- Expense transactions that will be settled in cash in the future—With accrual recording, a purchase of goods and services is recognized when the ownership of goods changes hands or services are provided. The associated cash payment may not take place until a subsequent reporting period, in which case it would not be included in Table 4.2 in the same period as it appears in Table 4.1. The fiscal implication of such differences in amounts reported may indicate a larger need for liquidity in the future to provide for the payments of accrued expense.
- Revenue transactions that were settled in cash but will be earned in the future—Revenue can be received in cash before it is earned by the delivery of goods or provision of services to the purchaser. In addition, taxes and other compulsory revenue may be earned, but may be unpaid and will be settled in the future. The fiscal implication of such differences may indicate a larger demand for service delivery in the future, or a need to assess the efficiency of tax collection efforts.
- There may also be transactions in assets and liabilities that will be settled in cash in future periods, such as the interest accruing from the amortization of the discount on a zero-coupon or other discounted bond. There may be fiscal implications for liquidity management.
- There are transactions that are not in cash by their nature. Consumption of fixed capital, imputed transactions, barter, other transactions in kind, and debt forgiveness and write-off are noncash transactions and would therefore not be recorded in a *Statement of Sources and Uses of Cash*. The difference between the two statements in this case will be an indication of the size of economic activities not measured in cash.

The Statement of Other Economic Flows

4.36 The *Statement of Other Economic Flows* (see Table 4.3) presents changes in assets, liabilities, and net worth that are not the result of transactions. They are classified as changes either in the value or volume of assets, liabilities, and net worth. The balancing item of this statement, the **change in net worth due to other economic flows**, is defined as the sum of the change in net worth due to holding gains or losses and the change in net worth due to other changes in the volume of assets. In line with the integrated approach, these other economic flows are classified by the type of asset or liability affected. *Other economic flows* are described in Chapter 10.

Table 4.3 Statement of Other Economic Flows

9	**Change in net worth due to other economic flows** (4+5)[1]
4	**Change in net worth due to holding gains and losses**
41	Nonfinancial assets
411	Fixed assets
412	Inventories
413	Valuables
414	Nonproduced assets
42	Financial assets[2]
43	Liabilities[2]
5	**Change in net worth due to other changes in the volume of assets and liabilities**
51	Nonfinancial assets
511	Fixed assets
512	Inventories
513	Valuables
514	Nonproduced assets
52	Financial assets[2]
53	Liabilities[2]

[1]See Table 10.2 for a detailed classification of other economic flows.

[2]Classified by residence, instrument, and/or sector of the counterparty (see Tables 9.1 and 9.2).

4.37 Change in net worth due to holding gains or losses is defined as the sum of the positive or negative holding gains and holding losses on all assets and liabilities. These include all changes in the value of assets, liabilities, and net worth due solely to price effects. They can result from changes in the general price level or in relative prices. Changes in the exchange rate cause holding gains or losses in financial assets and liabilities denominated in a foreign currency (see paragraph 10.44).

4.38 Change in net worth due to other changes in the volume of assets and liabilities is defined as the sum of the positive and negative other changes in the volume of assets and liabilities. These changes in the volume of assets and liabilities, other than from transactions and price effects, may arise for a variety of reasons. They can be described as resulting from

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the appearance or disappearance of existing resources as economic assets, effects of external events that are exceptional and unexpected, and changes in classification (see paragraphs 10.46–10.84).

The Balance Sheet

4.39 A **balance sheet** is a statement of the values of the stock positions of assets owned and of the liabilities owed by an institutional unit or group of units, drawn up in respect of a particular point in time. The *Balance Sheet*, shown in Table 4.4, presents the stock positions of assets and liabilities at the end of the reporting period in comparison to the stock positions at the beginning of the reporting period.[13] The main balancing item on the balance sheet is *net worth*. The **net worth** of an institutional unit (or grouping of units) is the total value of its assets minus the total value of its liabilities. The change in net worth (comprising the change in net worth due to transactions in revenue and expense and the change in net worth due to other economic flows) is a fiscal indicator for assessing the sustainability of fiscal activities.

4.40 For public corporations, using changes in net worth as a fiscal indicator for assessing sustainability should be approached with caution. Because of the inclusion of shareholders' equity as a liability in the calculation of net worth, the interpretation of net worth may be counterintuitive for public corporations. In cases where the market value of a public corporation's shares and equity is increasing by more than the market value of the recognized assets minus liabilities, the net worth of the public corporations will decrease in GFS (and in other macroeconomic statistics). Thus, for public corporations' own funds (including the value of *shares and other equity* and *net worth*) may provide a more useful fiscal indicator than net worth alone (see paragraphs 7.229–7.232 for more details on own funds).

4.41 Where market values of some nonfinancial assets are not available or are unreliable, net financial worth is another fiscal indicator of sustainability. The **net financial worth** of an institutional unit (or grouping of units) is the total value of its financial assets minus the total value of its liabilities.

4.42 The *Balance Sheet* shows the stock positions in assets and liabilities. (The definitions and classifications of assets and liabilities are described in Chapter 7.)

[13] Table 7.1 presents the balance sheet in another format.

Table 4.4 Balance Sheet

		Opening balance	Closing balance
6	**Net worth** (61+62–63)		
61	**Nonfinancial assets**		
611	Fixed assets		
612	Inventories		
613	Valuables		
614	Nonproduced assets		
62	**Financial assets**		
621	Domestic[1]		
622	External[1]		
63	**Liabilities**		
631	Domestic[1]		
632	External[1]		
Memorandum items[2]			
	...		

[1]Classified by instrument and/or sector of the counterparty (see Tables 7.9 and 7.11).

[2]See Chapter 7 for a list of standard memorandum items that should be included on the balance sheet.

Assets

4.43 The assets included in the *Balance Sheet* are **economic assets**, defined as resources over which ownership rights are enforced and from which economic benefits may flow to the owners. Economic benefits arise from owning and using economic assets over a period of time. Assets not owned and controlled by a reporting unit or sector and assets that have no economic value are excluded.

4.44 As shown in Table 4.4, stock positions in assets are classified in the same way that transactions and other economic flows in assets are classified. Assets are either nonfinancial or financial. Nonfinancial assets are further classified as fixed assets, inventories, valuables, or nonproduced assets. Financial assets are classified by residence of the counterparty and by type of instrument. Financial assets can also be classified by sector of the counterparty and maturity.

Liabilities

4.45 A **liability** is established when one unit (the debtor) is obliged, under specific circumstances, to provide funds or other resources to another unit (the creditor). Most classifications that apply to financial assets also apply to liabilities. Liabilities are classified by the residence of the counterparty and by type of

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instrument. Liabilities can also be classified by sector of the counterparty and maturity.

The Statement of Total Changes in Net Worth

4.46 The *Statement of Total Changes in Net Worth* (see Table 4.5) combines the results from the *Statement of Operations* for revenue and expense transactions with the *Statement of Other Economic Flows* in one statement. The statement provides a clear statistical explanation of the factors causing the change in the net worth of government. It explains the sources of changes in assets and liabilities from one reporting period to another in terms of transactions in revenue and expense and other economic flows. In its summary format, this supplementary statement serves to highlight the total change in net worth of government.[14]

Table 4.5 Statement of Total Changes in Net Worth

Transactions Affecting Net Worth:	
1	Revenue
2	Expense
NOB	***Net operating balance*** (1–2)[1]
Change in Net Worth due to Other Economic Flows:[2]	
91	Nonfinancial assets
41	Holding gains
51	Other changes in the volume of nonfinancial assets
92	Financial assets
42	Holding gains
52	Other changes in the volume of financial assets
93	Liabilities
43	Holding gains
53	Other changes in the volume of liabilities
9	***Total other economic flows*** (91+92–93)
CNW	**Total change in net worth** (NOB+9)

[1]The net operating balance equals revenue minus expense.
[2]Classified by categories of assets and liabilities as needed.

The Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits

4.47 The *Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits* records the explicit and some implicit contingent liabilities. **Contingent liabilities** are obligations that do not arise unless a particular, discrete event(s) occurs in the future. These contingencies create fiscal risks and may arise from deliberate public policy or from unforeseen events. The stock positions of contingent liabilities are recorded as a memorandum item to the balance sheet (see paragraph 7.255). Some details on the nature and composition of these contingencies are recorded in this statement (see Table 4.6).[15]

4.48 In GFS, the net implicit obligations for future social security benefits (other than employment-related retirement benefits) are not recognized as liabilities (see Appendix 2).[16] Social security contributions are classified as revenue (and therefore as an increase in net worth), and social security benefits payable as expense (a decrease in net worth). This treatment is in line with conventional fiscal analysis. Alternatively, in a full intertemporal framework, social security contributions may be seen more appropriately as akin to a buildup of assets (arising from contributions made) associated with future liabilities of the government. Likewise, many social security benefit payments may be seen as the extinction of previously incurred government liabilities. This approach is not taken in the main tables of GFS because it is considered that social security schemes, other than employment-related pension schemes, do not result in a contractual liability for the government—that is, there is no direct link between the contributions made and the benefits eventually payable.

4.49 Indeed, it is not uncommon for governments to change unilaterally the structure of benefits of social security schemes (e.g., by changing the circumstances under which the benefits become payable or the amount of the benefit). Moreover, in most cases, these benefits become payable only when certain contingent events occur, such as sickness or unemployment. Nonetheless, it is important for a government to be aware of the implicit contingent liability that

[14] This format brings the statistical presentation closer to the presentation used in financial statements compiled in accordance with *International Public Sector Accounting Standards* (see Appendix 6).
[15] For more details, see the *PSDS Guide*, paragraphs 4.3–4.26.
[16] These implicit obligations exclude amounts that become overdue after all criteria for benefits have been met—GFS include these as liabilities in *other accounts payable*.

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arises from its social security programs. Such a contingency recognizes the present value of future benefits that have already been earned according to the existing laws and regulations, net of the present value of future contributions to the scheme according to existing laws and regulations. As a result, a memorandum item is included in the *Balance Sheet*, with more details on these net obligations disclosed in this Statement (see Table 4.6).

4.50 The implicit contingent liabilities related to social security schemes exclude the liabilities associated with employment-related pension schemes, including in cases where the employment-related pensions are provided through the social security scheme. In GFS, imputed obligations incurred for unfunded government employee retirement schemes are considered to involve a contractual liability for a government or public sector unit to its employees. As a result, the actual or imputed contributions receivable to such employment-related schemes are considered to give rise to an incurrence of a liability, and the payment of retirement benefits is considered to be a reduction in the same liability (see paragraph 6.25).

Table 4.6 Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits

6M6	**Total explicit contingent liabilities**
6M61	Publicly guaranteed debt[1]
6M62	Other one-off guarantees[2]
6M63	Explicit contingent liabilities not elsewhere classified
	Legal claims
	Indemnities
	Uncalled share capital
	…
6M7	**Net implicit obligations for future social security benefits**
	Present value of implicit obligations for future social security benefits
	Minus: Present value of future contributions to social security schemes

[1]It is recommended that details of publicly guaranteed debt (i.e., loan and other debt instrument guarantees) are shown by maturity and type of debt instrument, at nominal values.

[2]For example, credit guarantees and other similar contingent liabilities (such as lines of credit and loan commitments), contingent "credit availability" guarantees, and contingent credit facilities.

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Annex: Using GFS for Fiscal Analysis

This annex describes the use of GFS in creating fiscal indicators.

Introduction

4.51 This annex offers an overview of the application of the GFS framework in creating commonly used fiscal indicators.[1] Some of these indicators can be observed or derived directly from the GFS framework, while others can be derived using a combination of GFS with other macroeconomic data.

4.52 Fiscal indicators may be produced for the general government and public sectors (see Chapter 2). Fiscal indicators for the subsectors of general government and the public sector can also be produced to take account of the decentralized nature of fiscal responsibilities in an economy. Using data from the GFS framework enhances the comparability of data across countries (see paragraph 1.13), which is important in establishing robust analytical findings.

Fiscal Indicators Available from the GFS Framework

4.53 The GFS framework produces fiscal indicators from the transactions, other economic flows, stock positions, aggregates, or balancing items. For example, in the *Statement of Operations*, *net lending/net borrowing* is the basic indicator of the fiscal balance, measured from "above-the-line" as *revenue* minus *expenditure* (with expenditure comprising *expense* plus the *net investment in nonfinancial assets*). This fiscal balance can alternatively be measured from "below-the-line" as the difference between transactions in *financial assets* and *liabilities*, also referred to as financing transactions. From an above-the-line perspective, GFS provide detailed information on revenue sources, and the composition of expenditure, while the "below-the-line" approach provides detailed information on how governments invest surpluses or finance deficits.

4.54 The *Balance Sheet* offers data on regularly used fiscal stock position indicators, such as the gross and net debt, and the stock position and composition of various categories of assets and liabilities (see paragraphs 7.14–7.19). Additional aggregates, such as the stock position of cash and the maturity breakdown of other financial instruments, are useful for an analysis of liquidity. Balancing items such as *net worth* and *net financial worth* allows for an analysis of the wealth of government.

4.55 An analysis of gross debt sustainability requires calculating a primary balance, which can be calculated by excluding *interest expense* from the calculation of *net lending/net borrowing* or *cash surplus/deficit*. When net debt is considered in the analysis, the primary balance should be calculated excluding the impact of *interest expense* and *interest revenue*. Similarly, the fiscal burden—an indicator of the compulsory contributions to the government—can be derived from transactions related to *taxes* and *social contributions*.

4.56 Table 4A.1 presents a list of some fiscal indicators that are directly available from GFS or that can be derived from GFS.

Fiscal Indicators Requiring Additional Data

4.57 Some fiscal indicators require additional information. The *overall fiscal balance*, for example, reflects the *net lending/net borrowing* after transactions in assets and liabilities are adjusted for transactions that are deemed to be for public policy purposes (also called "policy lending"). Notably, all proceeds under privatization (including proceeds from the sale of fixed assets) are included as financial items, while policy lending is treated as if it is an expense rather than a transaction in financial assets.

[1] The *International Financial Statistics* and the *Government Finance Statistics Yearbook* contain a large and comprehensive database of macroeconomic statistics, including GFS. See also the IMF's Fiscal Transparency Code at www.imf.org/external/np/fad/trans/. First published in 1998 and updated in 2007 and 2014, the IMF's *Code of Good Practices on Fiscal Transparency* and accompanying *Manual* and *Guide* are centerpieces of the global architecture of fiscal transparency norms and standards.

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For example, privatization proceeds or the repayment of policy lending is treated as financing while capital injections or loans to public corporations (policy lending) are added to expense in calculating the overall fiscal balance. Calculating the overall fiscal balance requires therefore a distinction between transactions in financial assets/liabilities undertaken for public policy purposes and those undertaken for liquidity management (see paragraph 4.29 and Box 4.1).

4.58 Cyclically adjusted and structural balances are other examples of fiscal indicators where information from various datasets must be assembled. These more complex fiscal balances attempt to measure fiscal positions net of cyclical and other transitory effects by taking into consideration the effects of exogenous factors on the fiscal balance. Examples of these more complex balances are also provided in Table 4A.2. Cyclically adjusted balances are measures of the government's fiscal position in an economy as if the economy was operating at potential gross domestic product (GDP). These balances can be calculated by adjusting the GFS concept of *net lending/net borrowing* (or other fiscal balances in the GFS framework) for the effect on revenue and expense of the difference between actual and potential GDP. Structural balances are an extension of cyclically adjusted balances, by adjusting for a broader range of factors, such as commodity prices, which may over- or understate fiscal performance.

4.59 In resource-rich countries, analysts often take into account the volatility of commodity prices (which affects fiscal balances but is outside of the direct control of government) when assessing fiscal performance. Calculating nonresource balances requires removing from net lending/net borrowing (or other fiscal balances) net resource-related revenue and expenditure. These resource-related items are not available in the core classifications of GFS, but could be provided in underlying source data.

4.60 Table 4A.2 presents a list of fiscal indicators that are built using GFS with additional data. These fiscal indicators are usefully expressed as a percentage change or as ratios of aggregates, such as GDP.

Table 4A.1 Fiscal Indicators Available from the GFS Framework

Fiscal Indicator	Equivalent Term in Statistical Methodologies	GFS Codes
	Fiscal balances	
Cash balance (also referred to as deficit/ surplus)	Cash surplus (+) / Cash deficit (–) (CSD) equal to the net cash inflow from operating activities minus the net cash outflow from investment in nonfinancial assets. Cash surplus/cash deficit is also equal to total cash flows from financing transactions.	C1–C2–C31, or C1–C2M, or NFB+NCB
Net operating balance (NOB)	Revenue minus expense. Net operating balance is also equal to change in net worth due to transactions.	1–2
Gross operating balance (GOB)	Revenue minus expense, excluding consumption of fixed capital.	1–2+23
Net lending/net borrowing (NLB)	Revenue minus expense minus net investment in nonfinancial assets; or Revenue minus expenditure; or Net operating balance minus net investment in nonfinancial assets; or Gross operating balance minus gross investment in nonfinancial assets. Net lending/net borrowing is also equal to total financing.	1–2–31, or 1–2M, or NOB–31, or GOB–31.1+31.2 32–33
Primary cash balance	Cash surplus/cash deficit excluding interest expense or net interest expense. For gross debt sustainability analysis, use cash surplus/cash deficit excluding interest expense. For net debt sustainability analysis, use cash surplus/cash deficit excluding net interest expense.	 CSD+C24 CSD+C24–C1411

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Table 4A.1 Fiscal Indicators Available from the GFS Framework *(continued)*

Fiscal Indicator	Equivalent Term in Statistical Methodologies	GFS Codes
	Fiscal balances (continued)	
Primary operating balance	Net operating balance excluding interest expense or net interest expense. For gross debt sustainability analysis, use net operating balance excluding interest expense. For net debt sustainability analysis, use net operating balance excluding net interest expense.	 NOB+24 NOB+24–1411
Primary balance	Net lending/net borrowing excluding interest expense or net interest expense. For gross debt sustainability analysis use net lending/net borrowing excluding interest expense. For net debt sustainability analysis use net lending/net borrowing excluding net interest expense.	 NLB+24 NLB+24–1411
	Other Macroeconomic Fiscal Indicators	
Above-the-line transactions	All transactions in revenue, expense, and net investment in nonfinancial assets. (The main balancing items, such as cash surplus/cash deficit or net lending/net borrowing, serve as the "line.")	1, 2, and 31, or C1, C2, and C31
Below-the-line transactions	All transactions in the net acquisition of financial assets, and the net incurrence of liabilities—also referred to as financing transactions. (The main balancing items, such as cash surplus/cash deficit or net lending/net borrowing, serve as the "line.")	32 and 33, or NFB and NCB
Fiscal burden	Revenue in the form of taxes plus social contributions. (In principle, only compulsory social contributions should be included—where voluntary social contributions are significant, these need to be excluded to calculate the fiscal burden, in which case this indicator becomes a fiscal indicator requiring additional data.)	11+12, or 11+121+122
Tax burden	Revenue in the form of taxes.	11
Direct taxes	Taxes that take into account individual circumstances of taxpayers (e.g., taxes on individual and corporate income).	111+1131+1132+1136
Indirect taxes	Taxes that do not take into account individual circumstances of taxpayers (e.g., taxes imposed on goods and services).	112+114+115+116
Capital taxes	Capital taxes are taxes levied at irregular and infrequent intervals on the values of the assets or net worth owned by institutional units or on the values of assets transferred between institutional units as a result of legacies, gifts, or other transfers.	1133+1135
Government final consumption expenditure	Approximated by compensation of employees, plus the use of goods and services, plus consumption of fixed capital, plus purchases of goods and services for direct transfer to households (mainly social benefits in kind), minus the sales of goods and services.	21+22+23+282–142
Gross saving	Gross operating balance excluding net capital transfers receivable (capital transfers including net capital grants and capital taxes); or Net lending/net borrowing excluding gross investment in nonfinancial assets,and excluding net capital transfers receivable (capital transfers including net capital grants and capital taxes).	GOB–(1133+1135+1312+1322+1332+1442+1452–2612–2622–2632–2822–2832), or NLB+31+23–(1133+1135+1312+1322+1332+1442+1452–2612–2622–2632–2822–2832)

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Table 4A.1 Fiscal Indicators Available from the GFS Framework *(continued)*

Fiscal Indicator	Equivalent Term in Statistical Methodologies	GFS Codes
Other Macroeconomic Fiscal Indicators (continued)		
Capital spending	Net investment in nonfinancial assets equals acquisition of nonfinancial assets minus disposal of nonfinancial assets minus consumption of fixed capital.	31.1–31.2–31.3
Gross investment in nonfinancial assets	Net acquisition of nonfinancial assets equals acquisition of nonfinancial assets minus disposal of nonfinancial assets. Net investment in nonfinancial assets plus consumption of fixed capital.	31.1–31.2, or 31+23
Gross capital formation	Acquisition minus disposals of produced nonfinancial assets, which comprise fixed assets, inventories, and valuables.	311.1–311.2+312+313
Gross fixed capital formation	Acquisitions minus disposals of fixed assets.	311.1–311.2
Net interest expense	Interest expense minus interest revenue.	24–1411
Social spending	Approximated by functional classification of expenditure on housing, health, education, and social protection.	706+707+709+710
Total expenditure or outlays	Expense plus net investment in nonfinancial assets; or expenditure.	2+31, or 2M
Transfer payments excluding grants	Transfers to corporations, households, and nonprofit institutions serving households, which comprise subsidies, social benefits, transfers not elsewhere classified, and premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes.	25+27+282+283
Financing Indicators		
Total financing	Transactions in financial assets minus transactions in liabilities.	32–33, or 82–83
Domestic financing	Transactions in financial assets minus transactions in liabilities, both with resident institutional units (domestic debtors/creditors).	321–331, or 821–831
Foreign financing	Transactions in financial assets minus transactions in liabilities, both with nonresident institutional units (external debtors/creditors).	322–332, or 822–832
Domestic bank financing	Transactions in financial assets and liabilities with the central bank and resident deposit-taking corporations other than the central bank.	8212+8213–8312–8313
Domestic nonbank financing	Transactions in financial assets and liabilities by resident institutional units other than the central bank and resident deposit-taking corporations other than the central bank; or Transactions in financial assets and liabilities with general government units, and resident other financial corporations, nonfinancial corporations, and households and nonprofit institutions serving households.	(821–8212–8213)–(831–8312–8313), or 8211+8214+8215+8216–8311–8314–8315–8316
Wealth and Debt Indicators		
Accounts payable	Stock position in other accounts payable, which comprise trade credit and advances, and miscellaneous other items due to be paid.	6318
Arrears	Stock position in amounts unpaid and past the due date for payment.	6M5
Contingent liabilities	Obligations that do not arise unless a particular, discrete event(s) occurs in the future.	6M6
Total pension and insurance liabilities	Stock position in insurance, pension, and standardized guarantee scheme liabilities plus net obligations for social security benefits.	6306+6M7
Gross debt	Stock position in financial claims that require payment(s) of interest and/or principal by the debtor to the creditor at a date, or dates, in the future. Includes all liabilities held in debt instruments (i.e., total liabilities excluding equity and investment fund shares and financial derivatives and employee stock options).	63–6305–6307, or 6301+6302+6303+6304+6306+6308

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Table 4A.1 Fiscal Indicators Available from the GFS Framework *(concluded)*

Fiscal Indicator	Equivalent Term in Statistical Methodologies	GFS Codes
Wealth and Debt Indicators (concluded)		
Net debt	Gross debt minus stock position in financial assets corresponding to debt instruments. Includes all financial assets/liabilities held in debt instruments (i.e., financial assets/liabilities excluding equity and investment fund shares and financial derivatives and employee stock options).	(63–6305–6307)–(62–6205–6207), or 6301+6302+6303+6304+6306+6308–6201–6202–6203–6204–6306–6308
Gross debt, net of highly liquid assets	Gross debt minus financial assets held in the most liquid financial instruments. In most countries, liquid assets would primarily comprise currency and deposits. (Where other financial assets are partly considered highly liquid financial assets, this indicator becomes a fiscal indicator requiring additional data.)	63–6305–6307–6201, or 6301+6302+6303+6304+6306+6308–6201
Net financial wealth	Net financial worth equals the stock position in financial assets minus stock position in liabilities.	62–63, or 6M1
Net worth	Stock position in assets minus stock position in liabilities at end of reference period.	61+62–63, or 6
Total change in net worth	Net worth at the end of the current reporting period minus net worth at the end of the previous reporting period. (A split between change in net worth due to transactions [i.e., net operating balance] and change in net worth due to other economic flows is also analytically useful.)	$6_{t1}–6_{t0}$, or $(61+62–63)_{t1}–(61+62–63)_{t0}$, or NOB+9

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Table 4A.2 Fiscal Indicators Requiring Additional Data

Fiscal Indicator	Related Term in Statistical Methodologies
Resource revenue	Revenue receivable that is related to natural resources. These receivables may be related to various types of taxes, subsidies, dividends, contracts, leases, and licenses, rent, or other transfers.
Resource expense	Expense payable that is related to natural resources. These payables may be related to various types of expense such as subsidies, property expense, and transfers.
Nonresource operating balance	Total revenue excluding natural resource-related revenue minus total expense excluding natural resource-related expense.
Nonresource primary operating balance	Nonresource operating balance excluding interest expense for gross debt sustainability analysis or excluding net interest expense for net debt sustainability analysis.
Nonresource net lending/net borrowing	Nonresource operating balance minus net investment in nonresource related nonfinancial assets.
Nonresource primary net lending/net borrowing	Nonresource net lending/net borrowing excluding interest expense for gross debt sustainability analysis or excluding net interest expense for net debt sustainability analysis.
Overall fiscal balance	Net lending/net borrowing adjusted through the rearrangement of transactions in assets and liabilities that are deemed to be for public policy purposes (also called policy lending/borrowing). Policy lending is added to expense. Privatization proceeds from the sale of nonfinancial assets and repayments on policy lending (see Box 4.1) are included as transactions in financial items in calculating the overall fiscal balance.
Overall primary balance	Overall fiscal balance excluding interest expense or net interest expense. For gross debt sustainability analysis, use overall fiscal balance excluding interest expense. For net debt sustainability analysis, use overall fiscal balance excluding net interest expense.
Cyclically adjusted balance	Trend balance through an economic cycle, which is the fiscal balance, stripped of the impact of cyclical movements in revenue and expenditure (for government, usually only unemployment benefits payable are eliminated).
Cyclically adjusted primary balance	Trend balance through an economic cycle, which is primary fiscal balance, stripped of the impact of cyclical movements in revenue and expenditure (for government, usually only unemployment benefits payable are eliminated).
Structural balance	Underlying or permanent fiscal balance, which is the fiscal balance, stripped of the impact of cyclical movements in revenue, expenditure, and the effects of unusual or one-off events.
Structural primary balance	Underlying or permanent primary fiscal balance, which is the primary fiscal balance, after removing the impact of cyclical movements in revenue, expenditure, and the effects of unusual or one-off events.
Fiscal impulse	Change in the structural primary balance between two reporting periods. (Often also calculated using the [overall] structural balance, or the cyclically adjusted [primary] balance.)
Gross financing needs	Net lending/net borrowing during a particular reporting period plus debt maturing within that reporting period. (This concept is a forward-looking indicator and should not be confused with total financing.)
Concessional loans	Loans that provide to the borrower some concessional benefits. An estimate of the one-off benefit at the point of loan origination can be calculated as equal to the difference between the nominal value of the debt and its present value using a relevant market discount rate.
Development spending	Represents government's expenditure on national development and encompasses transactions in the acquisition of nonfinancial assets, usually related to infrastructure. Development spending is often financed from specific designated sources (e.g., foreign loans, foreign grants, privatization proceeds, one-off tax levies).
Quasi-fiscal operations	Quasi-fiscal operations are government operations carried out by institutional units other than government units (e.g., central banks and other public corporations). Quasi-fiscal operations encompass a broad array of activities that have the same fiscal policy impact on the economy as government operations.

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5 Revenue

This chapter defines the concept of revenue and describes the manner in which revenue is classified.

Defining Revenue

5.1 ***Revenue*** (1) is an increase in net worth resulting from a transaction. Revenue transactions, as defined in GFS, have counterpart entries either in an increase in assets or in a decrease in liabilities—thereby increasing net worth. General government units have four types of revenue: (i) compulsory levies in the form of taxes and certain types of social contributions; (ii) property income derived from the ownership of assets; (iii) sales of goods and services; and (iv) other transfers receivable from other units. Of these, compulsory levies and transfers are the main sources of revenue for most general government units. Public corporations do not levy taxes, but derive their revenue from all the other sources—of these, property income and the sales of goods and services are the main sources of revenue.

5.2 ***Taxes*** (11)[1] are compulsory, unrequited amounts receivable by government units from institutional units. Taxes can be receivable in cash[2] or in kind.[3] By its nature, only a government unit can receive revenue in the form of taxes. When an institutional unit other than a government unit collects taxes, the tax should be attributed in accordance with tax attribution guidelines (see paragraphs 5.33–5.40). Tax revenue is considered to be unrequited because the government provides nothing directly to the individual unit in exchange for the payment. Governments may use the tax revenue to provide goods or services to other units, either individually or collectively, or to the community as a whole. Certain compulsory receivables, such as fines, penalties, and most social security contributions, are not considered taxes (see paragraph 5.23). These types of revenue have, under certain conditions, an element of exchange and are therefore not classified as taxes.

5.3 All other types of revenue are frequently combined into a heterogeneous broad category: revenue other than taxes (also sometimes referred to as nontax revenue). In this manual, however, the various other types of revenue are separately identified and classified as social contributions, grants, and other revenue.

5.4 ***Social contributions*** *[GFS]*[4] (12) are actual or imputed revenue receivable by social insurance schemes to make provision for social insurance benefits payable.[5] Social contributions may be from employers on behalf of their employees, from employees, or from self-employed or unemployed persons on their own behalf. These contributions secure entitlement to social benefits payable to the contributors, their dependents, or their survivors when certain social risks arise. The contributions may be compulsory or voluntary (see paragraph 5.94 and Appendix 2).

5.5 ***Grants*** (13) are transfers receivable by government units from other resident or nonresident government units or international organizations, and that do not meet the definition of a tax, subsidy, or social contribution. When statistics are compiled for the general government sector, grants from other domestic government units would be

[1] The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in the GFS framework.

[2] The use of the term "cash" here does not refer to the cash basis of recording, but rather refers to the monetary nature of the settlement.

[3] Revenue receivable in kind will not be recorded when using the cash basis of recording—no cash flows are involved (see paragraph 3.67).

[4] [GFS] indicates that an item has the same name but different coverage in the *2008 SNA*.

[5] *Social contributions [GFS]*(12) revenue excludes amounts receivable as employment-related pension and other retirement contributions that create a liability for future benefits payable (see paragraphs 4.50 and 5.95).

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eliminated in consolidation so that only grants from foreign governments and international organizations would remain in the general government accounts. Grants may be classified as capital or current and can be receivable in cash or in kind (see paragraphs 5.103–5.105).

5.6 ***Other revenue*** (14) is all revenue receivable excluding taxes, social contributions, and grants. Other revenue comprises: (i) property income; (ii) sales of goods and services; (iii) fines, penalties, and forfeits; (iv) transfers not elsewhere classified; and (v) premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes (see paragraphs 5.106–5.151).

5.7 Refunds (see paragraph 5.27) and corrections of erroneously collected revenue are transactions that decrease the net worth of the recipient government unit. More accurately, they are adjustments that allow the excessive increase in net worth previously recorded to be corrected. These refund transactions are recorded as a reduction in revenue, with a corresponding reduction in financial assets or an increase in liabilities.[6]

5.8 Some transactions are exchanges in assets and/or liabilities and should not be recorded as revenue. The disposal of a nonfinancial asset, other than inventories,[7] by sale or barter does not affect net worth and these transactions are not revenue. They are transactions in nonfinancial assets as described in paragraphs 8.3–8.4. However, when ownership of an asset is acquired without having to give up anything of commensurate value in return, the net worth of the unit increases. This increase in assets has a counterpart entry in an increase in revenue and should be recorded as a type of capital transfer receivable, such as a capital grant. Repayments on loans previously extended to other institutional units, and loan disbursements, are not revenue. These are transactions in financial assets or liabilities as described in paragraphs 9.3–9.4.

5.9 For the purposes of fiscal analysis, additional aggregations of revenue could be calculated, such as the fiscal burden, direct versus indirect taxes, and revenue related to natural resources. A discussion of these supplementary fiscal indicators and their uses in fiscal analysis is presented in the annex to Chapter 4.

Time of Recording and Measurement of Revenue

5.10 In the *Statement of Operations*, revenue should be recorded according to the accrual basis of recording. In the accrual basis of recording, transactions are recorded when the underlying activities, transactions, or other events occur that create the unconditional claims to receive the taxes or other types of revenue (see paragraphs 3.69–3.102). The application of the general rule to various types of revenue is indicated in each section of the classification as needed.

5.11 In the *Statement of Sources and Uses of Cash*, cash receipts from operating activities are recorded in accordance with the cash basis of recording. In the cash basis of recording, transactions are recorded when cash payments for the respective revenue categories are received (see paragraph 3.103–3.104).

5.12 According to the accrual principles of GFS, income taxes and social contributions based on income should be attributed to the period in which the income is earned, even though there may be a significant delay between the end of the reporting period and the time at which it is feasible to determine the actual liability of the taxpayer.

5.13 Conceptually, when using the accrual basis of recording, the time between the moment a revenue transaction accrues and the payment is received (or made in the case of refunds) is bridged by recording a transaction in financial assets or liabilities (see paragraph 7.224). In cases where a prepayment of revenue covering two or more reporting periods is made to government, government should record an increase in liabilities, usually recorded in *other accounts payable* (3308), for the revenue that falls due in future periods. In effect, this is a financial advance made to government by the payee. It constitutes a liability of the government and an asset of the payee. This liability is extinguished as the revenue falls due in future periods.

5.14 In practice, however, some flexibility is permitted as the accrual recording of revenue can be difficult to implement because government accounting

[6] Similarly, refunds of expense are recorded as a reduction in expense, rather than revenue (see paragraph 6.4).
[7] For a description of the treatment of inventories, see paragraphs 8.44–8.47.

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systems often record revenue only on a cash basis. This is especially the case for taxes. Further, even when accrued taxes are estimated from assessments of taxes due, there may be a risk of over- or understatement of tax revenue. The remainder of this section provides additional practical guidance on the appropriate time of recording for taxes.

5.15 As a practical deviation from the general principle, income taxes deducted at source, such as pay-as-you-earn taxes, and regular prepayments of income taxes may be recorded in the periods in which they are paid and any final tax liability on income may be recorded in the period in which the liability is determined.

5.16 It is also possible that governments receive cash amounts before having an unconditional claim on them.[8] Such circumstances include advances for provision of goods and services to be delivered in the future, and grants for the construction of fixed assets over several periods. When using the accrual basis of recording, these cash receipts cannot be recognized as revenue until such time as the government acquires the unconditional claim on the amount. However, when using the cash basis of recording, the full amount of revenue will be recognized in the period in which the cash amounts were received, irrespective of whether the service, delivery, or compliance with the conditions were met in the past or will be met in the future.

5.17 With the exception of taxes and social contributions, the amount of revenue to be recorded on the accrual basis is the entire amount to which the general government unit has an unconditional claim. In the case of taxes and social insurance contributions, only those amounts that are evidenced by assessments and declarations, customs declarations, and similar documents are considered to constitute revenue for government units.

5.18 As indicated in paragraph 3.78, the amount of taxes and social contributions recorded must take into account that the government unit receiving the revenue is usually not a party to the transaction or other event that creates the obligation to pay the taxes or social insurance contributions. Consequently, many of these transactions and events permanently escape the attention of the tax authorities. The amount of revenue from taxes and social insurance contributions should exclude the amounts that possibly could have been received from such unreported events had the government learned about them, but instead permanently escape the attention of the tax authorities.

5.19 Furthermore, in some countries, and for some taxes, the amounts of taxes eventually paid may diverge substantially and systematically from the amounts due to be paid. It would be inappropriate to accrue revenue for an amount that the government unit does not realistically expect to collect. The amount that is realistically expected to be collected may sometimes be influenced by tax amnesties. Governments use tax amnesties to capture some of the taxes accrued but unpaid, to speed up payment of taxes, and to capture revenue from transactions or events that have previously escaped the attention of the tax authorities. The time of recording and measurement of revenue arising from such tax amnesties depends on the exact nature of the amnesty granted and whether the revenue has been previously accrued. The case of adjusting for underestimation or overestimation of tax revenue is discussed later.

5.20 It is typical that some of the taxes and social insurance contributions that have been assessed and accrued will never be collected. Thus, the difference between estimates based on these assessments and expected collections represents a claim that has no real value and should not be recorded as revenue. If transactions are recorded for such taxes (and other revenue) that overestimate the amount of revenue receivable, a correction should be recorded in the GFS framework. This requires an adjustment that allows the excessive increase in net worth previously recorded to be corrected.[9] In keeping with the accrual basis of recording (see paragraph 3.79), such an adjustment should occur in the period in which the overestimation of receivables occurred. However, in cases where it is not possible to identify the time of the overestimation, the adjustment is recorded when the need for the adjustment is identified. As such, a correction to reduce revenue, with a corresponding correction

[8] These receipts are also referred to as "deferred revenue" or "advances" (see also paragraph 7.225).

[9] These corrections in transactions recorded for revenue receivables should be distinguished from the case where a specific debtor is deemed bankrupt and amounts receivable are deemed to be uncollectable (see paragraph 10.57).

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(reduction) in *other accounts receivable* (3208), should be recorded. The amount of taxes and social insurance contributions that is recorded as revenue should be the amount that is realistically expected to be receivable. The actual collection, however, may be in a later period, possibly much later.

The Classification of Revenue

5.21 Revenue comprises heterogeneous elements, classified according to different characteristics depending on the type of revenue. For taxes, the classification scheme is determined mainly by the base on which the tax is levied. Revenue other than taxes is classified by the nature of the economic flow, and in some cases by the source from which the revenue is derived. The summary classification of revenue in the GFS framework is shown in Table 5.1, and the remainder of this chapter describes each category in detail.

5.22 While the summary GFS revenue classification structure provides guidance on the minimum requirements for internationally comparable classifications of revenue, analytical needs may necessitate further detailed classifications to be added as subitems in national data presentations. Additional subitems, presented either as a comprehensive breakdown of the standard item or as "of which" lines, could be used to identify items required:

- To facilitate consolidation—for example, a breakdown of items according to the subsectors and institutional units of general government (see paragraph 3.152)
- As input into other macroeconomic datasets to enhance consistency with these data—for example, a breakdown of interest to identify recipients according to residence and sectors (see paragraph 7.264)
- To facilitate the calculation of supplementary aggregates or balances used as fiscal indicators in fiscal analysis—for example, identifying all revenue related to a particular resource could allow the calculation of government balances without such resource revenue (see paragraph 4.59), or identifying all environment-related revenue and payments to government could facilitate the compilation of environmental accounts (see paragraph A7.107).

Taxes (11)

5.23 Taxes are compulsory, unrequited amounts receivable by government units from institutional units. In GFS, taxes are classified mainly according to the base on which the tax is levied. Normally, designating a tax for a particular use does not affect its classification. An exception is the distinction between taxes on payroll and workforce and social security contributions. If a tax on payroll or workforce is designated for use in a social security scheme, then it is classified as a social security contribution (see paragraphs 5.45 and 5.96). Otherwise, it is classified under taxes on payroll and workforce. Taxes also exclude compulsory payments receivable by government, as contributions to employment-related pension schemes. Since these compulsory contributions are associated with the expectation of future benefits payable, they are not tax revenue receivable, but rather recorded as the incurrence of a pension entitlement liability (see paragraphs 9.63–9.67).

5.24 In principle, interest charged on overdue taxes or fines and penalties imposed for the attempted evasion of taxes should be recorded as *interest* (1411), or *fines, penalties, and forfeits* (143) and not as taxes. However, it may not be possible to separate receivables of interest, fines, or other penalties from the taxes to which they relate, so in practice they are usually grouped with the relevant tax receivable (see also paragraph 6.82).

GFS tax classifications in comparison with other statistical databases

5.25 The coverage, timing, and valuation of tax revenue in GFS and the *2008 SNA* are identical, but the classification systems differ. The *2008 SNA* classifies taxes according to their role in economic activities—namely: (i) taxes on production and imports (D2); (ii) current taxes on income, wealth, etc. (D5); and (iii) capital taxes (D91). The result is that some categories of taxes in GFS need to be allocated between two of the SNA tax categories according to whether they are payable by producers or final consumers, or whether they are current or capital taxes.[10] In GFS, taxes are classified into six major categories: (i) taxes on income, profits, and capital gains; (ii) taxes on

[10] For a detailed description of the linkages between the GFS and the *2008 SNA* categories of taxes, see Appendix 7.

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Table 5.1 Summary Classification of Revenue

1	**Revenue**
11	**Taxes**
111	Taxes on income, profits, and capital gains
1111	Payable by individuals
1112	Payable by corporations and other enterprises
1113	Other taxes on income, profits, and capital gains[1]
112	Taxes on payroll and workforce
113	Taxes on property
1131	Recurrent taxes on immovable property
1132	Recurrent taxes on net wealth
1133	Estate, inheritance, and gift taxes
1135	Capital levies
1136	Other recurrent taxes on property
114	Taxes on goods and services
1141	General taxes on goods and services
11411	Value-added taxes
11412	Sales taxes
11413	Turnover and other general taxes on goods and services
11414	Taxes on financial and capital transactions
1142	Excise
1143	Profits of fiscal monopolies
1144	Taxes on specific services
1145	Taxes on use of goods and on permission to use goods or perform activities
11451	Motor vehicle taxes
11452	Other taxes on use of goods and on permission to use goods or perform activities[1]
1146	Other taxes on goods and services
115	Taxes on international trade and transactions
1151	Customs and other import duties
1152	Taxes on exports
1153	Profits of export or import monopolies
1154	Exchange profits
1155	Exchange taxes
1156	Other taxes on international trade and transactions
116	Other taxes
1161	Payable solely by business
1162	Payable by other than business or unidentifiable
12	**Social contributions [GFS]**
121	Social security contributions [GFS]
1211	Employee contributions [GFS]
1212	Employer contributions [GFS]
1213	Self-employed or unemployed contributions [GFS]
1214	Unallocable contributions [GFS]
122	Other social contributions [GFS]
1221	Employee contributions [GFS]
1222	Employer contributions [GFS]
1223	Imputed contributions [GFS]
13	**Grants**
131	From foreign governments
1311	Current
1312	Capital
132	From international organizations
1321	Current
1322	Capital
133	From other general government units[1]
1331	Current
1332	Capital
14	**Other revenue**
141	Property income [GFS]
1411	Interest [GFS][1]
1412	Dividends[1]
1413	Withdrawals of income from quasi-corporations
1414	Property income from investment income disbursements
1415	Rent
1416	Reinvested earnings on foreign direct investment
142	Sales of goods and services
1421	Sales by market establishments
1422	Administrative fees
1423	Incidental sales by nonmarket establishments
1424	Imputed sales of goods and services
143	Fines, penalties, and forfeits
144	Transfers not elsewhere classified
1441	Current transfers not elsewhere classified
14411	Subsidies[1]
14412	Other current transfers not elsewhere classified[1]
1442	Capital transfers not elsewhere classified
145	Premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes[1]
1451	Premiums, fees, and current claims[1]
1452	Capital claims

[1]Indicates that a further breakdown may be analytically useful and is presented in detailed tables.

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payroll and workforce; (iii) taxes on property; (iv) taxes on goods and services; (v) taxes on international trade and transactions; and (vi) other taxes. These categories are described in the various sections on the respective tax categories.

5.26 The classification of taxes in this manual is quite similar to the classification employed in *Revenue Statistics*, which is published annually by the Organisation for Economic Co-operation and Development. The two primary differences in the classification structure are that in *Revenue Statistics*, compulsory social security contributions are treated as taxes and the categories of taxes on goods and services, and taxes on international trade and transactions are combined into a single category. In addition, at a detailed classification level, *Revenue Statistics* differs in the following aspects: (i) payable tax credits are recorded as negative taxes to the extent that the payable tax credit offsets existing income tax receivable; (ii) imputed taxes or subsidies resulting from the central bank imposing a rate of interest other than the market rate are excluded from *Revenue Statistics*; and (iii) imputed taxes or subsidies resulting from the operation of multiple exchange rate systems are excluded from *Revenue Statistics*.

Treatment of tax refunds and tax relief

5.27 Tax refunds are adjustments for overestimation of taxes payable or the return of amounts to taxpayers due to overpayments. Tax refunds generally are recorded as a reduction in the appropriate tax category. When using the accrual basis of recording, refunds are attributed to the period in which the event occurred that generated the overassessments or overpayments. However, in cases where it is not possible to identify the time of the overestimation, the adjustment is recorded at the time when the need for the adjustment is identified. When using the cash basis of recording, such refunds should be recorded at the time the payment occurs. In the case of a value-added tax, taxpayers other than final consumers normally are allowed a refund of taxes paid on purchases. Even if this refund exceeds the taxes payable by an individual taxpayer, the net refund is recorded as a reduction in that category of tax.

5.28 Tax relief measures are incentives that reduce the amount of tax owed by an institutional unit. Tax relief can take the form of a tax allowance, an exemption, a deduction, or a tax credit. Tax allowances, exemptions, and deductions are subtracted from the tax base before the tax liability is computed—it reduces the taxable amount before assessing the tax. These tax relief measures are also known as tax expenditures. **Tax expenditures** are concessions or exemptions from a "normal" tax structure that reduce government revenue collection. No tax expenditures are recorded as flows in the GFS. However, because the government policy objectives could be achieved alternatively through a subsidy or other direct outlays, for fiscal transparency purposes, all tax expenditures should be reported in supplementary reports.

5.29 A **tax credit** is an amount subtracted directly from the tax liability due by the beneficiary household or corporation after the liability has been computed. Tax credits can be payable or nonpayable. Tax credits can be payable, in the sense that any amount of the credit that exceeds the tax liability is paid to the beneficiary. Under a payable tax credit system, the credits payable can be awarded to nontaxpayer beneficiaries, as well as taxpayers. In contrast, tax credits that are nonpayable (sometimes called "wastable") are limited at most to the size of the tax liability of the taxpayer.

5.30 Tax relief that is embedded in the tax system reduces the taxes receivable from the taxpayer and therefore reduces government tax revenue. This is the case for tax allowances, exemptions, and deductions because they enter directly into the calculation of the tax liability. Tax relief granted in this form of nonpayable tax credits should also be recorded as a reduction in the relevant tax category.

5.31 However, when tax relief is granted in the form of payable tax credits, it should be recorded on a gross basis: the total amount of tax receivable should be recorded as tax revenue of government and the total amounts due as payable tax credits should be recorded as expense. Payable tax credits are often not connected with the assessment of the taxable event, and should be shown as a current transfer classified according to the purpose of the credit and the nature of the recipient:

- The transfer is a *subsidy* (25) if receivable by an enterprise on the basis of the level of its production activities or the quantities or values of the goods or services it produces, sells, exports, or imports (see paragraph 6.84).

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- The transfer is an implicit *social assistance benefit* (272) if receivable by households intended to provide for the needs that arise from certain events or circumstances (see paragraph 6.101), or
- The transfer is classified as *transfers not elsewhere classified* (282) if receivable by individuals, private nonprofit institutions, nongovernmental foundations, corporations, or government units, and the nature of the transfer is not such that it could be included in the other categories of transfers (see paragraph 6.122).

5.32 Payable tax credits should be recorded for the full amount when the tax claim is recognized by government regardless of the time when it is paid in cash by government or used to decrease the amount of taxes to be paid to government. Gross recording of the payable tax credit allows GFS to reflect the economic substance of government intervention in the economy.[11] This treatment differs from the treatment of the imputation system of corporate income tax (see paragraph 5.44).

Tax attribution[12]

5.33 In some cases, one government unit collects taxes and then transfers some or all of them to another government unit or international organization. Depending on the arrangement, the taxes passed on to the second government unit may be reassigned as tax revenue of that unit or they can be recorded as tax revenue of the collecting unit and a grant from that unit to the second government unit.

5.34 A tax is attributed to the government unit that: (i) exercises the authority to impose the tax (either as a principal or through the delegated authority of the principal); and (ii) has final discretion to set and vary the rate of the tax.

5.35 Where an amount is collected by one government for and on behalf of another government, and the latter government has the authority to impose the tax, and to set and vary its rate, then the former is acting as an agent for the latter. The full amount of tax raised is assigned as tax revenue to the government on whose behalf the collection was made. Any amounts retained by the collecting government as a collection charge should be recorded as a payment for a service, classified as the relevant category of *sales of goods and services* (142). The same amount is recorded as an expense for *use of goods and services* (22) by the counterparty. Any other amounts retained by the collecting government, such as under a tax-sharing arrangement, should be recorded as *current grants* (1331) receivable while the counterparty will record *current grants* (2631) payable. If the collecting government was delegated the authority to set and vary the rate, then the amount collected should be recorded as tax revenue of the collecting government.

5.36 Where different governments jointly and equally set the rate of a tax, with no individual government having ultimate overriding authority, then the tax revenues are attributed to each government according to its respective share of the proceeds.[13] If an arrangement allows one government unit to exercise ultimate overriding authority, then all of the tax revenue is attributed to that unit.

5.37 There may also be circumstances where a tax is imposed under the constitutional or other authority of a government unit or an international organization,[14] but participating governments individually set the tax rate in their jurisdictions. The proceeds of the tax generated in each respective government's jurisdiction are attributed as tax revenues to the individual government units.

5.38 When taxes are collected by an institutional unit other than a government unit, the tax is always reassigned to the government unit that permitted the nongovernment unit to act as a collecting agent (see paragraph 5.2). For example, a public corporation may act as an agent to collect a specific tax on behalf of government. In this case, the taxes collected by the public corporations should be recorded as transactions in financial assets and liabilities for the collecting agent, and the full amount collected should be

[11] For example, when tax credits on *customs and other import duties* (1151) on raw materials are used to support producers of exports, the full amount of *customs and other import duties* (1151) should be reflected, as well as the *subsidy* (25) to the producers of the exports.

[12] Similar attribution principles could be applied to subsidies or social benefits.

[13] These respective shares of the proceeds should reflect the underlying taxable economic event. If, under the revenue sharing arrangement, these shares amount to more or less than the underlying taxable economic event, a transfer for the difference should be recognized.

[14] For a discussion on the tax attribution in the case of supranational authorities and regional cooperation, see Appendix 5.

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recorded as tax revenue receivable by the government unit. Amounts retained by the collecting unit as a collection charge should be recorded as a payment for a service receivable by the collecting unit and payable by the government unit.

5.39 The attribution of church or "zakat" taxes requires some further consideration. The treatment of these taxes depends on the sector classification of the religious institutional units (see paragraph 2.61). In countries where some of the activities of the religious organizations are funded from earmarked taxes raised by general government, such as church or zakat taxes, these are included in the tax component of government revenue, provided they meet the definition of taxes set out in paragraphs 5.2 and 5.23. The base on which such religious taxes are levied can vary from country to country (the most usual cases are income, property, or net wealth). These taxes should be classified in the tax category that best describes the tax base on which they are levied.

5.40 When the religious organizations are not part of general government,[15] historical and administrative reasons may still determine that contributions to religious organizations are collected through the tax authorities. In this case, the contributions should be recorded as financial transactions classified in *other accounts payable* (3308). Amounts retained by the tax authority as a collection charge should be recorded as *sales of goods and services* (142) receivable from the religious organizations. The collected amounts are not taxes and are therefore not included in tax revenue if any of the following conditions apply:

- Individuals may opt out of the "tax" payment by formally declaring to the tax authorities their wish to leave the religious organizations.
- Government is acting in a collection agency capacity on behalf of the religious organizations.
- Government does not exercise the authority to impose a compulsory contribution, or
- Government has limited or no discretion to set and vary the rate of the contributions.[16]

[15] The authority to raise taxes is an exclusive right of government units. As a result, when religious organizations are not part of general government, religious "taxes" are classified as transfers from households to religious organizations when compiling national accounts.

[16] If the individuals may not opt out of the liability for the payment of the tax, or where the government imposes and sets the rates of such contributions, it may be a sufficient indication that such contributions to the religious organizations are indeed a tax.

Tax categories

Taxes on income, profits, and capital gains (111)

5.41 ***Taxes on income, profits, and capital gains*** (111) consist of taxes assessed on the actual or presumed incomes of institutional units. They include taxes assessed on holdings of property, land, or real estate when these holdings are used as a basis for estimating the income of their owners. These taxes, often referred to as income taxes, include:

- *Taxes on individual or household income*—These consist of personal income taxes, including those deducted by employers (pay-as-you-earn taxes) and surtaxes. Such taxes are usually levied on the total declared or presumed income from all sources of the person concerned: compensation of employees (e.g., wages, salaries, tips, fees, commissions, fringe benefits), property income (e.g., interest, dividends, rent, royalty incomes), and pensions (taxable portions of social security, pension, annuity, life insurance, and other retirement benefit distributions), etc., after deducting certain allowances in accordance with tax laws. Taxes on the income of the owners of unincorporated enterprises[17] are included here. Also included are income taxes on the income of family estates and trusts where the beneficiaries are individuals.
- *Taxes on the income of corporations*—These consist of corporate income taxes, corporate profits taxes, corporate surtaxes, etc. Such taxes are usually assessed on the total incomes of corporations—with corporations understood as in macroeconomic statistics. This item includes taxes on the income of units such as partnerships, sole proprietorships, estates,[18] and some trusts that are recognized as corporations. This covers income from all sources and not simply profits generated by production. Also included are income taxes on trusts where the beneficiaries are corporations.
- *Taxes on capital gains*—These consist of taxes on the capital gains (including capital gains distributions of investment funds) of persons or

[17] For a definition and discussion of unincorporated enterprises, see paragraphs 2.32–2.33.

[18] These types of estates are recognized as quasi-corporations and generally classified as captive financial institutions.

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corporations that become payable during the current reporting period, irrespective of the periods over which the gains have accrued. They are usually payable on nominal, rather than real, capital gains and on realized, rather than unrealized, capital gains.

- *Taxes on winnings from lotteries or gambling*—These are taxes payable on the amounts receivable by winners. They do not include taxes on the turnover of producers that organize gambling or lotteries, which are recorded as taxes on goods and services.

5.42 Taxes on income, profits, and capital gains are attributed as being payable by either *individuals* (1111) or *corporations and other enterprises* (1112). These individuals, corporations, and other enterprises may be resident or nonresident institutional units. Taxes on income, profits, and capital gains are classified as *other taxes on income, profits, and capital gains* (1113) when these taxes are payable by general government units, or when information needed to determine whether taxes should be attributed to individuals, corporations, or general government units is not available. In the event that general government units are subject to this tax category, these taxes should be classified under this category, identifiable according to the subsector of the taxpayer to allow for consolidation (see paragraphs 6.122–6.123). Similarly, taxes payable by public corporations are subject to consolidation and should be identified as a subcategory of taxes payable by corporations (see Table 5.2). Income taxes on trusts, estates, capital gains, or winnings from lotteries and gambling may fall under income taxes *payable by individuals* (1111), *payable by corporations and other enterprises* (1112), or *other taxes on income, profits, and capital gains* (1113), depending on the institutional unit that benefited from the income (see paragraph 5.41). Income taxes payable by nonprofit institutions serving households or corporations are recorded as taxes on corporations. These taxes may be levied on actual or presumed income and profits, and usually only on realized capital gains. The amount of income subject to tax is usually less than gross income because various deductions are permitted. A profits tax is levied on revenue minus allowable deductions.

Table 5.2 Detailed Classification of Taxes on Income, Profits, and Capital Gains (111)

111	Taxes on income, profits, and capital gains
1111	Payable by individuals
1112	Payable by corporations and other enterprises[1,2]
1113	Other taxes on income, profits, and capital gains
11131	Payable by general government[1,2]
11132	Unallocable taxes on income, profits, and capital gains

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[2]Further breakdown/"of which" lines could allow for the identification of those taxes related to specific natural resources or environmental taxes.

5.43 When using the accrual basis of recording, income taxes are normally imposed on the income earned during an entire year. In the absence of high-frequency source data, indicators of seasonal activity or other appropriate indicators may be used to allocate the annual totals when monthly or quarterly statistics are compiled. When using the cash basis of recording, income taxes are recorded when the tax payment is received.

5.44 Under imputation systems of corporate income tax, shareholders are wholly or partially relieved of their liability for an income tax on dividends paid by the corporation out of income or profits liable to corporate income tax. The relief is usually called a tax credit, although it actually is a means of allocating a tax among taxpayers. If the relief exceeds a shareholder's total tax liability, the excess may be payable to the shareholder. Because this "tax credit" is an integral part of the imputation system of corporate income tax, any net payment to shareholders is recorded as a negative tax rather than expense. This treatment differs from the general treatment of tax credits described in paragraph 5.29. The total tax paid by the corporation is attributed to *corporations and other enterprises* (1112). The associated tax credit is for the benefit of the shareholders.

Taxes on payroll and workforce (112)

5.45 ***Taxes on payroll or workforce*** (112) are taxes payable by enterprises assessed either as a proportion of the wages and salaries paid or as a fixed amount per person employed. They do not include:

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- Payments earmarked for social security schemes, which are classified as *social security contributions* (121)
- Taxes paid by the employees themselves out of their wages or salaries, which are classified as *taxes on income, profits, and capital gains,* payable by *individuals* (1111).

Taxes on property (113)

5.46 ***Taxes on property*** (113) are taxes payable on the use, ownership, or transfer of wealth. The taxes may be levied at regular intervals, one time only, or on a change in ownership.

5.47 Taxes on the ownership or use of specific types of property often are based on the value of the property at a particular time but, when using the accrual basis of recording, are deemed to accrue continuously over the entire year, or the portion of the year that the property was owned, if less than the entire year.[19] Taxes on the transfer of wealth are recorded at the time of the transfer, and some taxes on the ownership or use of property are recorded at a specific time, such as a one-time tax on net wealth. When using the cash basis of recording, these property taxes are recorded when the cash is received.

5.48 Taxes on property are divided into five categories: (i) recurrent taxes on immovable property; (ii) recurrent taxes on net wealth; (iii) estate, inheritance, and gift taxes; (iv) capital levies; and (v) other recurrent taxes on property.

5.49 ***Recurrent taxes on immovable property*** (1131) cover taxes levied regularly on the use or ownership of immovable property, which includes land, buildings, and other structures. The taxes can be levied on proprietors, tenants, or both. The amount of the taxes is usually a percentage of an assessed property value that is based on a notional rental income, sales price, capitalized yield, or other characteristics, such as size or location. Unlike *recurrent taxes on net wealth* (1132), liabilities incurred on the property are usually not taken into account in assessment of these taxes.

5.50 ***Recurrent taxes on net wealth*** (1132) cover taxes levied regularly on net wealth. Net wealth is usually defined as the value of a wide range of movable and immovable property minus liabilities incurred on that property.

5.51 ***Estate, inheritance, and gift taxes*** (1133)[20] cover taxes on transfers of property at death and on gifts, including gifts made between living members of the same family to avoid, or minimize, the payment of inheritance taxes. Taxes on the transfer of property at death include estate taxes, which are usually based on the size of the total estate, and inheritance taxes, which may be determined by the amount received by beneficiaries and/or their relationship to the deceased.

5.52 ***Capital levies*** (1135)[21] cover taxes on the values of the assets or net worth owned by institutional units levied at irregular and very infrequent intervals of time. Capital levies are recorded as exceptional both by units concerned and by the government. They may be payable by households or enterprises. They include taxes on net wealth levied to meet emergency expenditures or to effect a redistribution of wealth; taxes on property, such as betterment levies, that are taxes on the increase in the value of agricultural land due to planning permission being given by government units to develop the land for commercial or residential purposes; taxes on the revaluation of capital; and any other exceptional taxes on particular items of property.

5.53 ***Other recurrent taxes on property*** (1136) include all recurrent taxes on property other than immovable property or net wealth. This category includes recurrent gross taxes on personal property, jewelry, cattle, other livestock, other particular items of property, and external signs of wealth. Taxes on the use of particular types of movable property, such as motor vehicles and guns, are classified in *taxes on use of goods and on permission to use goods or perform activities* (1145).

[19] In compiling high-frequency GFS, the application of the accrual basis of recording would require the distribution of the tax receivable throughout the whole period of the taxable ownership (see paragraph 3.84).

[20] *Estate, inheritance, and gift taxes* (1133) are one of the two categories of taxes that are considered to be capital taxes in the *2008 SNA*. The other category is *capital levies* (1135). Capital taxes are taxes levied at irregular and very infrequent intervals on the values of the assets or net worth owned by institutional units or on the values of assets transferred between institutional units as a result of legacies, gifts, or other transfers.

[21] To maintain consistency with codes used in the *GFSM 2001*, this code does not follow directly the code of the previous category of taxes. *Taxes on capital and financial transactions* (1134 in the *GFSM 2001*) were reclassified as 11414, one of the categories of *taxes on goods and services* (114), to improve consistency with the *2008 SNA*.

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5.54 While sharing certain characteristics with taxes on property, the following taxes are classified elsewhere:

- Taxes on immovable property that are levied on the basis of a presumed net income should be recorded as *taxes on income, profits, and capital gains* (111).
- Taxes on the use of property for residence, where the tax is payable by either proprietor or tenant and the amount payable is a function of the user's personal circumstances, such as net income or the number of dependents, are recorded as *taxes on income, profits, and capital gains* (111).
- Taxes on construction, enlargement, or alteration of all buildings, or those whose value or use density exceeds a certain threshold, are included in *taxes on use of goods and on permission to use goods or perform activities* (1145).
- Taxes on use of one's own property for special trading purposes, such as selling alcohol, tobacco, or meat, should be recorded under *taxes on use of goods and on permission to use goods or perform activities* (1145).
- Taxes on exploitation of natural resources, such as land and subsoil assets not owned by government units, including taxes on extraction and exploitation of minerals and other resources, should be recorded in *other taxes on goods and services* (1146). Payments to a government unit as the owner of land and subsoil assets for the exploitation of such natural resources (often referred to as royalties) should be recorded in *rent* (1415). Payments for licenses that allow the beneficiary to carry out the business of exploitation of land and subsoil assets are classified in *taxes on use of goods and on permission to use goods or perform activities* (1145).
- Taxes on capital gains resulting from the sale of property are included in *taxes on income, profits, and capital gains* (111).

Taxes on goods and services (114)

5.55 ***Taxes on goods and services*** (114) are taxes that become payable as a result of the production, sale, transfer, leasing, or delivery of goods and rendering of services, or as a result of their use for own consumption, or own capital formation. *Taxes on goods and services* are divided into six categories, as described in paragraphs 5.57–5.82:

- *General taxes on goods and services* (1141), whether levied at manufacturer/producer, wholesale, or retail level—including single-stage taxes and cumulative multistage taxes, where "stage" refers to stage of production or distribution
- *Excises* (1142)
- *Profits of fiscal monopolies* (1143)
- *Taxes on specific services* (1144)
- *Taxes on the use of goods and on permission to use goods or perform activities* (1145), comprising various types of licenses to use motor vehicles and other goods, or to perform specific activities
- *Other taxes on goods and services* (1146) that include taxes levied on the extraction, processing, or production of minerals and other products.

5.56 This category does not include *taxes levied on international trade and transactions* (115) but does include taxes levied upon importation, or at the border, if the tax liability does not result solely from the fact that the goods have crossed the border and is applicable to domestic goods or transactions as well.

General taxes on goods and services (1141)

5.57 ***General taxes on goods and services*** (1141) are levied on the production, leasing, delivery, sale, purchase, or other change of ownership of a wide range of goods and the rendering of a wide range of services (see Table 5.3). General taxes on goods and services may be levied regardless of whether the goods or services are produced domestically or imported, and they may be imposed at any stage of production or distribution. Adjustments made in connection with these taxes when goods cross a border are included

Table 5.3 Detailed Classification of General Taxes on Goods and Services (1141)

1141	General taxes on goods and services
11411	Value-added taxes[1,2]
11412	Sales taxes[1,2]
11413	Turnover and other general taxes on goods and services[1,2]
11414	Taxes on financial and capital transactions[1,2]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[2]Further breakdown/"of which" lines could allow for the identification of these taxes related to specific natural resources or environmental taxes.

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in this tax category. Conversely, refunds of these taxes when goods are exported are recorded as a reduction of the taxes within this category. This item excludes *customs and other import duties* (1151) and *taxes on exports* (1152). When taxes are levied on a limited range of goods rather than a wide range, they are included in *excises* (1142). Borderline cases are resolved on the basis of the predominant character of the tax.

Value-added taxes (11411)

5.58 ***Value-added taxes*** (VAT) (11411) are taxes on goods or services collected in stages by enterprises but that are ultimately charged in full to the final purchasers. This tax is described as a deductible tax because producers are not usually required to pay the government the full amount of the tax they invoice to their customers, as they are permitted to deduct the amount of tax they have been invoiced on their own purchases of goods or services intended for intermediate consumption or fixed capital formation (i.e., only the net amount of VAT is recorded after deducting refunds—see paragraph 5.27). VAT is usually calculated on the price of the good or service, including any other tax on the product. VAT may also be payable on imports of goods or services in addition to any import duties or other taxes on the imports.

Sales taxes (11412)

5.59 ***Sales taxes*** (11412) are all general taxes levied on sales at one stage only, whether at manufacturing or production stages or on wholesale or retail trade.

Turnover and other general taxes on goods and services (11413)

5.60 ***Turnover and other general taxes on goods and services*** (11413) are multistage cumulative taxes and taxes where elements of consumption taxes are combined with multistage taxes. These taxes are levied each time a transaction takes place without deduction for taxes paid on inputs. Multistage taxes can be combined with elements of value-added or sales taxes.

Taxes on financial and capital transactions (11414)[22]

5.61 ***Taxes on financial and capital transactions*** (11414) are taxes levied on the change in ownership of property, except those classified as gifts, inheritance, or estate transactions. These taxes are recorded as taxes on the services of the unit selling the asset. Included are taxes on the purchase and sale of nonfinancial or financial assets (including foreign exchange or securities), taxes on checks and other forms of payment, and taxes levied on specific legal transactions, such as the validation of contracts and the sale of immovable property. This category does not include *taxes on the use of goods* (part of 1145); *taxes on capital gains* (part of 111); *recurrent taxes on net wealth* (1132); *capital levies* (1135); fees paid to cover court charges or for birth, marriage, or death certificates that are included in *administrative fees* (1422); *sales taxes* (11412); or general stamp taxes (part of 116).

Excises (1142)

5.62 ***Excises*** (1142) are taxes levied as a product-specific unit tax on a predefined limited range of goods. Excises are usually levied at differentiated rates on nonessential or luxury goods, alcoholic beverages, tobacco, and energy. Excises may be imposed at any stage of production or distribution and are usually assessed as a specific charge per unit based on characteristics by reference to the value, weight, strength, or quantity of the product. Included are special taxes on individual products such as sugar, sugar beets, matches, and chocolates; taxes levied at varying rates on a certain range of goods; and taxes levied on tobacco goods, alcoholic drinks, motor fuels, and hydrocarbon oils. If a tax collected principally on imported goods also applies, or would apply, under the same law to comparable domestically produced goods, then the revenue from this tax is classified as arising from excises rather than from import duties. This principle applies even if there is no comparable domestic production or no possibility of such production. Taxes on the use of utilities such as water, electricity, gas, and energy are regarded as excises rather than *taxes on specific services* (1144). Excises exclude those taxes that are levied as *general taxes on goods and services* (1141); *profits of fiscal monopolies* (1143); *customs and other import duties* (1151); or *taxes on exports* (1152).

Profits of fiscal monopolies (1143)

5.63 ***Profits of fiscal monopolies*** (1143) cover that part of the profits of fiscal monopolies that is

[22] This item was classified as 1134 in the *GFSM 2001* (see footnote 21).

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transferred to the government. Fiscal monopolies are public corporations, public quasi-corporations, or government-owned unincorporated enterprises that have been granted a legal monopoly over the production or distribution of a particular kind of good or service in order to raise revenue and not in order to further the interests of public economic or social policy. Such monopolies are typically engaged in the production of goods or services that may be heavily taxed in other countries—for example, alcoholic beverages, tobacco, matches, petroleum products, salt, playing cards, lotteries, gambling, etc. The exercise of monopoly powers is simply an alternative way for the government to raise revenue instead of the more overt procedure of taxing the private production of such products. In such cases the sales prices of the monopolies are deemed to include implicit taxes on the products sold.

5.64 In principle, only the excess of the monopoly profits over some notional "normal" profits should be recorded as taxes, while the "normal" profits are regarded as *dividends* (1412) or *withdrawals of income from quasi-corporations* (1413). However, it is recognized that it may be difficult to estimate this amount, and, in practice, the value of the taxes should be taken as equal to the amount of the profits actually payable from fiscal monopolies to government. Any reserves retained by fiscal monopolies are excluded. This tax is recorded when the payment takes place rather than when the profits were earned.

5.65 When a public enterprise is granted monopoly powers as a matter of deliberate economic or social policy because of the special nature of the good or service or the technology of production (e.g., public utilities, post offices and telecommunications, railways), it should not be treated as a fiscal monopoly. Property income payable to government from such public enterprises is recorded as *dividends* (1412) or *withdrawals of income from quasi-corporations* (1413). Export and import monopoly profits receivable from marketing boards or other enterprises dealing with international trade are similar to fiscal monopoly profits, but are classified as *profits of export or import monopolies* (1153).

5.66 The treatment of lotteries and other gambling activities deserves special mention. The concept of fiscal monopoly applies to state lotteries and other gambling to the extent that they are devices to raise revenue rather than further the interests of public economic or social policy, even though they may compete with other privately organized lotteries and other gambling. As is the case with other fiscal monopolies (see paragraph 5.64), in principle, the "normal" profits should be regarded as *dividends* (1412) or *withdrawals of income from quasi-corporations* (1413), while the excess should be recorded as a tax classified as *profits on fiscal monopolies* (1143). However, in practice it may be difficult to estimate the "normal" profits, and the taxes should be taken as equal to the amount of profits actually payable to government.

5.67 Governments that have monopoly powers over lotteries and other gambling activities often delegate the organization of these activities to nonprofit institutions serving households, with a view to a final distribution of the profits earned, through social transfers. This delegation of functions normally requires the nonprofit institution to organize those activities through a specialized department. When such departments have the attributes of an institutional unit (as described in paragraph 2.22), they may be classified as public corporations (see paragraph 2.104) that constitute a fiscal monopoly.

5.68 Depending on the administrative arrangements, the distribution of the profits earned may be done in two ways: (i) the fiscal monopoly transfers its profits to a government unit (classified as a tax in *profits of fiscal monopolies* (1143)), and the government unit then transfers the profits to the population; or (ii) the fiscal monopoly transfers the profits directly to the population (normally through criteria determined by law). In the latter case, a rerouting treatment is required because the government does not appear as a party to the transaction in the actual accounting records. Rerouting means the transaction is recorded as if the monopoly transferred its profits to government as described in (i) (see paragraph 3.28).

Taxes on specific services (1144)

5.69 ***Taxes on specific services*** (1144) are levied on payments for specific services. These taxes are levied on services such as transportation (including airport and other passenger taxes),[23] insurance, banking, entertainment, restaurants, and advertising. Also

[23] If these taxes are based exclusively on international travel, they are classified as *other taxes on international trade and transactions* (1156) (see paragraph 5.92).

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included in this item are taxes levied on gambling and betting stakes for horse races, football pools, lotteries, and so forth. Taxes on entry to casinos, races, etc. are also classified as taxes on specific services.

5.70 This category also includes the implicit taxes resulting from the central bank imposing a rate of interest other than the market rates. The central bank's main responsibility is to formulate and carry out monetary policy as part of economic policy. It therefore often acts differently than other financial corporations and generally has received the authority from government to impose its policies. In cases where the central bank uses its special powers to set interest rates that are out of line with market rates, the difference gives rise to an implicit tax and subsidy (see paragraph 6.89 and Box 6.2 for an illustration of recording these implicit taxes and subsidies). This procedure is analogous to and consistent with the practice of treating the difference between the market exchange rate and an alternative exchange rate imposed by the central bank as an implicit tax or subsidy (see paragraph 5.89).

5.71 This category does not include:

- Taxes that are included in *general taxes on goods and services* (1141)
- Taxes on individual gains from football pools or other gambling proceeds, classified in *taxes on income, profits, and capital gains* (111)
- Profits transferred to government from state lotteries and other gambling enterprises regarded as *profits of fiscal monopolies* (1143), *dividends* (1412), or *withdrawals of income from quasi-corporations* (1413)
- Taxes on checks and on the issue, transfer, or redemption of securities, classified as *taxes on financial and capital transactions* (11414)
- Stamp tax revenues that cannot be assigned to taxes on services or other transactions, classified as *other taxes* (116)
- Taxes on the use of utilities, such as water, electricity, gas, and energy, which are included under *excises* (1142).

Taxes on use of goods and on permission to use goods or perform activities (1145)

5.72 ***Taxes on use of goods and on permission to use goods or perform activities*** (1145) are fees levied for the issuance of a license or permit that are not commensurate with the cost of the control function of government. There are cases where the government provides something to the individual unit directly in return for a payment in the form of the granting of a permit or authorization. In such instances, the payment is part of a mandatory process that ensures proper recognition of ownership or ensures that activities are performed under the authorization of the law. The boundary between when such payments are to be recorded as a tax and when they are to be recorded as the sale of a service or as the sale of an asset by the government requires additional guidance.

Boundary with administrative fees

5.73 One of the regulatory functions of governments is to prohibit the ownership or use of certain goods or the pursuit of certain activities, unless specific permission is granted by issuing a license or other certificate for which a fee is demanded. To decide whether such a fee constitutes this tax category or *administrative fees* (1422), the following recommendations apply:

- The payment is recorded as a tax when a license or a permit is automatically granted by the government as a mandatory condition to perform an activity or acquire an asset. The government unit performs little or no work other than a minimum control of the legal capacity of the acquirer to receive the permit (e.g., to confirm the applicant has not been convicted of a crime). The payment of the fee in such a case is not commensurate with the control function that the government exercises.
- The payment is recorded as the sale of a service when, for instance, issuing the license or permit involves a proper regulatory function of the government by exercising control on the activity, checking the competence or qualifications of the persons concerned, etc. In such a case, the payment is taken to be proportional to the costs of producing the service for all or any of the entities benefiting from the services and is borne by those benefiting. The payment is recorded as a tax only if it is out of proportion to the costs of producing the services.

5.74 More specifically, the following types of fees are considered taxes:

- Fees where the payer of the levy is not the receiver of the benefit, such as a fee collected from

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slaughterhouses to finance a service provided to farmers

- Fees where government is not providing a specific service commensurate with the levy even though a license may be issued to the payer, such as a hunting, fishing, or shooting license that is not accompanied by the right to use specific government-owned natural resources
- Fees where benefits are received only by those paying the fee but the benefits received by each individual are not necessarily in proportion to the payments, such as a milk marketing levy paid by dairy farmers and used to promote the consumption of milk
- Fees paid to government for deposit insurance and other guarantee schemes if they are compulsory—that is, if beneficiaries cannot opt out of the scheme, if the payment is clearly out of proportion to the service provided, if the payment is not set aside in a fund, or if it can be used for other purposes.[24]

5.75 Although taxes in this category are levied on the use of goods rather than on the ownership or transactions in goods, registration of the ownership of goods may generate the tax claim. For example, registration of the ownership of animals or motor vehicles may be the event that causes a tax on the use of these items to be assessed. Taxes on the use of goods may apply even to functionally unusable goods, such as antique motor vehicles or guns.

Boundary with taxes on business activities levied on different bases

5.76 Boundary cases arise with taxes on business activities, which are levied on a combined income, payroll, or turnover base. If it is possible to estimate receipts related to each base, then the total should be allocated among the bases. If separate amounts cannot be estimated, but it is known that most of the receipts are derived from one base, then the whole of the receipts are classified according to that base.

Boundaries with other tax categories

5.77 Boundary cases arise with taxes on the ownership or use of property that could be classified as *recurrent taxes on immovable property* (1131), *recurrent taxes on net wealth* (1132), or *other recurrent taxes on property* (1136). Unlike the taxes under this item (category 1145), category 1131 is confined to taxes on the ownership or tenancy of immovable property and such taxes are usually a percentage of the assessed property value. The taxes included in categories 1132 and 1136 are confined to ownership rather than use of assets, apply to groups of assets rather than particular goods, and are based on the value of assets.

Boundary with the acquisition or use of an asset

5.78 Boundary cases arise with the payments for licenses to make use of a natural resource. If the natural resource qualifies as an asset and the government controls it on behalf of the community, payments for the license could be recorded as the disposal of the asset when government surrenders economic control of the asset and the life span of the license and the life span of the asset are the same. If the license agreement is recorded as the sale of an asset in its own right, it should be recorded as the disposal of an asset in the category of *contracts, leases, and licenses* (31441). A license for the use of the natural resource itself for a finite period does not reflect a disposal of an asset and should be classified as *rent* (see paragraph 5.124). Licenses to permit the use of natural resources not under the control of government will be treated as a tax (classified under this item) in all other cases except if the license is legally and practically transferable to a third party, in which case it should be classified as an asset in the category of *contracts, leases, and licenses* (see paragraphs A4.54–A4.55).

5.79 *Taxes on use of goods and on permission to use goods or perform activities* (1145) are subdivided into *motor vehicle taxes* (11451) and *other taxes on the use of goods and on the permission to use goods or perform activities* (11452), while several subcategories of taxes are identifiable in the latter (see Table 5.4).

[24] If the fees are proportional to the cost of the service provided, they constitute a payment for an insurance-type transaction, in which case it will be classified as a premium in the category *premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes* (145). The criterion of proportionality between payments and provision of an insurance-type of service (including payments for the risk element) should be examined on a case-by-case basis. The existence of an institutional unit with a full set of accounts operating a fund that functions on insurance rules may indicate that the payment is for an insurance-type of service.

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Table 5.4	Detailed Classification of Taxes on Use of Goods and on Permission to Use Goods or Perform Activities (1145)
1145	Taxes on use of goods and on permission to use goods or perform activities
11451	Motor vehicle taxes[1]
11452	Other taxes on use of goods and on permission to use goods or perform activities[1]
114521	Business and professional licenses[1]
114522	Pollution taxes[1]
114523	Radio and television licenses[1]
114524	Licenses and permits for households[1]
114525	Other taxes on the use of goods and on permission to use goods or perform activities not elsewhere classified[1]

[1]Further breakdown/"of which" lines could allow for the identification of specific goods or activities, and how these taxes relate to specific natural resources or environmental taxes.

5.80 ***Motor vehicle taxes*** (11451) include taxes on the use of motor vehicles or permission to use motor vehicles. It does not include taxes on motor vehicles as property or net wealth or tolls for use of roads, bridges, and tunnels.

5.81 ***Other taxes on use of goods and on permission to use goods or perform activities*** (11452) include business and professional licenses that consist of taxes paid by enterprises in order to obtain a license to carry on a particular kind of business or profession and taxes payable by individuals to perform certain activities. Included in this tax category are the following:

- General business taxes or licenses levied in a fixed amount, on a schedule according to the kind of business, or on the basis of various indicators such as floor space, installed horsepower, capital, or shipping tonnage would be included. It would not cover business taxes levied on gross sales, which would be classified under *general taxes on goods and services* (1141).
- Taxes or licenses for particular kinds of businesses including permission to sell goods or provide services may be levied at regular intervals, on a one-time basis, or each time goods are used. Business licenses payable by enterprises are included, such as for taxi, casino, mining, exploitation of land and subsoil assets, or broadcasting. This category also includes all cases where government issues licenses to limit the number of units operating in a particular field where the limit is fixed arbitrarily and is not dependent on qualifying criteria. When government restricts the number of cars entitled to operate as taxis or limits the number of casinos permitted by issuing licenses, they are in effect creating monopoly profits for the approved operators and recovering some of the profits as the fee. These license fees should also be recorded as taxes in this category. In principle, if the license is valid for several years, the payment should be recorded on an accrual basis with an entry in *other accounts payable* (3308) for the amount of the prepayment of license fees covering future years. However, if government does not recognize a liability to repay the licensee in the case of a cancellation, the whole of the fee payable is recorded as a single tax payment at the time it is paid.
- Taxes on pollution levied on the emission or discharge into the environment of noxious gases, liquids, or other harmful substances are included. On an accrual basis, the revenue receivable for emission permits, issued by governments under cap and trade schemes, should be recorded in this category at the time the emissions occur. No revenue should be recorded for permits that government issues free of charge. The timing difference between the cash received by government for the permits and the time the emission occurs constitutes a prepaid tax and gives rise to a financial liability (*other accounts payable*) for government. The difference between the prepaid tax value of the permit and the market value of the permit represents a marketable contract (nonproduced nonfinancial asset) for the holder (see paragraphs A4.48–A4.49). Amounts payable to government for the collection and disposal of waste or noxious substances are excluded from this tax category as they constitute a sale of services, recorded as *sales of goods and services* (142).
- Taxes in this category other than business and professional licenses include taxes payable by persons or households for licenses for recreational hunting, shooting, or fishing, and taxes on the ownership of pets when the amount payable is not commensurate with the administrative cost. They also include radio and television licenses payable by viewers, unless the public authorities provide general broadcasting services, in which case a service payment, rather than a tax, is recorded.

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Other taxes on goods and services (1146)

5.82 ***Other taxes on goods and services*** (1146) include taxes on the extraction of minerals, fossil fuels, and other exhaustible resources from deposits owned privately or by another government and any other taxes on goods or services not included in categories 1141 through 1145. Taxes on the extraction of exhaustible resources usually are a fixed amount per unit of quantity or weight, but can be a percentage of value. The taxes are recorded when the resources are extracted. Payments for timber felling and the extraction of exhaustible natural resources from deposits owned by the government unit receiving the payment are classified as *rent* (1415) (see paragraph 5.129).

Taxes on international trade and transactions (115)

5.83 ***Taxes on international trade and transactions*** (115) are taxes that become payable when goods cross the national or customs frontiers of the economic territory, or when transactions in services exchange between residents and nonresidents. These taxes are classified into various subcategories according to the nature of the exchange and whether the exchange is related to imports or exports (see Table 5.5).

5.84 ***Customs and other import duties*** (1151) cover revenue from all levies and duties payable on goods of a particular kind because they are entering the country or services because they are delivered by nonresidents to residents. The levies may be imposed with the intention to raise revenue or discourage imports in order to protect resident producers of the same goods or services. The duties may be determined on a specific or ad valorem basis, but they must be restricted by law to imported products. Included are duties levied under the customs tariff schedule and its annexes, including surtaxes that are based on the tariff schedule, consular fees, tonnage charges, statistical taxes, fiscal duties, and surtaxes not based on the customs tariff schedule. This category covers taxes that fall on imports only. Imports that fall into a wider category of goods that are subject to the tax should be recorded under *general taxes on goods and services* (1141) or *excises* (1142). If excises are levied on imported goods under the same law to comparable domestically produced goods, then the revenue from the tax should be classified as arising from excises rather than from import duties (see paragraph 5.62).

Table 5.5 Detailed Classification of Taxes on International Trade and Transactions (115)

115	Taxes on international trade and transactions[1]
1151	Customs and other import duties
1152	Taxes on exports
1153	Profits of export or import monopolies
1154	Exchange profits
1155	Exchange taxes
1156	Other taxes on international trade and transactions

[1]Further breakdown/"of which" lines could allow for the identification of specific goods or activities, and how these taxes relate to specific natural resources or environmental taxes.

5.85 *Taxes on exports* (1152) include all levies that become payable on goods that are transported out of the country, or services that are provided to nonresidents by residents. Rebates on exported goods that are repayments of previously paid general consumption taxes, excises, or import duties are deducted from the gross amounts receivable from the respective taxes, not from amounts receivable in this category.

5.86 *Profits of export or import monopolies* (1153) include the profits from government-established enterprises with the domestic monopoly right to export or import particular goods and/or control services provided to or received from nonresidents. The exercise of the monopoly powers is an alternative way of raising revenue through taxes on exports, imports, or dealings in foreign exchange. When such export or import monopolies exist, the profits remitted to government by the monopolistic enterprises or marketing boards are considered to be taxes, classified as *profits of export or import monopolies* (1153). While in principle only the excess of the monopoly profits over some notional "normal" profits should be treated as taxes, it is difficult to estimate this amount, and in practice the value of the taxes should be taken as equal to the amount of the profits actually payable from the export or import monopolies to government. This tax is recorded when the payment to the government takes place rather than when the profits were earned and does not include the retained reserves of the enterprises or marketing boards.[25]

[25] If an enterprise of this type generates profits from its exports or imports of products, and a government unit provides a subsidy on other products, then the taxes and subsidies should be separately recorded to the extent possible rather than recording only the net value of taxes minus subsidies.

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5.87 Property income receivable from export or import enterprises or marketing boards that do not represent monopoly profits should be recorded as *dividends* (1412) or *withdrawals of income from quasi-corporations* (1413). Fiscal monopoly profits receivable from public enterprises or marketing boards dealing in commodities domestically, outside of international trade, should be recorded under *profits of fiscal monopolies* (1143).

5.88 *Exchange profits* (1154) include the profits generated when the monopoly powers of government or monetary authorities are exercised to extract a margin between the purchase and sale prices of foreign exchange, other than to cover administrative costs. The revenue derived constitutes a compulsory levy extracted from both purchaser and seller of foreign exchange. Similarly, an implicit tax results from the operation of a multiple exchange rate regime by the central bank or other official agency. It is the common equivalent of an import duty and export duty levied in a single exchange rate system or of a tax on the sale or purchase of foreign exchange. As in the case of the profits of export or import monopolies, the revenue represents the exercise of monopoly powers for tax purposes and is included in tax revenue when received by government.

5.89 Under a multiple exchange rate regime, two or more exchange rates are applicable to different categories of transactions; the rates favor some categories and discourage others. The net proceeds as a result of these transactions are calculated as implicit taxes or subsidies (see paragraph 6.89). The amount of the implicit tax or subsidy for each transaction can be calculated as the difference between the value of the transaction in domestic currency at the actual exchange rate applicable and the value of the transaction at a unitary rate that is calculated as a weighted average of all official rates used for external transactions.

5.90 Exchange profits are often included in a lump-sum payment from the monetary authorities to government. Such a lump-sum payment should be disaggregated according to the economic nature of the components, and each component classified according to its nature. These lump-sum payments may include components of dividends, exchange profits, interest, and/or equity withdrawals. This category for exchange profits should not include any payments to government of exchange profits realized other than as a result of maintenance of an exchange rate differential. Also excluded from this category are any payments to government of unrealized revaluation profits, which are in the nature of a book entry resulting from revaluation of foreign exchange or gold holdings for the owner. As discussed in paragraph 5.115, such payments to government based on holding gains are classified as a withdrawal of equity rather than a tax. Any operational profits transferred to government should be classified as *dividends* (1412) (see paragraph 5.111).

5.91 *Exchange taxes* (1155) cover taxes that are levied upon the sale or purchase of foreign exchange, whether at a unified exchange rate or at different exchange rates. Included are taxes on remittances abroad if the taxes are levied on the purchase of foreign exchange that is to be remitted. Remittance taxes that are not levied on the purchase of foreign exchange should be recorded under *other taxes on international trade and transactions* (1156).

5.92 *Other taxes on international trade and transactions* (1156) include other taxes levied on various aspects of international trade and transactions, except those payable by producers. This item includes taxes levied exclusively on international travel, taxes on insurance or investment abroad, and taxes on foreign remittances, excluding taxes levied on the purchase of foreign exchange to be remitted abroad, which are included in *exchange taxes* (1155).

Other taxes (116)

5.93 ***Other taxes*** (116) cover revenue from taxes levied predominantly on a base or bases not elsewhere classified, and unidentified taxes. The item is subdivided into *other taxes payable solely by business* (1161) and *other taxes payable by other than business or unidentifiable* (1162). The item includes taxes on persons that are not based on income or presumed income, sometimes referred to as poll taxes, head taxes, or capitation taxes. Personal taxes based on actual or presumed income should be recorded as *taxes on income, profits, and capital gains* (111). Also included are stamp taxes that do not fall exclusively or predominantly on a single class of transactions or activities covered by *taxes on financial and capital transactions* (11414). Examples would be revenues from the sale of stamps required to be affixed to contracts. Revenues from the sale of

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stamps assignable to a single category, such as liquor and cigarettes, would be shown as taxes on those products, either *excises* (1142) or *taxes on specific services* (1144). Similarly, stamp duties on financial transactions would be shown as *taxes on financial and capital transactions* (11414). Also included in *other taxes* (116) would be an expenditure tax that is levied on purchases but is personalized by the application of personal deductions and exemptions. Revenue from taxes levied on a combination of several tax bases, or on multiple tax bases, where the revenue cannot be readily allocated to each tax base or to one predominant tax base is also reported in this category of taxes.

Social Contributions [GFS] (12)

5.94 ***Social contributions*** *[GFS]* (12) are actual or imputed revenue receivable by social insurance schemes to make provision for social insurance benefits payable. *Social contributions [GFS]* (12) exclude contributions receivable under employment-related pension and other retirement schemes that create a liability for future benefits payable. Social contributions are further classified according to the nature of the payee and the nature of the scheme that received these contributions (see Table 5.6). These receipts are from employers on behalf of their employees, from employees, or from self-employed or unemployed persons on their own behalf to secure entitlement to social benefits, payable in cash and in kind, to the contributors, their dependents, or their survivors.[26] The contributions are usually compulsory, but may also be voluntary. Voluntary contributions are usually made in arrangements where a means test determines whether contributors are exempted from compulsory contributions, but are eligible to participate by choice. If any contributions are voluntary, a memorandum item of their total amount would be useful for computing the fiscal burden and other analytical uses. Social contributions are classified as *social security contributions* (121) or *other social contributions* (122) depending on the type of scheme receiving them.

5.95 The coverage of social contributions in GFS is more restricted than in the *2008 SNA*. In GFS, only amounts that constitute revenue are included in *social contributions [GFS]* (12)—that is, those transactions that create a recognized liability are not part of revenue. In GFS, social contributions exclude contributions to autonomous and nonautonomous pension funds and to unfunded employment-related schemes that provide pension and other retirement benefits. These transactions should be recorded in GFS as incurrence of liabilities for future pension and other retirement benefits payable. The *2008 SNA* records them both as social contributions and incurrence of liabilities, with the double recording being neutralized by recording an adjustment in the use of income account for the change in pension entitlements.[27]

Table 5.6 Detailed Classification of Social Contributions [GFS] (12)

12	Social contributions [GFS][1]
121	Social security contributions [GFS]
1211	Employee contributions [GFS]
1212	Employer contributions [GFS]
1213	Self-employed or unemployed contributions [GFS]
1214	Unallocable contributions [GFS]
122	Other social contributions [GFS]
1221	Employee contributions [GFS]
1222	Employer contributions [GFS]
1223	Imputed contributions [GFS]

[1]Further breakdown/"of which" lines could allow for the identification of the contributions in cash and in kind, and make a distinction between compulsory and voluntary contributions.

The boundary between social contributions and other categories of taxes

5.96 Compulsory transfers can be classified as either a tax or a social contribution. Social contributions include payments made by insured persons, or their employers, to secure entitlement to social benefits. The contributions are levied as a function of earnings, payroll, or the number of employees. When income is used as a proxy for gross wages, as for the self-employed, the receipts are included as social contributions. Compulsory payments levied as a tax

[26] The institutional units involved, classification, and recording of flows and stock positions related to social protection are described in Appendix 2.

[27] The *2008 SNA* allows some flexibility regarding the recording of pension entitlements of unfunded pension schemes sponsored by government for all employees. Given the different institutional arrangements in countries, and using this flexibility, only some of these pension entitlements may be recorded in the main sequence of accounts (core accounts). However, in such instances, a supplementary table is to be presented that discloses the proportion of pension provision covered in the core accounts with some approximate estimates of the liability arising from the remaining schemes (see the *2008 SNA*, paragraph 17.193).

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assessed on a different base and earmarked for funding social protection schemes are classified in the respective tax category and not as social contributions. In particular, receipts based on net income personalized by adjustments for personal deductions and exemptions are classified as *taxes on income, profits, and capital gains* (111), even if earmarked for the payment of social benefits. Compulsory payments levied on enterprises as a function of earnings, payroll, or the number of employees that do not make provision for entitlement to social security benefits are classified as *taxes on payroll or workforce* (112). Similarly, compulsory levies on the use of fuel are classified as *excises* (1142), even though some of it could be earmarked to finance social benefits to victims of motor vehicle accidents. In these cases, if the government unit that levies the tax and the unit providing the social benefits are not the same, a subsequent grant should be recorded to the unit providing the social benefit.

Social security contributions [GFS] (121)

5.97 ***Social security contributions*** *[GFS]* (121) are actual revenue receivable by social security schemes organized and operated by government units, for the benefit of the contributors to the scheme. These contributions are classified by the source of the contribution, which may be the employers or the household sector (separated according to whether they are employees, self-employed, or unemployed). *Employee contributions* (1211) are either payable directly by employees or deducted from employees' wages and salaries and transferred on their behalf by the employer. *Employer contributions* (1212) are payable directly by employers on behalf of their employees. *Self-employed or unemployed contributions* (1213) are paid by contributors who are not employees. *Unallocable contributions* (1214) are those contributions whose source cannot be determined. Amounts payable by general government employers are not eliminated by consolidation when the paying and receiving units are in the same sector or subsector because the contributions are considered to be rerouted as described in paragraph 3.28.

Other social contributions [GFS] (122)

5.98 ***Other social contributions*** *[GFS]* (122) are actual and imputed contributions receivable by social insurance schemes operated by employers on behalf of their employees. Unlike social security schemes, social insurance schemes for employees generally tie the level of benefits directly to the level of contributions. Such schemes usually are operated by general government units for their own employees, but they can be operated by one unit on behalf of the employees of many government units or even public corporations. These contributions can be receivable from employees or from employers.

5.99 *Employee contributions* (1221) include amounts payable directly by employees or deducted from wages and salaries and transferred by employers on behalf of employees. *Employer contributions* (1222) include amounts payable by employers on behalf of their employees. As with employer contributions to social security schemes, these contributions are not eliminated by consolidation when the paying and receiving governments are in the same sector or subsector.

5.100 *Imputed contributions* (1223) are revenue that arises when government employers provide nonpension benefits directly to their employees, former employees, or dependents out of their own resources without involving an insurance enterprise and without creating a special fund or segregated reserve for the purpose.[28] As described in detail in paragraphs A2.64–2.66, in this situation, existing employees may be considered as being protected against various specified needs or circumstances, even though no reserves are built up to provide for future entitlement. *Compensation of employees* (2122) is therefore imputed (see paragraph 6.22) equal to the amount of social contributions that would be needed to secure the de facto entitlements to the social benefits they accumulate. A simultaneous transaction is recorded between the household sector and government, for the household *imputed contributions* (1223) receivable.

Grants (13)

5.101 ***Grants*** (13) are transfers receivable by government units, from other resident or nonresident government units or international organizations, that do not meet the definition of a tax, subsidy, or social contribution. As indicated in paragraph 3.10, a transfer is a transaction in which one institutional unit provides a

[28] Revenue from imputed contributions excludes imputed contributions to employment-related pension and retirement schemes, which are recorded as the incurrence of a liability.

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good, service, or asset to another unit without receiving from the latter any good, service, or asset in return as a direct counterpart. Grants are normally receivable in cash, but may also take the form of the receipt of goods or services (in kind). Grants receivable are classified first by the type of unit providing the grant and then by whether the grant is current or capital.

5.102 Three sources of grants are recognized in GFS: *grants from foreign governments* (131), *grants from international organizations* (132), and *grants from other general government units* (133). For the general government sector, these transactions should be eliminated in consolidation. Therefore, *grants from other general government units* (133) will have a nonzero value only when statistics are compiled for a subsector of the general government sector. To allow for consolidation, it may be useful to identify grants receivable from other general government units also according to the subsector of the counterparty (see Table 5.7).

5.103 ***Current grants*** (1311/1321/1331) are current transfers receivable by government units, from other resident or nonresident government units or international organizations, that do not meet the definition of a tax, subsidy, or a social contribution. Current grants are those transfers (see paragraph 3.17) receivable that are not capital transfers. ***Capital grants*** (1312/1322/1332) are capital transfers receivable by government units, from other resident or nonresident government units or international organizations, that do not meet the definition of a tax, subsidy, or a social contribution (see paragraph 3.16). If doubt exists regarding the character of a grant, it should be classified consistently by both parties (see paragraph 3.18).

Table 5.7 Detailed Classification of Grants (13)

13	Grants
131	From foreign governments
1311	Current
1312	Capital
132	From international organizations
1321	Current
1322	Capital
133	From other general government units[1]
1331	Current
1332	Capital

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

5.104 A grant in kind concerns a good or service provided free of charge or the change of ownership of an existing nonfinancial asset in the accounts of the donor without receiving anything of commensurate value in return. Goods and services that are consumed, such as food contributions, blankets, and medical and rescue services and supplies, are classified as current grants. Aid of a capital nature receivable from resident and nonresident general governments and international organizations is classified as capital grants. Grants in kind should be valued at current market prices. If market prices are not available, then the value should be the explicit costs incurred in providing the resources or the amounts that would be received if the resources were sold. A capital grant in kind necessarily concerns the change of ownership of a product previously recorded as a nonfinancial asset in the accounts of the donor government. In this case, there is no effect in the net lending/net borrowing, because the counterpart entry for the positive effect in the net worth (the transfer of wealth implied by the grant revenue) is a transaction in nonfinancial assets (the acquisition of the asset being transferred by the donor). In some cases, the donor and the recipient may view the value of the nonfinancial asset quite differently. To maintain consistency in the macroeconomic statistical system, the valuation from the viewpoint of the donor should be used for recording transactions. If the market value of the asset in the balance sheet of the recipient of the asset is different, the recipient would then record a subsequent holding gain or loss on this asset (see paragraph 10.5).

5.105 When using the accrual basis for recording, the time at which a grant is recorded is dependent on whether the recipient has a claim on the donor. In many cases, the grant recipient never has a claim on the donor and the grant should be attributed to the time at which the cash payment is made or the goods or services are delivered by the donor. When a claim is involved, grants are recorded when all requirements and conditions for receiving them are satisfied and the receiving unit has an unconditional claim recorded under *other accounts receivable* (3208). In some cases, a potential grant recipient has

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a legal claim when it has satisfied certain conditions, such as the prior incurrence of expenses for a specific purpose or when a certain event has occurred, such as the passage of legislation. Determining this time can be complex because there could be a wide variety of eligibility conditions that have varying legal powers, and so grants are most commonly recorded when received. When using the cash basis of recording, grants are recorded when cash is received. Grants in kind will not be recorded in a cash system.

Other Revenue (14)

5.106 ***Other revenue*** (14) is all revenue receivable excluding taxes, social contributions, and grants. This category of revenue includes property income, sales of goods and services, and miscellaneous other types of revenue.

Property income [GFS] (141)

5.107 ***Property income*** *[GFS]* (141) is the revenue receivable in return for putting financial assets and natural resources at the disposal of another unit.[29] Revenue in this category may take the form of interest, distributed income of corporations, investment income, and rent. Distributed income of corporations includes dividends, withdrawals of income from quasi-corporations, and reinvested earnings on foreign direct investment. Investment income includes property income from investment income disbursements, and holders of investment fund shares.

Interest [GFS] (1411)

5.108 ***Interest*** *[GFS]* (1411) is a form of investment income that is receivable by the owners of certain kinds of financial assets (SDRs, deposits, debt securities, loans, and other accounts receivable) for putting these financial assets and other resources at the disposal of another institutional unit.[30] The financial assets giving rise to interest are all claims of creditors over debtors. Under the accrual basis of recording, the amount of outstanding debt increases as interest accrues continuously over the period that the financial asset exists, and the amount due to the creditor declines as the payments are made on the debt by the debtor. The amount that the debtor owes to the creditor is referred to as the principal amount. Interest revenue also includes imputed interest that originates from interest forgone by employers when they provide loans to employees at reduced or even zero rates of interest as part of the remuneration in kind of government and public sector employees (see paragraph 6.17).

5.109 Interest may be a predetermined sum of money or a fixed or variable percentage of the principal outstanding. If some or all of the interest accruing to the creditor is not paid during the period in question, it should be added to the amount of the principal outstanding. However, the interest may not necessarily be due for payment until a later date and sometimes not until the loan or other financial instrument matures. To the extent that interest has accrued without being paid, the debtor's total liability to the creditor has increased. On an accrual basis, any periodic or other payments reduce the total liability but are not revenue transactions.

5.110 Many considerations must be taken into account when determining the amount of interest revenue to record, or to eliminate, in consolidation. To avoid repetition, interest is described in more detail in paragraphs 6.62–6.83. Interest should also be recorded according to the subsector of the counterparty, to allow for consolidation of the general government and public sectors (see Table 5.8).

Table 5.8 Detailed Classification of Interest [GFS] (1411)

1411	Interest [GFS]
	Interest [SNA]
	Minus: FISIM
14111	From nonresidents
14112	From residents other than general government[1]
14113	From other general government units[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[29] *Property income [GFS]* (141) differs due to the treatment of financial intermediation services indirectly measured (FISIM) in *interest* [GFS] (1411).

[30] *Interest [GFS]* (1411) differs due to the treatment of FISIM (see paragraph 6.81 and Appendix 7).

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Dividends (1412)

5.111 ***Dividends*** (1412) are the distributed earnings allocated to government or public sector units, as the owners of equity, for placing funds at the disposal of corporations.[31] Raising equity through the issue of shares is an alternative way of raising funds compared to borrowing. Equity does not give rise to a liability that is fixed in monetary terms and it does not entitle the holders to a fixed or predetermined income. Instead, the board of directors or other managers of the corporation must declare a dividend payable on their own volition. Dividends exclude issues of bonus shares that simply represent a reclassification between own funds, reserves, and undistributed profits.

5.112 Although dividends represent a part of income that has been generated over a substantial period of time, often 6 or 12 months, dividends are not recorded in GFS at the time the economic value is generated. For public corporations where government or another public corporation is the only shareholder and the shares are not publicly traded, the dividends are recorded at the time they are payable. Quoted shares go "ex-dividend," meaning that the dividend is payable to the owner at that date. In other words, the owner of the equity at the ex-dividend date, and not the owner on the date dividends became payable, has the right to the dividend. A share sold "ex-dividend" is therefore worth less than one sold without this constraint. In this case, the time of recording of dividends is the point at which the share price starts to be quoted on an "ex-dividend" basis rather than at a price that includes the dividend.

5.113 General government units may receive dividends from resident or nonresident private or public corporations (see Table 5.9). In exceptional cases, legally constituted corporations that are classified as a general government unit may also distribute dividends, so that dividends may also be receivable from other general government units (though subject to consolidation). The sector of the counterparty to dividends receivable should be identified separately to allow for consolidation of the general government and public sectors.

5.114 Distributions of profits by public corporations may take place irregularly and may not be explicitly labeled as dividends. Nevertheless, dividends include all distributions of profits by corporations to their shareholders or owners, by whatever name they are called, including profits of central banks transferred to government units, profits transferred or distributed from the operation of monetary authority functions outside the central bank, and profits transferred by state lotteries that compete with other privately organized lotteries. Distributions of *profits of fiscal monopolies* (1143) and *profits of export or import monopolies* (1153), however, are classified as taxes, as described in paragraphs 5.63 and 5.86.

Table 5.9 Detailed Classification of Dividends (1412)

1412	Dividends
14121	From nonresidents
14122	From residents[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

5.115 Dividends are notionally paid out of the current period's operating surplus. However, corporations often smooth the payments of dividends, sometimes paying out rather less than their operating surplus but sometimes paying out a little more, especially when the operating surplus itself is very volatile. For practical reasons, no attempt is made to align dividend payments with earnings except in one circumstance. The exception occurs when dividends are disproportionately large relative to the recent level of dividends and earnings. Such disproportionally large and irregular payments, often referred to as "super-dividends," are often based on accumulated reserves, privatization receipts, other sales of assets, or holding gains. Any dividends declared greatly in excess of the recent level of dividends and earnings should be recorded as a transaction in financial assets, specifically the withdrawal of owners' equity from the corporation (see paragraph 9.49).

5.116 To determine whether "super-dividends" are disproportionately large, it is helpful to introduce the concept of distributable income. **Distributable income** of a corporation is equal to entrepreneurial income, plus all current transfers receivable, minus all current transfers payable, and minus the adjustment for the change in pension entitlements relating to the pension scheme of that corporation (see also *2008 SNA* 7.131). From this it is possible to look at

[31] Government or public sector units, in their capacity as shareholders, may in some cases also acquire equity by transferring nonfinancial assets to a corporation.

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the ratio of dividends to distributable income over the recent past and assess the plausibility that the current level of dividends declared is in line with past practice. In practice, a proxy for distributable income can be measured by the *net operating balance* (NOB), excluding dividends payable and net capital transfers. Determining whether dividends are in line with past practice is recommended for all corporations, including the central bank.

5.117 Interim dividends are dividend payments during a reporting period, before the final operating result of a corporation is known. If evidence exists that such dividends are not from the current period's operating surplus, interim dividend payments should be recorded as a financial advance to the shareholder in transactions in financial assets and liabilities.

Withdrawals of income from quasi-corporations (1413)

5.118 *Withdrawals of income from quasi-corporations* (1413) consist of that part of distributable income[32] that the owner withdraws from the quasi-corporation. By definition, quasi-corporations[33] cannot distribute income in the form of dividends, but the owner may choose to withdraw some or all of the distributable income. Conceptually, the withdrawal of such income is equivalent to the distribution of corporate income through dividends and is recorded the same way. The amount of income that the owner of a quasi-corporation chooses to withdraw will depend largely on the size of its disposable income before taxes. All such withdrawals are recorded on the date the payment actually occurs.

5.119 As with dividends, withdrawals of income from quasi-corporations do not include withdrawals of funds realized from the sale or other disposal of the quasi-corporation's assets. Withdrawals based on such sales should be recorded as disposals of nonfinancial assets in the accounts of the quasi-corporation and the reduction of the equity of quasi-corporations owned by government sector units. Similarly, funds withdrawn by liquidating large amounts of accumulated retained earnings or other reserves of the quasi-corporation are recorded as withdrawals from equity.

[32] See paragraph 5.116 for a discussion on distributable income.
[33] The criteria to identify quasi-corporations are described in paragraph 2.33.

Property income from investment income disbursements (1414)

5.120 ***Property income from investment income disbursements*** (1414) includes property income attributed to insurance policyholders and holders of investment fund shares.[34] Insurance enterprises hold technical reserves in the form of prepayments of premiums, reserves against outstanding claims, and actuarial reserves against outstanding risks with respect to life insurance policies. These reserves are liabilities toward the beneficiaries, including any government or other public sector units that are policyholders. Any income receivable from the investment of the corresponding assets should also be attributed as the property income of the policyholders or beneficiaries. However, for government sector units as the holder of policies, the revenue related to this item is likely to be unknown and would probably be calculated only in the context of the whole of the economy; therefore this revenue item is excluded from GFS and so is an adjustment item between GFS and national accounts (see Appendix 7). This type of property income is described in greater detail in paragraphs 6.113–6.119 in the context of the corresponding expense.

5.121 Investment income attributed to holders of shares or units in investment funds includes two separate items. The first of these is the dividends distributed to investment fund shareholders. The second is retained earnings attributed to investment fund shareholders. The increase in value of investment fund shares or units other than from holding gains and losses is recorded as distributed to the share- or unit holders and reinvested by them in the financial instrument.

Rent (1415)

5.122 ***Rent*** (1415) is the revenue receivable by the owners of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production. Rent receivable is typically related to a resource lease on land, subsoil resources, and other natural resources. In terms of the

[34] Investment income disbursements by definition also include investment income attributed to participants in pension schemes. However, public sector institutional units are not entitled to pension benefits, and therefore this subcategory of investment income disbursement is not applicable as a GFS revenue category.

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agreement, the owner can extend or withhold permission for continued use of the asset from one year to the next. It constitutes an agreement whereby the legal owner of a natural resource that is considered to have an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent.[35]

5.123 On the accrual basis of recording, rent accrues continuously to the asset's owner throughout the period of the contract. The rent recorded for a particular reporting period is, therefore, equal to the value of the accumulated rent that becomes payable over the reporting period and may differ from the amount of rent that becomes due for payment or is actually paid during the period.

5.124 Rent excludes payments receivable by the owners of natural resources if such payments permit the resource to be used to extinction—such activity is regarded as a sale (see paragraphs 8.54 and A4.19) and possibly depletion (see paragraph 10.52) of the nonproduced asset. Also excluded from rent are amounts receivable by owners of natural resources when they allow the resource to be used for an extended period of time in such a way that, in effect, the user controls the use of the resource during this time with little, if any, intervention from the legal owner. This option leads to recording a transaction in an asset, classified as *contracts, leases, and licenses* (31441), for the user, distinct from the resource itself (see paragraphs 8.56 and A4.19).

5.125 Two types of resource rent are described ahead in detail: rent on land and rent on subsoil resources. Resource rent on other natural resources follows the pattern laid out by these two types. The boundary between resource rent and the rental of produced assets is discussed in paragraphs 5.126 and 5.129.

Rent on land

5.126 Rent on land is recorded as accruing continuously to the landowner throughout the period of the contract. Rent may be paid in cash or in kind. Under sharecropping or similar schemes, the value of the rent payable is not fixed in advance in monetary terms and is measured by the value at basic prices[36] of the crops that the tenants are obliged to provide to the landowner government unit under the contract between them.

5.127 Rent on land also includes the rent payable to general government sector units for the use of inland waters and rivers (for the right to exploit such waters for recreational or other purposes, including fishing) or noncultivated land (for the right to cut timber on such land). In the case of permits that allow timber felling in a natural forest, it is common for these fellings to be allowed under strict limits with a fee payable per unit volume of timber felled (stumpage). The limits are usually such that the harvest of timber is sustainable and so these payments should also be recorded as *rent* (1415). However, if a unit is given permission to fell an area of natural forest, or to fell at its discretion without any restriction in perpetuity, the payments made to the owner constitute the sale of an asset. For those forests that are produced assets, the extraction of timber is treated as the sale of a product.

5.128 A landowner may be liable to pay land taxes or incur certain maintenance expenses solely as a consequence of owning the land. By convention, such taxes or expenses are recorded as payable by the tenant who is deemed to deduct them from the rent that he would otherwise be obliged to pay to the landowner. Rent reduced in this way by taxes or other expenses for which the landowner is liable is described as "after-tax rent." The adoption of this convention reflects the true economic nature of the transactions involved in the accounts of both parties.

Rent on subsoil assets

5.129 The ownership of subsoil assets in the form of deposits of minerals or fossil fuels (coal, oil, or natural gas) depends upon the way in which property rights are defined by law and also on international agreements in the case of deposits below international waters. In some cases the assets may belong to the owner of the ground below which the deposits are located, but in other cases they may belong to a local or central government unit.

[35] A more detailed discussion on the boundary between alternative uses of natural resources is presented in the context of the discussion on leases, licenses, permits, and other contracts to use a natural resource in Appendix 4.

[36] Basic prices are prices before taxes on products are added and subsidies on products are subtracted.

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5.130 General government units may grant leases to other institutional units that permit them to extract these deposits over a specified period of time in return for a payment or series of payments. These payments are often described as "royalties," but they are essentially rent that accrues to owners of natural resources in return for putting these assets at the disposal of other units for specified periods of time. The rent may take the form of periodic payments of fixed amounts, irrespective of the rate of extraction, or, more commonly, they may be a function of the quantity, volume, or value of the asset extracted. Enterprises engaged in exploration on government land may make payments to general government units in exchange for the right to undertake test drilling or otherwise investigate the existence and location of subsoil assets. Such payments are also recorded as rents even though no extraction may take place.

Boundary with rental of produced assets

5.131 Rent should not be confused with the rental of produced assets, which is recorded as *sales of goods and services* (142).[37] Rentals are payments made under an operating lease to use a fixed asset belonging to a unit where the owner maintains and replaces as necessary, and makes available the fixed asset on demand to lessees. The difference in treatment arises because lessors of produced assets are engaged in a production process whereby they provide services to the lessees, such as maintaining inventories of fixed assets available for lease at short notice and repairing and maintaining the leased assets. In particular, the rentals payable by government units as tenants are recorded as payments for the provision of building or housing services. Rent is revenue receivable by owners of natural resources for placing these assets at the disposal of other units.

5.132 A single payment may cover both rent and rentals when an institutional unit rents land that consists of land improvements and land and buildings situated on the land in a single contract, or lease, in which the two kinds of payments are not differentiated from each other. If there is no objective basis on which to split the payment between rent on land and rental on the produced assets, it is recommended to treat the whole amount as rent when the value of the land is believed to exceed the value of the buildings and other produced assets, and as a rental otherwise.

Boundary with taxes

5.133 Rent should also not be confused with severance taxes, business licenses, or other taxes. Severance taxes are imposed on the extraction of minerals and fossil fuels from reserves owned privately or by another government. If the payment counts toward the taxes on profits, then it should be classified as *taxes on income, profits, and capital gains* (111). Payments related to the gross value of production should be classified as *other taxes on goods and services* (1146). Payments for a license or permit to conduct extraction operations should be classified as *taxes on use of goods and on permission to use goods or perform activities* (1145).

Reinvested earnings on foreign direct investment (1416)

5.134 Reinvested earnings are the direct investor's share of the retained earnings of the direct investment[38] enterprise. A general government unit or public corporation may have foreign direct investment in nonresident special purpose entities (SPEs), or nonresident branches or subsidiaries of public corporations. Actual distributions receivable from such nonresident units out of their distributable income should be recorded as *dividends* (1412) or *withdrawals of income from quasi-corporations* (1413). In addition, these entities may have retained some of their earnings. Retained earnings of a corporation or quasi-corporation are equal to the distributable income[39] minus the dividends payable or withdrawal of income from the corporation or quasi-corporation, respectively.

5.135 Retained earnings of a foreign direct investment enterprise are to be recorded as if they were distributed to foreign direct investors in proportion to their ownership of the equity of the enterprise and then reinvested by them.[40] The imputed remittance

[37] The rentals paid by tenants of buildings are treated as payments for the provision of real estate activities or housing services.

[38] Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy (see the *BPM6*, paragraphs 6.8 and 11.40–11.47).

[39] Distributable income is discussed in paragraph 5.116.

[40] See paragraph 10.33 for the treatment of retained earnings of other corporations.

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of these retained earnings should be recorded as reinvested earnings on foreign direct investment, while the counterpart entry for the imputed reinvestment should be recorded as the acquisitions of *equity and investment fund shares* (3205). The rationale behind this treatment is that, because a direct investment enterprise is, by definition, subject to control or influence by the direct investor or investors, the decision to retain some of its earnings within the enterprise represents an investment decision on the part of the investor(s) (see paragraph 6.120).[41]

Sales of goods and services (142)

5.136 ***Sales of goods and services*** (142) consist of the sales by market establishments, administrative fees charged for services, incidental sales by nonmarket establishments, and imputed sales of goods and services. Sales of goods and services are recorded as revenue without deduction of the expenses incurred in generating that revenue. Sales of goods and services are further classified according to whether they relate to market or nonmarket production (see Table 5.10). It is quite possible for general government sector units to sell their output at prices that are less than the cost of production (which is calculated as the sum of compensation of employees, use of goods and services, consumption of fixed capital, and taxes (minus subsidies) on production). Indeed, as nonmarket producers, most general government units distribute their output without charge, or for prices that are not economically significant. These prices defray some of the costs or may eliminate some of the excess demand that otherwise would exist. In contrast, corporations sell their output at prices that are economically significant.

5.137 ***Sales by market establishments*** (1421) are the sales of an establishment that is a part of an enterprise (see paragraph 2.75) situated in a single location and at which only a single productive activity is carried out or the principal productive activity accounts for most of the value added. A market establishment within a government unit is an establishment that sells or otherwise disposes of all or most of its output at prices that are economically significant. This category consists of the sales of all market establishments that are part of the units for which statistics are being compiled. Because public corporations comprise primarily market establishments, their sales are included in this category when compiling statistics for the public sector, unless the sales are of a specific type that are to be recorded elsewhere, such as under insurance premiums and administrative fees. Rentals of produced assets are recorded as sales of services and are included in this category. Sales of nonfinancial assets other than inventories are disposals of nonfinancial assets (as described in Chapter 8) and are not sales of goods and services.

Table 5.10 Detailed Classification of Sales of Goods and Services (142)

142	Sales of goods and services[1]
1421	Sales by market establishments
1422	Administrative fees
1423	Incidental sales by nonmarket establishments
1424	Imputed sales of goods and services

[1]Detailed data about the sectors of the counterparty may not be available. Where such data are available, further breakdown/"of which" lines could identify the subsectors to allow consolidation. For analytical purposes, it may also be useful to separately identify the nature of the respective goods or services that were sold.

5.138 ***Administrative fees*** (1422) include fees for compulsory licenses and other administrative fees that are sales of services. Examples are drivers' licenses, passports, visas, court fees, and radio and television licenses when public authorities provide general broadcasting services. Also included are fees payable for voluntary participation in deposit insurance or other guarantee schemes that do not qualify to be a standardized guarantee scheme. These fees are considered a sale of a service when, for instance, issuing the license or permit implies a proper regulatory function of the government. In this case, the payment is taken to be proportional to the cost of producing the service. For a detailed description on the boundary between taxes and the purchases of services, see paragraph 5.74. If a payment is clearly out of all proportion to such cost, then the fee is classified as *taxes on use of goods and on permission to use goods or perform activities* (1145).

5.139 ***Incidental sales by nonmarket establishments*** (1423) cover sales of goods and services by nonmarket establishments of general government units other than administrative fees. Included are sales incidental

[41] The *2008 SNA* research agenda includes a proposal to extend the treatment of distributing retained earnings to the owners of other corporations, in particular of public corporations.

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to the usual social or community activities of government departments and agencies, such as sales of products made at vocational schools, seeds from experimental farms, postcards and art reproductions by museums, fees at government hospitals and clinics, tuition fees at government schools, and admission fees to government museums, parks, and cultural and recreational facilities that are not public corporations.

5.140 ***Imputed sales of goods and services*** (1424) are recorded when a unit produces goods and services for the purpose of using them as compensation of employees in kind. The unit is acting in two capacities: as an employer and as a general producer of goods and services. In order to indicate the total amount paid as compensation of employees, it is necessary to treat the amount paid in kind as if it had been paid in cash as wages and salaries and then the employees had used this income to purchase the goods and services. This category includes the total value of these imputed sales. Wages and salaries in kind are explained in greater detail in paragraphs 6.17–6.18. For a defined-contribution pension scheme, this category also includes an imputed sale for the services rendered if the employer operates the scheme itself. In that case, the value of the costs of operating the scheme is recorded as an imputed contribution payable to the employee as part of compensation of employees. The counterpart of this amount should be recorded as an imputed sale of a financial service to the household sector (see paragraph 6.25).

5.141 On the accrual basis of recording, sales of goods are recorded when legal ownership changes. If that time cannot be determined precisely, recording may take place when there is a change in physical ownership or control. Transactions in services normally are recorded when the services are provided. Some services are supplied or take place on a continuous basis. For example, rentals are continuous flows and, in concept, are recorded continuously as long as they are being provided.

Fines, penalties, and forfeits (143)

5.142 **Fines and penalties** are compulsory current transfers imposed on units by courts of law or quasi-judicial bodies for violations of laws or administrative rules. Out-of-court agreements are also included. **Forfeits** are amounts that were deposited with a general government unit pending a legal or administrative proceeding and that have been transferred to the general government unit as part of the resolution of that proceeding.

5.143 In principle, fines and penalties charged on overdue taxes or penalties imposed for the evasion of taxes should be recorded in this category and not as taxes. However, it may not be possible to separate payments of fines or other penalties from the taxes to which they relate. In this case, the fines and penalties relating to a particular tax are recorded together with that tax, and fines and penalties related to unidentifiable taxes are classified as *other taxes* (116).

5.144 Most fines, penalties, and forfeits are determined at a specific time. These transfers are recorded on an accrual basis when the general government unit has an unconditional claim to the funds, which may be when a court renders judgment or an administrative ruling is published, or it may be when a late payment or other infringement automatically causes a fine or penalty. Fines also include bail set by courts, when bail conditions have been violated. When bail is set, repayable amounts received should be recorded as *other accounts payable* (3308), and should be recorded as revenue only once the conditions for the bail were violated. In cases where no actual payment is made when bail is set, government acquires a conditional claim. Such a conditional claim is not recorded in GFS until the conditions are fulfilled.

Transfers not elsewhere classified (144)

5.145 ***Transfers not elsewhere classified*** (144) receivable include subsidies, as well as gifts and transfers from individuals, private nonprofit institutions, nongovernmental foundations, corporations, or sources other than governments and international organizations. These transfers could be classified according to the sector of the counterparty and whether they are current or capital transfers (see Table 5.11). If doubt exists regarding the character of a transfer, it should be classified consistently by both parties (see paragraph 3.18).

5.146 ***Subsidies*** (14411) are current unrequited transfers that government units make to enterprises on the basis of the level of their production activities or the quantities or values of the goods or services they produce, sell, export, or import. As revenue, these are amounts receivable, mainly by public corporations. In rare cases, general government units and

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Table 5.11 Detailed Classification of Transfers Not Elsewhere Classified (144)	
144	Transfers not elsewhere classified
1441	Current transfers not elsewhere classified
14411	Subsidies[1,2,3]
14412	Other current transfers not elsewhere classified[1,3]
1442	Capital transfers not elsewhere classified[1,3]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[2]Further breakdown/"of which" lines could also identify whether these subsidies are subsidies on products or production.

[3]Further breakdown/"of which" lines could also identify whether these transfers are related to specific natural resource or environmental revenue.

nonprofit institutions serving households can receive subsidies when the transfer receivable depends on the general regulations of the subsidy scheme, applicable to all producers—that is, market and nonmarket producers. Subsidies are explained in greater detail in paragraphs 6.84–6.91.

5.147 ***Other current transfers not elsewhere classified*** (14412) are gifts and transfers of a current nature (other than grants or subsidies) from individuals, private nonprofit institutions, nongovernmental foundations, or corporations. These transfers could be in cash or in kind—for example, contributions to government of food, blankets, and medical supplies for relief purposes.

5.148 ***Capital transfers not elsewhere classified*** (1442) are gifts and transfers of a capital nature (other than grants) from individuals, private nonprofit institutions, nongovernmental foundations, or corporations. Examples of transfers included in this category are:

- Major nonrecurrent payments receivable in compensation for extensive damages or serious injuries not covered by insurance policies. The payments may be awarded by courts of law or settled out of court. They include payments of compensation for damages caused by major explosions, oil spillages, etc.
- International aid of a capital nature receivable after natural disasters from nonresidents other than international organizations and foreign governments[42]
- Payments receivable for damage to property other than payments from an insurance settlement (insurance settlements are included in *claims receivable* (14513 or 1452))
- Transfers receivable by public corporations from government units, to cover large operating deficits accumulated over two or more years[43]
- Legacies or large gifts receivable by government or public sector units, including gifts of land, buildings, or research and development assets such as patents and copyrights
- Exceptionally large donations receivable from households or enterprises to public sector units to finance gross fixed capital formation: for example, transfers for the construction or purchase of hospitals, schools, museums, theaters, and cultural centers, or gifts to universities to cover the costs of building new residential colleges, libraries, laboratories, etc.
- Capital transfers from corporations, quasi-corporations, nonprofit institutions serving households, households, and nonresidents other than governments and international organizations (see paragraph 5.103) for the cancelation or assumption of a debt by mutual agreement with the government without the government incurring an effective liability toward them[44]
- Amounts receivable in excess of the expected value of liabilities assumed for the provision of pension entitlements[45]
- Community-built assets where responsibility for maintenance is then assumed by a public sector unit.

Premiums, fees, and claims receivable related to nonlife insurance and standardized guarantee schemes (145)

5.149 ***Premiums, fees, and claims receivable related to nonlife insurance and standardized guarantee schemes*** (145) comprise nonlife insurance premiums

[42] International aid receivable from resident and nonresident general government units and international organizations is classified as grants (see paragraph 5.101).

[43] Where a realistic expectation exists that such amounts will be repayable, as indicated by certain criteria (see Box 6.3), the transaction should be classified as the acquisition of a financial asset. A regular transfer covering an operating deficit is recorded as a subsidy.

[44] Details on debt cancellation, debt assumption, and other government debt operations can be found in Appendix 3, and in the *PSDS Guide*, Chapter 4.

[45] Amounts receivable up to the expected value of the liabilities should be recorded as transactions in financial assets and liabilities (i.e., the incurrence of a liability) (see paragraph 9.67).

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receivable[46] by insurance schemes to provide entitlement to insurance against risks; claims receivable from insurance schemes by beneficiaries; and fees receivable for the issuance of standardized guarantees. While premiums and fees are always of a current nature, claims receivable could be of a capital or current nature. The types of insurance and standardized guarantee schemes, terminology used in insurance, and the statistical recording of flows and stock positions related to these are described in Appendix 4. To allow for consolidation of the general government and public sectors, this revenue should be classified according to the sector of the counterparty (see Table 5.12).[47]

5.150 ***Premiums, fees, and current claims receivable*** (1451) comprise nonlife insurance premium revenue and fees receivable for the issuance of standardized guarantees, as well as insurance settlement revenue that is not exceptional. On an accrual basis, premiums and fees receivable should include only those that provide insurance coverage in the reporting period. Receipts of prepayment of premiums and fees should not be recognized as revenue, but should be recorded as the incurrence of a liability in the form of insurance technical reserves (see paragraphs 7.183 and A4.79).

5.151 ***Capital claims receivable*** (1452) comprise exceptionally large insurance settlements receivable in the wake of a catastrophic event or disaster. It may be difficult for the parties to identify these exceptionally large settlements consistently, so as a simplifying convention, all nonlife insurance claims are classified as current transfers, unless it is necessary to record a capital transfer to be consistent with the national accounts.

Table 5.12 Detailed Classification of Premiums, Fees, and Claims Receivable Related to Nonlife Insurance and Standardized Guarantee Schemes (145)

145	Premiums, fees, and claims receivable related to nonlife insurance and standardized guarantee schemes
1451	Premiums, fees, and current claims receivable
14511	Premiums receivable[1]
14512	Fees receivable for standardized guarantee schemes[1]
14513	Current claims receivable[1]
1452	Capital claims receivable[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[46] In the *2008 SNA*, nonlife insurance premiums receivable are partitioned into a sale of a service and a transfer. In GFS, the entire premium is considered a transfer.

[47] See Appendix 4 for an illustration of the recording of transactions and stock positions related to insurance, including standardized guarantees.

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6 Expense

This chapter defines the concept of expense and describes the manner in which expense is classified.

Defining Expense

6.1 ***Expense*** (1) is a decrease in net worth resulting from a transaction. Expense transactions as defined in GFS have counterpart entries either in a decrease in assets or an increase in liabilities—thereby decreasing net worth. The general government sector has two broad economic responsibilities: (i) to assume responsibility for the provision of selected goods and services to the community, primarily on a nonmarket basis; and (ii) to redistribute income and wealth by means of transfers (see paragraph 2.38). These responsibilities are largely fulfilled through expense transactions, which are classified in two ways in GFS: an economic classification and a functional classification.

6.2 The **economic classification of expense** identifies the types of expense incurred according to the economic process involved. When supplying goods and services to the community, a government unit may produce the goods and services itself and distribute them, purchase them from a third party and distribute them, or transfer cash to households so they can purchase the goods and services directly. For example, compensation of employees, use of goods and services, and consumption of fixed capital all relate to the costs of producing nonmarket (and, in certain instances, market) goods and services by government. Subsidies, grants, social benefits, and transfers other than grants relate to transfers in cash or in kind, and are aimed at redistributing income and wealth.

6.3 The **functional classification of expense** provides information on the purpose for which an expense was incurred. Examples of functions are education, health, and environmental protection. The functional classification is described in the annex to this chapter.[1] In addition, the economic and functional classifications can be cross-classified to show the types of transactions engaged in to carry out a given function (see the annex to Chapter 6, paragraphs 6.126–6.148).

6.4 Refunds, recoveries of overpayments, receivables on erroneous payments, and similar transactions are transactions that increase net worth. More accurately, they are adjustments that correct the excessive decrease in net worth previously recorded. These transactions are treated as a reduction in expense, with a corresponding reduction in liabilities or an increase in financial assets.

6.5 Some transactions are exchanges in assets and/or liabilities and should not be recorded as expense. The acquisition of a nonfinancial asset by purchase or barter does not affect net worth, and such transactions are not an expense. They are transactions in nonfinancial assets, as described in paragraph 8.3. However, when ownership of an asset is given up without receiving anything of commensurate value in return, the net worth of the unit has decreased. This reduction in assets has a counterpart entry in an increase in expense and should be recorded as a type of capital transfer payable, such as a capital grant. Amounts payable on loans extended and repayments on loans incurred are also not an expense. These are transactions in financial assets or liabilities as described in paragraph 9.3.

Time of Recording Expense

6.6 In the *Statement of Operations*, expense should be recorded according to the accrual basis of recording. According to the accrual basis of recording, transactions are recorded when activities, transactions, or other events occur that create the unconditional

[1] In GFS, the functional classification is applied to expenditure—that is, the sum of expense transactions and net investment in nonfinancial assets.

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obligation to make payments or otherwise give up resources (see paragraph 3.62). In the absence of a complete inventory accounting system (see paragraph 8.46), complications arise with the recording of the acquisition and subsequent use of goods. Conceptually, the purchase of goods that are not immediately used in some manner is an addition to inventories rather than an expense. When the goods are consumed in production or otherwise utilized, a decrease in inventories should be recorded, as well as an expense or an increase in some other category of asset, depending on the manner in which these goods are used.[2] However, in practice, as described in paragraphs 8.45–8.47, the change in inventories is often not recorded for each transaction, but rather calculated as a residual from information on stock positions and flows in inventories. Other applications of the accrual basis to specific categories of expense transactions are indicated in each section of the economic classification, as relevant.

6.7 In the *Statement of Sources and Uses of Cash*, expense transactions should be recorded according to the cash basis of recording, as close to the payment stage as possible (see paragraph 3.103).

The Economic Classification of Expense

6.8 Table 6.1 shows the summary economic classification of expense, and the remainder of this chapter describes each category in detail.[3] While the summary GFS expense classification structure provides guidance on the minimum requirements for internationally comparable classifications of expense, analytical needs may necessitate further detailed classifications to be added as subitems in national data presentations. These additional subitems may be presented either as a comprehensive breakdown of the standard item, or presented as "of which" lines. These items usually relate to the need for consolidation of the general government or public sector, input into other macroeconomic datasets, or items that will allow the calculation of supplementary aggregates or balances (see paragraph 5.22).

[2] Where these goods are used in own-account capital formation to create another asset, such as a fixed asset or another category of inventories, they would be recorded as part of the cost of the acquisition of such assets. However, where the goods are consumed during the process of providing a service, an expense is recorded.
[3] See also Appendix 8, Table A8.2, for the detailed classifications.

Compensation of Employees [GFS][4] (21)[5]

6.9 Compensation of employees is the total remuneration, in cash or in kind, payable to an individual in an employer-employee relationship in return for work performed by the latter during the reporting period. These amounts are payable as an exchange for manual and intellectual labor services of individuals used in the production process of the institutional unit. *Compensation of employees [GFS]* (21)[6] excludes amounts connected with own-account capital formation (see Table 6.2). In GFS, compensation of employees payable to employees engaged in own-account capital formation, which is the production of nonfinancial assets for own use, is directly recorded as a component of the cost of the acquisition of nonfinancial assets. *Compensation of employees [GFS]* (21) also excludes amounts payable when an employer-employee relationship does not exist, such as for contractors and self-employed outworkers. Such amounts payable are classified as *use of goods and services* (22). For a description of this boundary between compensation of employees and use of goods and services, see paragraph 6.33.

6.10 When using the accrual basis of recording, compensation of employees is measured by the value of the remuneration in cash and/or in kind that an employee becomes entitled to receive from an employer for work performed during the relevant period, whether paid in advance, simultaneously, or in arrears of the work itself. To the extent that payment has not been made for work performed, the unit should record an entry in *other accounts payable* (3308) (see paragraphs 7.224–7.227 and 9.83).[7] On the other hand, to the extent that payment has been made in advance of the work itself, an entry in *other accounts receivable* (3208) must be recorded until such time as the work is completed. When using the cash basis of recording, compensation of employees is recorded at the time the cash

[4] [GFS] indicates that an item has the same name but different coverage in the *2008 SNA*.
[5] The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in the GFS framework.
[6] Compensation of employees is described in the *2008 SNA*, paragraphs 7.28–7.70.
[7] To the extent that *compensation of employees* is not paid on the agreed due for payment date, these *other accounts payable* will be in arrears from the date they became due (see paragraphs 9.20 and 7.226).

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Table 6.1 Summary Economic Classification of Expense

2	**Expense**
21	**Compensation of employees [GFS]** [1]
211	Wages and salaries [GFS]
2111	Wages and salaries in cash [GFS]
2112	Wages and salaries in kind [GFS]
212	Employers' social contributions [GFS]
2121	Actual employers' social contributions [GFS]
2122	Imputed employers' social contributions [GFS]
22	**Use of goods and services**
23	**Consumption of fixed capital [GFS]**[1]
24	**Interest [GFS]**[1]
241	To nonresidents [GFS]
242	To residents other than general government [GFS]
243	To other general government units [GFS]
25	**Subsidies**[1]
251	To public corporations
252	To private enterprises
253	To other sectors
26	**Grants**[1]
261	To foreign governments
2611	Current
2612	Capital
262	To international organizations
2621	Current
2622	Capital
263	To other general government units
2631	Current
2632	Capital
27	**Social benefits [GFS]**[1]
271	Social security benefits [GFS]
2711	Social security benefits in cash [GFS]
2712	Social security benefits in kind [GFS]
272	Social assistance benefits
2721	Social assistance benefits in cash [GFS]
2722	Social assistance benefits in kind [GFS]
273	Employment-related social benefits [GFS]
2731	Employment-related social benefits in cash [GFS]
2732	Employment-related social benefits in kind [GFS]
28	**Other expense**
281	Property expense other than interest
2811	Dividends[1]
2812	Withdrawals of income from quasi-corporations
2813	Property expense for investment income disbursements
2814	Rent
2815	Reinvested earnings on foreign direct investment
282	Transfers not elsewhere classified
2821	Current transfers not elsewhere classified
2822	Capital transfers not elsewhere classified
283	Premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes[1]
2831	Premiums, fees, and current claims
2832	Capital claims

[1]Indicates that further breakdown may be analytically useful and is presented in detailed tables.

flow occurs, irrespective of when the labor exchange takes place. Wages and salaries in kind are not recorded in the cash basis of recording since no cash flows are involved.

6.11 Compensation of employees comprises *wages and salaries* (211) and *employers' social contributions* (212) payable by employers on behalf of employees to social insurance schemes.

Wages and salaries [GFS] (211)

6.12 Wages and salaries are compensation of employees payable in cash and/or in kind, except for social contributions payable by employers. As indicated in Table 6.2, *wages and salaries* [GFS] (211) exclude amounts connected with own-account capital formation. They include amounts withheld from wages and salaries by the employer for administrative convenience or other reasons, such as social contributions, income taxes, and other deductibles, payable by the employee. These deductibles are often paid directly to social insurance schemes, tax authorities, etc., on behalf of the employee. Wages and salaries may be payable in various ways, including goods or services provided to employees as remuneration in kind instead of, or in addition to, remuneration in cash. Including remuneration in kind allows GFS to measure the full cost of labor employed.

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Table 6.2 Detailed Classification of Compensation of Employees [GFS] (21)	
21	Compensation of employees [GFS][1]
	Compensation of employees [SNA]
	Minus: Related to own-account capital formation
211	Wages and salaries [GFS]
	Wages and salaries [SNA]
	Minus: Related to own-account capital formation
2111	Wages and salaries in cash [GFS]
	Wages and salaries in cash [SNA]
	Minus: Related to own-account capital formation
2112	Wages and salaries in kind [GFS]
	Wages and salaries in kind [SNA]
	Minus: Related to own-account capital formation
212	Employers' social contributions [GFS]
	Employers' social contributions [SNA]
	Minus: Related to own-account capital formation
2121	Actual employers' social contributions [GFS]
	Actual employers' social contributions [SNA]
	Minus: Related to own-account capital formation
2122	Imputed employers' social contributions [GFS]
	Imputed employers' social contributions [SNA]
	Minus: Related to own-account capital formation

[1]Further breakdown/"of which" lines could allow for the identification of the types of compensation of employees payable.

Wages and salaries in cash [GFS] (2111)

6.13 Wages and salaries in cash[8] are the amounts payable in cash, or any other financial instruments used as means of payments, to employees in return for work performed. As indicated in Table 6.2, *wages and salaries in cash [GFS]* (2111) exclude amounts connected with own-account capital formation. Included are the following kinds of remuneration:

- Basic wages or salaries payable at regular weekly, monthly, or other intervals, including payments by results and piecework payments; enhanced payments or special allowances for working overtime, at nights, on weekends, or other irregular hours; allowances for working away from home or in disagreeable or hazardous circumstances; expatriation allowances for working abroad, etc.
- Supplementary allowances payable regularly, such as housing allowances or allowances to cover the costs of travel to and from work, but excluding social benefits payable by the employers (see paragraph 6.16)
- Wages or salaries payable to employees away from work for short periods—for example, on vacation or as a result of a temporary halt to production, except during absences due to sickness, injury, etc. (see paragraph 6.16)
- Annual supplementary pay, such as bonuses and "13th month" pay
- Ad hoc bonuses or other exceptional payments linked to the overall performance of the enterprise made under incentive schemes
- Commissions, gratuities, and tips received by employees: these should be included in payments for services rendered by the unit employing the worker, even when they are payable directly to the employee by a third party. They are thus regarded as being paid by the employer to the employee.[9]

6.14 In some instances, an employee benefit, such as a car or extra pension contributions, may not be provided to the employee for free (i.e., not provided without an opportunity cost to the employee). The benefit may be "purchased" from the employer by forgoing some salary. The attraction of such schemes often lies in the tax advantages that an employee may enjoy by restructuring salary packages. In these cases, the full salary should include the employee benefits "purchased" and be recorded as payable in cash—the cost of acquiring the benefit is regarded as an expenditure of the employee.

6.15 Wages and salaries in cash do not include the reimbursement by the government of costs incurred

[8]The use of the term "cash" should not be viewed as denoting the cash basis of recording, but rather denotes monetary remuneration.

[9]Amounts directly paid to the employee should be rerouted to be included in revenue of the employer related to the service provided, and then expensed as wages and salaries.

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by its employees in order to enable them to take up their jobs or to carry out their work—for example:

- The reimbursement of travel, relocation, or related expenses made by employees when they take up new jobs or are required by their employers to move their homes to different parts of the country or to another country
- The reimbursement of costs incurred by employees on tools, equipment, special clothing, or other items that are needed exclusively, or primarily, to enable them to carry out their work. In these cases, the amounts reimbursed are recorded as *use of goods and services* (22). To the extent that employees who are required by their contract of employment to purchase tools, equipment, special clothing, etc. are not fully reimbursed, the remaining expense they incur should be deducted from the amounts receivable in wages and salaries and the government's use of goods and services increased accordingly.

6.16 Wages and salaries also exclude social benefits payable by governments to their employees in the form of:

- Children's, spouse's , family, education, or other allowances in respect of dependents
- Payments made at full, or reduced, wage or salary rates to workers absent from work because of illness, accidental injury, maternity leave, etc.[10]
- Severance payments to workers or their survivors who lose their jobs because of redundancy, incapacity, accidental death, etc.

These social benefits are recorded as an *imputed employers' social contributions* (2122) payable to households, and subsequent *imputed social contributions* (1223) payable by these households to the employer, before including it in *employment-related social benefits* (273) (see paragraph 6.104).

Wages and salaries in kind [GFS] (2112)

6.17 Wages and salaries in kind are amounts payable in the form of goods, services, interest forgone, and shares issued to employees in return for work performed. As indicated in Table 6.2, *wages and salaries in kind [GFS]* (2111) exclude amounts connected with own-account capital formation. This category consists of goods and services provided without charge, or at reduced prices. When provided at reduced prices, the value of the wages and salaries in kind is given by the difference between the full value of the goods and services and the amount payable by the employees. These goods and services provided in kind by the government to its employees are not necessary to enable them to perform their work. They could be used by employees in their own time, and at their own discretion, for the satisfaction of their own needs or wants, or those of other members of their households. Almost any kind of good or service may be provided as wages and salaries in kind. The following are the most common types of goods and services provided without charge, or at reduced prices:

- Meals and drinks provided on a regular basis, including any subsidy element of an office canteen (for practical reasons, it is not necessary to make estimates for meals and drinks consumed as part of official entertainment or during business travel)
- Clothing or footwear that employees may choose to wear frequently outside of the workplace and while at work
- Housing services or accommodation of a type that can be used by all members of the household to which the employee belongs
- The services of vehicles or other durables provided for the personal use of employees
- Goods and services produced by the employer, such as free travel on government airplanes or trains
- Sports, recreation, or holiday facilities for employees and their families
- Transportation to and from work, free or subsidized parking, when it would otherwise have to be paid for
- Child care for the children of employees
- The value of the interest forgone[11] by employers when they provide loans to employees at reduced

[10] If it is difficult to separate payments of wages and salaries to employees on short periods of absence due to sickness, accidents, etc., from other payments of wages and salaries, the payments during short periods of absence should remain included in wages and salaries.

[11] This value may be estimated as the amount the employee would have to pay if the market equivalent interest rates were charged minus the amount of interest actually payable. The sums involved could be large when nominal interest rates are very high, but otherwise they may be too small and too uncertain to be worth estimating.

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or even zero rates of interest for purposes of buying houses, vehicles, furniture, or other goods or services (these amounts are also recorded as interest receivable as explained in paragraph 5.108)

- In the case of public corporations, wages and salaries in kind can also include bonus shares or stock options[12] distributed to employees.

6.18 Some of these services, such as transportation to and from work, parking, and child care may have some of the characteristics of use of goods and services by the employee. However, when governments are obliged to provide these benefits to attract and retain labor, they are similar to other forms of compensation of employees and should be recorded as such. If the same types of benefits are provided because of the nature of the production process or the physical conditions under which employees have to work, they should be recorded as *use of goods and services* (22) expense of the employer.

Employers' social contributions [GFS] (212)

6.19 Employers' social contributions are social contributions payable by employers to social security funds, employment-related pension funds, or other employment-related social insurance schemes to obtain entitlement to social benefits for their employees. Employers' social contributions are payable by employers for the benefit of their employees, and are therefore recorded as a component of compensation of employees. *Employers' social contributions [GFS]* (212) exclude amounts connected with own-account capital formation (see Table 6.2). Social protection is described in Appendix 2.

6.20 Some social contributions are payable directly by the government unit that is the employer to a second public sector unit, often a social security fund or a public financial corporation. It is administratively more efficient for the employer to pay the contributions on behalf of their employees, rather than each employee making individual payments. The administrative arrangement should not obscure the underlying economic reality—namely, that the government unit incurs an expense for compensation of employees payable to households, while the employee contributes to the social insurance scheme.[13] These transactions are not eliminated in consolidation because they are rerouted to better show the economic nature of the transaction, as described in paragraph 3.28, first to the employees and then from the employees to the social insurance schemes.

Actual employers' social contributions [GFS] (2121)

6.21 Actual employers' social contributions consist of actual contributions payable to social security funds, employment-related pension funds, and other employment-related social insurance schemes to obtain entitlement to social benefits for their employees. This category consists of actual contributions payable to insurance enterprises, social security funds, or other institutional units responsible for the administration and management of social insurance schemes, or employment-related pension schemes. As indicated in Table 6.2, *actual employer's social contributions [GFS]* (2121) also exclude amounts connected with own-account capital formation.

Imputed employers' social contributions (2122)

6.22 Imputed employers' social contributions are the amounts calculated and added to actual contributions, sufficient to exactly match the increases in employees' social benefit entitlements. These imputed employers' social contributions may relate to pension and to nonpension benefits. *Imputed employers' social contributions [GFS]* (2122) exclude amounts connected with own-account capital formation (see Table 6.2).

Imputed employers' social contributions related to nonpension benefits

6.23 Some government units provide employment-related nonpension social benefits directly to their employees, former employees, or dependents out of their own resources without involving an insurance enterprise (see paragraph 6.16 for examples of the types of benefits payable). In this situation, employees

[12] Under a stock option agreement, the employer gives an employee the option to buy stocks or shares at a specified price at a future date (see paragraphs 9.77–9.81).

[13] The situation is parallel to one in which income taxes payable by employees are deducted by employers from the wages or salaries and paid directly to the tax authorities. The direct payment of social contributions, or income taxes, by government units as employers to other government units, such as social security schemes, other employment-related social insurance schemes, or tax authorities, is merely a shortcut taken on grounds of administrative convenience and efficiency.

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may be considered as being protected against various specified needs or circumstances, even though no reserves are built up to provide for future entitlement to benefits. Compensation of employees in the form of employers' social contributions equal in value to the amount of social contributions that would be needed to secure the de facto entitlements should be imputed. These amounts take into account any actual contributions made by the employer or employee and depend not only on the levels of the benefits currently payable, but also on the ways in which employers' liabilities under such schemes are likely to evolve in the future as a result of factors such as expected changes in the number, age distribution, and life expectancies of their present and previous employees. Thus, the values that should be imputed for the contributions ought, in principle, to be based on the same kind of actuarial considerations that determine the levels of premiums charged by insurance enterprises.

6.24 In practice, however, it may be difficult to decide how large such imputed contributions should be. The government sector unit may make estimates, perhaps on the basis of the contributions payable into similar funded schemes, in order to calculate its likely liabilities in the future, and such estimates may be used when available. Otherwise, the only practical alternative may be to use the unfunded nonpension benefits payable by the unit during the same reporting period as an estimate of the imputed expense that would be needed to cover the imputed contributions (see paragraph 6.104).

Imputed employers' social contributions to employment-related pension benefits

6.25 The imputation of employers' social contributions related to employment-related pension benefits is influenced by the type of pension scheme the government unit operates:

- In general, in the case of social security schemes, there are no imputed contributions recognized for social insurance. However, in cases where employment-related pensions are administered by such a social security scheme, imputed contributions should be recorded for these pension obligations.
- For a defined-contribution pension scheme, there are no imputed contributions recognized unless the employing unit operates the scheme itself. In that case, the value of the costs of operating the scheme is recorded as an imputed contribution payable to the employee as part of compensation of employees.
- For a defined-benefit pension scheme, there is an imputed contribution recognized, equal to the increase in benefits payable due to current period employment, plus the costs of operating the scheme, minus the sum of the government's actual contribution and the sum of any contributions by the employees.[14]

6.26 Some schemes may be generally described as noncontributory because no actual contributions are ever made by the employee. Nevertheless, in the case of employment-related schemes, an imputed contribution by the employer is calculated and should be imputed for GFS as just described. The fact that the value of imputed contributions for a noncontributory scheme may be set equal to the value of benefits payable does not mean that the benefits themselves are recorded as part of compensation of employees. Rather, the employee has a pension asset that is reduced when benefits are payable. When a pension manager is a unit different from the administrator, and the responsibility for any deficits, or claims on any excess rests with the pension manager, the counterpart entry for such claims is included in imputed social security contributions on a net basis (i.e., an expense to increase the liability and a reduction in the expense when the liability reduces or when government acquires an asset. See paragraph 7.199).

Use of Goods and Services (22)

6.27 ***Use of goods and services*** (22) consists of the value of goods and services used for the production of market and nonmarket goods and services.[15] Excluded are:

- *Consumption of fixed capital* (23)
- The use of goods and services in own-account capital formation, which should be recorded as the acquisition of nonfinancial assets (see paragraph 8.3)

[14] Some defined-benefit pension schemes may have financial assets that exceed the liabilities of the scheme to present and past employees. It is possible that in this case, the government may take a "contribution holiday" and not make actual contributions for one or more periods. Nonetheless, an imputed contribution by the government should be calculated and recorded (see paragraph A2.46).

[15] Use of goods and services is closely related to intermediate consumption in the *2008 SNA*. The relationship between the two concepts is explained in Appendix 7. Intermediate consumption is described in the *2008 SNA*, paragraphs 6.213–6.239.

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- Goods purchased by government and distributed without transformation, which should be recorded as some type of transfer in kind; these transfers are classified as *subsidies* (25), *grants* (26), *social benefits* (27), or *current transfers not elsewhere classified* (2821).

6.28 In the *Statement of Operations*, the value of use of goods or services is recorded when the goods or services are actually used rather than when they were acquired or paid for. In practice, these events often coincide for inputs of services but not for goods, which may be acquired some time in advance of their use. The value of goods purchased and held for resale is recorded as use of goods and services when they are sold.

6.29 In practice, government units do not usually record the actual use of goods in production directly. Instead, they keep records of purchases of materials and supplies intended to be used as inputs and also of any changes in the amounts of such goods held in inventories. An estimate of use of goods and services during a given reporting period can be derived through the indirect method by considering the purchases of goods and services and changes in inventories,[16] as illustrated in Table 6.3.

6.30 *Use of goods and services* (22) is recorded on a gross basis. Fees and charges collected for goods and services provided by general government units, such as for certain types of social benefits or administrative services, such as the issuance of licenses and passports, should be shown as revenue rather than deducted from expense.

6.31 In the *Statement of Sources and Uses of Cash*, the purchases of goods and services are recorded as close to the payment stage as possible. The value of these goods and services will include all cash payments made for goods and services during the reporting period, irrespective of whether the good or service was used during the reporting period. This amount will not include the value of goods paid for in prior periods, but used in the current period.

6.32 The boundaries between use of goods and services and other expenditure items, such as compensation of employees, transfers, or acquisition of nonfinancial assets, are explained in more detail in paragraphs 6.33–6.52.

Table 6.3 Relationship between Inventories (612) and Use of Goods and Services (22)

612_{t0}	Opening stock position of inventories
	Plus: Purchases of goods and services
	Minus: Used in own-account capital formation
	Minus: Goods distributed directly as transfers in kind
412	Plus/Minus: Holding gains/losses
512	Plus/Minus: Other volume changes
612_{t1}	Minus: Closing stock position of inventories
22	**Equals: Use of goods and services**

The boundary between use of goods and services and compensation of employees

6.33 Compensation of employees excludes amounts payable to contractors, self-employed outworkers, and other workers who are not employees of general government or public sector units. Any such amounts should be recorded under *use of goods and services* (22). An employer-employee relationship exists when there is a written or oral agreement, which may be formal or informal, between an entity and an individual, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind. The remuneration is normally based on either the time spent at work or another objective indicator of the amount of work performed. If an individual is contracted to produce a single specific task, it suggests that no employer-employee relationship exists, but that a service contract relationship exists between the entity and a self-employed individual.

6.34 An indication of whether an employer-employee relationship exists is that of control. The right to control or to direct work performed and how it shall be performed is a strong indication of an employer-employee relationship. The method of measuring or arranging for the payment is not important as long as the employer has effective control over both the method and the result of the work undertaken by the individual. However, certain control of the work being undertaken may also exist for the purchase of

[16] As described in paragraph 7.75, inventories may include materials and supplies, work in progress, finished goods, goods for resale, and military inventories. See paragraphs 8.44–8.47 for a discussion on transactions in inventories.

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a service—for example, when subcontracts are entered into. Therefore, other criteria should also be used to define more clearly the employer-employee relationship. The fact that the individual is solely responsible for social contributions would suggest that the individual is a self-employed service provider. By contrast, payment of social contributions by the employer is an indication of employer-employee relationship. Entitlement by the individual to the same kinds of benefits (e.g., allowances, holidays, and sick leave) generally provided to an entity's employees would also indicate an employer-employee relationship. Payment of taxes on the provision of services (such as sales tax or value-added tax) by the individual is an indication that the individual is a self-employed service provider.

6.35 Certain goods and services used by governments do not enter directly into the process of production itself but are consumed by employees working on that process. In general, when the goods or services are used by employees on their own time and at their own discretion for the direct satisfaction of their needs or wants, they constitute remuneration in kind (see paragraph 6.17). However, when such use is mandatory in order to enable employees to carry out their work, it should be recorded as use of goods and services. Examples of the latter are:

- Tools or equipment used exclusively, or mainly, at work
- Clothing or footwear of a kind that ordinary consumers do not choose to purchase or wear and that are worn exclusively, or mainly, at work—for example, protective clothing, overalls, or uniforms
- Accommodation services at the place of work of a kind that cannot be used by the households to which the employees belong: barracks, cabins, dormitories, huts, etc.
- Special meals or drinks necessitated by exceptional working conditions, while traveling for business reasons, or meals or drinks provided to employees while on active duty
- Changing facilities, washrooms, showers, baths, etc. necessitated by the nature of the work
- First aid facilities, medical examinations, or other health checks required because of the nature of the work.

6.36 Employees may sometimes be responsible for purchasing the kinds of goods or services just listed and are subsequently reimbursed by the employer. Such reimbursements are recorded as use of goods and services rather than as wages and salaries.

The boundary between use of goods and services and transfers

6.37 All transfers of goods and services to other institutional units other than goods and services produced by the donor government unit are recorded as *grants* (26) or *transfers not elsewhere classified* (282). Such transfers may entail the transfer of government-owned fixed assets, the transfer of goods held in inventories, the construction of fixed assets, or the purchase and subsequent transfer of either fixed assets or goods and services for current consumption. Examples are transfers of food, clothing, blankets, and medicines as emergency aid after natural disasters; transfers of machinery and other equipment; the direct provision of the construction of buildings or other structures; and transfers of military equipment of all types.

6.38 Goods and services used by a donor government unit to produce nonmarket goods and services consumed by other governments and international organizations are included in use of goods and services. An example would be the goods and services acquired so that government employees can conduct relief operations in a foreign country after a natural disaster. The purpose of this treatment is to show in GFS the reduction in cash, or increase in other accounts payable, with an entry in the respective expense items that made up the cost of producing nonmarket goods and services provided by the government sector unit.[17]

6.39 Use of goods and services also includes all goods and services consumed by a general government unit to produce nonmarket goods and services that are distributed either as social benefits in kind or distributed to households in particular circumstances, such as following a natural disaster. Such social benefits can

[17] The treatment in the *2008 SNA* differs because national accounts have the purpose to calculate production, transfers, and consumption. Therefore, the SNA treatment is to record the cost of production and the imputed sale of the goods and services to the final recipient as the user of the goods and services. In addition, the SNA also records a transfer that is deemed to be used by the recipient to pay for the imputed sale (see the *2008 SNA*, paragraphs 8.43–8.51).

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be distributed through social security schemes; social insurance schemes operated for the benefit of government employees, their dependents, or survivors; or social assistance. A common type of social benefit likely to be produced by general government units and distributed in kind is related to health care, such as medical or dental treatments, surgery, hospital accommodation, home care, and similar services. Benefits for government employees and dependents typically include general medical services not related to the employee's work,[18] convalescent and retirement homes, education services, and access to recreation or vacation facilities. Any nominal payments made by the recipients to the government unit distributing these goods and services should not be deducted from use of goods and services expense, but rather be recorded as the appropriate category of *sales of goods and services* (142), as relevant.

6.40 Goods and services that were not produced by the donor government unit, but are distributed as social benefits in kind or distributed to households in particular circumstances, are classified as *social benefits* (27) rather than use of goods and services. Such distributions include transfers of goods held in inventories, the purchase and simultaneous transfer of goods and services from market producers, and the reimbursement by a general government unit for purchases by households of specified goods or services, such as food, education services, medicines, medical or dental treatments, hospital bills, and optometrists' bills.

6.41 On occasion, government units transfer economic value by purchasing goods and services for prices that greatly exceed their market value. As described in paragraph 3.29, when such transactions can be detected, they should be partitioned into a purchase of goods and services at their true market value and a transfer recorded under the relevant category.

6.42 Membership dues and subscription fees should be recorded as an expense in *use of goods and services* (22) if there is an exchange of a payment for some form of a service. These include payments by public corporations of membership dues or subscriptions to market nonprofit institutions (NPIs) serving businesses, such as chambers of commerce or trade associations, since these are payments for services rendered and are not transfers. In rare cases, market establishments included in the general government sector may have similar membership dues or subscriptions payable to market NPIs serving businesses. Some membership dues and subscription fees are different in nature and are not included in use of goods and services:

- In some cases, membership dues and subscription fees payable to international organizations are recorded as the acquisition of *equity* (32051) when there is a possibility—even if unlikely—of repayment of the full amount. In these cases, the payee is also entitled to a share of the assets upon windup of the international organization.
- Membership dues and subscription fees are recorded as transfers if the transaction is unrequited; if the recipient is an international organization, foreign government, or another general government unit, the transfer is classified as a *grant* (26), or otherwise as *current transfers not elsewhere classified* (2821).

The boundary between use of goods and services and the acquisition of nonfinancial assets

6.43 Goods acquired for use as fixed assets or valuables, or for use in own-account capital formation, are classified as acquisitions of fixed assets or valuables. Costs incurred on inexpensive durable goods, such as small/hand tools, are recorded as *use of goods and services* (22) when such expenses are incurred regularly and are small compared with the costs incurred for the acquisition of machinery and equipment (see paragraphs 7.40 and 7.52). This exclusion of small/hand tools is pragmatic rather than conceptual. Some goods may be used repeatedly, or continuously, in production over many years but may nevertheless be small, inexpensive, and used to perform relatively simple operations. Hand tools such as saws, spades, knives, axes, hammers, screwdrivers, and spanners or wrenches are examples. If expense on such tools takes place at a fairly steady rate and if their value is small compared with amounts payable on more complex machinery and equipment, it may be appropriate to treat the tools as materials or supplies under *use of goods and services* (22). Some flexibility is needed, however, depending on the relative importance of

[18] Should these benefits be related to their employment contract, they will be included in *compensation of employees* (21).

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such tools. In countries in which they account for a significant part of the value of the total stock of machinery and equipment, they may be regarded as fixed assets and their acquisition and disposal by public sector units recorded under the net acquisition of nonfinancial assets.

6.44 Goods and services acquired to increase inventories of materials and supplies, work in progress, finished goods, and goods for resale are included in *changes in inventories* (312), a type of nonfinancial asset (see paragraph 7.75).

6.45 Goods and services consumed for the ordinary maintenance and repair of fixed assets constitute use of goods and services. However, major renovations, reconstructions, or enlargements of existing fixed assets are recorded as acquisitions of fixed assets. See paragraphs 8.25–8.27 for more information on distinguishing these activities.

6.46 Goods and services used in research and development are recorded as acquisitions of fixed assets in the category *intellectual property products* (31132), except in cases where it is clear that the activity does not create any future economic benefit for its owner, in which case it is recorded as use of goods and services. For a description of the recognition criteria for intellectual property products, see paragraphs 8.37–8.41.

6.47 Goods and services used in mineral exploration and evaluation are not recorded as use of goods and services. Regardless of whether successful, they are needed to acquire new reserves and so are all classified as acquisitions of fixed assets recorded as *intellectual property products* (31132).

6.48 Materials to produce coins or notes of the national currency or amounts payable to contractors to produce the currency are included in use of goods and services. The issuance of the coins or notes is a financial transaction that does not involve revenue or expense. Commemorative coins that are not actually in circulation as legal tender are classified as nonfinancial assets (see paragraph 7.135).

6.49 Expenditure on military equipment, including large military weapons systems and armored vehicles acquired by the police and internal security services, are recorded as acquisition of the respective categories of fixed assets, namely *weapons systems* (3114) or *machinery and equipment* (3112). Expenditure on military goods, such as single-use weapons (ammunition, missiles, rockets, bombs, torpedoes) and spare parts, should be recorded as inventories until used, when they are recorded as *use of goods and services* and a withdrawal from *inventories* (see paragraphs 7.74 and 7.86).

Other boundaries related to use of goods and services

6.50 There is a significant conceptual difference between rentals of fixed assets under an operating lease and the acquisition of an asset under a financial lease. Under an operating lease, (see paragraph A4.6) the lessor remains the economic owner of the fixed asset and payments by the lessee are recorded as payments for a service, and therefore recorded as use of goods and services. Under a financial lease (see paragraphs 8.17 and A4.10), the lessee becomes the economic owner of the fixed asset and payments are recorded as payments of interest and repayments of principal by the lessee to the lessor, and thus do not affect use of goods and services (also see paragraphs A4.6–A4.15).

6.51 Amounts payable for the use of nonproduced naturally occurring assets, such as land, are classified as *rent* (2814) and not as *use of goods and services* (22). See paragraphs 5.131–5.132 for a description of this boundary.

6.52 Explicit fees for financial services should always be classified as use of goods and services. However, some transactions include an implicit fee for financial services that is not recorded separately in GFS. These implicit fees can be calculated only in the context of an analysis of the whole of the economy or industry. As indicated in paragraph 6.81, financial intermediation services indirectly measured (FISIM) can usually be estimated only indirectly by compilers of the national accounts. Similarly, the service fee implied by nonlife insurance premiums can be estimated only by looking at all the transactions and costs of the insurance industry (see paragraph 6.125).

Consumption of Fixed Capital [GFS] (23)

6.53 Consumption of fixed capital is the decline, during the course of the reporting period, in the current value of the stock of fixed assets owned and used by a government unit as a result of physical

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Table 6.4 Detailed Classification of Consumption of Fixed Capital [GFS] (23)	
23	Consumption of fixed capital [GFS][1]
	Consumption of fixed capital [SNA][1]
	Minus: Related to own-account capital formation

[1]Further breakdown/"of which" lines could allow for the identification of the category of fixed assets that the consumption relates to. Identifying the type of assets is required for the integration of stocks and flows of each type of asset (see Table 7.2).

deterioration, normal obsolescence, or normal accidental damage.[19] The concept of consumption of fixed capital is identical to the concept used in the *2008 SNA*. However, the amount of *consumption of fixed capital [GFS]* (23) expense recorded in GFS may differ from the amount recorded in the production account of the *2008 SNA* because of the GFS treatment of own-account capital formation (see Table 6.4). When nonfinancial assets are produced on own-account, the consumption of fixed capital related to that production process is recorded in GFS as part of the cost of acquisitions of the fixed assets rather than expense (see paragraph A7.25).

6.54 Consumption of fixed capital may deviate considerably from depreciation as recorded in government financial records. Consumption of fixed capital is a forward-looking measure that is determined by future rather than past events—it is determined by the benefits that institutional units expect to derive in the future from using the asset in production over the remainder of its service life. Consumption of fixed capital is therefore based on the current market value or replacement cost of the asset. Depreciation is normally an allocation of the original costs of fixed assets (historic cost) over subsequent reporting periods. Consumption of fixed capital is calculated on the basis of the estimated opportunity costs of using the assets at the time they are used, as distinct from the prices at which the assets were acquired. Even when the fixed assets used are not actually to be replaced, the amount of consumption of fixed capital charged as a cost of production should be sufficient to enable the assets to be replaced, if desired.

6.55 Consumption of fixed capital is estimated with respect to all fixed assets owned by government units, but not for valuables (precious metals, precious stones, etc.) that are acquired precisely because their value, in real terms, is not expected to decline over time. Consumption of fixed capital does not cover the depletion or degradation of natural assets, such as land, mineral or other deposits, coal, oil, or natural gas, or contracts, leases, and licenses, which are recorded as other changes in the volume of assets (see paragraph 10.52).

6.56 The calculation of the consumption of fixed capital reflects assumptions about normal rates of physical deterioration, obsolescence, and accidental damage. Although some fixed assets, such as roads or railway tracks, may appear to have infinite service lives if properly maintained, their value may nevertheless decline because of a decrease in the demand for their services as a result of technical progress and the appearance of substitutes. Many fixed assets are scrapped or demolished only because they have become obsolete. Consequently, consumption of fixed capital must include an allowance for anticipated obsolescence. Any difference between the normal expected rate of obsolescence and the actual rate of obsolescence within a given period should be recorded as other changes in the volume of assets (see paragraph 10.66).

6.57 Losses of fixed assets due to normal or expected levels of accidental damage (i.e., damage caused to assets used in production resulting from their exposure to the risk of fires, storms, accidents due to human error, etc.) are also included under consumption of fixed capital. When these kinds of accidents occur with predictable regularity, they are taken into account in calculating the average service lives of the goods in question. Any difference between the normal expected and the actual accidental damage within a given period should be recorded as other changes in the volume of assets (see paragraph 10.67).

6.58 Consumption of fixed capital excludes the loss of value when fixed assets are destroyed by acts of war, natural disasters, and other exceptional events that occur very infrequently. Similarly, it excludes losses due to unexpected technological developments that may significantly shorten the service life of an existing fixed asset. These events are recorded as other economic flows and recorded as an other change in the volume of assets (see paragraph 10.66). Holding gains and losses

[19] Consumption of fixed capital is described in the *2008 SNA* in paragraphs 6.240–6.257.

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Box 6.1 The Calculation of Consumption of Fixed Capital

Consumption of fixed capital should reflect underlying resource costs and relative demands at the time the production takes place. It should therefore be calculated using the actual or estimated prices and equivalent costs of the rentals of fixed assets prevailing at that time and not at the times the goods were originally acquired. It is recommended that independent estimates of consumption of fixed capital should be compiled in conjunction with estimates of the capital stock. These can be built up from data on the acquisition of fixed assets in the past combined with estimates of the rates at which the efficiency of fixed assets declines over their service lives.

Whenever possible, the initial value of a new fixed asset should be the value at which it was acquired. If assets of all ages and specifications were regularly traded on markets, these prices should be used to value every asset as it ages. However, there is scarce information on the prices of secondhand assets, so a more theoretical approach to determining the price of an asset as it ages must be adopted.

Conceptually, market forces should ensure that the purchaser's price of a new fixed asset is equivalent to the present value of the future benefits that can be derived from it. Therefore, given the initial market price and knowledge of the characteristics of the asset in question, it is possible to project the stream of future benefits and continually update the remaining present value of these. This method of building up estimates of the capital stock and changes in the capital stock over time is known as the perpetual inventory method, or PIM. Estimates of consumption of fixed capital are obtained as a by-product of the PIM.

In the absence of an asset register with appropriate valuations of assets, the PIM requires an estimate to be made of the stock of fixed assets in existence and in the hands of general government or public corporations. The first step is to estimate what proportion of the fixed assets acquired in previous years has survived to the current period. Average service lives, or survival functions, based on observations or technical studies may be applied to past investments for this purpose. Fixed assets purchased at different prices in the past have then to be revalued at the prices of the current period by utilizing appropriate price indices for fixed assets. The construction of suitable price indices covering long periods of time raises difficult conceptual and practical problems, but these technical problems of price measurement must be faced in any case in developing balance sheet values of assets. The stock of fixed assets surviving from past investment and revalued at the purchasers' prices of the current period but before deduction of consumption of fixed capital is often also described as the gross capital stock.

The benefits obtained from the use of a given fixed asset tend to diminish over time. The rate at which the efficiency declines may vary from one type of asset to another. The simplest case to consider is one where the efficiency of the asset remains constant until it disintegrates, like a lightbulb. Other simple cases include the case where the efficiency declines linearly or exponentially over its life. Other methods employ a hyperbolic rate of efficiency loss with relatively little decline in the initial years but increasingly steeper decline as time progresses. However, in practice, calculations are usually not undertaken asset by asset, but for cohorts of assets of similar ages and characteristics. Individual assets within the cohort will retire at different moments, but the age-efficiency profile for the cohort as a whole is typically convex to the origin.

The efficiency profiles of fixed assets determine the profiles of the benefits they command over their service lives. Once the profiles of the benefits over the service lives of the fixed asset have been determined, it becomes possible to calculate the consumption of fixed capital, period by period. Consumption of fixed capital is derived as the reduction in the present value of the remaining benefits, as explained earlier. This reduction, and the rate at which it takes place over time, must be clearly distinguished from the decline in the efficiency of the capital assets themselves. Although the efficiency, and hence the benefit, of an asset may remain constant from period to period until it disintegrates, the value of the asset declines over time. It also follows that the consumption of fixed capital is not constant.

Consumption of fixed capital should not be estimated in isolation from the derivation of a set of data on stock positions of fixed assets. Such data are needed for the balance sheet, as shown in Chapter 7.

due to changes in the price of the asset must also be excluded from consumption of fixed capital. These price changes should be recorded as holding gains or losses, as described in paragraphs 10.5 and 10.15.

6.59 To compute consumption of fixed capital, the fixed assets purchased in the past and still in use have to be revalued at the average prices of the reference period and assumptions have to be made regarding the remaining service lives of each asset and the rate at which their efficiency is expected to diminish. Consumption of fixed capital should be calculated on the assumption of appropriately long service lives. Linear or geometric patterns of decline, or some combination of them, are the patterns most commonly

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assumed.[20] Box 6.1 provides a more comprehensive explanation of the calculation of consumption of fixed capital.

6.60 Conceptually, costs of ownership transfer on the acquisition of nonfinancial assets should be written off as consumption of fixed capital over the period the asset is expected to be held by the purchaser rather than over the whole life of the asset. This approach reflects the assumption that the benefits provided by the asset must be sufficient to cover both the cost of the asset and the costs of ownership transfer. Cost of ownership transfer on the disposal of an asset is recorded similarly because it is assumed that the benefit that the asset produced during the time the asset is used in production should cover such costs. Cost of ownership transfer on the disposal of a nonfinancial asset is estimated at the time of the acquisition of the asset and is written off over the period that the owner expects to hold the asset), except for the terminal costs, which should be written off over the whole life of the asset. If an asset is disposed of before the costs of ownership transfer are completely written off, the remainder of these costs should be recorded as an other change in the volume of assets (see paragraph 10.68).

6.61 In the *Statement of Sources and Uses of Cash*, expense transactions are recorded only when cash flows occurred. Since no cash flows are associated with consumption of fixed capital, no entry for this accrual concept is made in this statement (see paragraph 3.67).

Interest [GFS] (24)

6.62 Interest is a form of investment income that is receivable by the owners of certain kinds of financial assets (SDRs, deposits, debt securities, loans, and other accounts receivable)[21] for putting these financial and other resources at the disposal of another institutional unit. *Interest [GFS]* (24) is not adjusted for the service charge related to FISIM (see paragraph 6.81). The liabilities giving rise to interest expense are all claims of creditors upon debtors. The liabilities generating the interest may have arisen from the supply of financial or nonfinancial resources (as in the case of financial leases). As indicated in Table 6.5, interest should be recorded according to the subsector of the counterparty to allow for consolidation of the general government and public sectors. The amount of the liability due to the creditor declines as payments are made on the debt by the debtor and increases as interest accrues.

Table 6.5 Detailed Classification of Interest (24)

24	Interest [GFS][1]
	Interest [SNA]
	Plus: FISIM
241	To nonresidents
242	To residents other than general government[1]
243	To other general government units[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

6.63 Interest is payable by units that incur liabilities by borrowing funds from another unit. Interest is the expense that the debtor unit incurs for the use of the principal outstanding, which represents the economic value that has been provided by the creditor. Interest may be payable in various ways and may not always explicitly be described as interest (see paragraph 6.71). On the other hand, net settlement payments under a swap or forward rate agreement contract (possibly described as "interest" in the contract) are not considered as interest and are to be recorded as transactions in financial derivatives (see paragraphs 6.79 and 9.71).

6.64 Interest is recorded as accruing continuously over time to the creditor on the amount outstanding. Depending on the contractual arrangements, the rate at which interest accrues can be a percentage of the amount outstanding, a predetermined sum of money, a variable sum of money dependent on a defined indicator, or some combination of these. Interest normally is not payable until the expense has accrued. That is, if interest on a loan is payable monthly, the amount paid is usually the expense that has accrued during the previous month. Under the accrual basis of recording, as interest accrues, the debtor's total liability to the creditor has increased by the amount of interest expense accrued but not yet paid. That is, as interest accrues on a government bond, the value of the bond increases. What are commonly referred to as interest payments,

[20] Organisation for Economic Co-operation and Development, *Measuring Capital—OECD Manual: Measurement of Capital Stocks, Consumption of Fixed Capital and Capital Services* (Paris, 2009) contains an extensive discussion of the methods for estimating capital stock and consumption of fixed capital.

[21] Financial assets and their classification are described in Chapter 7.

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therefore, from an accrual recording perspective, are reductions of the debtor's existing liability, part of which was created by the accrued interest expense.

6.65 From a cash recording perspective, periodic debt service payments, recorded in the *Statement of Source and Uses of Cash*, can be distinguished as interest payments ("coupons" or "coupon payments") or principal payments. When using the cash basis of recording, interest payments are recorded as an expense transaction when such cash flows occur. In this case, only principal repayments will reduce the debtor's liability. The amount initially advanced or borrowed is also known as initial principal.

6.66 In macroeconomic statistics, interest is calculated according to the debtor approach.[22] According to this approach, interest is equal to the amounts the debtors will have to pay to their creditors over and above the repayments of the amounts advanced by the creditor. For fixed rate instruments, this approach assumes that interest expense is determined for the entire life of a financial instrument by the conditions set at inception of the instrument. Interest accrual is therefore determined by using the original yield-to-maturity. A single effective yield, established at the time of security issuance, is used to calculate the amount of accrued interest in each period to maturity. The accrual of interest should be calculated by the compound interest method.[23]

6.67 In the simplest case, a sum of money is borrowed, periodic payments are made equal to the interest expense incurred during the previous period, and at the end of the contract, a final payment of interest is made together with a repayment of the original amount borrowed. The amount of interest expense incurred each period is equal to the interest rate stated in the contract multiplied by the amount borrowed.

6.68 When the end of the reporting period does not coincide with a periodic payment, the total liability at the end of the period will include some amount of interest incurred but not yet paid. As each period passes, the amount of principal outstanding increases as interest expense is incurred. Any periodic payment of the accrued interest reduces the principal to the amount originally borrowed.

6.69 Some debt instruments may have a grace period[24] during which no interest payments are to be made. For those debt instruments for which the contract requires the accrual of interest during the grace period (i.e., the relevant interest rate that applies during the grace period is greater than zero), the accrual of interest should be recorded as specified in the contract, increasing the value of the principal. On the other hand, if the debtor can repay the same amount of principal at the end of the grace period as at the beginning (i.e., the relevant interest rate applied to the grace period is zero), no interest costs accrue during the grace period.[25] This remains true even if the rate of interest applied in a second and/or subsequent time period is adjusted (e.g., there is a step up), so that the final yield is roughly similar to what it would have been under normal conditions over the total life of the instrument. This treatment applies to loans and deposits but not to debt securities.

6.70 Loans with step-up interest should accrue at the contractual rate of interest for any period and not at the internal rate of return[26] of the loan. On the other hand, interest on debt securities with step-up interest should accrue at the original yield-to-maturity rate over the life of the security.[27]

6.71 Certain financial instruments, such as short-term bills and zero-coupon bonds, do not require the debtor to make payments to the creditor until the liability matures. In effect, the debtor's liability is discharged by a single payment covering both the amount of the funds originally borrowed and the interest accrued and accumulated over the entire life of the liability. Instruments of this type are said to be discounted because the amount initially borrowed is less than the amount to be repaid. The difference

[22] There are three approaches for defining and measuring interest for traded debt instruments: debtor approach, creditor approach, and acquisition approach (see the *BPM6*, paragraphs 11.52–11.53).

[23] Examples of the calculation of interest can be found in the *PSDS Guide*, Box 2.3, and *2013 EDS Guide*, paragraphs 2.65–2.77.

[24] The grace period is the period from the disbursement of the loan until the first payment due by the debtor.

[25] If a prepayment fee or a penalty for prepayment is paid, it should be classified as a service fee under *use of goods and services* (22), and not as interest.

[26] See the *2013 EDS Guide*, paragraph 2.98 and Box 2.4, for a discussion on internal rate of return.

[27] The original yield-to-maturity rate is the rate at which the present value of future interest and principal payments equals the issue price of the bond—that is, the yield of the security at issuance.

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between the amount to be repaid at the end of the contract and the amount originally borrowed is interest, which on the accrual basis of recording must be allocated over the reporting periods between the beginning and end of the contract. The interest accruing in each period is recorded as if being paid by the debtor and then borrowed as an additional amount of the same liability. Thus, interest expense and an increase in the liability are recorded in each period. When more than one reporting period is involved, there are a number of ways to allocate the total amount of interest among the periods involved. The most common and simple method is to assume that the interest rate is constant throughout the contract period. On the cash basis of recording, the full amount of the difference between the amount to be repaid at the end of the contract and the amount originally borrowed is recorded as interest when the payment is made—that is, at the end of the contract when the liability matures.

6.72 A slightly more complicated case is a deep-discount bond, which is a discounted instrument that also requires periodic payments. In such cases, the accrued interest expense is the amount of the coupon payable periodically plus the amount of interest accruing each period attributable to the difference between the redemption price and the issue price. Again, the most common assumption is that the interest rate is constant over the entire period of the contract. This interest rate is the one that makes the sum of all future payments equal to the amount initially borrowed when the future payments are discounted by the interest rate.

6.73 In some cases, debt securities are issued at a premium rather than at a discount. The method of determining the accrued interest expense is identical to the case of a discounted instrument except that the premium (the difference between the redemption price and the issue price—see paragraph 9.40) is amortized over the life of the instrument and reduces (rather than increases) the amount of interest accruing in each period. These premiums are therefore recorded as an increase in cash receipts with a corresponding entry in other accounts payable for the unearned portion of the premium. A reduction in interest expense, with a corresponding reduction in the other accounts payable, is subsequently recorded over the period of the contract. On the cash basis of recording, the full amount of premiums will be recognized as a reduction in interest expense at the time the debt instrument is issued.

6.74 Loans are often structured with periodic payments that incorporate both interest and principal payments. The excess of the periodic payment over the interest accrued reduces the original principal. Over time, the share of the payment allocated to the payment of accrued interest decreases and the share allocated to reducing the original principal increases.

6.75 Index-linked securities are instruments for which either the coupon payments (interest) or the principal or both are linked to another item, such as a price index, an interest rate, or the price of a commodity (see paragraph 7.153). The item is one that normally changes over time in response to market pressures. The values of the indicators are not known in advance. For debt securities with indexation of the amount to be paid at maturity, these amounts may be known only at the time of redemption. As a result, total interest flows before redemption cannot be determined with certainty. To estimate interest accrued before the values of the reference indicators are known, it is useful to distinguish various arrangements.

Indexation of the coupon payments only

6.76 When only coupon payments are index-linked, as with floating-rate notes, the full amount resulting from indexation is recorded as interest accruing during the period covered by the coupon. To the extent that data are compiled after the coupon payment date, the value of the index is known and can be used to estimate that payment. If the data are compiled before the date for the coupon payment, the movement in the index during that part of the reporting period covered by the coupon can be used to calculate the interest accrued.

Indexation of the amount to be paid at maturity

6.77 When the amount to be paid at maturity is also index-linked, the amount of interest accrued becomes uncertain because the redemption value is unknown; in some cases, the maturity time may be several years in the future. There are two approaches,

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depending on whether the index is based on a broad or narrow reference item.[28]

- When the amount to be paid at maturity and coupon payments are indexed to a broad-based index (e.g., the consumer price index), interest accruing in a reporting period may be calculated by summing two elements:
  - The amount resulting from the indexation of the coupon payment (as described in paragraph 6.76) that is attributable to the reporting period
  - The change in the value of the amount outstanding between the end and beginning of the reporting period due to the movement in the relevant index.

  This approach works well when a broad-based index is used, as such indexation is expected to change relatively smoothly over time.
- When the amount to be paid at maturity or the coupon payments and the amount to be paid at maturity are indexed to a narrow index (e.g., a gold index) that includes a holding gain motive, interest accruing may be determined by fixing the yield-to-maturity (rate of accrual) at the time of issue. Accordingly, interest accrues over the life of the instrument at a rate that reconciles the difference between the issue price and the market expectation, at inception, of all payments that the debtor will have to make over the life of the instrument. Any deviation of the underlying index from the originally expected path leads to holding gains or losses that will not necessarily cancel out over the life of the instrument.

  This approach works well when the indexation of the amount to be paid at maturity combines motives for both interest income and holding gains (e.g., a commodity price, stock prices, or gold prices). The treatment of indexation of securities is also discussed in paragraph 9.41.

6.78 Debt instruments with both the amount to be paid at maturity and coupon payments indexed to foreign currency are recorded as though they are denominated in that foreign currency. Interest, other economic flows, and stock positions for these instruments should be calculated using the same principles that apply to foreign-currency-denominated instruments (see paragraph 9.11).

6.79 For debt securities with embedded derivatives, the recording for accrued interest on the financial instrument is the same as for securities that do not have such features. No interest accrues on the derivative itself (see paragraph 9.43).

6.80 For arrears arising from a debt contract, interest should accrue at the same interest rate as on the original debt, unless a different interest rate for arrears was stipulated in the original debt contract, in which case this stipulated interest rate should be used. The stipulated rate may include a penalty rate in addition to the interest rate on the original debt. If an item is purchased on credit and the debtor fails to pay within the period stated at the time the purchase was made, any extra charges incurred should be regarded as interest and accrue until the debt is extinguished.

6.81 The interest expense payable to financial intermediaries recorded in GFS differs from the amount recorded in the *2008 SNA*. *Interest [GFS]* (24) does not partition interest to separately record a service fee. A financial intermediary sets its interest rates for depositors and borrowers at levels that will provide a margin large enough to at least defray the costs of providing its services to its depositors and borrowers without explicit fees. Interest could be partitioned to separately record the component payable in return for the resources that were put at the disposal of the borrower, as well as an implicit service charge. In concept, the value of the services provided by financial intermediaries to a borrowing unit should be recorded as a use of goods and services expense. To accomplish this treatment, the actual interest expense payable to financial intermediaries would need to be reduced by the value of the fee for the services.[29] These fees, known as FISIM, can be estimated only indirectly by compilers of the national accounts because data for all depositors and borrowers of financial intermediaries are required.

6.82 In principle, interest payable on overdue taxes should be recorded as *interest* (24). However, it may not be possible to separate payments of interest, fines, or other penalties from the taxes to which they relate,

[28] These approaches are discussed in more detail in the *2008 SNA*, paragraphs 17.274–17.282, and the *BPM6*, paragraphs 11.59–11.65.

[29] Similarly, any interest receivable from financial intermediaries would need to be increased by the value of the implicit service fee that has reduced the interest receivable.

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so that in practice they are usually grouped with the relevant tax payable (see also paragraph 5.24). If this tax that includes the interest on late payment of taxes is payable by a general government or public sector unit, then it is classified as a tax payable from one government unit to another and classified as a component of *transfers not elsewhere classified* (282) (see paragraph 6.122). For purposes of consolidation, the relevant government units should be identified as counterparty to the transaction.

6.83 Total interest payable is subdivided into interest payable *to nonresidents* (241), interest payable *to residents other than general government* (242), and interest payable *to other general government units* (243). Interest payable to other general government units will have a nonzero value when statistics are compiled for a subsector of the general government sector or public corporations. For the general government sector, all such transactions are eliminated in consolidation. To allow for consolidation of the general government and public sectors, data could further identify a breakdown according to the recipient of the interest.

Subsidies (25)[30]

6.84 ***Subsidies*** (25) are current unrequited transfers that government units make to enterprises on the basis of the level of their production activities or the quantities or values of the goods or services they produce, sell, export, or import. Subsidies are receivable by resident producers or importers, and in exceptional cases, nonresident producers of goods and services. Subsidies may be designed to influence levels of production, the prices at which outputs are sold, or the profits of the enterprises. Subsidies include payable tax credits receivable by enterprises for these purposes (see paragraph 5.31). By the nature of subsidies, only government units incur an expense in this form. When an institutional unit, other than a government unit, incurs subsidy expense on behalf of a government unit, the subsidy should be attributed in accordance with attribution guidelines, similar to those for tax attribution (see paragraphs 5.32–5.39). When an institutional unit acts on behalf of another unit to distribute subsidies, these should be reported as financial transactions by the distributing agency. Subsidies payable should be recorded only in the account of the entity that has the control over the subsidy scheme.

6.85 Subsidies are payable to producers only, not to final consumers, and are current transfers only, not capital transfers. Transfers that government units make directly to households as consumers and most transfers to nonprofit institutions serving households are recorded as either *social benefits* (27) or *transfers not elsewhere classified* (282), depending on the reason for the payment. Most transfers made to other general government units are included in *grants* (26).

6.86 In some cases, general government units, nonprofit institutions serving households, and households can receive subsidies in their capacity as producers. To be classified as subsidies, such payments must depend on general regulations of the subsidy scheme applicable to all producers, market and nonmarket. For example, a general government unit may pay a subsidy to all employers (including general government units and/or nonprofit institutions) that employ members of a specified profession or people with a specified disability. Subsidies payable to households include only amounts payable to households as producers—therefore, they will include only amounts payable to those unincorporated household enterprises that do not qualify as a quasi-corporation. In practice, many schemes called "subsidies" provide social benefits to households.

6.87 As indicated in Table 6.6, subsidies may be classified according to the institutional sector of the recipients. Subsidies *to public corporations* (251) and *to private enterprises* (252) are further subdivided into nonfinancial or financial corporations and enterprises.

Table 6.6 Detailed Classification of Subsidies (25)

25	Subsidies[1]
251	To public corporations
2511	Public nonfinancial corporations
2512	Public financial corporations
252	To private enterprises
2521	Private nonfinancial enterprises
2522	Private financial enterprises
253	To other sectors[2]

[1]Further breakdown/"of which" lines could identify whether these subsidies are subsidies on products or production.

[2]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[30] Subsidies are described in the *2008 SNA*, paragraphs 7.98–7.106.

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Subsidies to other sectors (253) include subsidies payable to other general government units, to nonprofit institutions serving households, and to households, in their capacity as producers. To allow for consolidation of the general government and public sectors, identifying the subsectors of the counterparties is needed.

6.88 Although not specifically used in the GFS classification structure, the *2008 SNA* further identifies subsidies according to whether they are payable on specific products or on production in general, depending on how the value of the subsidy is calculated. Further breakdown of GFS codes could allow for this distinction.

6.89 A **subsidy on products** is a subsidy payable per unit of a good or service. The subsidy may be a specific amount of money per unit of quantity of a good or service, or it may be calculated ad valorem as a specified percentage of the price per unit. A subsidy may also be calculated as the difference between a specified target price and the market price actually paid by a buyer. A subsidy on a product usually becomes payable when the good or service is produced, sold, exported, or imported, but it may also be payable in other circumstances, such as when a good is transferred, leased, delivered, or used for own consumption or own-account capital formation. These subsidies include:

- Direct foreign trade subsidies, such as subsidies on imported or exported goods and services that become payable when the goods cross the frontier of the economic territory or when the services are delivered to resident institutional units (e.g., import subsidies) or to nonresident units (e.g., export subsidies)[31]
- Implicit subsidies resulting from the operation of an official system of multiple exchange rates or resulting from payable tax credits (see paragraph 5.31)
- Losses of government trading organizations whose function is to buy products and then sell them at lower prices to residents or nonresidents, when they are incurred as a matter of deliberate government economic or social policy[32]
- Subsidies payable to resident producers in respect of their production that is used or consumed within the economic territory
- Regular transfers payable to corporations and quasi-corporations that are intended to compensate for recurrent losses (i.e., negative operating surpluses) incurred on their productive activities as a result of charging prices that are lower than their average costs of production as a matter of deliberate government economic and social policy[33]
- Subsidies resulting from the central bank accepting interest rates lower than the prevailing market rates (see Box 6.2).

6.90 Other subsidies on production are subsidies that enterprises receive as a consequence of engaging in production but that are not related to specific products. Included are:

- Subsidies on payroll or workforce, which are payable on the total wage or salary bill, the size of the total workforce, or the employment of particular types of persons such as physically handicapped persons or persons who have been unemployed for long periods; the subsidies may also be intended to cover some or all of the costs of training schemes organized or financed by enterprises.
- Subsidies to reduce pollution, which are transfers intended to cover some or all of the costs of additional processing undertaken to reduce or eliminate the discharge of pollutants into the environment.

6.91 Subsidies do not include:

- Payment of interest or other debt service cost on behalf of other producer units without acquiring an effective claim on the original debtor—these payments are recorded as capital transfers, and according to the nature of the recipient, are recorded either as *capital grants* (26) or *capital transfers not elsewhere classified* (2822).
- Transfers made by governments to other resident or nonresident units to finance all or part of the

[31] Export subsidies do not include the repayment at the customs frontier of taxes previously paid on goods or services while they were inside the economic territory. They also exclude the waiving of the taxes that would be due if the goods were to be sold or used inside the economic territory instead of being exported. These tax expenditures/credits are not recorded separately in GFS (see paragraph 5.86).

[32] In these cases, the subsidy is calculated as the difference between the purchase and the selling price.

[33] Transfers to corporations and quasi-corporations to cover large operating deficits accumulated over two or more years are recorded as *capital transfers not elsewhere classified* (2822).

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Box 6.2 Implicit Subsidies of Central Banks

The central bank's main responsibility is to formulate and carry out monetary aspects of economic policy. It therefore often acts differently from other financial corporations and generally has the authority from government to enforce its mandate. In cases where the central bank makes payments that are clearly for policy rather than commercial purposes—for example, when it pays above-market rates in a situation where the external value of the currency is under pressure or when it acts as a development bank offering loans at below-market rates to priority industries—it may be argued that implicit subsidies are being provided. This procedure is analogous to and consistent with the practice of treating the difference between the market exchange rate and an alternative exchange rate imposed by the central bank as an implicit subsidy (discussed in paragraph 5.89).

If the central bank interest rates are out of line with those of commercial banks, then the difference between flows calculated using the reference rate and the actual rate set by the central bank should be recorded as implicit taxes receivable (see paragraph 5.70) and subsidies payable by government. These transactions are recorded as follows:

- Below market rates on reserve deposits—Suppose the central bank pays only 3 percent to a commercial bank on reserve deposits when the market rate is 5 percent. The following is recorded in GFS:
  - Although the commercial bank actually receives only 3 percent as interest, it is recorded as receiving 5 percent as interest from the central bank and paying 2 percent to government as *taxes on specific services* (1144) (see paragraph 5.69).
  - Government records a *subsidy* (25) to the central bank.
- Above market rates for currency support—Suppose the central bank pays 7 percent to a commercial bank for a limited period when the currency is under pressure at a time when the market rate is 5 percent. The following is recorded:
  - Although the commercial bank actually receives 7 percent as interest, it is recorded as receiving 5 percent as interest and receiving another 2 percent from government as a *subsidy* (25).
  - Government records a tax of 2 percent receivable from the central bank classified as *taxes on specific services* (1144) (see paragraph 5.69).
- Below market rates to priority industries—Suppose the central bank charges only 3 percent to a priority industry when the market rate is 5 percent. The following is recorded:
  - Although the priority industry actually pays only 3 percent as interest, it is recorded as paying 5 percent as interest but receiving 2 percent from government as a *subsidy* (25).
  - Government records a tax of 2 percent receivable from the central bank classified as *taxes on specific services* (1144) (see paragraph 5.69).

costs of their acquiring nonfinancial assets other than inventories—these payments are recorded either as *capital grants* (26) or as *capital transfers not elsewhere classified* (2822).

- Extraordinary payments into social insurance funds, in so far as these payments are designed to increase the actuarial reserves of these funds: These payments are recorded either as *capital grants to other general government units* (2632) or as *capital transfers not elsewhere classified* (2822).
- Transfers made by general government units to corporations and quasi-corporations to cover large operating deficits accumulated over two or more years, or exceptional losses due to factors outside the control of the enterprise: These payments are recorded as *capital transfers not elsewhere classified* (2822) (see Box 6.3).
- The cancellation of debts that institutional units have incurred to government units (resulting, for example, from loans advanced by a government unit to a nonfinancial enterprise that does not have the ability to make repayments due to trading losses accumulated over several financial years): These transactions are recorded as *capital grants to other general government units* (2632) or as *capital transfers not elsewhere classified* (2822) if the beneficiary is a unit other than general government.
- Payments made by general government for damage to, or losses of, capital goods as a result of acts of war, other political events or natural disasters:

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Box 6.3 Transactions with Public Corporations

Owners may inject significant financial support to capitalize or recapitalize a corporation. Such financial support may take various legal forms and its economic substance may also vary (see Figure A3.2). These payments from a government unit, often referred to as "capital injections," could be recorded as:

- An expense, either as a subsidy or capital transfer, or
- A transaction in financial assets/liabilities, either as an addition to equity or an issuance of a loan or securities other than shares.

Recorded as an expense

If the enterprise is publicly controlled and runs a recurrent deficit each year as a matter of government economic or social policy objectives, and the deficit is covered by a regular transfer receivable from government to match this deficit, the payment is regarded as a subsidy (see paragraph 6.89). If the payment from government is to cover large operating deficits accumulated over two or more years or exceptional losses due to factors outside the control of the enterprise, it is recorded as a capital transfer (see paragraph 6.124). Similarly, if government makes an investment in a public corporation without a reasonable expectation of a realistic rate of return on the investment, or without receiving anything of equal value in exchange, this is also recorded as a capital transfer. The latter includes investments in quasi-corporations with negative imputed equity (see paragraph A3.53).

Recorded as transactions in financial assets/liabilities

There may be cases where the owners agree to make new financing available to permit expansion, and where such financing establishes an effective claim on the public corporation. Such financing could consist of funds for use by the enterprise according to its need, including purchasing fixed assets, accumulating inventories, acquiring financial assets, or redeeming liabilities. Where evidence of a contractual financing agreement exists, these could constitute the issuance of a specific financial asset, such as loans, for government and the incurrence of a corresponding debt instrument by the public corporations. Without evidence of a specific financing agreement, such payments are to be included as the acquisition of equity in the public corporation even if no new shares are issued in response to the financial contribution. In such a case, government, acting in the same capacity as a private shareholder, provides funds while receiving contractually something of equal value in exchange (i.e., increased value of its equity) and expecting to earn a sufficient rate of return on its investment, in the form of dividends (as a return on equity). Treatment of these payments as the increase in equity depends on evidence of the corporation's profitability and its ability to pay dividends in future.

These payments are recorded as *capital grants to other general government units* (2632) or as *capital transfers not elsewhere classified* (2822).

- Transfers to households (often called "subsidies") but intended to supplement household income or defray household expense: These do not relate to production activities and should therefore be included in the relevant category of *social benefits* (27).
- Increases in equity in corporate enterprises of general government: These are recorded as transactions in the financial instrument *equity and investment fund shares* (3205) if an effective financial claim is acquired (see Box 6.3).
- Transfers made by a general government unit that has assumed responsibility for pension claims on public enterprises: These payments are recorded as *capital transfers not elsewhere classified* (2822).
- Payments made by general government to market producers to pay entirely, or in part, for goods and services that those market producers provide directly and individually to households in the context of social risks or needs and to which the households have a right: These payments are recorded as *social benefits* (27).

Grants (26)

6.92 ***Grants*** (26) are transfers payable by government units to other resident or nonresident government units or international organizations and that do not meet the definition of a tax, subsidy, or social contribution (see paragraph 3.10). Grants are normally payable in cash, but may also take the form of provision of goods or services (in kind). Grants payable are classified first by the type of unit receiving the grant and then by whether the grant is current or capital.

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6.93 Three types of recipients of grants are recognized in GFS: *grants to foreign governments* (261), *grants to international organizations* (262), and *grants to other general government units* (263). The category of grants payable by government units to other general government units has a nonzero value only in the case of statistics compiled for a subsector of the general government sector. For the general government sector, these transactions are eliminated in consolidation. To allow for consolidation, grants payable to other general government units should be identified according to the subsector of the counterparty (see Table 6.7).

6.94 Grants payable distinguish *current grants* (2611/2621/2631) and *capital grants* (2612/2622/2632). The distinction between current and capital grants is described in paragraph 5.103. If doubt exists regarding the character of a grant, it should be classified as current. The nature of grants in kind, the time at which a grant is recorded, and the valuation are discussed in paragraphs 5.104–5.105.

6.95 In the *Statement of Sources and Uses of Cash*, the value of grants will be limited to grants paid in cash. Grants in kind will not be recognized in this statement since no cash flows related to the in-kind transaction are recorded. However, any cash payments incurred in the production of the goods or services provided in kind will be included in the respective expense items (i.e., compensation of employees, goods and services and consumption of fixed capital).

Table 6.7 Detailed Classification of Grants (26)

26	Grants
261	To foreign governments
2611	Current
2612	Capital
262	To international organizations
2621	Current
2622	Capital
263	To other general government units
2631	Current[1]
2632	Capital[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

Social Benefits [GFS] (27)[34]

6.96 Social benefits are current transfers receivable by households intended to provide for the needs that arise from social risks—for example, sickness, unemployment, retirement, housing, education, or family circumstances. These benefits are payable in cash or in kind to protect the entire population or specific segments of it against certain social risks. **Social risks** are events or circumstances that may adversely affect the welfare of the households concerned either by imposing additional demands on their resources or by reducing their income. Examples of social benefits are the provision of medical services, unemployment compensation, and social security pensions. For a complete discussion on social protection, see Appendix 2.

6.97 Not all social benefits as defined in the *2008 SNA* are classified in this GFS expense item (see Table 6.8). *Social benefits [GFS]* (27) exclude:

- The payment of pensions and other retirement benefits through employment-related social schemes, which are recorded in GFS as reductions in liabilities.[35]
- Goods and services produced by government and transferred to households are expense transactions not classified as social benefits. Instead, the expense transactions are recorded as production expenses as part of compensation of employees, use of goods and services, and consumption of fixed capital, as appropriate.[36]

6.98 Social benefits are classified first according to the type of social protection arrangement governing their payment: social security, social assistance, or employment-related social insurance schemes, and

[34] The institutional units involved, classification, and recording of flows and stock positions related to social protection are described in Appendix 2.

[35] In the *2008 SNA*, all payments of pension and other retirement benefits are recorded as transfer payments: those paid through social security schemes are solely transfer payments, whereas payments through employment-related schemes, other than social security (defined contributions or defined benefits), are first recorded as transfer payments to households in the use of income account, and then as a change in pension entitlements in the financial account. Subsequently, the reductions in liabilities are recorded as an adjustment entry made to remove any inconsistency between the benefits and the change in liabilities.

[36] In the *2008 SNA*, when a general government unit produces goods and services that are distributed as social benefits, the expense items related to the costs of producing them, such as compensation of employees, are the same as in this *Manual*. However, in the *2008 SNA*, unlike this *Manual*, the value of the goods and services produced is also included as social benefits.

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Table 6.8 Detailed Classification of Social Benefits (27)	
27	Social benefits [GFS][1]
	Social benefits [SNA][1] Minus: Social benefits related to reductions in liabilities Minus: Cost associated with the own production of goods and services transferred to households
271	Social security benefits [GFS]
2711	Social security benefits in cash [GFS]
2712	Social security benefits in kind [GFS]
272	Social assistance benefits
2721	Social assistance benefits in cash [GFS]
2722	Social assistance benefits in kind [GFS]
273	Employment-related social benefits [GFS]
2731	Employment-related social benefits in cash [GFS]
2732	Employment-related social benefits in kind [GFS]

[1]A similar breakdown could be applied to other subcategories of social benefits, as relevant.

then by whether the payment was made in cash or in kind. These benefits are divided between pensions and nonpension benefits.

6.99 ***Social security benefits*** *[GFS]* (271) are social benefits expense payable in cash or in kind to households by social security schemes (see paragraph A2.33). Typical *social security benefits in cash [GFS]* (2711) include extended sickness and invalidity benefits, maternity allowances, children's or family allowances, unemployment benefits, retirement and survivors' pensions, and death benefits.

6.100 *Social security benefits in kind [GFS]* (2712) typically consist of goods and services purchased from a market producer on behalf of households and benefits related to the reimbursements of costs of goods and services purchased by households in accordance with the rules of the scheme.[37] These benefits are likely to consist of medical or dental treatments, surgery, hospital accommodation, spectacles or contact lenses, pharmaceutical products, home care, and similar goods or services.

[37] Although these reimbursements (partial or in full) are normally paid in cash, they are recorded as social benefits in kind, because they are assumed to be incurred directly by the social security fund at the time the household makes the purchase.

6.101 ***Social assistance benefits*** (272) are transfers payable in cash or in kind to households to meet the same needs as social insurance benefits but that are not made under a social insurance scheme. Eligibility to receive such benefits is not dependent on having elected to participate as demonstrated by the payment of contributions. Social assistance benefits therefore exclude all benefits payable by social security funds.

6.102 Social assistance benefits may include those benefits payable under any one of the following circumstances:

- No social insurance scheme exists to cover the circumstances in question.
- Although a social insurance scheme, or schemes, may exist, the households in question do not participate and are not eligible for social insurance benefits.
- Contributions to social insurance schemes were made on behalf of households who cannot otherwise afford to participate in the scheme, in order to secure entitlement to the benefits of the scheme for them.
- Social insurance benefits are deemed to be inadequate to cover the needs in question, so the social assistance benefits are being paid in addition.
- Implicit social assistance benefits were paid resulting from payable tax credits (see paragraph 5.31).
- As a matter of general social policy.

6.103 Social assistance benefits do not include transfers made in response to events or circumstances, such as natural disasters, which are not normally covered by social insurance schemes. Such transfers are recorded under *transfers not elsewhere classified* (282).

6.104 ***Employment-related social benefits*** (273) are social benefits payable in cash or in kind by government or public sector units to their employees or employees of other government or public sector units participating in the scheme (or to survivors and dependents of the employees who are eligible for such payments). The kinds of benefits provided relate to nonpension benefits, and are similar to those listed for social security schemes, such as the continued payment of wages during periods of absence from work as a result of ill health, accidents, maternity,

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etc.; family, education, or other allowances; severance allowances in the event of redundancy, incapacity, or accidental death; general medical expenses not related to the employees' work; and charges for convalescent and retirement homes.

6.105 The payment of employer social benefits is often made out of the government's own resources without involving an insurance enterprise or an autonomous or nonautonomous pension fund. To reflect the true economic nature of the operation and to ensure comparability with similar payments made through social security schemes, an imputation of *employers' social contributions [GFS]* (2122) (see paragraph 6.22) is made in expense, recorded as compensation of employees (21), and in revenue, recorded as *imputed social contributions* (1223). These imputed values are equal to the value of the employment-related social benefits payable in this item.

6.106 When using the accrual basis of recording, the payment of pensions and other retirement benefits through these employment-related pension schemes is recorded as reductions in liabilities (see paragraph 7.189). However, when using the cash basis of recording, the liability did not accumulate through imputed contributions recorded in the past, and all payment of these employment-related pensions should be recorded as *employment-related social benefits* (2731).

Other Expense (28)

6.107 Other expense comprises *property expense other than interest* (281), *transfers not elsewhere classified* (282), and amounts payable in respect of *premiums, fees, and claims payable related to nonlife insurance and standardized guarantees* (283).

Property expense other than interest (281)

6.108 ***Property expense*** (281) is the expense payable to the owners of financial assets or natural resources when they put them at the disposal of another unit. Property expense is the sum of investment expense and rent. One type of investment expense is *interest [GFS]* (24), which is classified separately in GFS. Property expense other than interest may take the form of *dividends* (2811); *withdrawals of income from quasi-corporations* (2812); *property expense for investment income disbursements* (2813); *rent* (2814); and *reinvested earnings on direct foreign investments* (2815). Dividends and withdrawals of income from quasi-corporations as an expense will primarily apply to public corporations and foreign direct investment of the public sector.

Table 6.9 Detailed Classification of Dividends (2811)

2811	Dividends
28111	To nonresidents
28112	To residents[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

Dividends (2811)

6.109 ***Dividends*** (2811) are the distributed earnings allocated to government or public sector units, as the owners of equity, for placing funds at the disposal of corporations. As shown in Table 6.9, identifying the recipient of dividends from public corporations would allow for consolidation of statistics of the public sector. Dividend payments are not required; the board of directors or other managers of the corporation must declare a dividend payable on their own volition. Distributions of profits by public corporations may take place irregularly and may not be explicitly labeled as dividends. Nevertheless, except for distributions by fiscal, export, or import monopolies, dividends include all distributions of profits by public corporations to their shareholders or owners.[38] The time of recording of dividends is the point at which the share price starts to be quoted on an "ex-dividend" basis. Dividends are described in more detail in paragraphs 5.111–5.117.

6.110 Dividends are notionally payable out of the current period's operating surplus, although corporations often smooth the payments of dividends, sometimes paying out less than the operating surplus but sometimes paying out more, especially when the operating surplus itself is very low. Dividends that are disproportionately large relative to the recent level of dividends and earnings, often referred to as "superdividends," require special consideration. See paragraphs 5.115–5.116 for a description of the treatment

[38] Distributions of profits by fiscal, export, and import monopolies are recorded as taxes payable (see paragraphs 5.63–5.68 and 5.86). Therefore, in expense, these amounts payable are classified as *transfers not elsewhere classified* (282).

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of these "super-dividends" in the context of the corresponding revenue item.

Withdrawals of income from quasi-corporations (2812)

6.111 ***Withdrawals of income from quasi-corporations*** (2812) consists of that part of distributable income that the owner withdraws from the quasi-corporation. By definition, quasi-corporations cannot distribute income in the form of dividends, but the owner may choose to withdraw some or all of the income. Conceptually, the withdrawal of such income is equivalent to the distribution of corporate income through dividends and is recorded in the same way. The amount of income that the owner of a quasi-corporation chooses to withdraw will depend largely on the size of its net income. All such withdrawals are recorded on the date the payment actually occurs. See paragraphs 5.118–5.119 for a description of the recording of the corresponding revenue item.

6.112 As with dividends, withdrawals of income from quasi-corporations do not include withdrawals of funds realized by the sale or other disposal of the quasi-corporation's assets. Funds withdrawn by liquidating large amounts of accumulated retained earnings or other reserves of the quasi-corporation are recorded as withdrawals from equity. The sale of inventories, fixed assets, land, or other nonproduced assets to withdraw funds would be recorded in the accounts of the quasi-corporation as disposals in the appropriate category of assets (see paragraphs 7.34–7.117), with government recording a withdrawal from equity.

Property expense for investment income disbursements (2813)

6.113 ***Property expense for investment income disbursements*** (2813) includes property income attributed to insurance policyholders, pension entitlements, and holders of investment fund shares (see paragraphs 7.174 and 7.178). Public corporations can be insurance enterprises or may operate pension schemes, in which case they will hold technical reserves in the form of reserves against outstanding risks in respect of nonlife and life insurance policies, as well as reserves to provide for the entitlement on pension and nonpension benefits and calls under standardized guarantee schemes. The reserves are liabilities toward the policyholders or beneficiaries. Any income receivable from the investment of the corresponding assets should be attributed as the property income of the policyholders or beneficiaries, and therefore a property expense is recorded to reflect the increase in liabilities.

6.114 General government units are less likely to operate an insurance scheme, but if they do and if they maintain separate reserves, the property expense attributed to insurance policyholders would be recorded in the same manner as for a public corporation. If the general government unit does not maintain separate reserves, then no investment income is generated and so no property expense is attributed to the policyholders.[39]

6.115 For government units operating a standardized guarantee scheme against fees, there may also be investment income earned on the reserves of the scheme and this should be shown as a property expense being distributed to the units paying the fees (which may not be the same units that stand to benefit from the guarantees). Appendix 4 describes the recording of transactions related to standardized guarantee schemes.

6.116 As described in Appendix 2, pension entitlements arise from one of two types of pension schemes: defined-contribution schemes and defined-benefit schemes. Under both schemes, the operator of the scheme records a property expense attributed to policyholders to reflect changes in the liability outstanding for the pension entitlements. These changes may arise from investment income and the change in value due to the passage of time.

6.117 With a defined-benefit scheme, the future pension benefits are defined by some formula normally related to participants' length of service and salary. The nominal values of the pension benefits payable in the future are determined actuarially based on estimates of variables, such as expected retirement ages, mortality rates, expected inflation, and expected salary increases. The nominal values can then be converted to present values using an appropriate discount rate. Over time, the total liability of the pension scheme will change because of the receipt

[39] For a description of flows and stock positions related to insurance and standardized guarantee schemes, see paragraphs A4.66–A4.80.

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of additional contributions and property income, the payment of benefits, changes in the actuarial assumptions, and the passage of time. The property expense attributed to a pension fund's policyholders is equal to the increase in the liability resulting from the property income accruing on the pension fund's assets held on behalf of the beneficiaries and the passage of time, which occurs because the future benefits are discounted over fewer reporting periods.

6.118 With defined-contribution schemes, the level of contributions to the fund, rather than the level of benefits, is guaranteed by the employer. All defined-contribution schemes are funded (see paragraph A2.55), and the liability of a defined-contribution scheme is equal to the current market value of the fund's assets. Therefore, the property expense attributed to insurance policyholders is equal to the property income receivable from the investment of the scheme's assets. Any holding gains on the scheme's assets are equally reflected in holding losses on the scheme's unit's liability to the beneficiaries.

6.119 The increase/decrease in the value of investment fund shares (or units), other than from other economic flows, is recorded as property income, either distributed to the share- (or unit) holders or reinvested by the holders in the shares (or units).

Rent (2814)

6.120 ***Rent*** (2814) is the expense payable to the owners of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production. Rent payable is typically related to a resource lease on land, subsoil resources, and on other natural resources. Rent accrues continuously to the asset's owner throughout the period of the contract and may be payable in cash or in kind. The types of resource rent and the boundary between resource rent, rental of produced assets, and taxes are described in detail in paragraphs 5.124–5.132 in the context of the corresponding revenue item.

Reinvested earnings on foreign direct investment (2815)

6.121 Reinvested earnings are the direct investor's share of the retained earnings of the direct investment enterprise. Public corporations may have foreign direct investors. Actual distributions to such nonresident foreign direct investors may be made out of their distributable income in the form of dividends or withdrawals of income from quasi-corporations. However, macroeconomic statistics also require the retained earnings of a foreign direct investment enterprise to be recorded as if they were distributed and remitted to foreign direct investors in proportion to their ownership of the equity in the enterprise and then reinvested by them by means of additions to equity. The imputed remittance of these retained earnings is classified as a form of distributed income that is separate from, and additional to, any actual payments of dividends or withdrawals of income from quasi-corporations. This treatment assumes that the decision to retain some earnings within the enterprise must represent a deliberate investment decision on the part of the foreign direct investor. Reinvested earnings are described in detail in paragraphs 5.134–5.135 in the context of the corresponding revenue item.

Transfers not elsewhere classified (282)

6.122 ***Transfers not elsewhere classified*** (282) payable include a number of gifts and transfers to individuals, private nonprofit institutions, nongovernmental foundations, corporations, or government units that are not included in other categories of transfers and serve quite different purposes. *Transfers not elsewhere classified* (282) are subdivided into *current transfers not elsewhere classified* (2821) and *capital transfers not elsewhere classified* (2822). It may be of analytic interest to classify this group of transactions according to the recipients, such as residents and nonresidents. Among residents, it may also be of interest to classify them according to whether these are households, nonprofit institutions serving households, public nonfinancial corporations, public financial corporations, or private corporations (see Table 6.10).

Current transfers not elsewhere classified (2821)

6.123 The most important types of current transfers included here are:

- Current transfers to nonprofit institutions serving households: These transfers usually consist of cash

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Table 6.10 Detailed Classification of Transfers Not Elsewhere Classified (282)	
282	Transfers not elsewhere classified[1]
2821	Current transfers not elsewhere classified
2822	Capital transfers not elsewhere classified

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

in the form of membership dues, subscriptions, and voluntary donations, whether made on a regular or occasional basis.[40] Such transfers are intended to cover the costs of the production of nonprofit institutions serving households or to provide the funds out of which current transfers may be made to households in the form of social assistance benefits. This category also covers transfers in kind in the form of food, clothing, blankets, and medicines to charities for distribution to households.

- Current taxes, compulsory fees, and fines imposed by one unit of general government or public corporations on another government unit or public corporation: These transfers are subject to elimination by consolidation.
- Net nonpayable tax credits: When, due to timing differences, the amount of a nonpayable tax credit exceeds the amount of tax otherwise receivable from taxpayers in the reporting period, and the excess is paid to the taxpayer, the net payment should be recorded as expense rather than negative tax.
- Gross payable tax credits other than those classified as subsidies or social benefits: These amounts arise from tax credits payable irrespective of whether taxes are payable, and are recorded on a gross basis so that the total amount payable is recorded as expense (see paragraphs 5.29–5.32).
- Fines and penalties imposed by courts of law or quasi-judicial bodies.
- Payments of compensation for injury to persons or damage to property caused by general government or public sector units, excluding payments of nonlife insurance claims: These payments can be either compulsory payments awarded by courts of law or ex gratia payments agreed out of court.
- Scholarships and other educational benefits payable for households that are not related to social risks.
- Purchases of goods and services from market producers that are distributed directly to households for final consumption other than social benefits.

[40] Membership dues and subscription fees are recorded as an expense in *use of goods and services* (22) if there is an exchange of a payment for some form of a service (see paragraph 6.42).

Capital transfers not elsewhere classified (2822)

6.124 The most important types of capital transfers included here are:

- Capital taxes (see paragraph 5.51) imposed by one unit of general government on another government unit or public corporation: These transfers are subject to elimination by consolidation.
- Major, nonrecurrent, exceptional payments in compensation for extensive damages or serious injuries such as those arising from catastrophes not covered by insurance policies are included as a capital transfer.
- Capital transfers to corporations, quasi-corporations, nonprofit institutions serving households, households, and nonresidents in cash or in kind, to finance all or part of the costs of acquiring nonfinancial assets, to cancel or assume a debt by mutual agreement with the debtor without acquiring an effective financial claim on the original debtor (see Box 6.3).[41]
- Transfers payable to corporations and quasi-corporations to cover large operating deficits accumulated over two or more years.[42]
- Payment of interest or other debt service cost on behalf of other producer units without acquiring an effective claim on the original debtor.
- Amounts payable in excess of the value of liabilities for the provision of pension entitlements assumed by other units.[43]

[41] This expense category excludes amounts payable for the acquisition of equity (see paragraph 9.49).

[42] Where a realistic expectation exists that such amounts will be repayable, as indicated by certain criteria (see Box 6.3), the transaction should be classified as the acquisition of a financial asset. A regular transfer covering an operating deficit is recorded as a subsidy.

[43] Amounts payable up to the value of the liability assumed should be recorded as transactions in financial assets and liabilities (i.e., the reduction in liabilities) (see paragraphs 9.66–9.67).

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Premiums, fees, and claims payable related to nonlife insurance and standardized guarantee schemes (283)

6.125 ***Premiums, fees, and claims payable related to nonlife insurance and standardized guarantee schemes*** (283) include nonlife insurance premiums payable to insurance schemes/corporations to secure entitlement to insurance against risks, claims payable by insurance schemes to beneficiaries, and fees payable to obtain standardized guarantees. To allow for consolidation of the general government and public sectors, this expense should also be classified according to the subsector of the counterparty (see Table 6.11). A distinction is made between *premiums, fees, and current claims payable* (2831) and *capital claims payable* (2832):

- ***Premiums, fees, and current claims payable*** (2831) comprise nonlife insurance premiums expense and fees payable for the issuance of standardized guarantees, as well as insurance settlement expense that are not exceptional. The premiums and fees are payable to insurance schemes and corporations to obtain coverage against various events or accidents. Such amounts are always recorded as current transfers.[44] Also included are nonlife insurance claims payable by insurance schemes operated by a general government unit or public insurance corporation in settlement of claims that become due during the current reporting period. Claims become payable when the eventuality occurs that gives rise to a valid claim, regardless of whether paid, settled, or reported during the reporting period. Such insurance claims that are not exceptional are recorded as current transfers (see also paragraph A4.79 for the recording of standardized guarantee schemes).
- ***Capital claims payable*** (2832) comprise exceptionally large insurance settlements payable in the wake of a catastrophic event or disaster. For these exceptional large claims payable, such as those following a catastrophe, some part of the claims may be recorded as capital transfers rather than as current transfers. It may be difficult for the parties to identify these events consistently, so as a simplifying convention, all nonlife insurance claims are classified as current transfers, unless it is necessary to record a capital transfer to be consistent with the national accounts.

Table 6.11 Detailed Classification of Premiums, Fees, and Claims Payable Related to Nonlife Insurance and Standardized Guarantee Schemes (283)

283	Premiums, fees, and claims payable related to nonlife insurance and standardized guarantee schemes
2831	Premiums, fees, and current claims payable
28311	Premiums payable[1]
28312	Fees payable for standardized guarantee schemes
28313	Current claims payable[1]
2832	Capital claims payable[1]

[1]Further breakdown/"of which" lines could allow for the identification of subsectors and individual units (see Table 3.1).

[44] In the *2008 SNA*, nonlife insurance premiums payable are partitioned into a purchase of a service and a transfer. In GFS, the entire premium is considered a transfer because the policyholder is not able to partition the service and transfer components.

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Annex: Classification of the Functions of Government

This annex describes the classification of expenditure according to the functions of government.

Introduction

6.126 The **Classification of Functions of Government** (COFOG) is a detailed classification of the functions, or socioeconomic objectives, that general government units aim to achieve through various kinds of expenditure. COFOG is integral to the GFS presentation. It is one of a family of four classifications referred to as classifications of expenditure according to purpose.[45] COFOG provides a classification of government outlays by functions that experiences have shown to be of general interest and useful to a wider variety of analytic applications. Statistics on health, education, social protection, and environmental protection, for example, can be used to study the effectiveness of government programs in those areas. In contrast, the Classification of Environmental Activities (CEA) is a functional classification that covers a more limited but specialized activity.[46]

6.127 While the COFOG as used in this *Manual* fully agrees with the OECD/UN classification, the concept is applied slightly differently in GFS. Final outlays are referred to in a general sense by the OECD/UN, and therefore include grants, loans, and/or subsidies. In GFS, COFOG is applied only to expenditure, comprising expense and the net investment in nonfinancial assets. Transactions in financial assets and liabilities, such as loans, are excluded when compiling COFOG data for GFS reporting purposes. For the general government sector, transactions in financial assets and liabilities are usually fungible, to such an extent that a functional classification of these financing activities may be less useful.

Structure of COFOG Classifications

6.128 The classification codes of COFOG are somewhat different from the structure of other GFS classification codes. The functions are classified using a three-level scheme. There are 10 first-level, or two-digit, categories, referred to as divisions. Examples are *health* (Division 07) and *social protection* (Division 10). Within each division, there are several groups, or three-digit categories, such as *hospital services* (Group 073) and *sickness and disability* (Group 101). Within each group, there are one or more classes, or four-digit categories, such as *nursing and convalescent home services* (Class 0734) and *disability* (Class 1012). All three classification levels and detailed descriptions of the contents of each class are reproduced in this annex. Table 6A.1 lists the divisions and groups. In the GFS framework, the prefix "7" has been added to align the COFOG codes with other GFS classification codes.

6.129 All expenditure on a particular function is aggregated in one category of COFOG regardless of the economic nature of the expenditure. That is, transfers payable in cash designed to be used for a particular function, the purchase of goods and services from a market producer that are transferred to households for the same function, the production of goods and services by a general government unit, and/or the net investment in a nonfinancial asset for that same function are all reported under the same function.

Uses of COFOG

6.130 COFOG permits trends in government expenditure on particular functions or policy purposes

[45] COFOG was produced by the Organisation for Economic Cooperation and Development (OECD) and was published together with the other three classifications in United Nations (UN), *Classifications of Expenditure according to Purpose* (New York, 2000). The other classifications are the Classifications of Individual Consumption According to Purpose (COICOP), the Classification of the Purpose of Nonprofit Institutions Serving Households (COPNI), and the Classification of the Outlays of Producers According to Purpose (COPP).

[46] CEA is one of the classifications and lists contained in the *System of Environmental-Economic Accounting Central Framework (SEEA)*. See Appendix 7 for a description of the linkages between GFS and the *SEEA*. For more details on CEA, also see the *Classification of Environmental Protection Activities and Expenditure* (*CEPA*) (UN, 2000c).

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Table 6A.1 Classification of Expenditure by Functions of Government According to Divisions and Groups

7	**Total expenditure**
701	**General public services**
7011	Executive and legislative organs, financial and fiscal affairs, external affairs
7012	Foreign economic aid
7013	General services
7014	Basic research
7015	R&D General public services
7016	General public services n.e.c.
7017	Public debt transactions
7018	Transfers of a general character between different levels of government
702	**Defense**
7021	Military defense
7022	Civil defense
7023	Foreign military aid
7024	R&D Defense
7025	Defense n.e.c.
703	**Public order and safety**
7031	Police services
7032	Fire protection services
7033	Law courts
7034	Prisons
7035	R&D Public order and safety
7036	Public order and safety n.e.c.
704	**Economic affairs**
7041	General economic, commercial, and labor affairs
7042	Agriculture, forestry, fishing, and hunting
7043	Fuel and energy
7044	Mining, manufacturing, and construction
7045	Transport
7046	Communication
7047	Other industries
7048	R&D Economic affairs
7049	Economic affairs n.e.c.
705	**Environmental protection**
7051	Waste management
7052	Waste water management
7053	Pollution abatement
7054	Protection of biodiversity and landscape
7055	R&D Environmental protection
7056	Environmental protection n.e.c.
706	**Housing and community amenities**
7061	Housing development
7062	Community development
7063	Water supply
7064	Street lighting
7065	R&D Housing and community amenities
7066	Housing and community amenities n.e.c.
707	**Health**
7071	Medical products, appliances, and equipment
7072	Outpatient services
7073	Hospital services
7074	Public health services
7075	R&D Health
7076	Health n.e.c.
708	**Recreation, culture, and religion**
7081	Recreational and sporting services
7082	Cultural services
7083	Broadcasting and publishing services
7084	Religious and other community services
7085	R&D Recreation, culture, and religion
7086	Recreation, culture, and religion n.e.c.
709	**Education**
7091	Pre-primary and primary education
7092	Secondary education
7093	Postsecondary nontertiary education
7094	Tertiary education
7095	Education not definable by level
7096	Subsidiary services to education
7097	R&D Education
7098	Education n.e.c.
710	**Social protection**
7101	Sickness and disability
7102	Old age
7103	Survivors
7104	Family and children
7105	Unemployment
7106	Housing
7107	Social exclusion n.e.c.
7108	R&D Social protection
7109	Social protection n.e.c.

Note: R&D = research and development; n.e.c. = not elsewhere classified.

to be examined over time. Conventional government accounts are not usually suitable for this purpose because they reflect the organizational structures of governments. Not only might time series be distorted by organizational changes, but at a specific time some organizations may be responsible for more than one function, and responsibility for one function might be divided among several organizations. For example, if a government establishes a new department that brings together some of the functions previously

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administered by several departments or at several levels of government, it will not usually be possible to use conventional government accounts to compare expenditure on these purposes over time.

6.131 COFOG is also used for making international comparisons of the extent to which governments are involved in particular economic and social functions. Just as COFOG avoids the problems of organizational changes in a single government, so too does it avoid the problems of organizational differences among countries. In one country, for example, all functions connected with water supply may be undertaken by a single government agency, while in another country, they may be distributed among departments dealing with the environment, housing, or industrial development.

6.132 For particular kinds of analyses, COFOG provides key aggregates that could be used as indicators or measures of results. For example, in studies of social assistance, information on past expenditure on the social protection function could give an indication of changes in the support provided by government for the welfare of the population. Similarly, analyzing the impact of economic growth on the environment may require information on the expenditure on environmental protection.

Individual versus Collective Goods and Services

6.133 Government services can benefit the community either individually or collectively. COFOG is used to distinguish between individual and collective goods and services provided by general government units. The COFOG functions are defined so that they represent individual or collective consumption, but not both.

6.134 A **collective service** is a service provided simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region. Other characteristics of these collective services may be summarized as follows:

- The use of such services is usually passive and does not require the explicit agreement or active participation of all the individuals concerned.
- The provision of a collective service to one individual does not reduce the amount available to others in the same community or section of the community. There is no rivalry in consuming these services.

6.135 An **individual consumption good or service** is one that is acquired by a household and used to satisfy the needs or wants of members of that household. Individual goods and services are essentially "private" as distinct from "public" goods and services. They have the following characteristics:

- It must be possible to observe and record the acquisition of the good or service by an individual household or member thereof as well as the time at which it took place.
- The household must have agreed to accept the provision of the good or service and to take whatever action is necessary to make it possible—for example, by attending a school or clinic.
- The good or service must be such that its acquisition by one household or person, or possibly by a small, restricted group of persons, precludes its acquisition by other households or persons.

6.136 An important characteristic of an individual good or service is that its acquisition by one household, person, or group of persons brings no (or very little) benefit to the rest of the community. The borderline between individual goods and services and collective services is not always clear. While the provision of certain individual health or education services (e.g., vaccination or immunization) may bring some external benefits to the rest of the community, in general, the individuals concerned derive the main benefit. When a government unit incurs expenditure on the provision of individual goods or services, it must decide not only how much to spend in total but how to allocate, or distribute, the goods or services among individual members of the community. In contrast, in the case of collective services, all members of the community benefit from such services.

6.137 Expenditure incurred by governments in connection with individual services such as health and education are to be treated as collective services when they are concerned with the formulation and administration of government policy, the setting and enforcement of public standards, the regulation, licensing, or supervision of producers, etc. For example, the expenditure incurred by ministries of health or education at a national level are to be included in

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collective consumption expenditure as they are concerned with general matters of policy, standards, and regulation. On the other hand, any overhead expenses connected with the administration or functioning of a group of hospitals, schools, colleges, or similar institutions are to be included in individual expenditure. For example, if a group of private hospitals has a central unit that provides certain common services such as purchasing, laboratories, ambulances, or other facilities, the costs of these common services would be taken into account in the prices charged to patients. The same principle must be followed when the hospitals are nonmarket producers: all the costs that are associated with the provision of services to particular individuals, including those of any central units providing common services, should be included in the value of expenditure on individual services.

6.138 All of classes 701 to 706 are collective services, as are sections 7075 and 7076 of health; sections 7083 to 7086 of recreation, culture, and religion; sections 7097 and 7098 of education; and sections 7108 and 7109 of social protection. These sections cover expenditure on general administration, regulation, research that is not recorded as investment in nonfinancial assets, and so on. The remaining sections of health, recreation, culture and religion, education, and social protection (which dominate each of the classes) are considered to be individual services.

6.139 In this annex, each class is marked "CS" or "IS" to designate it as collective services or individual services, respectively. This distinction is used for the computation of final consumption expenditure and actual final consumption of the general government and household sectors in the national accounts, as described in paragraphs A7.53–A7.62. Purchases of goods and services that are provided to individual households or persons are treated as social transfers in kind in the *2008 SNA* so that the actual final consumption of government and households, in addition to their final consumption expenditure, can be computed. Therefore, statistics compiled for each economic type of expenditure by function are needed for compiling national accounts according to the *2008 SNA*.

Units of Classification

6.140 The units of classification are, in principle, individual transactions. Each purchase of goods and services, wages payable, transfer, or other expenditure should be assigned a COFOG code according to the function that the transaction serves. For most expenditure, however, it will generally not be possible to use transactions as the unit of classification and institutional units may also not necessarily be performing a single function. Instead, COFOG codes may best be done at the smallest level of entities, regardless of their status as institutional units. Functions often have to be assigned to all transactions of agencies, offices, programs, bureaus, and similar smaller entities within government departments or ministries.

6.141 When these smaller government entities rather than transactions are used for classification, it may happen that the smallest entity that can be identified in the government accounts may perform more than one COFOG function. If possible, the expenditure of multifunction entities should be allocated among COFOG functions using a relevant physical indicator, such as hours worked by employees. It may be possible only to assign all expenditure by multifunction entities to whichever purpose appears to account for the largest part of expenditure.

6.142 A single classification cannot serve all analytic purposes. The selection of functions in COFOG is based on judgment. The scope of each function could be broader or narrower, and completely different functions could have been included. For example, expenditure for medical schools is classified in COFOG as education rather than health. Also, research and development could be a function of its own, but in COFOG, research and development expenditure is shown separately, classified according to the function the goal of the research and development most closely serves. Thus, COFOG statistics must be used with care to be sure that the desired coverage is obtained for a specific analytic purpose.

Problems in Identifying Functions of Government

Shared Expenditure

6.143 Government ministries generally are responsible for the formulation, administration, coordination, and monitoring of overall policies, plans, programs, and budgets; for the preparation (in some countries) and enforcement of legislation; and for the production and

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dissemination of general information, technical documentation, and statistics. Consequently, the expenditure of these ministries has to be shared across the classes for which they are responsible. For example, the expenditure of a ministry of transport should be divided between *road transport* (70451), *water transport* (70452), *railway transport* (70453), *air transport* (70454), and *pipeline and other transport* (70455).

Administrative Expenditure

6.144 Administrative expenditure on general services, such as personnel services, supply and purchasing services, accounting and auditing services, and computer and data processing services, undertaken by ministries or units within ministries should be classified at the most detailed level possible. If administrative expenditure overlaps two or more classes, an attempt should be made to apportion expenditure between the classes concerned. If this approach is not feasible, the total should be allocated to that class that accounts for the largest part of the total expenditure.

Subsidies

6.145 Particular difficulties may arise with regard to subsidies. The main objective behind such government support may be, for example, to assure capacity to build naval vessels considered vital to national defense, to maintain living standards of important groups such as farmers or miners, or to provide employment for workers in underutilized hospitals. These political objectives are not to be confused with functions as the term is used in COFOG. Hence, a government subsidy to shipyards is classified under *manufacturing* (70442), and grants to hospitals are classified under *hospital services* (7073) regardless of the ultimate purposes. Subsidies and grants designed chiefly to increase employment opportunities in general are an exception to this rule. Because such programs do not focus on any single industry, they are classified under *general labor affairs* (70412).

Consumption of Fixed Capital

6.146 It is likely that consumption of fixed capital will be difficult to allocate by function, especially if only aggregated figures for total government capital stock and consumption of fixed capital are compiled. In these circumstances, approximations will have to be used. One possibility may be to distribute consumption of fixed capital according to book value depreciation, if it is available for detailed organizational units within government. Another approach would be to distribute consumption of fixed capital among functions in proportion to the net acquisition of fixed assets over a number of earlier years.

6.147 Another caution regarding the use of COFOG statistics relates to net investment in nonfinancial assets. Because expenditure classified by COFOG includes consumption of fixed capital as an expense, and includes it in the calculation of net investment in nonfinancial assets (deducted from acquisition minus disposals), the consumption of fixed capital will net out in COFOG data. However, if a functional classification is compiled for expense items only, this will include consumption of fixed capital representing part of the resource cost of using previously acquired fixed assets.

Cross-Classification of Expenditure

6.148 The economic and functional classifications of expenditure can be cross-classified as illustrated in Table 6A.2. A cross-classification of COFOG with each of the categories of the economic classification of expense is analytically useful. The cross-classification allows an analysis of:

- The inputs, which show how governments perform their functions, and the outputs, which show what governments are doing
- How governments carry out their public expenditure policy functions to meet social objectives
- The changes in the composition of expenditure over time to serve specific policy objectives
- Comparison of how specific functions are carried out by different governments.

6.149 Table 6A.2 includes a column for each major economic type of expense and for net investment in nonfinancial assets. As indicated earlier, this classification is needed to compile data on the actual final consumption of the general government and households (see paragraph 6.139).

Detailed Classification of the Functions of Government

6.150 As outlined earlier, the complete Classification of the Functions of Government (COFOG) has three levels of detail: Divisions, Groups, and Classes.

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Table 6A.2 Cross-Classification of Expenditure by Functional and Economic Classifications

	Compensation of employees [GFS]	Use of goods and services	Consumption of fixed capital [GFS]	Interest [GFS]	Subsidies	Grants	Social benefits [GFS]	Other expense	Net Investment in nonfinancial assets
General public services									
Defense									
Public order and safety									
Economic affairs									
Environmental protection									
Housing and community amenities									
Health									
Recreation, culture, and religion									
Education									
Social protection									

[1]Consumption of fixed capital is a cost (expense) for a general government unit and reduces the value of nonfinancial assets. The net effect of consumption of fixed capital on total expenditure is thus zero.

The Divisions could be seen as the broad objectives of government, while the Groups and Classes detail the means by which these broad objectives are achieved. The classification numbers have been modified slightly to conform with the coding system of this *Manual*. The numeral "7" is prefixed to all codes and the punctuation separating Divisions, Groups, and Classes are deleted. In addition, where appropriate, reference has been made to expenditure rather than outlays. Otherwise, these descriptions are the same as those of the United Nations Statistical Division.[47]

[47] See http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4&Top=1&Lg=1.

701 GENERAL PUBLIC SERVICES

7011 EXECUTIVE AND LEGISLATIVE ORGANS, FINANCIAL AND FISCAL AFFAIRS, EXTERNAL AFFAIRS

70111 Executive and legislative organs (CS)

- Administration, operation, or support of executive and legislative organs:

Includes: office of the chief executive at all levels of government—office of the monarch, governor-general, president, prime minister, governor, mayor, etc.; legislative bodies at all levels of government—parliaments, chambers of deputies, senates, assemblies, town councils, etc.; advisory, administrative, and political staffs attached to chief executive offices and legislatures;

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libraries and other reference services serving mainly executive and legislative organs; physical amenities provided to the chief executive, the legislature, and their aides; permanent or ad hoc commissions and committees created by or acting on behalf of the chief executive or legislature.

Excludes: ministerial offices, offices of heads of departments of local governments, interdepartmental committees, etc. concerned with a specific function (classified according to function).

70112 Financial and fiscal affairs (CS)

- Administration of financial and fiscal affairs and services; management of public funds and public debt; operation of taxation schemes
- Operation of the treasury or ministry of finance, the budget office, the inland revenue agency, the customs authorities, the accounting and auditing services
- Production and dissemination of general information, technical documentation and statistics on financial and fiscal affairs and services.

Includes: financial and fiscal affairs and services at all levels of government.

Excludes: underwriting or flotation charges and interest payments on government loans (70170); supervision of the banking industry (70411).

70113 External affairs (CS)

- Administration of external affairs and services
- Operation of the ministry of external affairs and diplomatic and consular missions stationed abroad or at offices of international organizations; operation or support of information and cultural services for distribution beyond national boundaries; operation or support of libraries, reading rooms, and reference services located abroad
- Regular subscriptions and special contributions to meet general operating expenses of international organizations.

Excludes: economic aid to developing countries and countries in transition (70121); economic aid missions accredited to foreign governments (70121); contributions to aid programs administered by international or regional organizations (70122); military units stationed abroad (70210); military aid to foreign countries (70230); general foreign economic and commercial affairs (70411); tourism affairs and services (70473).

7012 FOREIGN ECONOMIC AID

70121 Economic aid to developing countries and countries in transition (CS)

- Administration of economic cooperation with developing countries and countries in transition
- Operation of economic aid missions accredited to foreign governments; operation or support of technical assistance programs, training programs, and fellowship and scholarship schemes
- Economic aid in the form of grants (in cash or in kind) or loans (regardless of interest charged).

Excludes: contributions to economic development funds administered by international or regional organizations (70122); military aid to foreign countries (70230).

70122 Economic aid routed through international organizations (CS)

- Administration of economic aid routed through international organizations
- Contributions in cash or in kind to economic development funds administered by international, regional, or other multinational organizations.

Excludes: aid to international peacekeeping operations (70230).

7013 GENERAL SERVICES

This group covers services that are not connected with a specific function and that are usually undertaken by central offices at the various levels of government. It also covers those services connected with a particular function that are undertaken by such central offices. For example, the compilation of industry, environment, health, or education statistics by a central statistical agency is included here.

70131 General personnel services (CS)

- Administration and operation of general personnel services, including development and implementation of general personnel policies and procedures covering selection, promotion, rating

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methods, the description, evaluation and classification of jobs, the administration of civil service regulations, and similar matters.

Excludes: personnel administration and services connected with a specific function (classified according to function).

70132 Overall planning and statistical services (CS)

- Administration and operation of overall economic and social planning services and of overall statistical services, including formulation, coordination, and monitoring of overall economic and social plans and programs and of overall statistical plans and programs.

Excludes: economic and social planning services and statistical services connected with a specific function (classified according to function).

70133 Other general services (CS)

- Administration and operation of other general services, such as centralized supply and purchasing services, maintenance and storage of government records and archives, operation of government-owned or -occupied buildings, central motor vehicle pools, government-operated printing offices, centralized computer and data processing services, etc.

Excludes: other general services connected with a specific function (classified according to function).

7014 BASIC RESEARCH

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.

70140 Basic research (CS)

- Administration and operation of government agencies engaged in basic research
- Grants, loans, or subsidies to support basic research undertaken by nongovernment bodies such as research institutes and universities.

Excludes: applied research and experimental development (classified by function).

7015 R&D GENERAL PUBLIC SERVICES

Applied research is original investigation undertaken in order to acquire new knowledge, but directed primarily toward a specific practical aim or objective.

Experimental development is systematic work, drawing on existing knowledge gained from research and practical experience that is directed to producing new materials, products, and devices; to installing new processes, systems, and services; or to improving substantially those already produced or installed.

70150 R&D General public services (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to general public services
- Grants, loans, or subsidies to support applied research and experimental development related to general public services undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7016 GENERAL PUBLIC SERVICES N.E.C.

70160 General public services n.e.c. (CS)

- Administration, operation, or support of general public services, such as registration of voters, holding of elections and referendums, administration of nonself-governing and trust territories, etc.

Includes: general public services that cannot be assigned to (7011), (7012), (7013), (7014), or (7015).

Excludes: public debt transactions (7017); transfers of a general character between different levels of government (7018).

7017 PUBLIC DEBT TRANSACTIONS

70170 Public debt transactions (CS)

- Interest payments and expense for underwriting and floating government loans.

Excludes: administrative costs of public debt management (70112).

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7018 TRANSFERS OF A GENERAL CHARACTER BETWEEN DIFFERENT LEVELS OF GOVERNMENT

70180 Transfers of a general character between different levels of government (CS)

- Transfers between different levels of government that are of a general character and not allocated to a particular function.

702 DEFENSE

7021 MILITARY DEFENSE

70210 Military defense (CS)

- Administration of military defense affairs and services
- Operation of land, sea, air, and space defense forces; operation of engineering, transport, communication, intelligence, personnel, and other noncombat defense forces; operation or support of reserve and auxiliary forces of the defense establishment.

Includes: offices of military attachés stationed abroad; field hospitals.

Excludes: military aid missions (70230); base hospitals (7073); military schools and colleges where curricula resemble those of civilian institutions even though attendance may be limited to military personnel and their families (7091), (7092), (7093), or (7094); pension schemes for military personnel (7102).

7022 CIVIL DEFENSE

70220 Civil defense (CS)

- Administration of civil defense affairs and services; formulation of contingency plans; organization of exercises involving civilian institutions and populations
- Operation or support of civil defense forces.

Excludes: civil protection services (70320); purchase and storage of food, equipment, and other supplies for emergency use in the case of peacetime disasters (71090).

7023 FOREIGN MILITARY AID

70230 Foreign military aid (CS)

- Administration of military aid and operation of military aid missions accredited to foreign governments or attached to international military organizations or alliances
- Military aid in the form of grants (in cash or in kind), loans (regardless of interest charged), or loans of equipment; contributions to international peacekeeping forces, including the assignment of manpower.

7024 R&D DEFENSE

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70240 R&D Defense (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to defense
- Grants, loans, or subsidies to support applied research and experimental development related to defense undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7025 DEFENSE N.E.C.

70250 Defense n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall policies, plans, programs, and budgets relating to defense; preparation and enforcement of legislation relating to defense; production and dissemination of general information, technical documentation, and statistics on defense; etc.

Includes: defense affairs and services that cannot be assigned to (7021), (7022), (7023), or (7024).

Excludes: administration of war veterans' affairs (7102).

703 PUBLIC ORDER AND SAFETY

7031 POLICE SERVICES

70310 Police services (CS)

- Administration of police affairs and services, including alien registration, issuing work and travel documents to immigrants, maintenance of arrest records and statistics related to police work, road traffic regulation and control, prevention of smuggling, and control of offshore and ocean fishing
- Operation of regular and auxiliary police forces, of port, border, and coast guards, and of other

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special police forces maintained by public authorities; operation of police laboratories; operation or support of police training programs.

Includes: traffic wardens.

Excludes: police colleges offering general education in addition to police training (7091), (7092), (7093), or (7094).

7032 FIRE PROTECTION SERVICES

70320 Fire protection services (CS)

- Administration of fire prevention and firefighting affairs and services
- Operation of regular and auxiliary fire brigades and of other fire prevention and firefighting services maintained by public authorities; operation or support of fire prevention and firefighting training programs.

Includes: civil protection services such as mountain rescue, beach surveillance, evacuation of flooded areas, etc.

Excludes: civil defense (70220); forces especially trained and equipped for fighting or preventing forest fires (70422).

7033 LAW COURTS

70330 Law courts (CS)

- Administration, operation, or support of civil and criminal law courts and the judicial system, including enforcement of fines and legal settlements imposed by the courts and operation of parole and probation systems
- Legal representation and advice on behalf of government or on behalf of others provided by government in cash or in services.

Includes: administrative tribunals, ombudsmen, and the like.

Excludes: prison administration (70340).

7034 PRISONS

70340 Prisons (CS)

- Administration, operation, or support of prisons and other places for the detention or rehabilitation of criminals such as prison farms, workhouses, reformatories, borstals, asylums for the criminally insane, etc.

7035 R&D PUBLIC ORDER AND SAFETY

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70350 R&D Public order and safety (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to public order and safety
- Grants, loans, or subsidies to support applied research and experimental development related to public order and safety undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7036 PUBLIC ORDER AND SAFETY N.E.C.

70360 Public order and safety n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall policies, plans, programs, and budgets relating to public order and safety; preparation and enforcement of legislation and standards for the provision of public order and safety; production and dissemination of general information, technical documentation, and statistics on public order and safety.

Includes: public order and safety affairs and services that cannot be assigned to (7031), (7032), (7033), (7034), or (7035).

704 ECONOMIC AFFAIRS

7041 GENERAL ECONOMIC, COMMERCIAL, AND LABOR AFFAIRS

70411 General economic and commercial affairs (CS)

- Administration of general economic and commercial affairs and services, including general foreign commercial affairs; formulation and implementation of general economic and commercial policies; liaison among different branches of government and between government and business
- Regulation or support of general economic and commercial activities such as export and import trade as a whole, commodity and equity markets, overall income controls, general trade promotion

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activities, general regulation of monopolies and other restraints on trade and market entry, etc.; supervision of the banking industry

- Operation or support of institutions dealing with patents, trademarks, copyrights, company registration, weather forecasting, standards, hydrologic surveys, geodesic surveys, etc.
- Grants, loans, or subsidies to promote general economic and commercial policies and programs.

Includes: consumer education and protection.

Excludes: economic and commercial affairs of a particular industry (classified to (7042) through (7047) as appropriate).

70412 General labor affairs (CS)

- Administration of general labor affairs and services; formulation and implementation of general labor policies; supervision and regulation of labor conditions (hours of work, wages, safety, etc.); liaison among different branches of government and between government and overall industrial, business, and labor organizations
- Operation or support of general programs or schemes to facilitate labor mobility, to reduce sex, race, age, and other discrimination, to reduce the rate of unemployment in distressed or underdeveloped regions, to promote the employment of disadvantaged or other groups characterized by high unemployment rates, etc.; operation of labor exchanges; operation or support of arbitration and mediation services
- Production and dissemination of general information, technical documentation, and statistics on general labor affairs and services
- Grants, loans, or subsidies to promote general labor policies and programs.

Excludes: labor affairs of a particular industry (classified to (7042) through (7047) as appropriate); provision of social protection in the form of cash benefits and benefits in kind to persons who are unemployed (71050).

7042 AGRICULTURE, FORESTRY, FISHING, AND HUNTING

70421 Agriculture (CS)

- Administration of agricultural affairs and services; conservation, reclamation, or expansion of arable land; agrarian reform and land settlement; supervision and regulation of the agricultural industry
- Construction or operation of flood control, irrigation, and drainage systems, including grants, loans, or subsidies for such works
- Operation or support of programs or schemes to stabilize or improve farm prices and farm incomes; operation or support of extension services or veterinary services to farmers, pest control services, crop inspection services, and crop grading services
- Production and dissemination of general information, technical documentation, and statistics on agricultural affairs and services
- Compensation, grants, loans, or subsidies to farmers in connection with agricultural activities, including payments for restricting or encouraging output of a particular crop or for allowing land to remain noncultivated.

Excludes: multipurpose development projects (70474).

70422 Forestry (CS)

- Administration of forestry affairs and services; conservation, extension, and rationalized exploitation of forest reserves; supervision and regulation of forest operations and issuance of tree-felling licenses
- Operation or support of reforestation work, pest and disease control, forest firefighting and fire prevention services, and extension services to forest operators
- Production and dissemination of general information, technical documentation, and statistics on forestry affairs and services
- Grants, loans, or subsidies to support commercial forest activities.

Includes: forest crops in addition to timber.

70423 Fishing and hunting (CS)

This class covers both commercial fishing and hunting, and fishing and hunting for sport. The fishing and hunting affairs and services listed here refer to activities that take place outside natural parks and reserves.

- Administration of fishing and hunting affairs and services; protection, propagation, and rationalized exploitation of fish and wildlife stocks;

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supervision and regulation of freshwater fishing, coastal fishing, ocean fishing, fish farming, wildlife hunting, and issuance of fishing and hunting licenses

- Operation or support of fish hatcheries, extension services, stocking or culling activities, etc.
- Production and dissemination of general information, technical documentation, and statistics on fishing and hunting affairs and services
- Grants, loans, or subsidies to support commercial fishing and hunting activities, including the construction or operation of fish hatcheries.

Excludes: control of offshore and ocean fishing (70310); administration, operation, or support of natural parks and reserves (70540).

7043 FUEL AND ENERGY

70431 Coal and other solid mineral fuels (CS)

This class covers coal of all grades, lignite, and peat, irrespective of the method used in their extraction or beneficiation, and the conversion of these fuels to other forms, such as coke or gas.

- Administration of solid mineral fuel affairs and services; conservation, discovery, development, and rationalized exploitation of solid mineral fuel resources; supervision and regulation of the extraction, processing, distribution, and use of solid mineral fuels
- Production and dissemination of general information, technical documentation, and statistics on solid mineral fuel affairs and services
- Grants, loans, or subsidies to support the solid mineral fuel industry and the coke, briquette, or manufactured gas industries.

Excludes: solid mineral fuel transportation affairs (classified to the appropriate class of group 7045).

70432 Petroleum and natural gas (CS)

This class covers natural gas, liquefied petroleum gases and refinery gases, oil from wells or other sources, such as shale or tar sands, and the distribution of town gas regardless of its composition.

- Administration of petroleum and natural gas affairs and services; conservation, discovery, development, and rationalized exploitation of petroleum and natural gas resources; supervision and regulation of the extraction, processing, distribution, and use of petroleum and natural gas
- Production and dissemination of general information, technical documentation, and statistics on petroleum and natural gas affairs and services
- Grants, loans, or subsidies to support the petroleum extraction industry and the industry refining crude petroleum and related liquid and gaseous products.

Excludes: petroleum or gas transportation affairs (classified to the appropriate class of group 7045).

70433 Nuclear fuel (CS)

- Administration of nuclear fuel affairs and services; conservation, discovery, development, and rationalized exploitation of nuclear material resources; supervision and regulation of the extraction and processing of nuclear fuel materials and of the manufacture, distribution, and use of nuclear fuel elements
- Production and dissemination of general information, technical documentation, and statistics on nuclear fuel affairs and services
- Grants, loans, or subsidies to support the nuclear materials mining industry and the industries processing such materials.

Excludes: nuclear fuel transportation affairs (classified to the appropriate class of group 7045); disposal of radioactive wastes (70510).

70434 Other fuels (CS)

- Administration of affairs and services involving fuels, such as alcohol, wood and wood wastes, bagasse, and other noncommercial fuels
- Production and dissemination of general information, technical documentation, and statistics on availability, production, and utilization of such fuels
- Grants, loans, or subsidies to promote the use of such fuels for the production of energy.

Excludes: forest management (70422); wind and solar heat (70435) or (70436); geothermal resources (70436).

70435 Electricity (CS)

This class covers both traditional sources of electricity, such as thermal or hydro supplies, and newer sources, such as wind or solar heat.

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- Administration of electricity affairs and services; conservation, development, and rationalized exploitation of electricity supplies; supervision and regulation of the generation, transmission, and distribution of electricity
- Construction or operation of nonenterprise-type electricity supply systems
- Production and dissemination of general information, technical documentation, and statistics on electricity affairs and services
- Grants, loans, or subsidies to support the electricity supply industry, including such expenditure for the construction of dams and other works, designed chiefly to provide electricity.

Excludes: nonelectric energy produced by wind or solar heat (70436).

70436 Nonelectric energy (CS)

- Administration of nonelectric energy affairs and services that chiefly concern the production, distribution, and utilization of heat in the form of steam, hot water, or hot air
- Construction or operation of nonenterprise-type systems supplying nonelectric energy
- Production and dissemination of general information, technical documentation, and statistics on availability, production, and utilization of nonelectric energy
- Grants, loans, or subsidies to promote the use of nonelectric energy.

Includes: geothermal resources; nonelectric energy produced by wind or solar heat.

7044 MINING, MANUFACTURING, AND CONSTRUCTION

70441 Mining of mineral resources other than mineral fuels (CS)

This class covers metal-bearing minerals, sand, clay, stone, chemical and fertilizer minerals, salt, gemstones, asbestos, gypsum, etc.

- Administration of mining and mineral resource affairs and services; conservation, discovery, development, and rationalized exploitation of mineral resources; supervision and regulation of prospecting, mining, marketing, and other aspects of mineral production
- Production and dissemination of general information, technical documentation, and statistics on mining and mineral resource affairs and services
- Grants, loans, or subsidies to support commercial mining activities.

Includes: issuance of licenses and leases, regulation of production rates, inspection of mines for conformity to safety regulations, etc.

Excludes: coal and other solid fuels (70431), petroleum and natural gas (70432), and nuclear fuel materials (70433).

70442 Manufacturing (CS)

- Administration of manufacturing affairs and services; development, expansion, or improvement of manufacturing; supervision and regulation of the establishment and operation of manufacturing plants; liaison with manufacturers' associations and other organizations interested in manufacturing affairs and services
- Production and dissemination of general information, technical documentation, and statistics on manufacturing activities and manufactured products
- Grants, loans, or subsidies to support manufacturing enterprises.

Includes: inspection of manufacturing premises for conformity with safety regulations, protection of consumers against dangerous products, etc.

Excludes: affairs and services concerning the coal processing industry (70431), the petroleum refinery industry (70432), or the nuclear fuel industry (70433).

70443 Construction (CS)

- Administration of construction affairs and services; supervision of the construction industry; development and regulation of construction standards
- Production and dissemination of general information, technical documentation, and statistics on construction affairs and services.

Includes: issuance of certificates permitting occupancy, inspection of construction sites for conformity with safety regulations, etc.

Excludes: grants, loans, and subsidies for the construction of housing, industrial buildings, streets, public

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utilities, cultural facilities, etc. (classified according to function); development and regulation of housing standards (70610).

7045 TRANSPORT

70451 Road transport (CS)

- Administration of affairs and services concerning operation, use, construction, and maintenance of road transport systems and facilities (roads, bridges, tunnels, parking facilities, bus terminals, etc.)
- Supervision and regulation of road users (vehicle and driver licensing, vehicle safety inspection, size and load specifications for passenger and freight road transport, regulation of hours of work of bus, coach and lorry drivers, etc.), road transport system operations (granting of franchises, approval of freight tariffs and passenger fares, and of hours and frequency of service, etc.), and road construction and maintenance
- Construction or operation of nonenterprise-type road transport systems and facilities
- Production and dissemination of general information, technical documentation, and statistics on road transport system operations and on road construction activities
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of road transport systems and facilities.

Includes: highways, urban roads, streets, bicycle paths, and footpaths.

Excludes: road traffic control (70310); grants, loans, and subsidies to road vehicle manufacturers (70442); street cleaning (70510); construction of noise embankments, hedges, and other anti-noise facilities, including the resurfacing of sections of urban highways with noise reducing surfaces (70530); street lighting (70640).

70452 Water transport (CS)

- Administration of affairs and services concerning operation, use, construction, and maintenance of inland, coastal, and ocean water transport systems and facilities (harbors, docks, navigation aids and equipment, canals, bridges, tunnels, channels, breakwaters, piers, wharves, terminals, etc.)
- Supervision and regulation of water transport users (registration, licensing and inspection of vessels and crews, regulations concerning passenger safety and freight security, etc.), water transport system operations (granting of franchises, approval of freight tariffs and passenger fares, and of hours and frequency of service, etc.), and water transport facility construction and maintenance
- Construction or operation of nonenterprise-type water transport systems and facilities (such as ferries)
- Production and dissemination of general information, technical documentation, and statistics on water transport system operations and water transport facility construction activities
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of water transport systems and facilities.

Includes: radio and satellite navigation aids; emergency rescue and towing services.

Excludes: grants, loans, and subsidies to shipbuilders (70442).

70453 Railway transport (CS)

- Administration of affairs and services concerning operation, use, construction, or maintenance of railway transport systems and facilities (railway roadbeds, terminals, tunnels, bridges, embankments, cuttings, etc.)
- Supervision and regulation of railway users (rolling stock condition, roadbed stability, passenger safety, security of freight, etc.), railway transport system operations (granting of franchises, approval of freight tariffs and passenger fares, and of hours and frequency of service, etc.), and railway construction and maintenance
- Construction or operation of nonenterprise-type railway transport systems and facilities
- Production and dissemination of general information, technical documentation, and statistics on railway transport system operations and railway construction activities
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of railway transport systems and facilities.

Includes: long-line and interurban railway transport systems, urban rapid transit railway transport systems,

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and street railway transport systems; acquisition and maintenance of rolling stock.

Excludes: grants, loans, and subsidies to rolling stock manufacturers (70442); construction of noise embankments, hedges, and other anti-noise facilities, including the resurfacing of sections of railways with noise reducing surfaces (70530).

70454 Air transport (CS)

- Administration of affairs and services concerning operation, use, construction, and maintenance of air transport systems and facilities (airports, runways, terminals, hangars, navigation aids and equipment, air control amenities, etc.)
- Supervision and regulation of air transport users (registration, licensing, and inspection of aircraft, pilots, crews, ground crews, regulations concerning passenger safety, investigation of air transport accidents, etc.), air transport system operations (allocation of routes, approval of freight tariffs and passenger fares, and of frequency and levels of service, etc.), and air transport facility construction and maintenance
- Construction or operation of nonenterprise-type public air transport services and facilities
- Production and dissemination of general information, technical documentation, and statistics on air transport system operations and on air transport facility construction
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of air transport systems and facilities.

Includes: radio and satellite navigation aids; emergency rescue services; scheduled and nonscheduled freight and passenger services; regulation and control of flying by private individuals.

Excludes: grants, loans, and subsidies to aircraft manufacturers (70442).

70455 Pipeline and other transport (CS)

- Administration of affairs and services concerning operation, use, construction, and maintenance of pipeline and other transport systems (funiculars, cable cars, chairlifts, etc.)
- Supervision and regulation of users of pipeline and other transport systems (registration, licensing, inspection of equipment, operator skills and training, safety standards, etc.); pipeline and other transport systems operations (granting of franchises, setting tariffs, frequency, and levels of service, etc.), and pipeline and other transport systems construction and maintenance
- Construction or operation of nonenterprise-type pipeline and other transport systems
- Production and dissemination of general information, technical documentation, and statistics on the operation and construction of pipeline and other transport systems
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of pipeline and other transport systems.

7046 COMMUNICATION

70460 Communication (CS)

- Administration of affairs and services concerning construction, extension, improvement, operation, and maintenance of communication systems (postal, telephone, telegraph, wireless, and satellite communication systems)
- Regulation of communication system operations (granting of franchises; assignment of frequencies, specification of markets to be served and tariffs to be charged, etc.)
- Production and dissemination of general information, technical documentation, and statistics on communication affairs and services
- Grants, loans, or subsidies to support the construction, operation, maintenance, or upgrading of communication systems.

Excludes: radio and satellite navigation aids for water transport (70452) and air transport (70454); radio and television broadcasting systems (70830).

7047 OTHER INDUSTRIES

70471 Distributive trades, storage, and warehousing (CS)

- Administration of affairs and services concerning the distributive trade and the storage and warehousing industry
- Supervision and regulation of wholesale and retail trade (licensing, sales practices, labeling of packaged food and other goods intended for household consumption, inspection of scales and other

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weighing machines, etc.) and the storage and warehousing industry (including licensing and control of government-bonded warehouses, etc.)

- Administration of price control and rationing schemes operating through retailers or wholesalers regardless of the type of goods involved or intended consumer; administration and provision of food and other such subsidies to the general public
- Production and dissemination of information to the trade and to the public on prices, the availability of goods, and other aspects of the distributive trade and the storage and warehousing industry; compilation and publication of statistics on the distributive trade and the storage and warehousing industry
- Grants, loans, or subsidies to support the distributive trade and to the storage and warehousing industry.

Excludes: administration of price and other controls applied to the producer (classified according to function); food and other such subsidies applicable to particular population groups or individuals (710).

70472 Hotels and restaurants (CS)

- Administration of affairs and services concerning construction, extension, improvement, operation, and maintenance of hotels and restaurants
- Supervision and regulation of hotel and restaurant operations (regulations governing prices, cleanliness, and sales practices, hotel and restaurant licensing, etc.)
- Production and dissemination of general information, technical documentation, and statistics on hotel and restaurant affairs and services
- Grants, loans, or subsidies to support the construction, operation, maintenance, or upgrading of hotels and restaurants.

70473 Tourism (CS)

- Administration of tourism affairs and services; promotion and development of tourism; liaison with the transport, hotel, and restaurant industries and other industries benefiting from the presence of tourists
- Operation of tourist offices at home and abroad, etc.; organization of advertising campaigns, including the production and dissemination of promotional literature and the like
- Compilation and publication of statistics on tourism.

70474 Multipurpose development projects (CS)

Multipurpose development projects typically consist of integrated facilities for generation of power, flood control, irrigation, navigation, and recreation.

- Administration of affairs and services concerning construction, extension, improvement, operation, and maintenance of multipurpose projects
- Production and dissemination of general information, technical documentation, and statistics on multipurpose development project affairs and services
- Grants, loans, or subsidies to support the construction, operation, maintenance, or upgrading of multipurpose development projects.

Excludes: projects with one main function and other functions that are secondary (classified according to main function).

7048 R&D ECONOMIC AFFAIRS

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70481 R&D General economic, commercial, and labor affairs (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to general economic, commercial, and labor affairs
- Grants, loans, or subsidies to support applied research and experimental development related to general economic, commercial, and labor affairs undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

70482 R&D Agriculture, forestry, fishing, and hunting (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to agriculture, forestry, fishing, and hunting

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- Grants, loans, or subsidies to support applied research and experimental development related to agriculture, forestry, fishing, and hunting undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

70483 R&D Fuel and energy (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to fuel and energy
- Grants, loans, or subsidies to support applied research and experimental development related to fuel and energy undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

70484 R&D Mining, manufacturing, and construction (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to mining, manufacturing, and construction
- Grants, loans, or subsidies to support applied research and experimental development related to mining, manufacturing, and construction undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

70485 R&D Transport (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to transport
- Grants, loans, or subsidies to support applied research and experimental development related to transport undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

70486 R&D Communication (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to communication
- Grants, loans, or subsidies to support applied research and experimental development related to communication undertaken by nongovernment bodies such as research institutes and universities.

Excludes: basic research (70140).

70487 R&D Other industries (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to other sectors
- Grants, loans, or subsidies to support applied research and experimental development related to other sectors undertaken by nongovernment bodies, such as research institutes and universities.

Includes: distributive trades, storage, and warehousing; hotels and restaurants; tourism and multipurpose development projects.

Excludes: basic research (70140).

7049 ECONOMIC AFFAIRS N.E.C.

70490 Economic affairs n.e.c. (CS)

- Administration, operation, or support activities relating to general and sectoral economic affairs that cannot be assigned to (7041), (7042), (7043), (7044), (7045), (7046), (7047), or (7048).

705 ENVIRONMENTAL PROTECTION

The breakdown of environmental protection is based upon the Classification of Environmental Protection Activities (CEPA) as elaborated in the European System for the Collection of Economic Information on the Environment (SERIEE) of the Statistical Office of the European Communities (Eurostat).

7051 WASTE MANAGEMENT

This group covers collection, treatment, and disposal of waste.

Waste collection includes sweeping of streets, squares, paths, markets, public gardens, parks, etc.; collection of all types of waste, whether selective by type of product or undifferentiated covering all waste, and their transport to place of treatment or discharge.

Waste treatment includes any method or process designed to change the physical, chemical, or biological character or composition of any waste so as to neutralize it, to render it nonhazardous, to make it safer for transport, to make it amenable for recovery or storage, or to reduce it in volume.

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Waste disposal includes final placement of waste for which no further use is foreseen by landfill, containment, underground disposal, dumping at sea, or any other relevant disposal method.

70510 Waste management (CS)

- Administration, supervision, inspection, operation, or support of waste collection, treatment, and disposal systems
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of such systems.

Includes: collection, treatment, and disposal of nuclear waste.

7052 WASTE WATER MANAGEMENT

This group covers sewage system operation and waste water treatment.

Sewage system operation includes management and construction of the system of collectors, pipelines, conduits, and pumps to evacuate any waste water (rainwater, domestic, and other available waste water) from the points of generation to either a sewage treatment plant or to a point where waste water is discharged to surface water.

Waste water treatment includes any mechanical, biological, or advanced process to render waste water fit to meet applicable environment standards or other quality norms.

70520 Waste water management (CS)

- Administration, supervision, inspection, operation, or support of sewage systems and waste water treatment
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of such systems.

7053 POLLUTION ABATEMENT

This group covers activities relating to ambient air and climate protection, soil and groundwater protection, noise and vibration abatement, and protection against radiation.

These activities include construction, maintenance, and operation of monitoring systems and stations (other than weather stations); construction of noise embankments, hedges, and other anti-noise facilities including the resurfacing of sections of urban highways or railways with noise reducing surfaces; measures to clean pollution in water bodies; measures to control or prevent the emissions of greenhouse gases and pollutants that adversely affect the quality of the air; construction, maintenance, and operation of installations for the decontamination of polluted soils and for the storage of pollutant products; transportation of pollutant products.

70530 Pollution abatement (CS)

- Administration, supervision, inspection, operation, or support of activities relating to pollution abatement and control
- Grants, loans, or subsidies to support activities relating to pollution abatement and control.

7054 PROTECTION OF BIODIVERSITY AND LANDSCAPE

This group covers activities relating to the protection of fauna and flora species (including the reintroduction of extinct species and the recovery of species menaced by extinction), the protection of habitats (including the management of natural parks and reserves), and the protection of landscapes for their aesthetic values (including the reshaping of damaged landscapes for the purpose of strengthening their aesthetic value and the rehabilitation of abandoned mines and quarry sites).

70540 Protection of biodiversity and landscape (CS)

- Administration, supervision, inspection, operation, or support of activities relating to the protection of biodiversity and landscape
- Grants, loans, or subsidies to support activities relating to the protection of biodiversity and landscape.

7055 R&D ENVIRONMENTAL PROTECTION

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70550 R&D Environmental protection (CS)

- Administration and operation of government agencies engaged in applied research and

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experimental development related to environmental protection

- Grants, loans, or subsidies to support applied research and experimental development related to environmental protection undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7056 ENVIRONMENTAL PROTECTION N.E.C.

70560 Environmental protection n.e.c. (CS)

- Administration, management, regulation, supervision, operation, and support of activities such as formulation, administration, coordination, and monitoring of overall policies, plans, programs, and budgets for the promotion of environmental protection; preparation and enforcement of legislation and standards for the provision of environmental protection services; production and dissemination of general information, technical documentation, and statistics on environmental protection.

Includes: environmental protection affairs and services that cannot be assigned to (7051), (7052), (7053), (7054), or (7055).

706 HOUSING AND COMMUNITY AMENITIES

7061 HOUSING DEVELOPMENT

70610 Housing development (CS)

- Administration of housing development affairs and services; promotion, monitoring, and evaluation of housing development activities regardless of whether the activities are under the auspices of public authorities; development and regulation of housing standards
- Slum clearance related to provision of housing; acquisition of land needed for construction of dwellings; construction or purchase and remodeling of dwelling units for the general public or for people with special needs
- Production and dissemination of public information, technical documentation, and statistics on housing development affairs and services
- Grants, loans, or subsidies to support the expansion, improvement, or maintenance of the housing stock.

Excludes: development and regulation of construction standards (70443); cash benefits and benefits in kind to help households meet the cost of housing (71060).

7062 COMMUNITY DEVELOPMENT

70620 Community development (CS)

- Administration of community development affairs and services; administration of zoning laws and land-use and building regulations
- Planning of new communities or of rehabilitated communities; planning the improvement and development of facilities such as housing, industry, public utilities, health, education, culture, recreation, etc. for communities; preparation of schemes for financing planned developments
- Production and dissemination of general information, technical documentation, and statistics on community development affairs and services.

Excludes: plan implementation—that is, the actual construction of housing, industrial buildings, streets, public utilities, cultural facilities, etc. (classified according to function); agrarian reform and land resettlement (70421); administration of construction standards (70443) and housing standards (70610).

7063 WATER SUPPLY

70630 Water supply (CS)

- Administration of water supply affairs; assessment of future needs and determination of availability in terms of such assessment; supervision and regulation of all facets of potable water supply including water purity, price, and quantity controls
- Construction or operation of nonenterprise-type of water supply systems
- Production and dissemination of general information, technical documentation, and statistics on water supply affairs and services
- Grants, loans, or subsidies to support the operation, construction, maintenance, or upgrading of water supply systems.

Excludes: irrigation systems (70421); multipurpose projects (70474); collection and treatment of waste water (70520).

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7064 STREET LIGHTING

70640 Street lighting (CS)

- Administration of street lighting affairs; development and regulation of street lighting standards
- Installation, operation, maintenance, upgrading, etc. of street lighting.

Excludes: lighting affairs and services associated with the construction and operation of highways (70451).

7065 R&D HOUSING AND COMMUNITY AMENITIES

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70650 R&D Housing and community amenities (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to housing and community amenities
- Grants, loans, or subsidies to support applied research and experimental development related to housing and community amenities undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140); applied research and experimental development into construction methods or materials (70484).

7066 HOUSING AND COMMUNITY AMENITIES N.E.C.

70660 Housing and community amenities n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall policies, plans, programs, and budgets relating to housing and community amenities; preparation and enforcement of legislation and standards relating to housing and community amenities; production and dissemination of general information, technical documentation, and statistics relating to housing and community amenities.

Includes: administration, operation, or support activities relating to housing and community amenities that cannot be assigned to (7061), (7062), (7063), (7064), or (7065).

707 HEALTH

Government expenditure on health includes expenditure on services provided to individual persons and services provided on a collective basis. Expenditure on individual services is allocated to groups (7071) through (7074); expenditure on collective services is assigned to groups (7075) and (7076).

Collective health services are concerned with matters such as formulation and administration of government policy; setting and enforcement of standards for medical and paramedical personnel and for hospitals, clinics, surgeries, etc.; regulation and licensing of providers of health services; and applied research and experimental development into medical and health-related matters. However, overhead expenditure connected with administration or functioning of a group of hospitals, clinics, surgeries, etc. is considered to be individual expenditure and is classified to groups (7071) through (7074) as appropriate.

7071 MEDICAL PRODUCTS, APPLIANCES, AND EQUIPMENT

This group covers medicaments, prostheses, medical appliances and equipment, and other health-related products obtained by individuals or households, either with or without a prescription, usually from dispensing chemists, pharmacists, or medical equipment suppliers. They are intended for consumption or use outside a health facility or institution. Such products supplied directly to outpatients by medical, dental, and paramedical practitioners or to in-patients by hospitals and the like are included in outpatient services (7072) or hospital services (7073).

70711 Pharmaceutical products (IS)

- Provision of pharmaceutical products such as medicinal preparations, medicinal drugs, patent medicines, serums and vaccines, vitamins and minerals, cod liver oil and halibut liver oil, oral contraceptives
- Administration, operation, or support of the provision of pharmaceutical products.

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

70712 Other medical products (IS)

- Provision of medical products such as clinical thermometers, adhesive and nonadhesive bandages, hypodermic syringes, first-aid kits, hot-water bottles and ice bags, medical hosiery items such as elasticized stockings and knee-pads, pregnancy tests, condoms, and other mechanical contraceptive devices
- Administration, operation, or support of the provision of prescribed other medical products.

70713 Therapeutic appliances and equipment (IS)

- Provision of therapeutic appliances and equipment, such as corrective eyeglasses and contact lenses, hearing aids, glass eyes, artificial limbs and other prosthetic devices, orthopedic braces and supports, orthopedic footwear, surgical belts, trusses and supports, neck braces, medical massage equipment and health lamps, powered and unpowered wheelchairs and invalid carriages, "special" beds, crutches, electronic and other devices for monitoring blood pressure, etc.
- Administration, operation, or support of the provision of prescribed therapeutic appliances and equipment.

Includes: dentures but not fitting costs; repair of therapeutic appliances and equipment.

Excludes: hire of therapeutic equipment (70724).

7072 OUTPATIENT SERVICES

This group covers medical, dental, and paramedical services delivered to outpatients by medical, dental, and paramedical practitioners and auxiliaries. The services may be delivered at home, in individual or group consulting facilities, dispensaries, or the outpatient clinics of hospitals and the like.

Outpatient services include the medicaments, prostheses, medical appliances and equipment, and other health-related products supplied directly to outpatients by medical, dental, and paramedical practitioners and auxiliaries.

Medical, dental, and paramedical services provided to in-patients by hospitals and the like are included in hospital services (7073).

70721 General medical services (IS)

This class covers the services provided by general medical clinics and general medical practitioners.

General medical clinics are defined as institutions that chiefly provide outpatient services that are not limited to a particular medical specialty and that are chiefly delivered by qualified medical doctors. General medical practitioners do not specialize in a particular medical specialty.

- Provision of general medical services
- Administration, inspection, operation, or support of general medical services delivered by general medical clinics and general medical practitioners.

Excludes: services of medical analysis laboratories and x-ray centers (70724).

70722 Specialized medical services (IS)

This class covers the services of specialized medical clinics and specialist medical practitioners.

Specialized medical clinics and specialist medical practitioners differ from general medical clinics and general medical practitioners in that their services are limited to treatment of a particular condition, disease, medical procedure, or class of patient.

- Provision of specialized medical services
- Administration, inspection, operation, or support of specialized medical services delivered by specialized medical clinics and specialist medical practitioners.

Includes: services of orthodontic specialists.

Excludes: dental clinics and dentists (70723); services of medical analysis laboratories and x-ray centers (70724).

70723 Dental services (IS)

This class covers the services of general or specialist dental clinics and dentists, oral hygienists, or other dental operating auxiliaries.

Dental clinics provide outpatient services. They are not necessarily supervised or staffed by dentists; they may be supervised or staffed by oral hygienists or by dental auxiliaries.

- Provision of dental services to outpatients
- Administration, inspection, operation, and support of dental services delivered by general or

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specialist dental clinics and by dentists, oral hygienists, or other dental auxiliaries.

Includes: fitting costs of dentures.

Excludes: dentures (70713); services of orthodontic specialists (70722); services of medical analysis laboratories and x-ray centers (70724).

70724 Paramedical services (IS)

- Provision of paramedical health services to outpatients
- Administration, inspection, operation, or support of health services delivered by clinics supervised by nurses, midwives, physiotherapists, occupational therapists, speech therapists or other paramedical personnel and of health services delivered by nurses, midwives, and paramedical personnel in nonconsulting rooms, patients' homes, or other nonmedical institutions.

Includes: acupuncturists, chiropodists, chiropractors, optometrists, practitioners of traditional medicine, etc.; medical analysis laboratories and x-ray centers; hire of therapeutic equipment; medically prescribed corrective-gymnastic therapy; outpatient thermal bath or sea-water treatments; ambulance services other than ambulance services operated by hospitals.

Excludes: public health service laboratories (70740); laboratories engaged in determining the causes of disease (70750).

7073 HOSPITAL SERVICES

Hospitalization is defined as occurring when a patient is accommodated in a hospital for the duration of the treatment. Hospital day care and home-based hospital treatment are included, as are hospices for terminally ill persons.

This group covers the services of general and specialist hospitals, the services of medical centers, maternity centers, nursing homes, and convalescent homes that chiefly provide in-patient services, the services of military base hospitals, the services of institutions serving old people in which medical monitoring is an essential component, and the services of rehabilitation centers providing in-patient health care and rehabilitative therapy where the objective is to treat the patient rather than to provide long-term support.

Hospitals are defined as institutions that offer in-patient care under direct supervision of qualified medical doctors. Medical centers, maternity centers, nursing homes, and convalescent homes also provide in-patient care, but their services are supervised and frequently delivered by staff of lower qualification than medical doctors.

The group does not cover facilities such as military field hospitals (7021), surgeries, clinics, and dispensaries devoted exclusively to outpatient care (7072), institutions for disabled persons and rehabilitation centers providing primarily long-term support (71012), or retirement homes for elderly persons (71020). Neither does it cover payments to patients for loss of income due to hospitalization (71011).

Hospital services include medicaments, prostheses, medical appliances and equipment, and other health-related products supplied to hospital patients. It also includes nonmedical expenditure of hospitals on administration, nonmedical staff, food and drink, accommodation (including staff accommodation), etc.

70731 General hospital services (IS)

- Provision of general hospital services
- Administration, inspection, operation, or support of hospitals that do not limit their services to a particular medical specialty.

Excludes: medical centers not under the direct supervision of a qualified medical doctor (70733).

70732 Specialized hospital services (IS)

Specialized hospitals differ from general hospitals in that their services are limited to treatment of a particular condition, disease, or class of patient—for example, diseases of the chest and tuberculosis, leprosy, cancer, otorhinolaryngology, psychiatry, obstetrics, pediatrics, and so forth.

- Provision of specialized hospital services
- Administration, inspection, operation, or support of hospitals that limit their services to a particular medical specialty.

Excludes: maternity centers not under the direct supervision of a qualified medical doctor (70733).

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

70733 Medical and maternity center services (IS)

- Provision of medical and maternity center services
- Administration, inspection, operation, or support of medical and maternity center services.

70734 Nursing and convalescent home services (IS)

Nursing and convalescent homes provide in-patient services to persons recovering from surgery or a debilitating disease or condition that requires chiefly monitoring and administering of medicaments, physiotherapy, and training to compensate for loss of function or rest.

- Provision of nursing and convalescent home services
- Administration, inspection, operation, or support of nursing and convalescent home services.

Includes: institutions serving old people in which medical monitoring is an essential component; rehabilitation centers providing in-patient health care and rehabilitative therapy where the objective is to treat the patient rather than to provide long-term support.

7074 PUBLIC HEALTH SERVICES

70740 Public health services (IS)

- Provision of public health services
- Administration, inspection, operation, or support of public health services, such as blood-bank operation (collecting, processing, storing, shipping), disease detection (cancer, tuberculosis, venereal disease), prevention (immunization, inoculation), monitoring (infant nutrition, child health), epidemiological data collection, family planning services, and so forth
- Preparation and dissemination of information on public health matters.
- *Includes*: public health services delivered by special teams to groups of clients, most of whom are in good health, at workplaces, schools, or other non-medical settings; public health services not connected with a hospital, clinic, or practitioner; public health services not delivered by medically qualified doctors; public health service laboratories.

Excludes: medical analysis laboratories (70724); laboratories engaged in determining the causes of disease (70750).

7075 R&D HEALTH

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70750 R&D Health (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to health
- Grants, loans, and subsidies to support applied research and experimental development related to health undertaken by nongovernment bodies, such as research institutes and universities.

Includes: laboratories engaged in determining the causes of disease.

Excludes: basic research (70140).

7076 HEALTH N.E.C.

70760 Health n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall health policies, plans, programs, and budgets; preparation and enforcement of legislation and standards for the provision of health services, including the licensing of medical establishments and medical and paramedical personnel; production and dissemination of general information, technical documentation, and statistics on health.

Includes: health affairs and services that cannot be assigned to (7071), (7072), (7073), (7074), or (7075).

708 RECREATION, CULTURE, AND RELIGION

Government expenditure on recreation, culture, and religion includes expenditure on services provided to individual persons and households and expenditure on services provided on a collective basis. Individual expenditure is allocated to groups (7081) and (7082); expenditure on collective services is assigned to groups (7083) to (7086).

Collective services are provided to the community as a whole. They include activities such as formulation

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and administration of government policy; formulation and enforcement of legislation and standards for providing recreational and cultural services; and applied research and experimental development into recreational, cultural, and religious affairs and services.

7081 RECREATIONAL AND SPORTING SERVICES

70810 Recreational and sporting services (IS)

- Provision of sporting and recreational services; administration of sporting and recreational affairs; supervision and regulation of sporting facilities
- Operation or support of facilities for active sporting pursuits or events (playing fields, tennis courts, squash courts, running tracks, golf courses, boxing rings, skating rinks, gymnasia, etc.); operation or support of facilities for passive sporting pursuits or events (chiefly specially equipped venues for playing cards, board games, etc.); operation or support of facilities for recreational pursuits (parks, beaches, camping grounds and associated lodging places furnished on a noncommercial basis, swimming pools, public baths for washing, etc.)
- Grants, loans, or subsidies to support teams or individual competitors or players.

Includes: facilities for spectator accommodation; national, regional, or local team representation in sporting events.

Excludes: zoological or botanical gardens, aquaria, arboreta, and similar institutions (70820); sporting and recreational facilities associated with educational institutions (classified to the appropriate class of Division 709).

7082 CULTURAL SERVICES

70820 Cultural services (IS)

- Provision of cultural services; administration of cultural affairs; supervision and regulation of cultural facilities
- Operation or support of facilities for cultural pursuits (libraries, museums, art galleries, theatres, exhibition halls, monuments, historic houses and sites, zoological and botanical gardens, aquaria, arboreta, etc.); production, operation, or support of cultural events (concerts, stage and film productions, art shows, etc.)
- Grants, loans, or subsidies to support individual artists, writers, designers, composers, and others working in the arts or to organizations engaged in promoting cultural activities.

Includes: national, regional, or local celebrations provided they are not intended chiefly to attract tourists.

Excludes: cultural events intended for presentation beyond national boundaries (70113); national, regional, or local celebrations intended chiefly to attract tourists (70473); production of cultural material intended for distribution by broadcasting (70830).

7083 BROADCASTING AND PUBLISHING SERVICES

70830 Broadcasting and publishing services (CS)

- Administration of broadcasting and publishing affairs; supervision and regulation of broadcasting and publishing services
- Operation or support of broadcasting and publishing services
- Grants, loans, or subsidies to support the construction or acquisition of facilities for television or radio broadcasting; the construction or acquisition of plant, equipment, or materials for newspaper, magazine, or book publishing; the production of material for, and its presentation by, broadcasting; the gathering of news or other information; the distribution of published works.

Excludes: government printing offices and plants (70133); provision of education by radio or television broadcasting (709).

7084 RELIGIOUS AND OTHER COMMUNITY SERVICES

70840 Religious and other community services (CS)

- Administration of religious and other community affairs
- Provision of facilities for religious and other community services, including support for their operation, maintenance, and repair
- Payment of clergy or other officers of religious institutions; support for the holding of religious

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services; grants, loans, or subsidies to support fraternal, civic, youth, and social organizations or labor unions, and political parties.

7085 R&D RECREATION, CULTURE, AND RELIGION

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

70850 R&D Recreation, culture, and religion (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to recreation, culture, and religion
- Grants, loans, and subsidies to support applied research and experimental development related to recreation, culture, and religion undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7086 RECREATION, CULTURE, AND RELIGION N.E.C.

70860 Recreation, culture, and religion n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall policies, plans, programs, and budgets for the promotion of sport, recreation, culture, and religion; preparation and enforcement of legislation and standards for the provision of recreational and cultural services; production and dissemination of general information, technical documentation, and statistics on recreation, culture, and religion.

Includes: affairs and services relating to recreation, culture, and religion that cannot be assigned to (7081), (7082), (7083), (7084), or (7085).

709 EDUCATION

Government expenditure on education includes expenditure on services provided to individual pupils and students and expenditure on services provided on a collective basis. Expenditure on individual services is allocated to groups (7091) through (7096); expenditure on collective services is assigned to groups (7097) and (7098).

Collective educational services are concerned with matters such as formulation and administration of government policy; setting and enforcement of standards; regulation, licensing, and supervision of educational establishments; and applied research and experimental development into education affairs and services. However, overhead expenditure connected with administration or functioning of a group of schools, colleges, etc. is considered to be individual expenditure and is classified to groups (7091) through (7096) as appropriate.

The breakdown of education is based upon the level categories of the 1997 International Standard Classification of Education (ISCED-97) of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

This division includes military schools and colleges where curricula resemble those of civilian institutions, police colleges offering general education in addition to police training, and the provision of education by radio or television broadcasting. Expenditure so incurred is classified to groups (7091) to (7095) as appropriate.

7091 PRE-PRIMARY AND PRIMARY EDUCATION

70911 Pre-primary education (IS)

- Provision of pre-primary education at ISCED-97 level 0
- Administration, inspection, operation, or support of schools and other institutions providing pre-primary education at ISCED-97 level 0.

Excludes: subsidiary services to education (70960).

70912 Primary education (IS)

- Provision of primary education at ISCED-97 level 1
- Administration, inspection, operation, or support of schools and other institutions providing primary education at ISCED-97 level 1.

Includes: literacy programs for students too old for primary school.

Excludes: subsidiary services to education (70960).

7092 SECONDARY EDUCATION

70921 Lower-secondary education (IS)

- Provision of lower-secondary education at ISCED-97 level 2

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

- Administration, inspection, operation, or support of schools and other institutions providing lower-secondary education at ISCED-97 level 2
- Scholarships, grants, loans, and allowances to support pupils pursuing lower-secondary education at ISCED-97 level 2.

Includes: out-of-school lower-secondary education for adults and young people.

Excludes: subsidiary services to education (70960).

70922 Upper-secondary education (IS)

- Provision of upper-secondary education at ISCED-97 level 3
- Administration, inspection, operation, or support of schools and other institutions providing upper-secondary education at ISCED-97 level 3
- Scholarships, grants, loans, and allowances to support pupils pursuing upper-secondary education at ISCED-97 level 3.

Includes: out-of-school upper-secondary education for adults and young people.

Excludes: subsidiary services to education (70960).

7093 POST-SECONDARY NONTERTIARY EDUCATION

70930 Post-secondary nontertiary education (IS)

- Provision of post-secondary nontertiary education at ISCED-97 level 4
- Administration, inspection, operation, or support of institutions providing post-secondary nontertiary education at ISCED-97 level 4
- Scholarships, grants, loans, and allowances to support students pursuing post-secondary nontertiary education at ISCED-97 level 4.

Includes: out-of-school post-secondary nontertiary education for adults and young people.

Excludes: subsidiary services to education (70960).

7094 TERTIARY EDUCATION

70941 First stage of tertiary education (IS)

- Provision of tertiary education at ISCED-97 level 5
- Administration, inspection, operation, or support of universities and other institutions providing tertiary education at ISCED-97 level 5
- Scholarships, grants, loans, and allowances to support students pursuing tertiary education at ISCED-97 level 5.

Excludes: subsidiary services to education (70960).

70942 Second stage of tertiary education (IS)

- Provision of tertiary education at ISCED-97 level 6
- Administration, inspection, operation, or support of universities and other institutions providing tertiary education at ISCED-97 level 6
- Scholarships, grants, loans, and allowances to support students pursuing tertiary education at ISCED-97 level 6.

Excludes: subsidiary services to education (70960).

7095 EDUCATION NOT DEFINABLE BY LEVEL

70950 Education not definable by level (IS)

- Provision of education not definable by level (i.e., educational programs, generally for adults, that do not require any special prior instruction, in particular, vocational training and cultural development)
- Administration, inspection, operation, or support of institutions providing education not definable by level
- Scholarships, grants, loans, and allowances to support students pursuing education programs not definable by level.

7096 SUBSIDIARY SERVICES TO EDUCATION

70960 Subsidiary services to education (IS)

- Provision of subsidiary services to education
- Administration, inspection, operation, or support of transportation, food, lodging, medical and dental care, and related subsidiary services chiefly for students regardless of level.

Excludes: school health monitoring and prevention services (70740); scholarships, grants, loans, and allowances in cash to defray the costs of subsidiary services (7091), (7092), (7093), (7094), or (7095).

7097 R&D EDUCATION

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

70970 R&D Education (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to education
- Grants, loans, and subsidies to support applied research and experimental development related to education undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7098 EDUCATION N.E.C.

70980 Education n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall educational policies, plans, programs, and budgets; preparation and enforcement of legislation and standards for the provision of education, including licensing of educational establishments; production and dissemination of general information, technical documentation, and statistics on education.

Includes: education affairs and services that cannot be assigned to (7091), (7092), (7093), (7094), (7095), (7096), or (7097).

710 SOCIAL PROTECTION

Government expenditure on social protection includes expenditure on services and transfers provided to individual persons and households and expenditure on services provided on a collective basis. Expenditure on individual services and transfers are allocated to groups (7101) through (7107); expenditure on collective services is assigned to groups (7108) and (7109).

Collective social protection services are concerned with matters such as formulation and administration of government policy; formulation and enforcement of legislation and standards for providing social protection; and applied research and experimental development into social protection affairs and services.

The social protection functions and their definitions are based on the 2008 European System of Integrated Social Protection Statistics (ESSPROS) of the Statistical Office of the European Communities (Eurostat).

In ESSPROS, social protection includes health care, but this division does not include health care. Health care is covered by Division 707. Hence, medical goods and services provided to persons who receive the cash benefits and benefits in kind specified in groups (7101) through (7107) are classified under (7071), (7072), or (7073) as appropriate.

7101 SICKNESS AND DISABILITY

71011 Sickness (IS)

- Provision of social protection in the form of cash benefits or benefits in kind that replace in whole or in part loss of earnings during a temporary inability to work due to sickness or injury
- Administration, operation, or support of such social protection schemes
- Cash benefits, such as flat-rate or earnings-related sick leave payments and miscellaneous payments provided to help persons temporarily unable to work due to sickness or injury
- Benefits in kind, such as assistance with daily tasks provided to persons temporarily unable to work due to sickness or injury (home help, transport facilities, etc.).

71012 Disability (IS)

- Provision of social protection in the form of cash benefits or benefits in kind to persons who are fully or partially unable to engage in economic activity or lead a normal life due to a physical or mental impairment that is either permanent or likely to persist beyond a minimum prescribed period
- Administration, operation, or support of such social protection schemes
- Cash benefits, such as disability pensions paid to persons below the standard retirement age who encounter a disability that impairs their ability to work, early retirement benefits paid to older workers who retire before reaching the standard retirement age due to reduced capacity to work, care allowances, allowances paid to disabled persons undertaking work adapted to their condition or undergoing vocational training, and other periodic or lump-sum payments paid to disabled persons for social protection reasons
- Benefits in kind, such as lodging and possibly board provided to disabled persons in appropriate establishments, assistance provided to disabled persons to help them with daily tasks (home help, transport facilities, etc.), allowances paid to the person who looks after the disabled person, vocational and other training provided to further the occupational and social rehabilitation of disabled persons, and miscellaneous services and goods provided to disabled persons to enable them to

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participate in leisure and cultural activities or to travel or to participate in community life.

Excludes: cash benefits and benefits in kind paid to disabled persons on reaching the standard retirement age (71020).

7102 OLD AGE

71020 Old age (IS)

- Provision of social protection in the form of cash benefits and benefits in kind against the risks linked to old age (loss of income, inadequate income, lack of independence in carrying out daily tasks, reduced participation in social and community life, etc.)
- Administration, operation, or support of such social protection schemes
- Cash benefits, such as old-age pensions paid to persons on reaching the standard retirement age, anticipated old-age pensions paid to older workers who retire before the standard retirement age, partial retirement pensions paid either before or after the standard retirement age to older workers who continue working but reduce their working hours, care allowances, and other periodic or lump-sum payments paid upon retirement or on account of old age
- Benefits in kind, such as lodging and sometimes board provided to elderly persons either in specialized institutions or staying with families in appropriate establishments, assistance provided to elderly persons to help them with daily tasks (home help, transport facilities etc.), allowances paid to the person who looks after an elderly person, and miscellaneous services and goods provided to elderly persons to enable them to participate in leisure and cultural activities or to travel or to participate in community life.

Includes: pension schemes for military personnel and for government employees.

Excludes: early retirement benefits paid to older workers who retire before reaching standard retirement age due to disability (71012) or unemployment (71050).

7103 SURVIVORS

71030 Survivors (IS)

- Provision of social protection in the form of cash benefits and benefits in kind to persons who are survivors of a deceased person (such as the person's spouse, ex-spouse, children, grandchildren, parents, or other relatives)
- Administration, operation, or support of such social protection schemes
- Cash benefits, such as survivors' pensions, death grants, and other periodic or lump-sum payments to survivors
- Benefits in kind, such as payments toward funeral expenditure and miscellaneous services and goods provided to survivors to enable them to participate in community life.

7104 FAMILY AND CHILDREN

71040 Family and children (IS)

- Provision of social protection in the form of cash benefits and benefits in kind to households with dependent children
- Administration, operation, or support of such social protection schemes
- Cash benefits, such as maternity allowances, birth grants, parental leave benefits, family or child allowances, and other periodic or lump-sum payments to support households and help them meet the costs of specific needs (e.g., those of the lone parent families or families with handicapped children)
- Benefits in kind, such as shelter and board provided to preschool children during the day or part of the day, financial assistance toward payment of a nurse to look after children during the day, shelter and board provided to children and families on a permanent basis (orphanages, foster families, etc.), goods and services provided at home to children or to those who care for them, and miscellaneous services and goods provided to families, young people, or children (holiday and leisure centers).

Excludes: family planning services (70740).

7105 UNEMPLOYMENT

71050 Unemployment (IS)

- Provision of social protection in the form of cash benefits and benefits in kind to persons who are capable of work and available for work but are unable to find suitable employment
- Administration, operation, or support of such social protection schemes
- Cash benefits, such as full and partial unemployment benefits, early retirement benefits paid to

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older workers who retire before reaching the standard retirement age due to unemployment or job reduction caused by economic measures, allowances to targeted groups in the labor force who take part in training schemes intended to develop their potential for employment, redundancy compensation, and other periodic or lump-sum payments to the unemployed, particularly the long-term unemployed

- Benefits in kind, such as mobility and resettlement payments, vocational training provided to persons without a job or retraining provided to persons at risk of losing their job, and accommodation, food, or clothes provided to unemployed persons and their families.

Excludes: general programs or schemes directed toward increasing labor mobility, reducing the rate of unemployment or promoting the employment of disadvantaged or other groups characterized by high unemployment (70412); cash benefits and benefits in kind paid to unemployed persons on reaching the standard retirement age (71020).

7106 HOUSING

71060 Housing (IS)

- Provision of social protection in the form of benefits in kind to help households meet the cost of housing (recipients of these benefits are means-tested)
- Administration, operation, or support of such social protection schemes
- Benefits in kind, such as payments made on a temporary or long-term basis to help tenants with rent costs, payments to alleviate the current housing costs of owner-occupiers (i.e., to help with paying mortgages or interest), and provision of low-cost or social housing.

7107 SOCIAL EXCLUSION N.E.C.

71070 Social exclusion n.e.c. (IS)

- Provision of social protection in the form of cash benefits and benefits in kind to persons who are socially excluded or at risk of social exclusion (such as persons who are destitute, low-income earners, immigrants, indigenous people, refugees, alcohol and substance abusers, victims of criminal violence, etc.)
- Administration and operation of such social protection schemes
- Cash benefits, such as income support and other cash payments to the destitute and vulnerable persons to help alleviate poverty or assist in difficult situations
- Benefits in kind, such as short-term and long-term shelter and board provided to destitute and vulnerable persons, rehabilitation of alcohol and substance abusers, and services and goods to help vulnerable persons, such as counseling, day shelter, help with carrying out daily tasks, food, clothing, fuel, etc.

7108 R&D SOCIAL PROTECTION

Definitions of basic research, applied research, and experimental development are given under (7014) and (7015).

71080 R&D Social protection (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to social protection
- Grants, loans, and subsidies to support applied research and experimental development related to social protection undertaken by nongovernment bodies, such as research institutes and universities.

Excludes: basic research (70140).

7109 SOCIAL PROTECTION N.E.C.

71090 Social protection n.e.c. (CS)

- Administration, operation, or support of activities such as formulation, administration, coordination, and monitoring of overall social protection policies, plans, programs, and budgets; preparation and enforcement of legislation and standards for the provision of social protection; production and dissemination of general information, technical documentation, and statistics on social protection.

Includes: provision of social protection in the form of cash benefits and benefits in kind to victims of fires, floods, earthquakes, and other peacetime disasters; purchase and storage of food, equipment, and other supplies for emergency use in the case of peacetime disasters; other social protection affairs and services that cannot be assigned to (7101), (7102), (7103), (7104), (7105), (7106), (7107), or (7108).

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7 The Balance Sheet

This chapter and the following three chapters are concerned with the stock position and flows of assets and liabilities. This chapter defines assets, liabilities, and net worth, and describes their classification and the various balance sheet memorandum items.

Introduction

7.1 A **balance sheet** is a statement of the values of the stock positions of assets owned and of the liabilities owed by an institutional unit or group of units, drawn up in respect of a particular point in time.[1] A balance sheet is typically compiled at the end of each reporting period, which is also the beginning of the next reporting period. In a macroeconomic statistics balance sheet, a distinction is made between nonfinancial assets, financial assets, liabilities, and net worth. The **net worth** of an institutional unit (or grouping of units) is the total value of its assets minus the total value of its liabilities. As for all other balance sheet items, net worth can also be viewed as a stock position resulting from the transactions and other economic flows of all previous periods. A highly abbreviated version of a balance sheet is shown in Table 7.1.[2]

7.2 The existence of a set of balance sheets integrated with the flows enables analysts to take a comprehensive view when monitoring and assessing economic and financial conditions and the behavior of public sector units. Balance sheet information on financial assets held by, and liabilities owed to, other entities supports the analysis of the financial risks and vulnerabilities of the general government or public sector. Similarly, with regard to claims and liabilities on nonresidents, balance sheets support the assessment of the general government's share in the external debtor and creditor position of a country. For public corporations, balance sheets permit the computation of widely used financial ratios, while data on the stock position of fixed assets are useful in studies of their investment behavior and needs for financing.

7.3 This chapter first defines assets and liabilities in general and the two major types of assets, financial and nonfinancial assets. The following section describes the principles used to value assets and liabilities. The chapter then describes the detailed classification of assets and liabilities and the types of assets and liabilities included in each category of the classification. The final sections describe net worth, recommended memorandum items, and a supplemental cross-classification of financial assets or liabilities by sector of the counterparty.

Defining Assets and Liabilities

7.4 This section describes economic and legal ownership of an asset, as well as the asset boundary used in GFS and other macroeconomic statistics. These concepts are then used to define liabilities, financial assets, and nonfinancial assets.

Ownership and the Asset Boundary

7.5 Two types of ownership can be distinguished in macroeconomic statistics: legal ownership and economic ownership (see paragraphs 3.38–3.41). Legal and economic ownership are usually the same but differ in a few cases (e.g., financial leases discussed in paragraph 7.158).

- The **legal owner of resources**, such as goods and services, natural resources, financial assets, and liabilities, is the institutional unit entitled by law and sustainable under the law to claim the

[1] A balance sheet can be compiled for an individual unit or any collection of units, such as the general government or public sector, or their subsectors. It is often convenient to describe a balance sheet in reference to a single institutional unit, but any such statement applies equally to the balance sheet of a sector or subsector.
[2] Table 4.4 shows a presentation of a balance sheet that displays the same information presented in an alternative format.

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Table 7.1 Balance Sheet

Assets	Opening balance	Closing balance	Liabilities and net worth	Opening balance	Closing balance
Nonfinancial assets[1]			Liabilities[1]		
Financial assets[1]			Net worth		
Total assets[1]			Total liabilities and net worth		
Memorandum items					

[1]Classified by categories of assets and liabilities as needed.

benefits associated with the resources. Only if such resources have a legal owner, either on an individual or collective basis, are they recognized in macroeconomic statistics.

- The **economic owner of resources**, such as goods and services, natural resources, financial assets, and liabilities, is the institutional unit entitled to claim the benefits associated with the use of these resources by virtue of accepting the associated risks.

7.6 As defined in paragraph 3.42, an **asset** is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the resource over a period of time. It is a means of carrying forward value from one reporting period to another. Only economic assets are recorded in the macroeconomic statistical systems (i.e., included within the asset boundary), and they appear in the balance sheet of the unit that is the economic owner of the asset. Economic assets are those resources (i) over which economic ownership rights are enforced by institutional units, individually or collectively, and (ii) from which economic benefits may be derived by their owners by holding them or using them over a period of time (see paragraph 4.43).

7.7 Every economic asset provides benefits by functioning as a store of value. In addition:

- Some benefits are derived by using assets, such as buildings or machinery, in the production of goods and services.
- Some benefits consist of property income, such as interest, dividends, and rent receivable by the owners of financial assets, land, and other nonproduced assets.

7.8 When ownership rights are established and enforced, the resource is an economic asset regardless of who receives the benefits. For example, a government may own land in a national park with the intention that its benefits accrue directly to the community at large.

7.9 To be an economic asset, a resource must also be able to supply economic benefits given the technology, scientific knowledge, economic infrastructure, available resources, and relative prices existing at a given time or expected in the foreseeable future. Thus, a known deposit of minerals is an economic asset only if it is already commercially exploitable or is expected to become commercially exploitable in the foreseeable future.

7.10 Some resources are not economic assets if ownership rights over them have not been established or are not enforced. For example, it may not be feasible to establish ownership rights over the atmosphere and certain other naturally occurring assets. In other cases, ownership rights may be established, but it may not be feasible to enforce them, such as government-owned land that is so remote or inaccessible that the government cannot exercise effective control over it or the government chooses not to enforce its ownership rights. In such cases, it can be a matter of judgment as to whether the degree of control exercised by the government is sufficient for the land to be classified as an economic asset. Nonetheless, even if ownership rights can be enforced, if the assets are not capable of bringing any economic benefits to their owners, they should be excluded.

7.11 Governments use assets to produce goods and services much like corporations. For example, office buildings, together with the services of government employees, office equipment, and other goods and services, are used to produce collective or individual services, such as general administrative services. In addition, however, governments often own assets whose services are consumed directly by the general

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public and assets that need to be preserved because of their historic or cultural importance. Thus, when the asset boundary is applied to the general government sector, it often incorporates a wider range of assets than is normally owned by a private organization. That is, government units frequently own:

- General-purpose assets, which are assets that other units would be likely to possess and use in similar ways, such as schools, road-building equipment, fire engines, office buildings, furniture, and computers
- Infrastructure assets, which are immovable nonfinancial assets that generally do not have alternative uses and whose benefits accrue to the community at large; examples are streets, highways, lighting systems, bridges, communication networks, canals, and dikes
- Heritage assets, which are assets that a government intends to preserve indefinitely because they have unique historic, cultural, educational, artistic, or architectural significance.

7.12 In some cases, governments can create economic assets by exercising their sovereign powers or other powers delegated to them. For example, a government may have the authority to assert ownership rights over naturally occurring assets that otherwise would not be subject to ownership, such as the electromagnetic spectrum and natural resources in international waters subject to designation as an exclusive economic zone.[3] These assets are economic assets only if the government uses its authority to establish and enforce ownership rights.

7.13 Only actual (outstanding) liabilities (and their corresponding assets) are included in the balance sheet. Contingent assets and liabilities are not recognized as financial assets and liabilities prior to the condition(s) being fulfilled. Explicit contingent liabilities are discussed in paragraphs 7.251–7.260.

- Amounts set aside in business accounting as provisions to provide for a unit's future liabilities, either certain or contingent, or for a unit's future expenditures, are not recognized in the macroeconomic statistical systems. However, amounts accrued and not yet due for payment (such as employment-related pension "provisions") are liabilities.
- No liability is recognized on the balance sheet for government's implicit obligations to pay social security benefits, such as unemployment, old age pensions, and health care, in the future (see Appendix 2). However, it is recommended to include net implicit obligations for social security benefits as a memorandum item to the balance sheet (see paragraph 7.261).
- Lines of credit, letters of credit, and loan commitments assure funds will be made available in the future, but no financial asset (and liability) in the form of a loan is created until funds are actually advanced.
- Uncalled share capital is contingent until there is an obligation to pay the amount.
- Environmental liabilities, which are probable and measurable estimates of future environmental cleanup, closure, and disposal costs other than those included in costs of ownership transfer (see paragraphs 8.6–8.8), are not recognized.[4]

Deriving Definitions for Assets and Liabilities

7.14 This section defines liabilities and financial claims, from which it then derives the definitions of financial and nonfinancial assets.

7.15 As defined in paragraph 3.45, a **liability** is established when one unit (the debtor) is obliged, under specific circumstances, to provide funds or other resources to another unit (the creditor). Normally, a liability is established through a legally binding contract that specifies the terms and conditions of the payment(s) to be made, and payment according to the contract is unconditional. Whenever a liability exists, the creditor has a corresponding financial claim on the debtor. A **financial claim** is an asset that typically entitles the owner of the asset (the creditor) to receive funds or other resources from another unit, under the terms of a liability. Like liabilities, financial claims are unconditional. Financial claims consist of

[3] Exclusive economic zones are the area of sea and seabed extending from the shore of a country claiming exclusive rights to them.

[4] An example is an agreement to perform cleanup (i.e., removal, containment, and disposal) of hazardous waste that resulted from government operations. Where terminal costs are part of costs of ownership transfer, these costs are written off through consumption of fixed capital over the whole life of the asset. Terminal costs are discussed in paragraphs 6.60 and 8.6.

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debt instruments (see paragraph 7.236), financial derivatives and employee stock options, and equity and investment fund shares.

- Debt instruments are financial instruments that typically are created when one unit provides funds or other resources (e.g., goods in the case of trade credit) to a second unit and the second unit agrees to provide a return in the future. Debt liabilities can also be created by the force of law,[5] and by events that require future transfer of payments.[6] For a liability to be considered debt it must exist and be outstanding.
- In contrast, financial derivatives are financial instruments of which the underlying contracts involve risk transfer. Thus, rather than supplying funds or other resources, a derivative contract shifts the exposure to the effect of a change in the value of an item between the parties, without a change in ownership of that item. Employee stock options share some of the risk elements of financial derivatives, but are also designed to be a form of remuneration.
- Equity and investment fund shares issued by corporations and similar legal forms of organization are treated as liabilities of the issuing units even though the holders of the claims do not have a fixed or predetermined monetary claim on the corporation. Equity and investment fund shares do, however, entitle their owners to benefits in the form of dividends and other ownership distributions, and they often are held with the expectation of receiving holding gains. In the event the issuing unit is liquidated, shares and other equities become claims on the residual value of the unit after the claims of all creditors have been met. If a public corporation has formally issued shares or another form of equity, then the shares are a liability of that corporation and an asset of the government or other unit that owns them. If a public corporation has not issued any type of share, then the value of other equity is estimated (see paragraph 7.173).
- Monetary gold in the form of bullion is not a financial claim, because it is not the liability of any other unit. Monetary gold does, however, provide economic benefits by serving as a store of value and a means of international payment to settle financial claims and finance other types of transactions. As a result, monetary gold in the form of bullion is, by convention, treated as a financial asset. Monetary gold in the form of unallocated gold accounts is a financial claim and, therefore, a liability of another unit in the form of currency and deposits (see paragraph 7.139).

7.16 Financial assets consist of financial claims plus gold bullion held by monetary authorities[7] as a reserve asset.

7.17 Nonfinancial assets are economic assets other than financial assets. The main categories of nonfinancial assets are: produced assets (such as fixed assets, inventories, and valuables) and nonproduced assets (such as natural resources, contracts, leases, and licenses, and goodwill and marketing assets). Nonfinancial assets are stores of value and provide benefits either through their use in the production of goods and services or in the form of property income. Unlike financial claims, nonfinancial assets have no counterpart liability—that is, the owner of the nonfinancial asset does not have a claim on another institutional unit. Nonfinancial assets may come into existence as the output from a production process, or in other ways, such as natural occurrences.

7.18 Produced assets are classified as fixed assets, inventories, or valuables:

- **Fixed assets** are produced assets that are used repeatedly or continuously in production processes for more than one year. Fixed assets are discussed in paragraphs 7.35–7.74.
- **Inventories** are produced assets consisting of goods and services, which came into existence in the current period or in an earlier period, and that are held for sale, use in production, or other use at a later date. Inventories are discussed in paragraphs 7.75–7.86.
- **Valuables** are produced assets of considerable value that are not used primarily for purposes of production or consumption, but are held primarily

[5] These liabilities could include those arising from taxes, penalties (including penalties arising from commercial contracts), and judicial awards at the time they are imposed.

[6] These include claims on nonlife insurance companies, claims for damages not involving nonlife insurance companies, and claims arising from lottery and gambling activity.

[7] Government units typically do not fulfill functions of monetary authorities and thus would not hold financial assets in the form of gold bullion.

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as stores of value over time. Valuables are discussed in paragraphs 7.87–7.89.

7.19 Naturally occurring assets and constructs of society are both referred to as nonproduced assets (see paragraph 7.90). Naturally occurring assets include land, subsoil mineral deposits, fish in open but territorial waters, and the radio spectrum when ownership rights are enforced. Constructs of society that are assets include some contracts, leases, and licenses, as well as goodwill and marketing assets.

Valuation of Assets and Liabilities

7.20 As discussed in paragraph 3.113, stock positions of assets and liabilities should be valued at market value—that is, as if they were acquired in market transactions on the balance sheet reporting date (reference date). Therefore, the value of an asset at any given time is its current market value, which is the amount that would have to be paid to acquire the asset on the reporting date, taking into account its age, condition, and other relevant factors. This amount depends on the economic benefits that the owner of the asset can derive by holding or using it. The remaining benefits expected to be received from most assets diminish with the passage of time, which will reduce the value of the asset. The remaining benefits of some assets, such as valuables, may increase with the passage of time. The value of the remaining benefits may also increase or decrease because of changes in economic conditions.

7.21 In addition to current market value, the nominal value (see paragraph 3.115) of financial instruments is also useful for some purposes. This value is typically established by reference to the terms of a contract between the debtor and creditor. The nominal value of a debt instrument reflects the value of the debt at creation plus any subsequent economic flows, such as transactions (e.g., accrual of interest or repayment of principal) plus exchange rate and other valuation changes other than market price changes.[8]

7.22 The current market value for nonfinancial assets (except land) includes all costs of ownership transfer and for financial assets excludes these costs. For more details, see paragraphs 8.6–8.8.

[8] Accumulated revaluations arising from market price changes reconcile nominal value with market value.

7.23 The value of financial assets and liabilities denominated in foreign currencies should be converted to the domestic currency as discussed in paragraph 3.119.

7.24 Ideally, observable market prices should be used to value all assets and liabilities in a balance sheet. However, in estimating the current market price for balance sheet valuation, a price averaged over all transactions in a market can be used if the market is one on which the items in question are regularly, actively, and freely traded. When there are no observable prices because the items in question have not been purchased or sold on the market in the recent past, an attempt has to be made to estimate what the prices would be were the assets to be acquired on the market on the date to which the balance sheet relates. Such estimates may be obtained by (i) accumulating and revaluing transactions, or (ii) estimating the present value of future returns. These two methods, together with values observed in markets, are discussed in paragraphs 7.26–7.33.

7.25 The following paragraphs describe possible methods of estimating current market prices. Additional guidance on the valuation of specific types of assets and liabilities is included in the relevant parts of the section that describes the classification of assets and liabilities. Because the valuation of liabilities is the same as the valuation of the corresponding financial assets, in most cases, the remainder of this chapter will refer only to financial assets, but such references should be read as including liabilities equally. GFS compilers are typically not expected to independently derive the market values of assets and liabilities; they should evaluate what is available and how that information could be used in the GFS balance sheet.

Value Observed in Markets

7.26 The ideal source of price observations for valuing balance sheet items is a market, like the stock exchange, in which each asset traded is completely homogeneous, is often traded in considerable volume, and has its market price listed at regular intervals. Such markets yield data on prices that can be multiplied by indicators of quantity in order to compute the total market value of different classes of assets held by sectors and of different classes of their liabilities.

7.27 For securities quoted on a stock exchange, for example, it is feasible to gather the prices of individual assets and of broad classes of assets and, in addition,

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to determine the global valuation of all the existing securities of a given type. Debt securities traded (or tradable) in organized and other financial markets—such as bills, bonds, debentures, negotiable certificates of deposits, asset-backed securities, etc.—should be valued at market value and, in the case of liabilities, at nominal value as well.[9] In some countries, another example of a market in which assets may be traded in sufficient numbers to provide useful price information is the market for existing dwellings.

7.28 If assets of the same kind are being produced and sold on the market, an existing asset may be valued at the current market price of a newly produced asset adjusted for consumption of fixed capital in the case of fixed assets, and any other differences between the existing asset and a newly produced asset. This adjustment for consumption of fixed capital should be calculated on the basis of the asset prices prevailing on the balance sheet reference date rather than the actual amounts previously recorded as an expense.[10]

7.29 In addition to providing direct observations on the prices of assets actually traded there, information from such markets may also be used to price similar assets that are not traded. For example, information from the stock exchange also may be used to price unlisted shares by analogy with similar, listed shares, making some allowance for the inferior marketability of the unlisted shares. Similarly, independent appraisals of assets for insurance or other purposes generally are based on observed prices for items that are close substitutes, although not identical, and this approach can be used for balance sheet valuation.

7.30 Debt instruments other than debt securities (as well as the corresponding financial assets in the form of debt instruments) are normally not traded and, therefore, lack generally observable market values. This means that these values have to be estimated by using the nominal value as a proxy (see paragraph 7.122).[11]

- Nontraded debt instruments: Debt instruments (as well as the corresponding financial assets in the form of debt instruments) not generally traded (or tradable) in organized or other financial markets—namely, loans, currency and deposits, and other accounts payable/receivable—should be valued at nominal value. The nominal value of a debt instrument could be less than the originally advanced amount if there have been repayments of principal, debt forgiveness, or other economic flows (such as arising from indexation) that affect the value of the amount outstanding. The nominal value of a debt instrument could be more than originally advanced because of, for example, the accrual of interest or other economic flows.
- Debt instruments that do not accrue interest: For debt instruments (as well as the corresponding financial assets in the form of debt instruments) that do not accrue interest—for example, most trade credit and advances—the nominal value is the amount owed by the debtor to the creditor at the balance sheet date. If there is an unusually long time before payment is due on an outstanding debt liability on which no interest accrues, the value of the principal should be reduced by an amount that reflects the time to maturity and an appropriate existing contractual rate, such as for similar debt instruments (see also paragraph 3.118).
- Repayment specified in terms of commodities or other goods: For some instruments, such as a loan, repayment may be specified in a contract in terms of commodities or other goods deliverable in installments over a period of time. At inception, the value of the debt (as well as the corresponding financial assets in the form of debt instruments) is equal to the principal advanced. When payments are made in the form of the good or commodity, the value of the principal outstanding will be reduced by the market value of the good or commodity at the time the payment is made.
- Extinguishing a trade credit under barter arrangements: The value of the commodities, other goods, or services to be provided for extinguishing a trade credit liability (and the corresponding financial asset) under barter arrangements is established at the creation of the debt—that is, when the exchange of value occurred. However, as noted earlier, if there is an unusually long time before payment, the value of the principal should be reduced by an amount that reflects the time to

[9] Nominal and market valuation are discussed in paragraphs 3.113–3.117. For a numerical examples on the calculation of interest and nominal value, see Boxes 2.3–2.5 in the *PSDS Guide*.
[10] Amounts previously recorded as expense are based on the average prices of the asset over the reporting period.
[11] See the *PSDS Guide*, Chapter 2.

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maturity and an appropriate existing contractual rate, and interest should accrue until actual payment is made.

- Nontraded debt instruments with uncertain nominal values: For nontraded debt instruments (as well as the corresponding financial assets in the form of debt instruments) where the nominal value is uncertain, the nominal value can be calculated by discounting future interest and principal payments at an appropriate existing contractual rate of interest.

Value Obtained by Accumulating and Revaluing Transactions

7.31 In the absence of observable market prices, the balance sheet value of an asset may be obtained by accumulating and revaluing transactions. The values of most nonfinancial assets change, reflecting changes in market prices. At the same time, initial acquisition costs are reduced by consumption of fixed capital[12] (in the case of fixed assets) or amortization or depletion[13] (in the case of other nonfinancial assets) over the expected life of the asset. In principle, the value of such a nonfinancial asset at a given point in its life is given by the current acquisition price of an equivalent new asset minus the accumulated consumption of fixed capital, amortization, or depletion. This valuation is referred to as the written-down replacement cost. When reliable, directly observed market prices for used assets are not available, applying this method gives a reasonable approximation of what the market price would be, were the asset offered for sale. For example, the principle could be applied as follows for these assets:

- In the absence of observed market values, most fixed assets are recorded in the balance sheet at their written-down replacement cost.
- Intangible nonproduced assets, such as goodwill and marketing assets, are typically valued at their initial acquisition costs minus an allowance for amortization. For this method, a pattern of decline must be chosen, which may be based on tax laws and accounting conventions.
- It may be possible to value subsoil and other naturally occurring assets at their initial acquisition costs (appropriately revalued using a relevant specific or commodity price index) minus an allowance for depletion.

7.32 The perpetual inventory method (PIM) is commonly used to estimate the written-down replacement cost of a category of assets, especially tangible fixed assets. With this method, the value of the stock is based on estimates of acquisitions and disposals that have been accumulated (after deduction of the accumulated consumption of fixed capital, amortization, or depletion) and revalued over a long enough period to cover the acquisition of all assets in the category. The PIM may be viewed as the macro equivalence of an asset register: the PIM does these calculations for large groups of assets, while an asset register does them for individual assets or asset types.[14]

Present Value of Future Returns

7.33 In some cases, current market prices may be approximated by the present value[15] of the future economic benefits expected from a given asset. This method may be feasible for a number of financial assets, naturally occurring assets, and intangible assets. For example, timber and subsoil assets are assets whose benefits are normally receivable well in the future and/or spread over several years. Current prices can also be approximated by net present value when there are costs of bringing assets to the market. The economic benefit and costs can be discounted to estimate the net present value of the asset.

Classification of Assets and Liabilities

Nonfinancial Assets (61)[16]

7.34 At the first level of classification, there are four categories of nonfinancial assets. The first three categories are produced assets—*fixed assets* (611), *inventories* (612), and *valuables* (613)—and the fourth consists of all *nonproduced assets* (614). The summary

[12] See Box 6.1 for guidance on the calculation of consumption of fixed capital.
[13] See paragraph 10.52.
[14] For details on the PIM, see Organisation for Economic and Cooperation and Development, *Measuring Capital—OECD Manual: Measurement of Capital Stocks, Consumption of Fixed Capital and Capital Services* (Paris, 2001).
[15] Present value is the value today of a future payment or stream of payments discounted at some appropriate compounded interest rate. It is also referred to as the "time value of money" or "discounted cash flow."
[16] The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in GFS.

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Table 7.2 Summary Classification of Nonfinancial Assets	
61	**Nonfinancial assets**
611	**Fixed assets**
6111	Buildings and structures
61111	Dwellings
61112	Buildings other than dwellings
61113	Other structures
61114	Land improvements
6112	Machinery and equipment
61121	Transport equipment
61122	Machinery and equipment other than transport equipment
6113	Other fixed assets
61131	Cultivated biological resources
61132	Intellectual property products
6114	Weapons systems
612	**Inventories**
613	**Valuables**
614	**Nonproduced assets**
6141	Land
6142	Mineral and energy resources
6143	Other naturally occurring assets
61431	Noncultivated biological resources
61432	Water resources
61433	Other natural resources
6144	Intangible nonproduced assets
61441	Contracts, leases, and licenses
61442	Goodwill and marketing assets

classification of nonfinancial assets is shown in Table 7.2; more detailed classifications of these categories are provided in the discussions of the various types of fixed assets, where relevant.[17]

Fixed assets (611)

7.35 ***Fixed assets*** (611) are produced assets that are used repeatedly or continuously in production processes for more than one year. The distinguishing feature of a fixed asset is not that it is durable in some physical sense, but that it may be used repeatedly or continuously in production over a long period of time, which is taken to be more than one year (by convention). Some goods, such as coal used as fuel, may be highly durable physically but cannot be fixed assets because they can be used only once. Fixed assets are further classified as *buildings and structures* (6111), *machinery and equipment* (6112), *other fixed assets* (6113), and *weapons systems* (6114).

7.36 In general, in the absence of observable market prices for used assets, the written-down replacement cost is used as a proxy for the current market value of fixed assets. In the remainder of this section, it is noted when a particular type of fixed asset is likely to be more accurately valued by another method.

7.37 The production of some fixed assets may span two or more reporting periods. These nonfinancial assets should be reflected on the balance sheet, in principle, when economic ownership changes, as evidenced by the transfer of risks and benefits associated with the asset. For high-value fixed assets such as ships, heavy machinery, and other equipment, ownership changes are recorded at the time agreed between the parties; for example, it could be a progressive change in line with stage payments, or in full on delivery. When a contract of sale is agreed in advance for the construction of buildings and structures, incomplete structures are being acquired in each period through progress payments and classified as fixed assets on the purchaser unit's balance sheet (i.e., the structure is being sold by the construction contractor to the purchaser in stages as the latter takes legal possession of the structure). When progress payments exceed the value of the incomplete asset, the excess should be recorded as a trade advance that will be exhausted as work proceeds. In the absence of a contract of sale, the incomplete structure is recorded as work in progress, and completed structures are recorded as finished goods, on the balance sheet of the unit doing the construction until ownership of the asset changes. Fixed assets being constructed on own account are treated as fixed assets rather than inventories of work in progress. These general principles also apply to the production of cultivated assets (see paragraph 7.62).

7.38 Fixed assets acquired under a financial lease—most likely machinery and equipment—are treated as if purchased and owned by the user or lessee (the economic owner) rather than the lessor (the legal owner). The acquisition is treated as being financed by a financial claim, classified as a loan. For example, if a bank purchases an airplane and then leases it to the national airline, the airplane is recorded as an asset of

[17] The classification of assets and liabilities in this chapter is supplemented by description of transactions in Chapters 8 and 9, while other economic flows related to these assets and liabilities are described in Chapter 10.

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the airline and a loan is recorded as a liability of the airline and an asset of the bank. Financial leases are discussed in detail in paragraphs A4.10–A4.15.

7.39 A further consideration to be taken into account in determining ownership concerns fixed assets built under a public-private partnership (PPP) or a build, own, operate, and transfer (BOOT) scheme, sometimes also described as a private finance initiative (PFI), or some other similar shorthand. The statistical treatment is based on the economic ownership of the asset involved (see paragraph 7.5). PPPs are discussed in detail in paragraphs A4.58–A4.65. Also, immovable fixed assets, such as buildings and other structures within the economic territory, are deemed, by convention, to be owned by resident units (see paragraph 2.13).

7.40 Small/hand tools are excluded from the fixed asset boundary. Costs incurred on these inexpensive durable goods are recorded as *use of goods and services* (22) when such expenses are incurred regularly and are small compared with the costs incurred for the acquisition of machinery and equipment. But there can be circumstances when such small/hand tools are recorded as fixed assets (see paragraph 6.43).

Buildings and structures (6111)

7.41 ***Buildings and structures*** (6111) consist of *dwellings* (61111), *buildings other than dwellings* (61112), *other structures* (61113), *and land improvements* (61114), as shown in Table 7.3. The value of buildings and structures includes the costs of site clearance and preparation and the value of all fixtures, facilities, and equipment that are integral parts of the structures.

7.42 Public monuments in the form of buildings and structures are included here. **Public monuments** are identifiable because of particular historical, national, regional, local, religious, or symbolic significance. They are accessible to the general public, and visitors are often charged for admission to the monuments or their vicinity. Public sector units typically use public monuments to produce cultural or entertainment-type services. In principle, public monuments should be included in dwellings, buildings other than dwellings, and other structures, as appropriate; in practice, it may be desirable to classify them with other structures when such a breakdown is not available. Consumption of fixed capital on new monuments, or on major improvements to existing monuments, should be calculated on the assumption of appropriately long service lives.

Table 7.3 Classification of Buildings and Structures

6111	Buildings and structures
61111	Dwellings
61112	Buildings other than dwellings
61113	Other structures
61114	Land improvements

7.43 Public monuments can be valued directly, however, only when their significance has been recognized by someone other than the owner, typically by a sale or a formal appraisal. Newly constructed public monuments are valued at written-down replacement cost. Other than newly constructed monuments should be valued at the most recent sale price, updated, if need be, by a general price index. If no sale price is available, then an alternative valuation, such as an insurance appraisal or replacement cost (see paragraph 7.31), should be used.

Dwellings (61111)

7.44 ***Dwellings*** (61111) are buildings, or designated parts of buildings, that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Houseboats, barges, mobile homes, and caravans that are used as principal residences are also included, as are public monuments identified primarily as dwellings. Dwellings acquired by government for military personnel are included in this category because they are used in the same way as dwellings acquired by civilians. Incomplete dwellings are included to the extent that the ultimate user is deemed to have taken economic ownership, because the construction is on own account, the ultimate user assumed the risks and benefits of the asset, or as evidenced by the existence of a contract of sale or purchase.

7.45 For dwellings, there may be adequate information available from the sale of both new and existing buildings in equivalent private markets to assist in making balance sheet estimates of comparable price movements in the total value of public sector dwellings. However, these house prices depend to a

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considerable extent on location and may include land values. The geographical pattern of sales in the period may not cover all areas adequately, in which case a technique such as a PIM will have to be used (see paragraph 7.32). This technique will probably also apply to many other public buildings and structures since their characteristics are often specific to the structure concerned.

Buildings other than dwellings (61112)

7.46 ***Buildings other than dwellings*** (61112) include whole buildings or parts of buildings not designated as dwellings. Fixtures, facilities, and equipment that are integral parts of the structures are included. For new buildings, costs of site clearance and preparation are included.

7.47 Examples of types of buildings included in this category are office buildings, schools, hospitals, buildings for public entertainment, warehouses and industrial buildings, commercial buildings, hotels, and restaurants. Public monuments identified primarily as nonresidential buildings are also included. Prisons, schools, and hospitals are regarded as buildings other than dwellings despite the fact that they may shelter institutional households. Buildings and structures acquired for military purposes are included to the extent that they are used repeatedly, or continuously, in processes of production for more than one year.

Other structures (61113)

7.48 ***Other structures*** (61113) consist of all structures other than buildings. The costs of site clearance and preparation are also included. Public monuments are included if identification as dwellings or buildings other than dwellings is not possible. Also included are the construction of sea walls, dikes, flood barriers, etc. intended to improve the quality and quantity of land adjacent to them. The infrastructure necessary for aquaculture, such as fish farms and shellfish beds, is also included. Further examples are:

- Highways, streets, roads, bridges, elevated highways, tunnels, railways, subways, and airfield runways
- Sewers, waterways, harbors, dams, and other waterworks
- Shafts, tunnels, and other structures associated with mining mineral and energy resources
- Communication lines, power lines, long-distance pipelines, local pipelines, and cables
- Outdoor sport and recreation facilities
- Structures acquired for military purposes are included to the extent that they are used repeatedly, or continuously, in processes of production for more than one year.

Land improvements (61114)

7.49 ***Land improvements*** (61114) are the result of actions that lead to major improvements in the quantity, quality, or productivity of land, or prevent its deterioration. Activities such as land reclamation, land clearance, land contouring, and creation of wells and watering holes that are integral to the land in question are to be treated as resulting in land improvements. Seawalls, dikes, dams, and major irrigation systems that are in the vicinity of the land but not integral to it, which often affect land belonging to several owners and which are often carried out by government, are classified as *other structures* (61113).

7.50 Land improvements represent a category of fixed assets distinct from the nonproduced asset *land* (6141) as it existed before improvement. Unimproved land remains a nonproduced asset and as such is subject to holding gains and losses separately from price changes affecting the improvements. In cases where it is not possible to separate the value of the land before improvement and the value of those improvements, the asset should be allocated to the category that represents the greater part of the value.

7.51 The value of land improvements is shown as the written-down replacement cost of the improvements as originally carried out, suitably revalued to market prices. This is conceptually equal to the difference in value between the land concerned in an unimproved or natural state and its value after the improvements have been made, taking into account price changes. The costs of ownership transfer on all land are, by convention, included with land improvements. Consumption of fixed capital and the costs of ownership transfer are discussed in paragraphs 6.53–6.60.

Machinery and equipment (6112)

7.52 ***Machinery and equipment*** (6112) cover transport equipment, machinery for information, computer, and telecommunications (ICT) equipment,

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and machinery and equipment not elsewhere classified. Machinery and equipment forming an integral part of a building or other structure are included in the value of the building or structure rather than in machinery and equipment. Tools that are inexpensive and purchased at a relatively steady rate, such as hand tools, are not considered fixed assets unless they form a large share of the stock of machinery and equipment. As explained in paragraph 7.38, machinery and equipment under a financial lease are classified here because they are treated as being acquired by the user (lessee). Machinery and equipment acquired for military purposes other than weapons systems are classified under this category; *weapons systems* (6114) form a separate category (see paragraph 7.74).

7.53 Machinery and equipment are classified in two main categories: *transport equipment* (61121) and *machinery and equipment other than transport equipment* (61122), with a further breakdown of other machinery and equipment, as shown in Table 7.4.

Transport equipment (61121)

7.54 ***Transport equipment*** (61121) consists of equipment for moving people and objects, including motor vehicles, trailers and semitrailers, ships, railway locomotives and rolling stock, aircraft, motorcycles, and bicycles. Markets for existing automobiles, aircraft, and some other types of transportation equipment may be sufficiently representative to yield price observations that are superior to valuations at written-down replacement cost.

Machinery and equipment other than transport equipment (61122)

7.55 This category consists of all machinery and equipment other than transport equipment. A distinction is made between *information, computer, and telecommunications (ICT) equipment* (611221) and *machinery and equipment not elsewhere classified* (611222).

Table 7.4 Classification of Machinery and Equipment

6112	Machinery and equipment
61121	Transport equipment
61122	Machinery and equipment other than transport equipment
611221	Information, computer, and telecommunications (ICT) equipment
611222	Machinery and equipment not elsewhere classified

Information, computer, and telecommunications equipment (ICT) (611221)

7.56 ***Information, computer, and telecommunications equipment*** (611221) consists of devices using electronic controls and also the electronic components forming part of these devices. Examples are products that form part of computing machinery and parts and accessories thereof, television and radio transmitters, television, video, and digital cameras, and telephone sets. In practice, this narrows the coverage of ICT equipment mostly to computer hardware and telecommunications equipment.

Machinery and equipment not elsewhere classified (611222)

7.57 This category includes all machinery and equipment not classified in any of the other machinery and equipment categories.[18] Types of assets that would be included are general- and special-purpose machinery; office and accounting equipment; electrical machinery; medical appliances; precision and optical instruments; furniture; watches and clocks; musical instruments; and sports goods. It also includes paintings, sculptures, other works of art or antiques, and other collections of considerable value that are owned and displayed for the purpose of producing museum and similar services. Similar items owned primarily as stores of value that are not intended for use in production would be classified as valuables (see paragraphs 7.87–7.89). Also excluded from this category are inexpensive durable goods such as small/hand tools that are recorded as *use of goods and services* (22) (see paragraph 6.43).

Other fixed assets (6113)

7.58 Other fixed assets consist of *cultivated biological resources* (61131) and *intellectual property products* (61132), as shown in Table 7.5.

[18] All items under the United Nations' *Central Product Classification (CPC)*, version 2.0, categories 43–48, are included here, except for categories 452 and 472, which are classified under Information, Computer, and Telecommunications (ICT) Equipment. For more details, see http://unstats.un.org/unsd/cr/registry/cpc-2.asp.

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Table 7.5 Classification of Other Fixed Assets	
6113	Other fixed assets
61131	Cultivated biological resources
611311	Animal resources yielding repeat products
611312	Tree, crop, and plant resources yielding repeat products
61132	Intellectual property products
611321	Research and development
611322	Mineral exploration and evaluation
611323	Computer software and databases
6113231	Computer software
6113232	Databases
611324	Entertainment, literary, and artistic originals
611325	Other intellectual property products

Cultivated biological resources (61131)

7.59 ***Cultivated biological resources*** (61131) cover animal resources yielding repeat products and tree, crop, and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility, and management of institutional units.

7.60 *Animal resources yielding repeat products* (611311) include breeding stocks, dairy cattle, draft animals, sheep, or other animals used for wool production, animals used for transportation, racing, or entertainment, and aquatic resources yielding repeat products. Immature cultivated assets are excluded unless produced for own use. Animals raised for slaughter, including poultry, are not fixed assets but inventories.

7.61 *Tree, crop, and plant resources yielding repeat products* (611312) include trees (including vines and shrubs) cultivated for fruits and nuts, for sap and resin, and for bark and leaf products. Trees grown for timber that yield a finished product once only when they are ultimately felled are not fixed assets, but are included as inventories, just as grains or vegetables that produce only a single crop when they are harvested cannot be fixed assets.

7.62 In general, when the production of fixed assets takes a long time to complete, those assets for which production is not yet completed at the end of the reporting period are recorded as inventories in the form of work in progress. These general principles also apply to the production of cultivated assets, such as animals or trees that may take a long time to reach maturity. Two cases need to be distinguished from each other: the production of cultivated products by specialized producers, such as breeders or tree nurseries, and the own-account production of cultivated assets by their users:

- In the case of the specialist producers, animals or trees whose production is not yet complete and are not ready for sale or delivery are recorded as work in progress.
- However, when animals or trees intended to be used as fixed assets are produced on own account on farms or elsewhere, incomplete assets in the form of immature animals, trees, etc. not ready to be used in production are treated as the acquisition of fixed assets by the producing public sector unit in its capacity as eventual user and not as work in progress.

7.63 Only animals and plants cultivated under the direct control, responsibility, and management of institutional units are cultivated assets or inventories. Otherwise, they are nonproduced assets. Animals classified as cultivated biological resources usually can be valued on the basis of the current market prices for similar animals of a given age. Such information is less likely to be available for plants; more likely they will have to be valued at the written-down replacement cost.

Intellectual property products (61132)

7.64 ***Intellectual property products*** (61132) are the result of research, development, investigation, or innovation leading to knowledge that the developers can market or use to their own benefit in production because use of the knowledge is restricted by means of legal or other protection. The knowledge may be embodied in a free-standing product or may be embodied in another product. When the latter is the case, the product embodying the knowledge has an increased price relative to a similar product without this embodied knowledge. The knowledge remains an asset as long as its use can create some form of monopoly profits for its owner. When it is no longer protected or becomes outdated by later developments, it ceases to be an asset. Intellectual property products can be classified as:

- *Research and development* (611321)
- *Mineral exploration and evaluation* (611322)

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- *Computer software and databases* (611323)
- *Entertainment, literary, and artistic originals* (611324)
- *Other intellectual property products* (611325).

7.65 Some intellectual property products are used solely by the unit responsible for their development or by a single unit to whom the product is transferred. Mineral exploration and evaluation are an example. Other products, such as computer software and artistic originals, are used in two forms. The first is the original copy. This is frequently controlled by a single unit but exceptions exist, as explained in the remainder of this section. The original is used to make copies that are, in turn, supplied to other institutional units. The copies may be sold outright or made available under a license:

- A copy sold outright may be treated as a fixed asset if it satisfies the necessary conditions—that is, it will be used in production for a period in excess of one year.
- A copy made available under a license to use may also be treated as a fixed asset if it meets the necessary conditions—that is, if it is expected to be used in production for more than one year and the licensee assumes all the risks and rewards of ownership. A good indication, but not a necessary one, is if the license is purchased with a single payment for use over a multiyear period.
- If the acquisition of a copy with a license to use is purchased with regular payments over a multiyear contract and the licensee is judged to have acquired economic ownership of the copy, then it should be regarded as the acquisition of a fixed asset.
- If regular payments are made for a license to use without a long-term contract, then the payments are treated as payments for a service.
- If there is a large initial payment followed by a series of smaller payments in succeeding years, the initial payment is recorded as the net acquisition of a fixed asset and the succeeding payments are treated as payments for a service.
- If the license allows the licensee to reproduce the original and subsequently assume responsibility for the distribution, support, and maintenance of these copies, then this is described as a license to reproduce and should be regarded as the sale of part or whole of the original to the unit holding the license to reproduce.

7.66 ***Research and development*** (611321) consists of the value of expenditure on creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture, and society, and use of this stock of knowledge to devise new applications. It does not extend to including human capital as assets within GFS and other macroeconomic statistics. The value of research and development should be determined in terms of the economic benefits it is expected to provide in the future. This value includes the provision of public services in the case of research and development acquired by government. In principle, research and development that does not provide an economic benefit to its owner does not constitute a fixed asset and should be treated as an expense. Only research and development that meets the criteria to be a nonfinancial asset should be included in this category.[19]

7.67 Unless the market value of the research and development is observed directly, it may, by convention, be valued at the sum of costs, including the cost of unsuccessful research and development. More specifically, research and development undertaken by government units, universities, nonprofit research institutes, etc. is nonmarket production and should be valued on the basis of the total costs incurred, excluding a return to capital used. Research and development expenditure carried out on contract is valued at the contract price. If carried out on own account, it is valued as cumulated costs. If it is carried out by a public corporation, the costs include a return to capital. These valuations need to be increased for changes in prices and reduced because of consumption of fixed capital over the life of the asset. With the inclusion of research and development in the asset boundary, patented resources are no longer considered as a form of nonproduced assets.[20]

[19] For further guidance on the practical measurement of research and development, see Organisation for Economic and Co-operation and Development, *Handbook on Deriving Capital Measures of Intellectual Property Products* (Paris, 2010).

[20] The patent agreement is to be seen as the legal agreement concerning the terms on which access by third parties to research and development is granted. The patent agreement is a form of license to use, which is treated as payments for service or the acquisition of assets. See discussions on *contracts, leases, and licenses* (61441) in paragraph 7.105 and in Appendix 4.

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7.68 ***Mineral exploration and evaluation*** (611322) consist of the value of expenditure on exploration for petroleum and natural gas and for nonpetroleum deposits and subsequent evaluation of the discoveries made. The information obtained from exploration influences the production activities of those who obtain it over a number of years. Mineral exploration and evaluation should be valued either on the basis of the amounts payable under contracts awarded to other institutional units for the purpose or on the basis of the costs incurred for exploration undertaken on own account. These costs should include a return to the fixed capital used in the exploration activity. In addition to the costs of actual test drilling and boring, mineral exploration includes any prelicense, license, acquisition, and appraisal costs, the costs of aerial and other surveys, and transportation and other costs incurred to make the exploration possible. The value of the resulting asset is not measured by the value of new deposits discovered by the exploration but by the value of the resources allocated to exploration during the reporting period. Exploration undertaken in the past whose value has not yet been fully written off should be revalued to the prices and costs of the current period.

7.69 ***Computer software and databases*** (611323) are grouped together because a computerized database cannot be developed independently of a database management system that is itself computer software. This category can be further divided into *computer software* (6113231) and *databases* (6113232).

7.70 ***Computer software*** (6113231) includes computer programs, program descriptions, and supporting materials for both systems and applications software that is expected to be used for more than one year. The software may be purchased from other units or developed on own account and may be intended only for own use or may be intended for sale by means of copies. ***Databases*** (6113232) consist of files of data organized in such a way as to permit resource-effective access and use of the data. These expenditures on the purchase, development, or extension of computer databases are assets when expected to be used in production for more than one year.

7.71 The value of *computer software and databases* (611323) should be based on the amount payable if acquired from another unit or on the costs of production (including a return to capital if produced by a public corporation) if produced on own account. Software and databases acquired in previous years and not yet fully written off should be revalued to current prices.

7.72 ***Entertainment, literary, and artistic originals*** (611324) are original films, sound recordings, manuscripts, tapes, and models in which drama performances, radio and television programming, musical performances, sporting events, and literary and artistic output are recorded or embodied. They should be valued at their current market price when they are actually traded. Otherwise, they should be valued either on the basis of their acquisition price or costs of production (including a return to capital if produced by a public corporation), revalued to the prices of the current period and written down, or on the basis of the present value of the expected future receipts.

7.73 ***Other intellectual property products*** (611325) consist of new information and specialized knowledge not elsewhere classified, the use of which is restricted to the units that have established ownership rights over the information or to other units licensed by the owners. The assets should be valued at their current written-down replacement cost or the present value of expected future receipts.

Weapons systems (6114)

7.74 ***Weapons systems*** (6114) include vehicles and other equipment, such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. Weapons systems are treated as fixed assets. The military weapons systems comprising specialized vehicles and other equipment, such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc., are used continuously in the provision of defense services, even if their peacetime use is simply to provide deterrence. Therefore, military weapons systems should be classified as fixed assets and this classification of military weapons systems as fixed assets should be based on the same criteria as for other fixed assets—that is, produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year. Most single-use weapons they deliver, such as ammunition, missiles, rockets, bombs, etc., are treated as *military inventories* (61225) (see paragraphs 7.86 and 6.49). However,

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some single-use items, such as certain types of ballistic missiles with a highly destructive capability, may provide an ongoing service of deterrence against aggressors and therefore meet the general criteria for classification as fixed assets. Weapons systems are valued at their written-down replacement cost.

Inventories (612)

7.75 ***Inventories*** (612) are produced assets consisting of goods and services, which came into existence in the current period or in an earlier period, and that are held for sale, use in production, or other use at a later date. Inventories are classified as *materials and supplies* (61221), *work in progress* (61222), *finished goods* (61223), *goods for resale* (61224), and *military inventories* (61225), as shown in Table 7.6. Each of these types of inventories has a different economic function.

7.76 Inventories consist of stocks of:

- Goods that are still held by the units that produced them prior to their being further processed, sold, delivered to other units, or used in other ways
- Products acquired from other units that are intended to be used in the production of market and nonmarket goods and services by units, or for resale without further processing
- Strategic stocks that are goods held for strategic and emergency purposes, goods held by market regulatory organizations, and other goods of special importance to the nation, such as grain, military inventories, and petroleum.

7.77 Inventories may include services consisting of work in progress or finished products—for example, architectural drawings that are in the process of completion or are completed and waiting for the building to which they relate to be started.

7.78 Inventories should be valued at their current market prices on the balance sheet date rather than their acquisition prices. In principle, current market prices should be available for most types of inventories, but in practice, the values of inventories frequently are estimated by adjusting book or acquisition values of inventories with the aid of price indexes.

Table 7.6 Classification of Inventories

612	Inventories
61221	Materials and supplies
61222	Work in progress
61223	Finished goods
61224	Goods for resale
61225	Military inventories

Materials and supplies (61221)

7.79 ***Materials and supplies*** (61221) consist of all goods held with the intention of using them as inputs to a production process. Public sector units may hold a variety of goods as materials and supplies, including office supplies, fuel, and foodstuffs. Every public sector unit may be expected to hold some materials and supplies, if only office supplies. Materials and supplies often can be valued on the basis of the current market prices for the same goods.

Work in progress (61222)

7.80 ***Work in progress*** (61222) consists of goods and services that are not yet sufficiently processed to be in a state in which it is normally supplied to other institutional units. General government units that primarily produce nonmarket services are likely to have little or no work in progress, as the production of most such services is completed in a short time span or continuously. Work in progress must be recorded for any output that is not complete at the end of the reporting period, such as construction. The only exceptions to recording incomplete work as work in progress are for partially completed projects for which the ultimate owner is deemed to have taken economic ownership in stages (see paragraph 7.37). Economic ownership conveys in stages when the production is for own use, the new owner assumes the risks and benefits associated with the incomplete asset, or when evidenced by specific clauses in a contract of sale or purchase. In these exceptions, the partially complete products are recorded as the acquisition of fixed assets rather than work in progress.

7.81 Work in progress can take a wide variety of different forms, ranging from growing crops to developing computer programs. Although work in progress is output that has not reached the state in which it is normally supplied to others, its ownership is nevertheless transferable, if necessary.[21]

[21] For example, it may be sold under exceptional circumstances, such as the liquidation of a public sector unit.

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7.82 Work in progress inventories are valued on the basis of the cost of production at current prices as of the balance sheet date. The value of standing timber and other cultivated crops may be estimated by discounting the future proceeds of selling the final product at current prices and the expenses of bringing the product to maturity.

Finished goods (61223)

7.83 ***Finished goods*** (61223) consist of goods that are the output of a production process, are still held by their producer, and are not expected to be processed further by the producer before being supplied to other units. Finished goods may be held only by the units that produce them. General government units will have finished goods only if they produce goods for sale or transfer to other units. Inventories of finished goods are valued at their current sales value (before adding any taxes, transport, or distribution charges) or at the cost to produce them currently (i.e., their current replacement prices).

Goods for resale (61224)

7.84 ***Goods for resale*** (61224) are goods acquired for the purpose of reselling or transferring to other units without being further processed. Goods for resale may be transported, stored, graded, sorted, washed, or packaged by their owners to present them for resale in ways that are attractive to their customers or beneficiaries, but they are not otherwise transformed. Any general government unit that sells goods for economically significant prices, such as a museum gift shop, is likely to possess an inventory of goods for resale. This category also includes goods purchased by general government units for provision free of charge or at prices that are not economically significant to other units. Goods acquired by government for distribution as social transfers in kind but that have not yet been so delivered are also included in goods for resale.

7.85 Inventories of goods intended for resale are valued at their current replacement prices.

Military inventories (61225)

7.86 ***Military inventories*** (61225) consist of single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems. As noted in paragraph 7.74, in the discussion of weapons systems as fixed assets, most single-use items are treated as inventories, but some types of missiles with highly destructive capability may be treated as fixed assets. Military inventories are valued at their current replacement prices.

Valuables (613)

7.87 ***Valuables*** (613) are produced assets of considerable value that are not used primarily for purposes of production or consumption but are held as stores of value over time. They are expected to appreciate, or at least not to decline, in real value, and they do not deteriorate over time under normal conditions.

7.88 Included in valuables are:

- Nonmonetary gold and other precious stones and metals that are not intended to be used as materials and supplies in the processes of production
- Paintings, sculptures, and other objects recognized as works of art or antiques held primarily as stores of value over time
- Jewelry of significant value fashioned out of precious stones and metals, collections, and miscellaneous other valuables.

Many items fitting the description of a valuable that are owned by general government units will be classified as *machinery and equipment not elsewhere classified* (611222) because they are not held primarily as stores of value but used in production, such as by being displayed in government museums. (See also paragraph 7.57.)

7.89 To the extent that there are well-organized markets for valuables, they can be valued at current market prices, including any costs of ownership transfer, such as agents' fees or commissions. Otherwise, the amounts for which they are insured against fire, theft, and other risks may be appropriate.

Nonproduced assets (614)

7.90 Nonproduced assets consist of tangible, naturally occurring assets—natural resources—over which ownership rights are enforced, and *intangible nonproduced assets* (6144) that are constructs of society. Natural resources comprise *land* (6141), *mineral and energy resources* (6142), and *other naturally occurring assets* (6143). If ownership rights have not or cannot be enforced over naturally occurring resources, then they are not economic assets.

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7.91 All immovable nonproduced assets such as land and other natural resources within the economic territory are deemed, by convention, to be owned by resident units (see paragraph 2.13).

Land (6141)

7.92 ***Land*** (6141) consists of the ground, including the soil covering and any associated surface waters, over which ownership rights are enforced and from which economic benefits can be derived by their owners by holding or using them. The associated surface water includes any reservoirs, lakes, rivers, and other inland waters over which ownership rights can be exercised and that can, therefore, be the subject of transactions between units. However, water bodies from which water is regularly extracted, against payment, for use in production (including for irrigation) are included not in water associated with land but in *water resources* (61432).

7.93 Land excludes the following:

- Buildings and other structures constructed on the land or through it, such as roads, office buildings, and tunnels
- Land improvements and the costs of ownership transfer on land
- Cultivated components of vineyards, orchards, and other plantations of trees, animals, and crops
- Subsoil assets
- Noncultivated biological resources
- Water resources below the ground.

7.94 Land is valued at its current price that would be payable by a new owner, excluding the costs of ownership transfer. By convention, the costs of ownership transfer on land are recorded as the net investment in fixed assets as part of land improvements and are subject to consumption of fixed capital. The value of land can vary enormously depending on its location and the uses for which it is suitable or sanctioned. As a result, these factors must be taken into account when the current market price for the land is determined. In a number of instances, it may be difficult to separate the value of land from the value of structures erected on the land:

- One method of estimating the value of land separately is to calculate ratios of the value of the site to the value of the structure from valuation appraisals and to deduce the value of land from the replacement cost of the buildings or from the value on the market of the combined land and buildings.
- When the value of land cannot be separated from the building, structure, plantation, vineyard, etc., above it, the composite asset should be classified in the category representing the greater part of its value.
- Similarly, if the value of the land improvements (which include site clearance, preparation for the erection of buildings or planting of crops, and costs of ownership transfer) cannot be separated from the value of land in its natural state, the value of the land may be allocated to one category or the other, depending on which is assumed to represent the greater part of the value.

7.95 Land appears on the balance sheet of the legal owner except when the land is not separable from other assets that are subject to a financial lease. This may most often occur in connection with a financial lease over a building or plantation on the land, when the inseparable assets, including land, are on the balance sheet of the economic owner.[22]

7.96 By convention, where the legal owner of a building is not the legal owner of the land on which the building stands, but the purchase price of the building includes an upfront payment of rent on the land beneath, without any prospect of further payments being due in future, land is recorded on the balance sheet of the owner of the building on the land.

Mineral and energy resources (6142)

7.97 ***Mineral and energy resources*** (6142) consist of mineral and energy reserves located on or below the earth's surface that are economically exploitable, given current technology and relative prices. Ownership rights to the mineral and energy resources are usually separable from those to the land itself. The deposits may be located on or below the earth's surface, including deposits under the sea, but they must be economically exploitable. Mineral and energy resources are known reserves of oil, natural gas, coal, metallic ores (including ferrous, nonferrous, and precious metal ores), and nonmetallic mineral reserves (including

[22] See paragraphs 3.38–3.41 and 7.5, for a description of the distinction between legal and economic ownership.

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stone quarries, clay and sand pits, chemical and fertilizer mineral deposits, and deposits of salt, quartz, gypsum, natural gem stones, asphalt, bitumen, and peat). Mine shafts, wells, and other subsoil extraction facilities are fixed assets in the form of *other structures* (61113) rather than subsoil assets.

7.98 The value of the resources is usually estimated as the present value of the expected net returns resulting from their commercial exploitation, but if the ownership of subsoil assets changes frequently on markets, then it may be possible to obtain appropriate prices. In practice, it may be necessary to use the valuations that the owners of the assets place on them in their own accounts.

7.99 It is frequently the case that the enterprise extracting a resource is different from the owner of the resource. In many countries, for example, oil resources are the property of government. However, it is the extractor who determines how fast the resource will be depleted, and since the resource is not renewable on a human time scale, it appears as if there has been a change of economic ownership to the extractor even if this is not the legal position. Nor is it necessarily the case that the extractor will have the right to extract until the resource is exhausted. Because there is no wholly satisfactory way in which to show the value of the asset split between the legal owner and the extractor, the whole of the resource is shown on the balance sheet of the legal owner and the payments by the extractor to the owner shown as rent. (This treatment is, therefore, an extension of the concept of a resource lease applied in this case to a depletable asset, as described in paragraphs 5.130 and A4.16–A4.17.)[23]

Other naturally occurring assets (6143)

7.100 *Other naturally occurring assets* (6143) comprise *noncultivated biological resources* (61431), *water resources* (61432), and *other natural resources* (61433), as shown in Table 7.7.

Table 7.7 Classification of Other Naturally Occurring Assets

6143	Other naturally occurring assets
61431	Noncultivated biological resources
61432	Water resources
61433	Other natural resources
614331	Radio spectrum
614332	Natural resources not elsewhere classified

7.101 ***Noncultivated biological resources*** (61431) consist of animals, birds, fish, and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth or regeneration is not under the direct control, responsibility, and management of any institutional units. Examples are virgin forests and fisheries that are commercially exploitable. Only those resources that have economic value that is not included in the value of the associated land are included. As observed prices are not likely to be available, such assets are usually valued at the present value of expected future returns (see paragraph 7.33).

7.102 ***Water resources*** (61432) consist of surface and groundwater resources used for extraction to the extent that their scarcity leads to the enforcement of ownership or use rights, market valuation, and some measure of economic control. As observed prices are not likely to be available, such assets are usually valued at the present value of expected future returns.

7.103 The category *other natural resources* (61433) includes the electromagnetic spectrum, which includes the range of radio frequencies used in the transmission of sound, data, and television. The value of the spectrum is usually determined as the present value of expected future returns. If a long-term contract to use the spectrum exists, its value could be used as a basis for estimating the total value of the asset. Given the tendency to implement environmental policy by means of market instruments, it may be that additional natural resources will come to be recognized as economic assets. (See also paragraphs A4.18–A4.40 and A4.48–A4.50 on the treatment of permits and licenses to use natural resources.)

Intangible nonproduced assets (6144)

7.104 ***Intangible nonproduced assets*** (6144) are constructs of society evidenced by legal or accounting actions. Such assets entitle their owners to engage in certain specific activities or to produce certain specific goods or services and to exclude other units from doing so except with the permission of the owner. The owners of the assets may be able to earn monopoly

[23] See Appendix 4, Box A4.1, for a description of the criteria to distinguish between rent and asset sales of natural resources.

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Table 7.8	Classification of Intangible Nonproduced Assets
6144	Intangible nonproduced assets
61441	Contracts, leases, and licenses
614411	Marketable operating leases
614412	Permits to use natural resources
614413	Permits to undertake specific activities
614414	Entitlement to future goods and services on an exclusive basis
61442	Goodwill and marketing assets

profits by restricting the use of the assets to themselves. Two types of intangible nonproduced assets are distinguished: *contracts, leases, and licenses* (61441) and *goodwill and marketing assets* (61442), as shown in Table 7.8. Whenever possible, contracts, leases, and licenses, should be valued at current prices when they are actually traded on markets. Otherwise, it may be necessary to use estimates of the present value of expected future returns. Goodwill and marketing assets are typically valued at their initial acquisition costs minus allowances for amortization (see paragraph 10.55).

Contracts, leases, and licenses (61441)

7.105 ***Contracts, leases, and licenses*** (61441) are treated as assets only when both the following conditions are satisfied:

- The terms of the contract, lease, or license specify a price for the use of an asset or provision of a service that differs from the price that would prevail in the absence of the contract, lease, or license.
- One party to the contract must be able legally and practically to realize this price difference.

7.106 These kinds of contracts are regarded as assets only if the existence of the legal agreement confers benefits on the holder in excess of the price payable to the lessor, owner of the natural resource, or permit issuer,[24] and the holder can realize these benefits legally and practically (i.e., if a market for the contract exists). It is recommended that in practice, *contracts, leases, and licenses* should be recorded only when the value of the asset is significant and if holders can actually exercise the right to realize the price difference by on-selling the asset. In this case, a suitable market price necessarily exists. The asset does not exist beyond the length of the contract agreement, and its value must be reduced accordingly as the remaining contract period shortens (see paragraph 10.53).

7.107 Contracts, leases, and licenses may be *marketable operating leases* (614411), *permits to use natural resources* (614412), *permits to undertake specific activities* (614413), and *entitlement to future goods and services on an exclusive basis* (614414).[25]

Marketable operating leases (614411)

7.108 ***Marketable operating leases*** (614411) are third-party property rights relating to fixed assets. The lease confers economic benefits to the holder in excess of the fees payable and the holder can realize these benefits legally and practically, through transferring them. An example is where a tenant of a building has a fixed rental but the building could fetch a higher rental in the absence of the lease. If, in these circumstances, the tenant is able both legally and practically to sublet the building, then the tenant has an asset of the type of a marketable operating lease.

Permits to use natural resources (614412)

7.109 ***Permits to use natural resources*** (614412) are third-party property rights relating to natural resources. An example is where an institutional unit holds a fishing quota and is able, again both legally and practically, to sell this to another unit. Payment for a mobile phone license constitutes the sale of an asset, not payment for rent, when the licensee acquires effective economic ownership rights over the use of the spectrum. To decide whether ownership is effectively transferred, the six criteria quoted in Box A4.1 are to be considered.

Permits to undertake specific activities (614413)

7.110 A ***permit to undertake a specific activity*** (614413) is an asset for the holder when: (i) the permits are limited in number and so allow the holders to earn monopoly profits, (ii) the monopoly profits do not come from the use of an asset belonging to the permit-issuer, and (iii) a permit holder is able both legally and practically to sell the permit to a third party.

[24] Also see *2008 SNA*, Chapter 17, part 5.

[25] For a description of the recording of these permits issued by government see paragraphs A4.18–A4.52.

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Such permits are issued mainly by government but may also be issued by other units.

7.111 When governments restrict the number of cars entitled to operate as taxis or limit the number of casinos by issuing permits or licenses, they are in effect creating monopoly profits for the approved operators and recovering some of the profits as the "fee." For government, such proceeds are recorded as *other taxes on the use of goods and on permission to use goods or perform activities* (11452) (see paragraph 5.81). For the permit holder, the incentive to acquire such a license is that the licensee believes that it will thereby acquire the right to make monopoly profits at least equal to the cost of the license. This permission to create monopoly profits creates an asset for the holder if the licensee can realize these profits by on-selling the asset—that is, the license is tradable. The value of this asset is determined by the value at which it can be sold or, if no such information is available, is estimated as the present value of the future stream of monopoly profits (see also paragraphs A4.42–A4.45).

Entitlement to future goods and services on an exclusive basis (614414)

7.112 ***Entitlement to future goods and services on an exclusive basis*** (614414) relates to the case where one party that has contracted to purchase goods or services at a fixed price at a time in the future is able to transfer the obligation of the second party to the contract to a third party. These entitlements relate to footballers' contracts and a publisher's exclusive right to publish new works by a named author or issue recordings by named musicians (see also paragraph A4.51). For example, when a football player contracted his or her services to a club, the latter has an asset with the ability to sell this contract to another club.

Goodwill and marketing assets (61442)

7.113 Potential purchasers of an enterprise are often prepared to pay a premium above the net value of its individually identified and valued assets and liabilities. This excess is described as goodwill and reflects the value of corporate structures and the value to the business of an assembled workforce and management, corporate culture, distribution networks, and customer base. It may not have value in isolation from other assets, but it enhances the value of those other assets. Looked at another way, it is the addition to the value of individual assets because they are used in combination with each other.

7.114 Goodwill cannot be separately identified and sold to another party. The value has to be derived by deducting the value of assets and liabilities classified elsewhere within the asset boundary of GFS from the sale value of the corporation. (In practice, since it is estimated as a residual, an estimate of goodwill will also reflect errors and omissions in the valuation of other assets and liabilities.)

7.115 As well as residual errors, the value of goodwill may include the value to the corporation of items known as marketing assets. **Marketing assets** consist of items such as brand names, mastheads, trademarks, logos, and domain names. A brand can be interpreted as far more than just a corporate name or logo. It is the overall impression a customer or potential customer gains from his or her experience with the company and its products. Interpreted in that wider sense it can also be seen to encompass some of the characteristics of goodwill, such as customer loyalty.

7.116 The value of goodwill and marketing assets is the difference between the value paid for an enterprise as a going concern and the sum of its assets minus the sum of its liabilities, each item of which has been separately identified and valued. Although goodwill is likely to be present in most corporations, for reasons of reliability of measurement it is recorded in GFS only when its value is evidenced by a market transaction, usually the sale of the whole corporation. In some exceptions, identified marketing assets may be sold individually and separately from the whole corporation, in which case their value should also be recorded under this item.

7.117 The balance sheet entry for goodwill and marketing assets is the written-down value of the entry that appears as a transaction in financial assets and liabilities when an enterprise is taken over or when a marketing asset is sold.[26] These entries are not revalued.

Financial Assets (62) and Liabilities (63)

7.118 Financial assets and liabilities were defined in paragraphs 7.15–7.16. The classifications of financial assets and liabilities are based primarily on the

[26] As explained in paragraph 10.55, the amortization of goodwill and marketing assets over their service or legal lives is an other economic flow.

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liquidity and legal characteristics of the instruments that describe the underlying creditor-debtor relationships. The liquidity of a financial instrument embraces characteristics such as negotiability, transferability, marketability, and convertibility.

7.119 Securities are debt and equity instruments that have the characteristic feature of negotiability. That is, their legal ownership is readily transferred from one unit to another unit by delivery or endorsement. While any financial instrument can potentially be traded, securities are designed to be traded, usually on organized exchanges or "over the counter." (The over-the-counter market involves parties negotiating directly with one another, rather than on a public exchange.) Negotiability is a matter of the legal form of the instrument. Some securities may be legally negotiable, but there is not, in fact, a liquid market where they can be readily bought or sold. Listed financial derivatives, such as warrants, are sometimes considered to be securities.

7.120 In addition to classifying financial assets and liabilities by the characteristics of the financial instrument, they can also be classified according to the residence of the other party to the instrument (the debtors for financial assets and the creditors for liabilities).[27] Residence is defined in paragraphs 2.6–2.21. The classifications of financial assets and liabilities by instrument are shown in Table 7.9.

7.121 Because a given financial instrument creates both a financial asset and a liability, the same descriptions of instruments can be used for both. For simplicity, the descriptions will refer only to financial assets unless there is a specific need to refer to liabilities.

7.122 As discussed in paragraphs 3.113 and 7.20–7.25, in principle, all financial assets should be valued at market value.[28] Because the creditor can dispose of the asset on the date of the balance sheet at its current market price, it is that price that is relevant for the balance sheet. In practice, valuing debt instruments[29] at market value on the balance sheet date means that:

- Debt securities are valued at market prices.
- Insurance, pension, and standardized guarantee schemes are valued according to principles that are equivalent to market valuation.
- All other debt instruments are valued at nominal prices, which are considered to be the best generally available estimates of their market prices.

7.123 Some financial assets and liabilities, most typically deposits, debt securities, loans, and other accounts payable/receivable, require the debtor to pay interest. The interest accrues continuously and increases the total amount that the debtor will be required to pay (see paragraph 6.64).

7.124 To calculate the overall balance (see paragraph 4.57) financial assets acquired by government units in support of their fiscal policies[30] are classified differently from financial assets acquired for liquidity management. The distinction between financial assets acquired for public policy purposes and financial assets acquired for liquidity purposes is not included in the GFS classification of financial assets. This distinction rests on the judgment of the analyst of the particular purpose for employing financial assets.[31]

Monetary gold and Special Drawing Rights (SDRs) (6201, 6221, 6301, 6321)

7.125 On the financial assets side, this category comprises monetary gold and SDRs, and on the liabilities side it comprises only SDRs (see paragraph 7.128). The counterparties to this financial asset and liability are nonresidents.

Monetary gold (62011, 62211)[32]

7.126 Monetary gold is gold to which the monetary authorities (or others who are subject to the effective control of the monetary authorities) have title and is held as a reserve asset. It comprises gold bullion (including gold held in allocated gold accounts)

[27] A discussion of Islamic banking instruments and how they can be treated in terms of the classification of financial assets and liabilities can be found in the *MFSM*, Appendix 2.
[28] That value, however, may differ from an asset's nominal value, which is a measure of value from the viewpoint of the debtor: at any moment in time the nominal value is the amount that the debtor owes to the creditor. See paragraph 3.115.
[29] Debt instruments are all liabilities, except equity and investment fund shares and financial derivatives and employee stock options.
[30] This is often referred to as "public policy lending" or "policy lending" and is treated akin to expenditure in the calculation of the overall balance.
[31] As explained in Box 6.3, under some circumstances, "capital or equity injections" are considered to be expense—that is, they do not result in a financial claim on the debtor.
[32] There is no liability in the form of monetary gold; the counterpart liability to monetary gold in the form of unallocated gold accounts with nonresidents that give title to claim the delivery of gold is classified under deposits. Gold bullion has no counterparty liability.

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Table 7.9 Classification of Financial Assets and Liabilities by Instrument and Residence of the Counterparty

62	**Financial assets**	**63**	**Liabilities**
6201	Monetary gold and Special Drawing Rights (SDRs)	6301	Special Drawing Rights (SDRs)
62011	Monetary gold		
62012	Special Drawing Rights (SDRs)		
6202	Currency and deposits	6302	Currency and deposits
6203	Debt securities	6303	Debt securities
6204	Loans	6304	Loans
6205	Equity and investment fund shares	6305	Equity and investment fund shares
62051	Equity	63051	Equity
62052	Investment fund shares or units	63052	Investment fund shares or units
6206	Insurance, pension, and standardized guarantee schemes [GFS]	6306	Insurance, pension, and standardized guarantee schemes [GFS]
62061	Nonlife insurance technical reserves	63061	Nonlife insurance technical reserves
62062	Life insurance and annuities entitlements	63062	Life insurance and annuities entitlements
62063	Pension entitlements [GFS]	63063	Pension entitlements [GFS]
62064	Claims of pension funds on pension manager	63064	Claims of pension funds on pension manager
62065	Provisions for calls under standardized guarantee schemes	63065	Provisions for calls under standardized guarantee schemes
6207	Financial derivatives and employee stock options	6307	Financial derivatives and employee stock options
62071	Financial derivatives	63071	Financial derivatives
62072	Employee stock options	63072	Employee stock options
6208	Other accounts receivable	6308	Other accounts payable
62081	Trade credit and advances	63081	Trade credit and advances
62082	Miscellaneous other accounts receivable	63082	Miscellaneous other accounts payable
621	**Domestic debtors**	**631**	**Domestic creditors**
6212–6218	*Same instrument breakdown as above, but excluding monetary gold and SDRs*	6312–6318	*Same instrument breakdown as above, but excluding SDRs*
622	**External debtors**	**632**	**External creditors**
6221–6228	*Same instrument breakdown as above*	6321–6328	*Same instrument breakdown as above*

and unallocated gold accounts with nonresidents that give title to claim the delivery of gold.[33] All monetary gold is included in reserve assets or is held by international financial organizations. Only gold that is held as a financial asset and as a component of reserve assets is classified as monetary gold. Therefore, except in limited institutional circumstances,[34] gold bullion is a financial asset only for the central bank or central government. Deposits, loans, and securities denominated in gold are treated, respectively, as deposits, loans, and securities denominated in foreign currencies, and not as monetary gold, unless held as unallocated gold accounts by monetary authorities as reserve assets.

7.127 Allocated gold accounts provide ownership of a specific piece of gold. The ownership of the gold remains with the entity placing it for safe custody. When held as reserve assets, allocated gold accounts are classified as monetary gold. Otherwise, allocated gold accounts are treated as representing the ownership of a nonfinancial asset. In contrast, **unallocated gold accounts** represent a claim against the account custodian to deliver gold. For these accounts, the account provider holds title to a reserve base of physical gold and issues claims to account holders denominated in gold. When held as reserve assets, unallocated gold accounts are classified as monetary gold. Unallocated

[33] See the *BPM6*, paragraphs 5.74–5.78, for a detailed discussion of gold bullion and gold accounts.
[34] For example, gold held by a commercial bank but under the control of the monetary authorities.

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accounts not held as reserve assets, and all unallocated gold account liabilities, are classified as deposits.

7.128 Gold bullion takes the form of coins, ingots, or bars with a purity of at least 995 parts per 1,000, including such gold held in allocated gold accounts. Gold bullion is usually traded on organized markets or through bilateral arrangements between central banks. Gold bullion held as a reserve asset is the only financial asset with no corresponding liability.

7.129 Any gold held by a government unit that does not satisfy the definition of monetary gold is not a financial asset and is included in nonmonetary gold as a nonfinancial asset, most likely *valuables* (613) but possibly *inventories* (612).[35] In some cases, a central bank may own gold bullion that is not held as reserves, such as sometimes occurs when it acts as a monopoly reseller of mined gold. A gold swap is treated as a loan (see paragraph 7.161).

7.130 Monetary gold is valued at the price established in organized markets or when traded through bilateral arrangements between central banks.

Special Drawing Rights (SDRs) (62012, 62212, 63012, 63212)

7.131 Special Drawing Rights (SDRs) are international reserve assets created by the International Monetary Fund (IMF) and allocated to its members to supplement reserve assets. The Special Drawing Rights Department of the IMF allocates SDRs among member countries of the IMF (collectively known as the participants). The allocation of SDRs is a liability of the member country and interest accrues on this liability.[36]

7.132 SDR holdings represent each holder's unconditional right to obtain foreign exchange or other reserve assets from other IMF members. These financial assets represent claims on the participants in the IMF's SDR Department collectively and not on the IMF. A participant may sell some or all of its SDR holdings to another participant and receive other reserve assets, particularly foreign exchange, in return. Participants may also use SDRs to meet liabilities.

[35] Nonmonetary gold is a good and classified under nonfinancial assets as valuables, if held primarily as a store of value, and classified as inventories of materials and supplies, if used in a production process (such as jewelry or dentistry).
[36] The IMF has also designated a limited number of international financial institutions as holders of SDRs.

7.133 SDR allocations constitute a (debt) liability of the recipients (and part of the public sector's debt liabilities) and the SDR holdings are part of the public sector's financial assets. The allocation and holdings are recorded on a gross basis. The macroeconomic statistical guidelines do not specify on whose balance sheet SDR holdings and allocations should be recorded (e.g., the central bank or a general government entity such as the ministry of finance or treasury). This is because SDR allocations are made to IMF members that are participants in the SDR Department of the IMF, and it is for those members to follow domestic legal and institutional arrangements to determine the ownership and recording of SDR allocations and SDR holdings in the public sector. Given that financial claims on and liabilities to members in the SDR system are attributed on a cooperative basis, a residual partner category—other nonresidents—is used as the counterparty to SDR holdings and allocations.

7.134 In addition to SDRs as a type of financial instrument, SDRs may also be used as a unit of account in which other debt instruments can be expressed. The value of the SDR is determined daily by the IMF on the basis of a selected basket of currencies. To ensure consistency, the SDR rates against domestic currencies are obtainable from the IMF. Both the basket and the weights of the currencies that make up the SDR basket are revised from time to time.

Currency and deposits (6202, 6212, 6222, 6302, 6312, 6322)

7.135 Currency consists of notes and coins that are of fixed nominal values and are issued or authorized by the central bank or government. All sectors may hold currency as assets, but normally only central banks and government may issue currency. In some countries, commercial banks are able to issue currency under the authorization of the central bank or government. Currency constitutes a liability of the issuing units. Unissued currency held by a public sector unit is not treated as a financial asset of the public sector or a liability of the central bank. Gold and commemorative coins that are not in circulation as legal tender, or as monetary gold, are classified as nonfinancial assets in the form of valuables or inventories of materials and supplies, as appropriate, rather than currency.

7.136 A distinction should be drawn between domestic currency that is a liability of a resident unit

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and foreign currency that is the liability of nonresident units. (See paragraph 3.134 for the definitions of domestic and foreign currency.) Domestic currency has a fixed nominal value. The value of foreign currency is converted to the domestic currency at the exchange rate valid on the date to which the balance sheet relates. The rate used should be the midpoint between the buying and selling spot rates for currency transactions.

7.137 Deposits are all claims, represented by evidence of deposit, on the deposit-taking corporations (including the central bank) and, in some cases, general government or other institutional units. A deposit is usually a standard contract, open to the public at large, that allows the placement of a variable amount of money. Public sector units may hold a variety of deposits as assets, including deposits in foreign currencies. It is also possible for a government unit to incur liabilities in the form of deposits. For example, postal offices or other government units may accept deposits from the public, acting like a sort of rural financial institution as a secondary activity. Public financial corporations (e.g., the central bank) typically incur liabilities in the form of deposits, including to government units.

7.138 Claims on the IMF that are components of international reserves and are not evidenced by loans should be classified as deposits. (Claims on the IMF evidenced by loans should be included in loans.) Repayable margin payments in cash related to financial derivative contracts (see paragraph 7.219) can also be classified under deposits.

7.139 Unallocated accounts for precious metals, such as unallocated gold accounts, are also deposits, except for unallocated gold accounts held by monetary authorities for reserves purposes, for which the asset holding is included in monetary gold, with the counterpart liability being recorded as a deposit (as also mentioned in paragraph 7.15).

7.140 Deposits may be transferable or nontransferable. Transferable deposits comprise all deposits that are (i) exchangeable (without penalty or restriction) on demand at par, and (ii) directly usable for making third-party payments by check, draft, giro order, direct debit/credit, or other direct payment facility. Nontransferable deposits comprise all other financial claims, other than transferable deposits, represented by evidence of deposit. Examples of other deposits are sight deposits that permit immediate cash withdrawals but not direct third-party transfers, savings and fixed-term deposits, overnight and very short-term repurchase agreements that are included in the national measures of broad money, and foreign currency deposits that are blocked because of the rationing of foreign exchange as a matter of national policy.

7.141 It may be useful to further classify deposits according to whether they are denominated in the domestic currency or a foreign currency.

7.142 Deposits should be recorded at nominal value. They give rise to the same issues as loans with respect to nominal and fair values (see paragraph 7.163). Deposit assets at banks and other public deposit-taking corporations in liquidation also should be recorded at their nominal value until they are written off. If the difference between the nominal and fair values is significant, the fair value of such deposits could be shown as an additional memorandum item to the balance sheet. The same treatment is applicable for any other cases of impaired deposits (i.e., where the public deposit-taking corporation is not in liquidation but is insolvent).

Debt securities (6203, 6213, 6223, 6303, 6313, 6323)

7.143 Debt securities are negotiable financial instruments serving as evidence of a debt. The security normally specifies a schedule for interest and principal payable. Examples of debt securities are:

- Bills
- Bonds and debentures, including bonds that are convertible into shares
- Loans that have become negotiable from one holder to another
- Nonparticipating preferred stocks or shares
- Asset-backed securities and collateralized debt obligations
- Similar instruments normally traded in the financial markets.

7.144 Bills are defined as securities (usually short-term) that give holders the unconditional rights to receive stated fixed sums on a specified date. Bills are issued and usually traded in organized markets at discounts to face value that depend on the rate of

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interest and the time to maturity. Examples of bills are treasury bills, negotiable certificates of deposit, bankers' acceptances, promissory notes, and commercial paper.

7.145 A **banker's acceptance** is created when a financial corporation endorses, in return for a fee, a draft or bill of exchange and the unconditional promise to pay a specific amount at a specified date. International trade is often financed in this way. A banker's acceptance is classified under the category of debt securities. A banker's acceptance represents an unconditional claim on the part of the holder and an unconditional liability on the part of the accepting financial corporation; in turn, the financial corporation acquires an asset because it has a claim on its customer. A banker's acceptance is treated as a financial asset from the time of acceptance, even though funds may not be exchanged until a later stage.[37]

7.146 Bonds and debentures are securities that give the holders the unconditional right to fixed payments or contractually determined variable payments on a specified date or dates. The earning of interest is not dependent on earnings of the debtors. Bonds and debentures could have various characteristics and uses. For example, bonds may be issued to recognize a liability for government employee pensions (often called recognition bonds). Bonds can be issued at a deep discount or with no coupons (zero-coupon bonds).

7.147 Zero-coupon bonds are long-term securities that do not involve periodic payments during the life of the bond. Similar to short-term securities, zero-coupon bonds are sold at a discount, and a single payment, that includes accrued interest, is made at maturity.[38] **Deep-discount bonds** are long-term securities that require periodic coupon payments during the life of the instrument, but the amount is substantially below the market rate of interest at issuance.

7.148 Instruments with embedded derivatives[39] are not classified as financial derivatives. If a primary instrument, such as a security or loan, contains an embedded derivative, the instrument is valued and classified according to its primary characteristics—even though the value of that security or loan may well differ from the values of comparable securities and loans because of the embedded derivative. Examples are corporate bonds that are convertible into shares of the same corporation at the option of the bondholder and securities with options for repayment of principal in currencies that differ from those in which the securities were issued. If the conversion option is traded separately, then the option is treated as a separate instrument, classified as a financial derivative, and it is not debt.

7.149 Loans (see paragraph 7.157) that have become negotiable from one holder to another are to be reclassified (through other changes in the volume of assets) from loans to debt securities under certain circumstances. For such reclassification, there needs to be evidence of secondary market trading, including the existence of market makers, and frequent quotations of the instrument, such as provided by bid-offer spreads.[40]

7.150 Nonparticipating preferred stocks or shares are those that pay a fixed income but do not provide for participation in the distribution of the residual value of an incorporated enterprise on dissolution. These shares are classified as debt securities. Bonds that are convertible into equity should also be classified as debt securities prior to the time that they are converted.

7.151 Asset-backed securities and collateralized debt obligations are arrangements under which payments of interest and principal are backed by payments on specified assets or income streams. This process is also described as securitization (for more details, see paragraph A3.59–A3.66). Asset-backed securities are backed by various types of financial assets—for example, mortgages and credit card loans. A general government unit may issue debt securities backed by specific streams of earmarked revenue. This is not an asset-backed security, as in macroeconomic statistical systems, the ability to raise taxes or other government revenue is not recognized as a government asset that could be used for securitization. Nevertheless, the

[37] Appendix 1 of the *EDS Guide* provides a glossary of financial instruments, including banker's acceptances.

[38] For a discussion of the accrual recording of interest on zero-coupon and deep-discounted bonds, see paragraphs 6.71–6.72 and the annex to Chapter 2 of the *PSDS Guide*.

[39] An **embedded derivative** arises when a derivative feature is inserted in a standard financial instrument and is inseparable from the instrument.

[40] An example is a syndicated loan, which is provided by a group of lenders and is structured, arranged, and administered by one or several commercial or investment banks. If parts of a syndicated loan become traded in secondary markets, the loan may meet the criteria to be reclassified as a security.

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earmarking of future revenue, such as receipts from toll roads, to service debt securities issued by a general government (or public sector) unit may resemble securitization.

7.152 Stripped securities are securities that have been transformed from a principal amount with coupon payments into a series of zero-coupon bonds, with a range of maturities matching the coupon payment date(s) and the redemption date of the principal amount(s). The function of stripping is that investor preferences for particular cash flows can be met in ways different from the mix of cash flows of the original security. There are two cases of stripped securities:

- When a third party acquires the original securities and uses them to back the issue of the stripped securities; then new funds have been raised and there is a new financial instrument.
- When no new funds are raised and the payments on the original securities are stripped and marketed separately by the issuer or through agents (such as strip dealers) acting with the issuer's consent; in this case, there is no new instrument.

7.153 Index-linked securities are instruments for which either the coupon payments (interest) or the principal or both are linked to another item, such as a price index, an interest rate, or the price of a commodity. Issues in the measurement of interest on index-linked securities are discussed in paragraphs 6.75–6.78.

7.154 Debt securities traded (or tradable) in organized and other financial markets—such as bills, bonds, debentures, negotiable certificates of deposits, asset-backed securities—should be valued at both market and nominal value. Debt securities are shown in the balance sheet at market value. The nominal value is used to determine gross debt at nominal value, which is shown as a memorandum item to the GFS balance sheet. For a traded debt security, nominal value can be determined from the value of the debt at creation and subsequent economic flows, while market value is based on the price at which it is traded in a financial market.

7.155 For debt securities that are tradable but for which the market price is not readily observable, the market value can be estimated by the discounted present value method provided an appropriate discount rate can be used (see paragraph 3.125). This and other methods of estimating market value are explained in the *PSDS Guide*, Box 2.2.

7.156 When securities are quoted on markets with a buy-sell spread, the midpoint should be used to value the instrument. The spread is an implicit service fee of the market platform or dealer payable by buyers and sellers.

Loans (6204, 6214, 6224, 6304, 6314, 6324)

7.157 A **loan** is a financial instrument that is created when a creditor lends funds directly to a debtor and receives a nonnegotiable document as evidence of the asset.[41] This category includes overdrafts, mortgage loans, loans to finance trade credit and advances, repurchase agreements, financial assets and liabilities created by financial leases, and claims on or liabilities to the IMF in the form of loans. Trade credit and advances and similar accounts payable/receivable are not loans (see paragraph 7.225). Loans that have become marketable in secondary markets should be reclassified under *debt securities* (see paragraph 7.149). However, if traded only occasionally, the loan is not reclassified under debt securities.

7.158 A financial lease involves imputing a loan. A **financial lease** is a contract under which the lessor, as legal owner of an asset, conveys substantially all risks and rewards of ownership of the asset to the lessee. When goods are acquired under a financial lease, the lessee is deemed to be the owner, even though legally the leased good remains the property of the lessor. This is because the risks and rewards of ownership have been, de facto, transferred to the lessee. This change in ownership is deemed to have been financed by an imputed loan, which is an asset of the lessor and a liability of the lessee.

7.159 A **securities repurchase agreement** (repo) is an arrangement involving the sale of securities for cash, at a specified price, with a commitment to repurchase the same or similar securities at a fixed price either on a specified future date (often one or a few days hence) or with an open maturity.[42] The economic nature of the transaction is that of a collateralized loan

[41] A loan is distinguished from a deposit on the basis of the representation in the documents that evidence them.
[42] An open maturity exists when both parties have the option to agree daily to renew or terminate the agreement.

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(or a deposit[43]) because the risks and rewards of ownership of the securities remain with the original owner (security provider). Thus, the funds advanced by the security taker (cash provider) to the security provider (cash taker) are treated as a loan and the underlying securities remain on the balance sheet of the security provider, despite the legal change in ownership.

7.160 Securities lending is an arrangement whereby a security holder transfers securities to another party (security taker), subject to the stipulation that the same or similar securities be returned on a specified date or on demand. As with a securities repurchase agreement, the risks and rewards of ownership remain with the original owner. If the security taker provides cash as collateral, then the arrangement is a repo (see paragraph 7.159). If the security taker provides noncash collateral, then no stock position changed. In either case, the securities involved remain on the balance sheet of the original owner.

7.161 A **gold swap** involves an exchange of gold for foreign exchange deposits with an agreement that the transaction be reversed at an agreed future date at an agreed gold price. The gold taker (cash provider) should not record the gold on its balance sheet, while the gold provider (cash taker) should not remove the gold from its balance sheet. Gold swaps are similar to securities repurchase agreements, except that the collateral is gold, and should therefore be recorded as a collateralized loan or deposit. Gold loans occur in the same form as securities lending and should be treated in the same way.

7.162 An **off-market swap** is a swap contract[44] that has a nonzero value at inception as a result of having reference rates priced differently from current market values—that is, "off-the-market." Such a swap results in a lump sum being paid, usually at inception, by one party to the other. The economic nature of an off-market swap is equivalent to a combination of borrowing (i.e., the lump sum), in the form of a loan, and an on-market swap (financial derivative).[45]

[43] Repurchase agreements that are included in the national definition of broad money should be classified as nontransferable deposits. All other securities repurchase agreements should be classified under loans.

[44] A swap contract involves the counterparties exchanging, in accordance with prearranged terms, cash flows based on the reference prices of the underlying items.

[45] For more details, see the *PSDS Guide*, paragraphs 4.127–4.131.

7.163 Loans are recorded at nominal value (i.e., the amount advanced plus interest accrued and not paid minus any repayments). The use of nominal values is partly influenced by pragmatic concerns about data availability. In addition, because loans are generally not intended for trading on the secondary market, estimating a market price can be subjective. Nominal value is also useful because it shows actual legal liability and the starting point of creditor recovery behavior. In some cases, loans may be traded, often at discount, or a fair value may exist or could be estimated. It is recognized that nominal value provides an incomplete view of the financial position of the creditor, particularly when the loans are nonperforming. In such cases, information on the nominal value, as well as the fair value, of nonperforming loan assets should be included as a memorandum item to the GFS balance sheet—see paragraph 7.262.

Equity and investment fund shares (6205, 6215, 6225, 6305, 6315, 6325)

7.164 Equity and investment fund shares have the distinguishing feature that the holders own a residual claim on the assets of the institutional unit that issued the instrument. Equity represents the owners' funds in the institutional unit. In contrast to debt, equity does not generally provide the owner with a right to a predetermined amount or an amount determined according to a fixed formula. Investment fund shares have a specialized role in financial intermediation as a kind of collective investment in other assets, and should be identified separately. When an institutional unit's net worth is calculated, equity and investment fund shares are, by convention, included in total liabilities (see paragraphs 7.228–7.233).

Equity (62051, 62151, 62251, 63051, 63151, 63251)

7.165 Equity consists of all instruments and records that acknowledge claims on the residual value of a corporation or quasi-corporation, after the claims of all creditors have been met. Equity is treated as a liability of the issuing institutional unit (a public corporation or other government unit).

7.166 Ownership of equity in legal entities is usually evidenced by shares, stocks, participations, depository receipts, or similar documents. Shares and stocks have the same meaning. Participating preferred

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shares are those that provide for participation in the residual value on the dissolution of an incorporated enterprise. Such shares are also equity securities, regardless of whether the income is fixed or determined according to a formula. (For nonparticipating preferred shares, see paragraph 7.150.) In addition to the purchase of shares, the value of equity can be affected by a range of factors, such as share premiums, accumulated reinvested or retained earnings, or revaluations. In addition, a direct investor may increase its equity in an affiliate by providing goods and services or assuming debt.

7.167 Depository receipts are securities that represent ownership of securities listed in other economies. Depository receipts listed on one exchange represent ownership of securities listed on another exchange, and ownership of the depository receipts is treated as if it represents direct ownership of the underlying securities. Depository receipts facilitate transactions in securities in economies other than their home listing. The underlying securities may be equity or debt securities.

7.168 Equity may be subdivided into listed shares, unlisted shares, and other equity. Both listed and unlisted shares are equity securities (securities are defined in paragraph 7.119). **Listed shares** are equity securities listed on an exchange and may be referred to as quoted shares. **Unlisted shares** are equity securities not listed on an exchange. Listed and unlisted shares tend to be issued by different types of corporations (unlisted shares are often issued by subsidiaries and smaller businesses) and typically have different regulatory requirements.

7.169 Other equity is equity that is not in the form of securities. This can include equity in quasi-corporations, such as branches, trusts, limited liability and other partnerships, unincorporated funds, and notional units for ownership of real estate and other natural resources. The ownership of many international organizations is not in the form of shares and should be classified as other equity (although equity in the Bank for International Settlements is in the form of unlisted shares). Ownership of currency union central banks is included in other equity.[46]

7.170 Most general government units do not have liabilities in the form of equity and investment fund shares. However, in two cases, it is possible to show a general government unit with liabilities for equity and investment fund shares. The first relates to some units (usually special purpose entities) that are established legally as public corporations but carry out only fiscal and quasi-fiscal activities—they are treated as part of general government (regardless of their legal status) because they are not considered to be separate institutional units, unless they are nonresident. Second, when a unit under the control of government is legally established as a corporation but functions as a nonmarket producer, such a unit is also part of general government, as explained in paragraph 2.41.

7.171 The general principles of valuation at market prices given in paragraphs 7.20–7.33 apply to equity. Equity can be readily valued at its current market prices when it is regularly traded on stock exchanges or other financial markets.

7.172 However, there may be no observable market prices for unlisted shares and other equity positions (e.g., for equity in direct investment enterprises, unlisted and delisted companies, listed but illiquid companies, joint ventures, and unincorporated enterprises).

7.173 When actual market values of equity are not available, an estimate is required. One approach is to use information from the stock market on a similar listed share, as described in paragraph 7.29. Alternative methods of approximating the market value of shareholders' equity are outlined in *2008 SNA*, paragraphs 13.71–13.73, and include the following: recent transaction price, net asset value, present value/price to earnings ratios, book values reported by enterprises with macro-level adjustments by the statistics compilers, own funds at book value, and apportioning global value. The value of other equity is equal to the value of the unit's assets minus the value of its liabilities. So for unincorporated enterprises, such as quasi-corporations, net worth is zero and the estimated value of other equity can be negative if the value of liabilities exceeds the value of the assets.[47]

Investment fund shares or units (62052, 62152, 62252, 63052, 63152, 63252)

7.174 Investment funds are collective investment undertakings through which investors pool funds for

[46] See the *BPM6*, paragraph A3.44.

[47] Incorporated corporations have a limited liability toward their shareholders so that the minimum value of their equity is zero.

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investment in financial or nonfinancial assets. These funds issue shares (if a corporate structure is used) or units (if a trust structure is used). Investment funds include money market funds (MMF) and non-MMF investment funds.[48] Investment fund shares or units refer to the shares issued by mutual funds and unit trusts, rather than the shares they may hold.

7.175 MMFs are investment funds that invest only or primarily in short-term money market securities, such as treasury bills, certificates of deposit, and commercial paper. MMF shares and units sometimes are functionally close to transferable deposits—for example, accounts with unrestricted check-writing privileges. If MMF shares are included in broad money in the reporting economy, they should be recorded as a separate item in the balance sheet to allow reconciliation with monetary statistics.

7.176 Investment funds invest in a range of assets, such as debt securities, equity, commodity-linked investments, real estate, shares in other investment funds, and structured assets.

7.177 Shares (or units) in money market funds or in other investment funds should be valued in a manner similar to the methods under equity:

- Listed shares should be valued using the market price of the share.
- Unlisted shares should be valued according to one of the methods described in paragraph 7.172 for unlisted equity and other equity.

Insurance, pension, and standardized guarantee schemes [GFS] (6206, 6216, 6226, 6306, 6316, 6326)

7.178 Insurance, pension, and standardized guarantee schemes comprise:

- Nonlife insurance technical reserves
- Life insurance and annuities entitlements
- Pension entitlements [GFS]
- Claims of pension funds on pension manager
- Provisions for calls under standardized guarantee schemes.

7.179 These reserves, entitlements, and provisions for calls represent liabilities of a public sector unit as the insurer, pension fund, or issuer of standardized guarantees, and corresponding assets of the policyholders or beneficiaries. In the public sector, it is usually public financial corporations that engage in insurance schemes. General government units may incur liabilities for these reserves, entitlements, and provisions as operators of nonlife insurance schemes, nonautonomous or unfunded pension schemes, and standardized guarantee schemes.[49]

7.180 The value of a public sector unit's assets in the form of insurance, pension, and standardized guarantee schemes—as a policyholder—is determined by the amount of prepaid premiums plus estimates for claims established but not yet received by the public sector unit. The value of a public sector unit's liabilities in the form of each of these instruments is discussed under the relevant instrument.

7.181 In general, insurance companies and operators of pension funds and standardized guarantee schemes make actuarial estimates of their liabilities under these schemes. These estimates will be the usual source to compile statistics for this instrument.

7.182 The following paragraphs briefly define the types of reserves, entitlements, and provisions applicable to insurance, pension, and standardized guarantee schemes.[50]

Nonlife insurance technical reserves (62061, 62161, 62261, 63061, 63161, 63261)

7.183 **Nonlife insurance**[51] **technical reserves** consist of (i) prepayments of net nonlife insurance premiums and (ii) reserves to meet outstanding nonlife insurance claims. In other words, nonlife insurance technical reserves consist of premiums paid but not

[48] These are discussed further in the *BPM6*, paragraphs 4.73–4.75.

[49] It is unlikely that a general government unit would incur liabilities with respect to life insurance and annuities, unless it provides such schemes to its employees.

[50] These issues are discussed in detail in the *2008 SNA*, paragraphs 17.76–17.224.

[51] Nonlife insurance covers all risks other than life insurance, such as accidents, sickness, fire, etc. A policy that provides a benefit in the case of death within a given period but in no other circumstances, usually called term insurance, is regarded as nonlife insurance because, as with other nonlife insurance, a claim is payable only if a specified contingency occurs and not otherwise. In practice, because of the way in which insurance corporations keep their accounts, it may not always be possible to separate term insurance from other life insurance. In these circumstances, term insurance may have to be treated in the same way as life insurance for practical reasons.

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yet earned (called unearned premiums) and claims incurred but not yet settled.

7.184 Prepayments of net nonlife insurance premiums arise because premiums are usually payable at the beginning of the period covered by the policy. However, on an accrual basis, the premiums are earned through the policy period, so that the initial payment involves a prepayment or advance. At any given time, part of the insurance premiums already paid has not yet been earned by the insurance enterprise because these prepaid premiums provide coverage against risks in the future. The value of the prepaid or unearned premiums should be determined proportionally. For example, if an annual policy with a premium of 120 currency units comes into force on April 1 and accounts are being prepared for a calendar year, the premium earned in the calendar year is 90. The prepaid or unearned premium is the amount of the actual premium received that relates to the period past the reporting point. In the example just given, there will be an unearned premium of 30 at the end of December. This unearned premium is intended to provide coverage for the first three months of the next year.

7.185 Reserves to meet outstanding nonlife insurance claims are amounts arising from events that have occurred but for which the claims are still pending. They also include reserves for unexpired risks. The liability incurred by the insurer to meet outstanding claims represents the present value of the amounts expected to be paid out in settlement of claims, including disputed claims, as well as allowances for claims for incidents that have taken place but have not yet been reported.

7.186 Other reserves, such as equalization reserves, may be identified by insurers. However, these are recognized as liabilities (and corresponding assets) only when there is an event that gives rise to a liability. Otherwise, equalization reserves are internal accounting entries by the insurer that represent saving to cover irregularly occurring catastrophes, and thus do not represent any existing corresponding claims for policyholders.

Life insurance and annuities entitlements (62062, 62162, 62262, 63062, 63162, 63262)

7.187 Life insurance and annuities entitlements are financial claims policyholders have against an enterprise offering life insurance or providing annuities. This category consists of liabilities of life insurance companies and annuity providers for prepaid premiums and accrued liabilities to life insurance policyholders and beneficiaries of annuities. Life insurance and annuity entitlements are the obligation to provide benefits to policyholders, or to compensate beneficiaries upon the death of policyholders,[52] and thus are kept separate from shareholders' funds. These entitlements are regarded as liabilities of the insurance companies and assets of the policyholders and beneficiaries. Annuities entitlements are the actuarial calculation of the present value of the obligations to pay future income until the death of the beneficiaries.

7.188 The amount to be recorded as the stock positions for life insurance and annuities entitlements is similar to that for nonlife insurance technical reserves in that it represents obligations to meet future claims already accrued. However, in the case of life insurance, the level of the entitlements is considerable and represents the present value of all expected future benefits.[53]

Pension entitlements [GFS][54] (62063, 62163, 62263, 63063, 63163, 63263)

7.189 As explained in paragraphs A2.5–A2.7, entitlements to social insurance benefits are divided between those relating to pensions and those relating to all other forms of benefits (i.e., nonpensions). The distinction between the two is important because the GFS recognizes liabilities for employment-related pensions, regardless of whether there are actually assets set aside to meet the entitlements, but recognizes reserves for employment-related nonpension benefits only when these reserves actually exist (see paragraph 7.195). Furthermore, a distinction is made between social security schemes and employment-related schemes. This section deals with entitlements to employment-related pension schemes.

7.190 Pension entitlements are financial claims that existing and future pensioners[55] hold against

[52] This is distinct from term insurance, which is regarded as nonlife insurance (see footnote 51).

[53] In the commercial accounts of insurance corporations, some of these obligations will be described as provisions for bonuses and rebates. This is the result of the insurance industry's practice of smoothing benefits over time and retaining some benefits until the policy matures.

[54] [GFS] indicates that an item has the same name but different coverage in the *2008 SNA*.

[55] Existing and future pensioners include past and current employees, as well as existing pensioners, but exclude future employees.

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either their employer or a fund designated by the employer, to pay pensions earned as part of a compensation agreement between the employer and employee. The nature of these claims, and the corresponding liabilities of the units operating the pension funds, depends on the type of benefit promised.

7.191 The two main types of pension schemes are defined-benefit schemes and defined-contribution schemes.[56] In a **defined-benefit scheme**, the level of pension benefits promised by the employer to participating employees and other family members is determined by an actuarial formula based on participants' length of service and salary. In a **defined-contribution scheme**, the level of contributions to the fund is set, but the benefits that will be payable depend on the assets of the fund.

7.192 A pension fund for public sector employees can be managed on behalf of the public sector unit by a public or private insurance corporation, or it can be organized and managed by the public sector unit as an autonomous or nonautonomous pension fund. A nonautonomous pension fund is not a separate unit and the assets of the fund belong to the employer. The employees have a claim against the employer who operates the nonautonomous fund, and the employer has a liability equal to the present value of the promised benefits. For a description of the typology of social protection arrangements, see Appendix 2.

7.193 The liabilities of unfunded pension schemes should also be included in pension entitlements. By its nature, an unfunded employment-related pension scheme must be organized and managed by the employer, which may be a general government unit or a public corporation.

7.194 No liability is recognized in the primary accounts of macroeconomic statistical systems for benefits under social security schemes.[57] The implicit obligation for future social security benefits are reported as a memorandum item to the balance sheet (see paragraph 7.261), regardless of the level of assets in a social security fund or other segregated accounts. Liabilities for the payment of social security benefits that were due to be paid but have not yet been paid are classified as *other accounts receivable/payable* (6308, 6318, 6328). If a social security fund also administers an employment-related pension scheme, those pension obligations are included under pension entitlements, and not as implicit social security obligations.

7.195 As well as pensions, some employment-related schemes may have other related liabilities, such as for health benefits, which are included under entitlements to nonpension benefits.[58] Liabilities for these nonpension entitlements are recorded in macroeconomic statistics only when and to the extent that they exist in the employer's accounts—that is, when reserves for these nonpension entitlements actually exist. For pragmatic reasons, such liabilities for nonpension entitlements may be included with those for pension entitlements.

7.196 In addition to its pension entitlement liabilities to its beneficiaries, a pension fund may sometimes have a claim on the employer, as the pension manager of the scheme. On the other hand, the pension manager may have a claim on the surplus of the pension fund. Such claims are excluded from pension entitlements and are classified as *claims of pension funds on pension manager* (62064, 62164, 62264, 63064, 63164, 63264) (see paragraphs 7.199–7.200).

7.197 Pension entitlements are valued as follows:

- The liability of a defined-benefit pension scheme (including nonautonomous pension funds and unfunded pension schemes) is the present value of the promised benefits.
- The liability of a defined-contribution pension fund is the current market value of the fund's net assets, which is determined according to the performance of the assets acquired with the pension contributions.[59]

7.198 Because the measurement of defined-benefit pension fund entitlements rests on various assumptions and methods, the nature of coverage and estimation should be described in metadata accompanying the balance sheet and other data reports.

[56] Defined-benefit schemes are sometimes referred to as "final salary schemes," while defined-contribution schemes are sometimes referred to as "money-purchase schemes."
[57] Social security schemes are defined in paragraphs 2.100–2.102.
[58] Funded schemes for social insurance other than pensions are not common.
[59] The basis on which pension entitlement is calculated is described in detail in the *2008 SNA*, Chapter 17.

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Claims of pension funds on pension manager (62064, 62164, 62264, 63064, 63164, 63264)

7.199 An employer may contract with a third party to administer a pension fund for its employees. If the employer continues to determine the terms of the pension scheme and retains the responsibility for funding any deficit, as well as the right to retain any excess funding, the employer is referred to as the pension manager and the unit working under the direction of the pension manager as the pension administrator. If the agreement between the employer and the administrator is such that the employer passes the risks and responsibilities for any deficit in funding to the administrator in return for the right of the administrator to retain any excess, the latter becomes the pension manager as well as the administrator.

7.200 When the pension manager is a unit different from the administrator, and the responsibility for any deficits, or claims on any excess, rests with the pension manager, the following are recorded in the balance sheet of the pension manager:

- A liability for claims of pension funds on the pension manager, in the case of deficits
- A financial asset in the form of a claim on the pension fund, if the pension fund generates more investment income from the assets it holds than is necessary to cover the increase in pension entitlements
- A counterpart entry should be recorded in imputed social security contributions on a net basis (i.e., an expense to increase the liability and a reduction in the expense when the liability reduce or when government acquires an asset).

Provisions for calls under standardized guarantee schemes (62065, 62165, 62265, 63065, 63165, 63265)

7.201 Standardized guarantees are those kinds of guarantees that are issued in large numbers, usually for fairly small amounts, along identical lines.[60] Operators of standardized guarantee schemes incur liabilities equal to the present value of the expected calls under outstanding guarantees, net of any recoveries the guarantor expects to receive from the defaulting borrowers, a similar approach as for nonlife insurance. This liability is called provisions for calls under standardized guarantees.

7.202 There are three parties involved in these arrangements: the borrower (debtor), the lender (creditor), and the guarantor. Either the borrower or lender may contract with the guarantor to repay the lender if the borrower defaults. Examples are export credit guarantees, deposit guarantees, and student loan guarantees. Standardized guarantees are based on the same paradigm as that for nonlife insurance, and a similar treatment is adopted for these guarantees, as discussed in paragraphs A4.66–A4.80.

Financial derivatives and employee stock options (6207, 6217, 6227, 6307, 6317, 6327)

7.203 Financial derivatives and employee stock options are financial assets and liabilities that have similar features, such as a strike price and some of the same risk elements. However, although both transfer risk, employee stock options are also designed to be a form of remuneration.

Financial derivatives (62071, 62171, 62271, 63071, 63171, 63271)

7.204 A **financial derivative contract** is a financial instrument that is linked to another specific financial instrument, indicator, or commodity and through which specific financial risks (e.g., interest rate risk, foreign exchange risk, equity and commodity price risks, and credit risk) can be traded in their own right in financial markets. Transactions and positions in financial derivatives are treated separately from the values of any underlying items to which they are linked. Financial derivatives are valued at market prices prevailing on balance sheet recording dates. If market price data are unavailable, other fair value methods (e.g., option models or present values) may be used to value them. Compilers are generally constrained to use the parties' own accounts.

7.205 The risk embodied in a financial derivative contract can be traded either by selling the contract itself, as is possible with options, or by creating a new contract embodying risk characteristics that match, in a countervailing manner, those of the existing contract. The latter practice, which is termed offsetability, occurs in forward markets. Offsetability means that it is often

[60] In contrast, one-off guarantees are individual, and guarantors usually cannot reliably estimate the risk of calls. As a result, in most cases, one-off guarantees are considered a contingent liability (unless and until such guarantees are called). For a discussion of contingent liabilities, see paragraphs 7.251–7.260.

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possible to eliminate the risk associated with a derivative by creating a new but reverse contract having characteristics that countervail the risk underlying the first derivative. Buying the new derivative is the functional equivalent of selling the first derivative because the result is the elimination of the underlying financial risk. The ability to countervail the underlying risk in the market is therefore considered the equivalent of tradability in demonstrating value. The outlay that would be required to replace the existing derivative contract represents its value; actual offsetting is not required.

7.206 In many cases, derivatives contracts are settled by payments of net amounts in cash, rather than by the delivery of the underlying items. Once a financial derivative reaches its settlement date, any unpaid overdue amount is reclassified as other accounts receivable/payable, as its value is fixed, and thus the nature of the claim becomes debt.

7.207 The following types of financial arrangements are not financial derivatives:

- A fixed-price contract for goods and services is not a financial derivative unless the contract is standardized so that the market risk therein can be traded in financial markets in its own right. For example, an option to purchase an aircraft from the manufacturer is not classified as a financial derivative; if the option to purchase is transferable, and is in fact transferred, the transaction is recorded under contracts, leases, and licenses, discussed in paragraph A4.52.
- Insurance and standardized guarantees are not financial derivatives. Insurance involves the collection of funds from policyholders to meet future claims arising from the occurrence of events specified in insurance policies. That is, insurance and standardized guarantees are used to manage event risk primarily by the pooling, not the trading, of risk (see paragraph 7.201). However, some guarantees other than standardized guarantees meet the definition of financial derivatives. Those guarantees protect, on a guarantee-by-guarantee basis, the lender against certain types of risk arising from a credit relationship by paying the guarantor a fee for a specified period—these are known as credit derivatives (see paragraph 7.218).
- Contingent assets and liabilities, such as one-off guarantees and letters of credit, are not financial assets (as discussed in paragraph 7.251).
- Instruments with embedded derivatives are not financial derivatives (see paragraph 7.148). If the owner of the primary instrument subsequently creates a new but reverse financial derivative contract to offset the risk of the embedded derivative, the creation of this new financial derivative contract is recorded as a separate transaction, which does not affect the recording of transactions and positions in the primary instrument. However, detachable warrants are treated as separate financial derivatives, because they can be detached and sold in financial markets.
- Timing delays that arise in the normal course of business and may entail exposure to price movements do not give rise to financial derivatives. Timing delays include normal settlement periods for spot transactions in financial markets.

7.208 There are two broad types of financial derivatives—options and forward-type contracts.

Options

7.209 In an **option contract** (option), the purchaser acquires from the seller a right to buy or sell (depending on whether the option is a call (buy) or a put (sell)) a specified underlying item at a strike price on or before a specified date. The purchaser of an option pays a premium to the writer of the option. In return, the buyer acquires the right but not the obligation to buy (call option) or sell (put option) a specified underlying item (real or financial) at an agreed-on contract price (the strike price) on or before a specified date. (On a derivatives exchange, the exchange itself may act as the counterparty to each contract.)

7.210 Options can be contrasted with forward-type contracts in that:

- At inception, there is usually no up-front payment for a forward-type contract and the derivative contract begins with zero value, whereas there is usually a premium paid for an option that reflects the nonzero value of the contract.
- During the life of the contract, for a forward-type contract, either party can be creditor or debtor, and it may change, whereas for an option, the buyer is always the creditor and the writer is always the debtor.

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- At maturity, redemption is unconditional for a forward-type contract, whereas for an option it is determined by the buyer of the option.

7.211 Warrants are a form of financial derivative option giving the owner the right but not the obligation to purchase from the issuer of the warrant a fixed amount of an underlying asset, such as equities and bonds, at an agreed contract price for a specified period of time or on a specified date. Although similar to other traded options, a distinguishing factor is that the exercise of the warrants can create new securities, thus diluting the capital of existing bond- or shareholders, whereas traded options typically grant rights over assets that are already available.

Forward-type contracts

7.212 A **forward-type contract** (forward) is an unconditional contract by which two counterparties agree to exchange a specified quantity of an underlying item (real or financial) at an agreed-on contract price (the strike price) on a specified date. Forward-type contracts include futures and swaps (other than as discussed in paragraph 7.215). The term forward-type contract is used because the term forward is often used more narrowly in financial markets (often excluding swaps).

7.213 Futures are forward-type contracts traded on organized exchanges. The exchange facilitates trading by determining the standardized terms and conditions of the contract, acting as the counterparty to all trades, and requiring a margin to be deposited and paid to mitigate risk. Forward rate agreements and forward foreign exchange contracts are common types of forward-type contracts.

7.214 At the inception of a forward-type contract, risk exposures of equal market value are exchanged, so a contract typically has zero value at that time. As the price of the underlying item changes, the market value will change, although it may be restored to zero by periodic settlement during the life of the forward. The classification of a forward-type contract may change between asset and liability positions.

Other issues associated with financial derivatives

Swap contracts

7.215 A **swap contract** involves the counterparties exchanging, in accordance with prearranged terms, cash flows based on the reference prices of the underlying items. Swap contracts classified as forward-type contracts include currency swaps, interest rate swaps, and cross-currency interest rate swaps. Under a swap contract, the obligations of each party may arise at different times—for example, an interest rate swap for which payments are quarterly for one party and annual for the other. In such cases, the quarterly amounts payable by one party prior to payment of the annual amount payable by the other party are recorded as transactions in the financial derivative contract. Other types of arrangements also called swaps but not meeting the foregoing definition include gold swaps (see paragraph 7.161 for a discussion of their treatment), central bank swap arrangements,[61] and credit default swaps (see paragraph 7.218).

7.216 For foreign currency financial derivative swap contracts, such as currency swaps, it is necessary to distinguish between transactions in a financial derivative contract and transactions in the underlying currencies. At inception, the parties exchange the underlying financial instruments (usually classified as currency and deposits or loans). At the time of settlement, the difference in the values of the currencies swapped, as measured in the unit of account at the prevailing exchange rate, is allocated to a transaction in a financial derivative, with the values swapped recorded in the relevant item (usually currency and deposits, or loans).

7.217 As mentioned in paragraph 7.162, the economic nature of an off-market swap is equivalent to a combination of borrowing (i.e., the lump sum), in the form of a loan, and an on-market swap (financial derivative).

Credit derivatives

7.218 Credit derivatives are financial derivatives whose primary purpose is to trade credit risk. They are designed for trading in loan and security default risk. In contrast, the financial derivatives described in paragraphs 7.215–7.217 are mainly related to market risk, which pertains to changes in the market prices of securities, commodities, interest, and exchange rates. Credit derivatives take the form of both forward-type (total return swaps) and option-type contracts (credit default swaps). Under a credit default swap, premiums are paid in return for a cash payment in the event of a default

[61] See the *BPM6*, paragraphs 6.102–6.104.

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by the debtor of the underlying instrument. Like other financial derivatives, credit derivatives are frequently drawn up under standard master legal agreements and involve collateral and margining procedures, which allow for a means to make a market valuation.

Margins

7.219 Financial derivatives are often subject to margin calls. **Margins** are payments of cash or deposits of collateral that cover actual or potential obligations incurred. The required provision of margin reflects market concern over counterparty risk, especially in markets for futures and exchange-traded options. The classification of margins depends on whether they are repayable or nonrepayable:

- Repayable margin consists of cash or other collateral deposited to protect counterparties against default risk. Ownership of the margin remains with the unit that deposited it. Repayable margin payments in cash are classified as transactions and stock positions in deposits (particularly if the debtor's liabilities are included in broad money) or in other accounts receivable/payable. When a repayable margin deposit is made in an asset other than cash (such as securities), no transaction nor change in stock position is recorded because no change in economic ownership has occurred.
- Nonrepayable margin payments reduce the financial liability position in a derivative. In organized exchanges, nonrepayable margin (sometimes known as variation margin) is paid daily to meet liabilities recorded as a consequence of the daily marking of derivatives to market value. The entity that pays nonrepayable margin no longer retains ownership of the margin nor has the right to the risks and rewards of ownership. Nonrepayable margin payments are classified as transactions in financial derivatives.

7.220 These principles for the classification of margins also apply more generally to margin calls relating to positions in other financial assets.

Employee stock options (62072, 62172, 62272, 63072, 63172, 63272)

7.221 **Employee stock options** are options to buy the equity of a company, offered to employees of the company as a form of remuneration. Employee stock options have similar pricing behavior to financial derivatives, but they have a different nature—including arrangements for the granting and vesting dates—and purpose (i.e., to motivate employees to contribute to increasing the value of the company, rather than to trade risk). If a stock option granted to employees can be traded on financial markets without restriction, it is classified as a financial derivative.

7.222 In some cases, stock options may be provided to suppliers of goods and services to the enterprise. Although these are not employees of the enterprise, for convenience they are also recorded under employee stock options because their nature and motivation is similar. (Whereas the corresponding entry for stock options granted to employees is *wages and salaries in kind* (2112) as discussed in paragraph 6.17, the corresponding entry for stock options granted to suppliers is *use of goods and services* (22).)

7.223 Employee stock options should be valued at fair value at grant date[62] using a market value of equivalent traded options (if available) or using an option pricing model (binomial or Black-Scholes) with suitable allowance for particular features of the options.[63] After the vesting date, employee stock options are valued at market prices.

Other accounts receivable/payable (6208, 6218, 6228, 6308, 6318, 6328)

7.224 **Other accounts receivable/payable** consist of trade credit and advances and miscellaneous other items due to be paid or received. If an economic event requires a subsequent cash flow, for example, goods and services are sold on credit provided by the supplier and the length of time between the economic event and the time of the cash flow is bridged by an entry in other accounts receivable/payable.

7.225 *Trade credit and advances* (62081, 62181, 62281, 63081, 63181, 63281) include (i) trade credit extended directly to purchasers of goods and services and (ii) advances for work that is in progress or to be undertaken, such as progress payments made during

[62] The terms grant date, vesting date, and exercise date are defined in paragraph 9.77.

[63] The International Accounting Standards Board provides detailed recommendations on how employee stock options may be valued, and its recommendations are likely to be followed by corporations using employee stock options as a form of compensation for their employees. The value of the employee stock options varies between grant date and vesting date and then between the vesting date and exercise date, as the value of the shares covered changes.

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construction in advance for work being performed, or for prepayments of goods and services. Such credit arises both from normal delays in receiving payment and from deliberate extensions of vendor credit to finance sales. Trade credit extended by the seller of goods and services does not include loans, debt securities, or other liabilities that are provided by third parties to finance trade. If a government unit issues a promissory note or another type of security to consolidate the payment due on several trade credits, the note or security should be classified as a debt security. Trade credit and advances exclude trade credits that meet the definition of a loan.[64]

7.226 *Miscellaneous other accounts receivable/payable* (62082, 62182, 62282, 63082, 63182, 63282) include accrued but unpaid taxes, dividends, payment for purchases and sales of securities paid or received before the instrument is issued, rent, wages and salaries, social contributions, social benefits, and similar items. They also include payments due under financial derivative contracts that are in arrears and payments of amounts that have not yet accrued, such as prepayments of taxes. Some of these prepayments, often called "deposits," should be recorded here rather than in currency and deposits. These "deposits" are repayable only when specific conditions are met. Examples of this type of "deposit" included under miscellaneous other accounts receivable/payable are deposits held by court or tax authorities pending resolution of a dispute, deposits payable in advance to cover breakages or nonpayment for the use of goods and services, and bail deposits. In principle, accrued but unpaid interest should be added to the principal of the underlying asset rather than included in this category. Taxes receivable and/or compensation of employees payable should be separately identified if the amounts are substantial.

[64] A supplier of goods or services may have a claim on a government unit in the form of a trade credit. When the supplier transfers this claim completely and irrevocably to a financial institution (notably a unit engaged in factoring activity), the original liability of the government unit recorded as trade credit in other accounts payable should be reclassified (by way of other changes in the volume of assets) as a loan when the following two conditions are both met: (i) the government unit has no longer any payment obligation to its supplier, and (ii) the financial institution has no direct or indirect recourse on the supplier (transferor of the claim) if the government unit does not meet its payment obligations in due time. Also, if a trade credit is restructured in such a way that it meets the definition of a loan, it should be reclassified as a loan.

7.227 Other accounts receivable/payable should be recorded at nominal value. By definition, other accounts receivable/payable are accrual concepts and do not exist in an accounting system that uses a pure cash basis of recording.

Net Worth

7.228 As defined in paragraph 7.1, ***net worth*** (6) of an institutional unit (or grouping of units) is the total value of its assets minus the total value of its liabilities. Net worth is a balancing item that stems from valuing assets and liabilities (including equity and investment fund shares) at their market prices on the balance sheet date. Net worth can be positive, negative, or zero. As with other balancing items in GFS, net worth cannot be measured independently of the other entries.

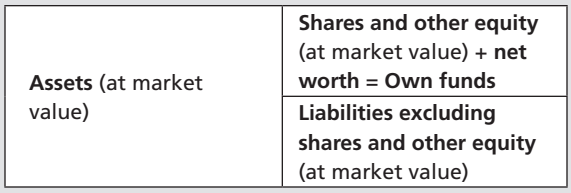
7.229 For most government units, the net worth is the economic value of the unit because they usually have no issued shares and other equity. In the case of quasi-corporations, net worth is zero, because the value of the owners' equity is assumed to be equal to its assets minus its liabilities. Even when general government units have liabilities in the form of equity (see paragraph 7.170), the net worth of such government units is zero, similar to that of quasi-corporations, if these shares are not traded or the value of the shares cannot be determined independently. For other corporations, net worth is a component of own funds. In macroeconomic statistics, own funds and net worth have a specific meaning, which may differ from the understanding of these terms within the context of accounting.

7.230 When an autonomous pension fund operates as a defined contribution scheme, the net worth will be zero, because by definition the claims on the pension fund are equal to the assets of the fund. However, a defined-benefit pension scheme operated by an insurance corporation or as an autonomous pension fund can have a net worth, positive or negative, if the assets of the fund exceed or fall short of the fund's liability for the pension benefits, unless there is a claim of the pension fund on the pension manager—in which instance the net worth is also zero (see paragraphs 7.199–7.200).

7.231 Own funds are defined as the difference between total assets (at market values) and total liabilities excluding shares and other equity (at market value). From the foregoing, it follows that the value

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Figure 7.1 Net Worth in a Macroeconomic Statistics Balance Sheet



of own funds is equal to the value of shares and other equity (at current market prices on the balance sheet date) plus net worth, as illustrated in Figure 7.1.

7.232 In the case of quasi-corporations, their imputed shareholders' equity is equal to their own funds. Public corporations are seen to have a net worth (which could be positive or negative) in addition to the value of the shareholders' equity, if shares are traded in the market or the value can be determined independently. This is because shares are included in the public corporation's balance sheet at their current market price on the balance sheet date.

7.233 If the current market value of equity and investment fund shares cannot be determined independently or they do not trade in the market, an alternative calculation is similar to the treatment of quasi-corporations (see paragraph 7.232). This calculates the value of equity and investment fund shares in such a way that the net worth of the public corporation is zero.

Memorandum Items

7.234 It may be desirable to record memorandum items to provide supplemental information about items (such as aggregates and balancing items) related to, but not included on, the balance sheet. Table 7.10 shows the memorandum items to the balance sheet proposed in the GFS framework (additional items and subitems may be added, as needed).

Net Financial Worth (6M2)

7.235 The ***net financial worth*** (6M2) of an institutional unit (or grouping of units) is the total value of its financial assets minus the total value of its liabilities. This balancing item is often cited because of the general government and public sectors' influence on the financial system and also because of the difficulties in valuing government-unique nonfinancial assets.

Table 7.10 Classification of Memorandum Items to the Balance Sheet

6M2	Net financial worth
6M3	Gross debt at market value
6M4	Gross debt at nominal value
6M35	Gross debt at face value
6M36	Net debt at market value
6M37	Net debt at nominal value
6M38	Net debt at face value
6M391	Concessional loans at nominal value
6M392	Implicit transfers resulting from loans at concessional interest rates
6M5	Arrears
6M6	Explicit contingent liabilities[1]
6M61	Publicly guaranteed debt
6M62	Other one-off guarantees
6M63	Explicit contingent liabilities not elsewhere classified
6M7	Net implicit obligations for social security benefits[1]
6M8	Nonperforming loan assets at fair value
6M81	Nonperforming loan assets at nominal value

[1]The contingent liabilities are shown in the *Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits* (Table 4.6).

Debt[65]

Gross debt

7.236 Total **gross debt**—often referred to as "total debt" or "total debt liabilities"—consists of all liabilities that are debt instruments. A **debt instrument** is defined as a financial claim that requires payment(s) of interest and/or principal by the debtor to the creditor at a date, or dates, in the future. The following instruments are debt instruments:

- Special Drawing Rights (SDRs)
- Currency and deposits
- Debt securities
- Loans
- Insurance, pension, and standardized guarantee schemes [GFS]
- Other accounts payable.

[65] For a detailed discussion on the compilation of public sector debt, see the *PSDS Guide*.

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7.237 From the foregoing list, it follows that all liabilities included in the GFS balance sheet are considered debt, except for liabilities in the form of *equity and investment fund shares* and *financial derivatives and employee stock options*. Equity and investment fund shares are not debt instruments because they entitle the holders to dividends and a claim on the residual value of the unit. Financial derivatives are not debt instruments because they do not supply funds or other resources, but rather shift the exposure to risks from one party to another.

7.238 As recommended in the *PSDS Guide*, debt instruments should be valued on the reference date at nominal value, and, for traded debt securities, at market value as well. Both valuation bases provide useful information about debt. If the nominal and market values of debt instruments are not available, gross debt is at face value. Deviations from these valuation principles should always be specified in the footnotes to the balance sheet.

7.239 These valuations of gross debt are discussed, in turn, in paragraphs 7.240–7.242. For more details on valuation, see paragraphs 3.107–3.129.

Gross debt at market value (6M3)

7.240 *Gross debt at market value* (6M3) means that debt securities are valued at market prices; insurance, pension, and standardized guarantee schemes are valued according to principles that are equivalent to market valuation; and all other debt instruments are valued at nominal prices, which are considered to be the best generally available proxies of their market prices.

Gross debt at nominal value (6M4)

7.241 *Gross debt at nominal value* means that debt securities are valued at their nominal values. The nominal value of a debt instrument at any moment in time is the amount that the debtor owes to the creditor. This is a measure of value from the viewpoint of the debtor.

Gross debt at face value (6M35)

7.242 The **face value** of a debt instrument is the undiscounted amount of principal to be repaid at (or before) maturity and has been called nominal value in some cases. The use of face value as a proxy for nominal value in measuring the gross debt position can result in an inconsistent approach across all instruments and is not recommended, unless nominal and market values are not available.

Net debt

7.243 Net debt is calculated as gross debt minus financial assets corresponding to debt instruments.[66] Financial assets corresponding to debt instruments are:

- Monetary gold and Special Drawing Rights (SDRs)
- Currency and deposits
- Debt securities
- Loans
- Insurance, pension, and standardized guarantee schemes [GFS]
- Other accounts receivable.

7.244 Monetary gold, as defined in the *2008 SNA* and this *Manual*, includes elements of a debt instrument (unallocated gold accounts) and a nondebt instrument (gold bullion). In principle, the gold bullion element of monetary gold should be excluded from the calculation of net debt. However, in practice, the total amount for monetary gold may have to be used in the net debt calculation because compilers of public sector debt statistics may not be able to exclude the gold bullion element.

7.245 *Net debt* can be calculated at *market value* (6M36), *nominal value* (6M37), and *face value* (6M38).

Concessional loans

7.246 Loans with concessional interest rates could be seen as providing a benefit to the borrower in the form of a transfer equal to the difference between the actual interest payable and the amounts that would

[66] This category calculates net debt as total debt liabilities minus all financial assets corresponding to debt instruments. For some purposes, it may be useful to net individual debt instruments against their corresponding financial assets. For other purposes, it may be useful to calculate debt net of highly liquid assets. However, in most cases, a one-on-one netting of a debt instrument against its corresponding financial asset may not be analytically useful because, typically, specific types of assets are not earmarked to repay specific types of liabilities. Debt net of highly liquid assets is, in most cases, equal to gross debt minus financial assets in the form of currency and deposits. However, in some cases, debt securities held for debt management purposes could be included as highly liquid financial assets.

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be payable if market-equivalent interest prevailed. If such a transfer were recognized, it would usually be recorded as current transfer/grant (depending on the type of recipient), and the interest recorded would be adjusted by the same amount. However, the means of incorporating the impact of concessional rates within macroeconomic statistics have not fully evolved, although various alternatives have been advanced.[67] Accordingly, until the treatment is agreed, information on concessional debt should be provided through supplementary information in the form of two memorandum items. The first shows the stock of *concessional loans at nominal value* (6M391). The second shows an estimate of the value of the benefit transferred to the borrower—that is, the value of *implicit transfers resulting from loans at concessional interest rates* (6M392), calculated as described in footnote 67.

Arrears (6M5)

7.247 **Arrears** are defined as amounts that are both unpaid and past the due date for payment. In principle, amounts payable for any expense, acquisition of assets, or related to any liability may be in arrears.[68] For debt liabilities, arrears arise when principal or interest payments are not made when due. For expense and the acquisition of nonfinancial assets, amounts payable may be in arrears from inception. For example, when amounts payable for compensation of employees are not made when due, the other accounts payable for compensation of employees are in arrears. Also, when a contract stipulates payment on delivery for goods and services or nonfinancial assets and such amounts payable are not settled on delivery, other accounts payable for these goods and services or nonfinancial assets are in arrears from inception.

7.248 When arrears in an existing liability occur, they should continue to be shown in the same instrument until the liability is extinguished. However, if the contract provides for a change in the characteristics of a financial instrument when it goes into arrears, this change should be recorded as a reclassification through other changes in the volume of assets and liabilities (see paragraphs 3.97, 9.21, and 10.84).

7.249 If under a cash accounting system, arrears are not recorded separately, compilers will need to collect supplementary information to estimate arrears. Information on arrears is useful for various kinds of policy analyses and solvency assessments and should be shown as a memorandum item in the balance sheet where significant. Information on arrears should continue to be collected from their creation—that is, when payments are not made—until they are extinguished, such as when debt arrears are repaid, rescheduled, or forgiven by the creditor, or when (say) wages and salaries in arrears are paid.

7.250 The nominal value of arrears is equal to the value of the payments—interest and principal in the case of liabilities—missed, and any subsequent economic flows, such as the accrual of additional interest on a liability in arrears, or the settlement of arrears. (See also paragraphs 9.22–9.23.)

Explicit Contingent Liabilities (6M6)

Overview

7.251 Contingent liabilities create fiscal risks[69] and may arise from deliberate public policy or from unforeseen events, such as a financial crisis. **Contingent liabilities** are obligations that do not arise unless a particular, discrete event(s) occurs in the future. A key difference between contingent liabilities and liabilities[70] is that one or more conditions must be fulfilled before

[67] The one-off benefit at the point of loan origination can be calculated as being equal to the difference between the nominal value of the debt and its present value using a relevant market discount rate. This option has the advantage of considering all the possible sources of transfers in debt concessionality—maturity period, grace period, and frequency of payments, as well as the interest rate—and is consistent with nominal valuation of loans. Such an approach should be used for official lending involving an intention to convey a benefit and occurrence in a noncommercial setting (usually government-to-government). For example, in debt reorganization through the Paris Club, debt reduction in present value terms is calculated using a market-based discount rate, usually the OECD's Commercial Interest Reference Rate (CIRR). The difference between the nominal value of the applicable debt and its present value is the amount of capital transfer derived from the debt reorganization arrangements. For more details, see the *PSDS Guide*, paragraphs 4.83–4.86. For the treatment of concessional loans to employees, see paragraph 6.17.

[68] In some cases, arrears arise for operational reasons (such as minor administrative delays) rather than from a reluctance or inability to pay. Nonetheless, in principle, such arrears should be recorded as arrears when outstanding at the reference date.

[69] At the most general level, fiscal risks may be defined as any potential differences between actual and expected fiscal outcomes (e.g., fiscal balances and public sector debt). Contingent liabilities are a specific source of potential fiscal risk.

[70] Liabilities refer to those obligations recognized on a macroeconomic statistics balance sheet in the calculation of an institutional unit's net worth. Contingent liabilities are not included on the balance sheet (i.e., contingent liabilities are not taken into account in the calculation of a unit's net worth).

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a contingent liability is recognized as a liability. With contingent liabilities, there is typically uncertainty over whether a payment will be required, and its potential size.[71]

7.252 A distinction is made between explicit and implicit contingent liabilities. **Explicit contingent liabilities** are defined as legal or contractual financial arrangements that give rise to conditional requirements to make payments of economic value. The requirements become effective if one or more stipulated conditions arise. By contrast, **implicit contingent liabilities** do not arise from a legal or contractual source but are recognized after a condition or event is realized. While the focus of GFS (and other macroeconomic statistical systems) is largely on explicit contingent liabilities, implicit contingent liabilities, such as the net implicit obligations for future social security benefits (see paragraph 7.261), are important factors in fiscal risk and vulnerability analyses. Other examples of implicit contingent liabilities include ensuring the solvency of the banking sector, covering the obligations of subnational governments (state and local governments) or the central bank in the event of a default, assuming unguaranteed debt of public sector units, and potential spending for natural disaster relief.[72]

7.253 Figure 7.2 provides an overview of liabilities and contingent liabilities in macroeconomic statistics. Explicit contingent liabilities can take a variety of forms, although guarantees are the most common. However, not all guarantees are contingent liabilities; as discussed earlier in this chapter, guarantees in the form of financial derivatives and provisions for calls under standardized guarantee schemes are liabilities on the balance sheet. On the other hand, one-off guarantees are contingent liabilities.

7.254 Explicit contingent liabilities comprise:

- *Publicly guaranteed debt* (6M61), which is one-off guarantees in the form of loan and other debt instrument guarantees (see paragraphs 7.259–7.260)
- *Other one-off guarantees* (6M62) for other than publicly guaranteed debt (see paragraphs 7.259–7.260)
- *Explicit contingent liabilities not elsewhere classified* (6M63), which are explicit contingent liabilities that are not in the form of guarantees—for example:
  - Potential legal claims, which are claims stemming from pending court cases[73]
  - Indemnities, which are commitments to accept the risk of loss or damage another party might suffer (e.g., indemnities against unforeseen tax liabilities arising in government contracts with other units)
  - Uncalled capital, which is an obligation to provide additional capital, on demand, to an entity of which it is a shareholder (e.g., an international financial institution)
  - Potential payments resulting from PPP arrangements.

7.255 Information on the stock positions of one-off guarantees is relevant for public financial policy and analysis—particularly the stock position of publicly guaranteed debt. It is recommended that *publicly guaranteed debt* (6M61) should be shown, at nominal value, as a memorandum item to the balance sheet. If significant, information on *other one-off guarantees* (6M62) and *explicit contingent liabilities not elsewhere classified* (6M63) should also be included as a memorandum item to the balance sheet, at nominal value.[74] One-off guarantees are discussed in paragraphs 7.256–7.260.

One-off guarantees

7.256 One-off guarantees comprise those types of guarantees where the debt instrument is so particular that it is not possible to calculate the degree of risk

[71] Uncertainty about the potential size of liabilities does not make them contingent liabilities.

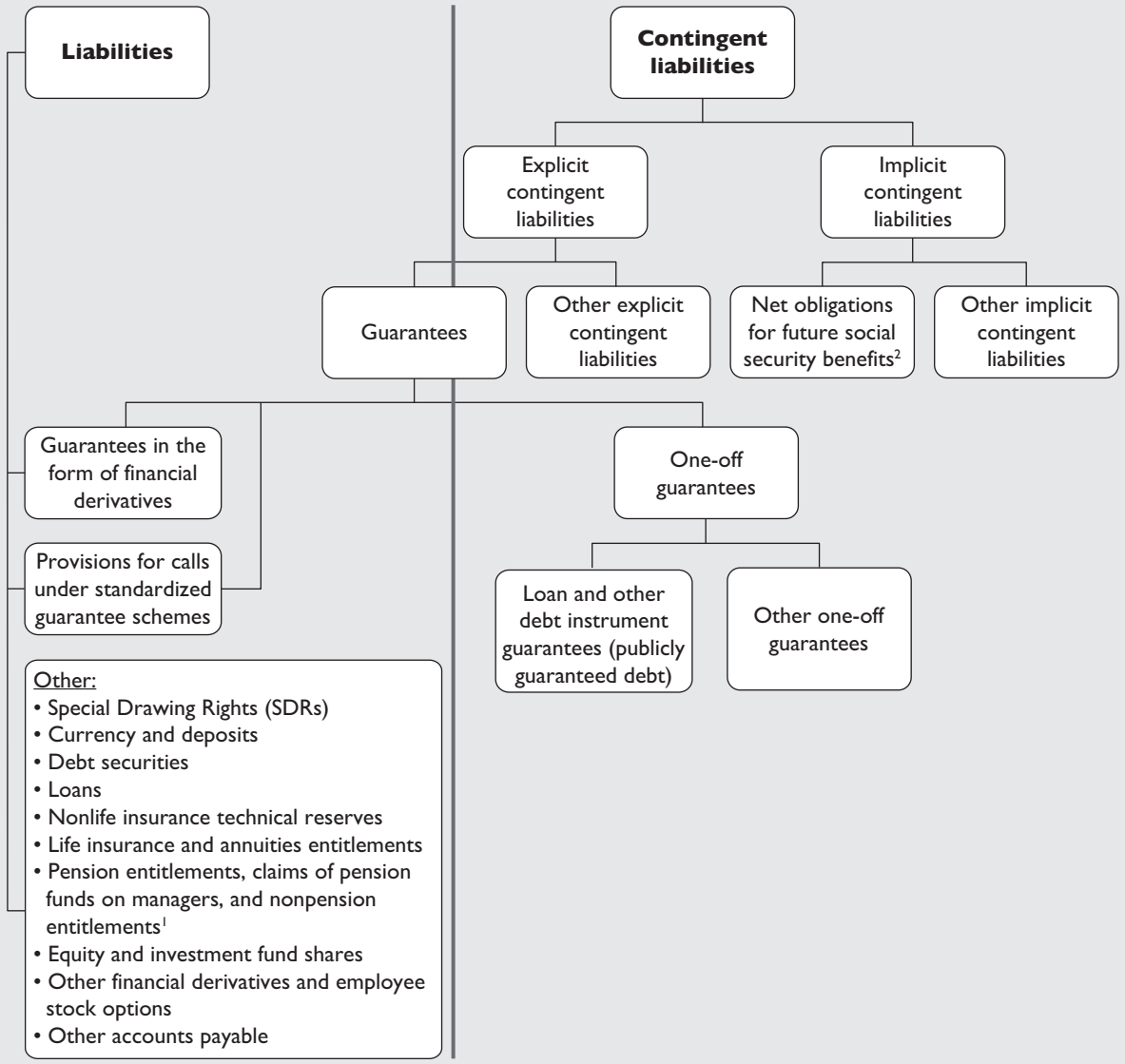
[72] It is recommended in this *Manual* (and the *PSDS Guide*) to include as a separate memorandum item in the balance sheet the net obligations for future social security benefits—often the largest implicit contingency of government.

[73] A pending legal case may also be a contingent asset—for example, a case in which the government has claimed damages against another party.

[74] Limitations of this approach are that it offers no information on the likelihood of the contingency occurring and it may overstate the possible risk. For loan and other debt instrument guarantees, the maximum potential loss is likely to be less than their nominal value, because not all debts will default. There are several other approaches that address limitations to valuing explicit contingent liabilities; they are discussed in detail in Chapter 4 of the *PSDS Guide* and in Chapter 9 of the *EDS Guide*. The actual approach adopted will depend on the availability of information on the type of contingency. For this reason, it is particularly important to provide metadata on the method(s) used to value contingent liabilities.

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Figure 7.2 Overview of Liabilities and Contingent Liabilities in Macroeconomic Statistics



[1] Includes liabilities for nonautonomous unfunded employer pension schemes.
[2] Excludes liabilities for nonautonomous unfunded employer pension schemes.

associated with the debt with any degree of accuracy. In contrast to standardized guarantees, one-off guarantees are individual, and guarantors are not able to make a reliable estimate of the risk of calls.

7.257 In most cases, a one-off guarantee is considered a contingent liability of the guarantor. Liabilities under one-off guarantees continue to be attributed to the debtor, not the guarantor, unless and until the guarantee is called.

7.258 In contrast, a one-off guarantee granted by government to a corporation in financial distress and with a very high likelihood to be called is treated as if the guarantee is called at inception.[75] The activation

[75] Such treatment should be undertaken with caution, not least to avoid double-counting of the debt and inconsistencies with other macroeconomic statistics (which still record the claim to the original debtor). Eurostat uses the following practical guidance with regards to publicly guaranteed debt: if government, as a guarantor, makes a payment on an existing guaranteed debt in three consecutive years,

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of such a one-off guarantee is treated as debt assumption[76] and this liability is part of the public sector unit's balance sheet.

7.259 One-off guarantees may be grouped into loan and other debt instrument guarantees and other one-off guarantees:

- **Loan and other debt instrument guarantees**—or one-off guarantees of payment—are commitments by one party to bear the risk of nonpayment by another party. Guarantors are required to make a payment only if the debtor defaults. Loans and other debt instrument guarantees constitute publicly guaranteed debt that is defined as debt liabilities of public and private sector units, the servicing of which is contractually guaranteed by public sector units.
- **Other one-off guarantees** include credit guarantees (such as lines of credit and loan commitments), contingent credit availability guarantees, and contingent credit facilities. Lines of credit and loan commitments provide a guarantee that undrawn funds will be available in the future, but no financial liability/asset exists until such funds are actually provided. Undrawn lines of credit and undisbursed loan commitments are contingent liabilities of the issuing institutions—generally, banks. Letters of credit are promises to make payment upon the presentation of pre-specified documents. Underwritten note issuance facilities provide a guarantee that a borrower will be able to issue short-term notes and that the underwriting institution(s) will take up any unsold portion of the notes. Only when funds are advanced by the underwriting institution(s) will a liability/asset be created. The unutilized portion is a contingent liability. Other note guarantee facilities providing contingent credit or back-up purchase facilities are revolving underwriting facilities, multiple options facilities, and global note facilities. Bank and nonbank financial institutions provide back-up purchase facilities. Again, the unutilized amounts of these facilities are contingent liabilities.

7.260 Loan and other debt instrument guarantees (publicly guaranteed debt) differ from the other types of one-off guarantees. This is because the guarantor guarantees the servicing of an existing debt of other public and private sector units. With the other one-off guarantees, no financial liability/asset exists until funds are provided or advanced.

Net Implicit Obligations for Future Social Security Benefits (6M7)

7.261 As explained in paragraphs 7.194 and A2.39, no liability is recognized in macroeconomic statistical systems for social security benefits—such as retirement benefits (other than employment-related pensions) and health care benefits—payable in the future.[77] These implicit obligations to pay social security benefits in the future are not contractual obligations and are therefore not recorded on the balance sheet (see paragraph 7.252). The present value of social security benefits that have already been earned according to the existing laws and regulations but are payable in the future should be calculated in a manner similar to the liabilities of an employment-related pension scheme. This amount minus the present value of social security scheme contributions provides an indication of the net implicit obligations that a government unit has for social security benefits payable in the future.

Nonperforming Loan Assets at Fair Value (6M8)

7.262 Nonperforming loans are those for which (i) payments of principal and/or interest are past due by three months (90 days) or more; or (ii) interest payments equal to three months (90 days) interest or more have been capitalized (reinvested to the principal amount) or payment has been delayed by agreement; or (iii) evidence exists to reclassify a loan as nonperforming even in the absence of a 90-day past due payment, such as when the debtor files for bankruptcy. The amount of nonperforming debt outstanding remains a legal liability of the debtor and interest should continue to accrue, unless the liability has been extinguished (e.g., by repayment or as a result of a bilateral arrangement between debtor and creditor).

and this situation is expected to continue, then the debt is considered to be assumed, normally in its entirety (or for the proportion government is expected to repay, if there is evidence of that).

[76] Debt assumption is discussed in paragraphs A3.26–A3.31.

[77] In contrast, social security benefits due for payment but not yet paid are included as other accounts payable in a public sector unit's balance sheet. Also included in the balance sheet (and thus excluded from implicit contingent liabilities) are public sector units' liabilities for unfunded nonautonomous pension schemes for their employees.

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7.263 As mentioned earlier in this chapter, loans are recorded at nominal value (i.e., the amount advanced plus interest accrued and not paid minus any repayments). It is recognized that nominal value provides an incomplete view of the financial position of the creditor, particularly when the loans are nonperforming. In such cases, information on the *nominal value* (6M81), as well as the *fair value* (6M8),[78] of nonperforming loan assets should be included as a memorandum item to the balance sheet.

Classification of the Counterparty of Financial Assets and Liabilities by Institutional Sector

7.264 The preceding section discussed the classifications of financial assets and liabilities based on the characteristics of the instrument underlying the claim. For a fuller understanding of financial assets and liabilities of the general government or the public sector, the counterparties to these financial relationships should also be considered. For example, a classification of liabilities according to the economic sectors providing the financing (i.e., the sources of funding) complements the classification by type of financial instrument. Information on debtor-creditor relationships between sectors and subsectors is essential for proper consolidation of GFS. A classification of financial assets and liabilities according to whether the counterparty is a public or private nonfinancial or financial corporation, respectively, will be necessary to compile accurate consolidated general government or public sector balance sheets.

7.265 Two parties are associated with all financial claims. As a result, it is possible to cross-classify the financial instruments of financial claims with the sector of the counterparty, making a distinction between resident and nonresident units.[79] This supplemental classification is presented in Table 7.11, which should be compiled separately for financial assets and liabilities.[80]

[78] The concepts nominal value and fair value are described in paragraph 3.115.

[79] Although gold bullion has no counterparty, by convention, the counterparty to the stock position in gold bullion is shown as "other nonresidents" in Table 7.11.

[80] See Chapter 2 of this *Manual*, and the *2008 SNA*, Chapter 4, for a description of sector classification. Issues in the identification of counterparties of traded debt securities are discussed in the *PSDS Guide*, Chapter 7.

Classification of Debt Liabilities and Financial Assets Corresponding to Debt Instruments by Maturity

7.266 A supplementary classification of debt liabilities and financial assets corresponding to debt instruments by maturity and type of financial instrument provides information on the liquidity dimensions of debt. The **maturity of a debt instrument** refers to the time until the debt is extinguished according to the contract between the debtor and the creditor. A debt instrument's maturity can be either short-term or long-term:

- Short-term is defined as payable on demand or with a maturity of one year or less. This category includes arrears and interest on arrears.
- Long-term is defined as having a maturity of more than one year or no stated maturity (other than debt repayable on demand, which is considered short-term).

7.267 Maturity may relate to:

- Original maturity, which is the period from the issue date until the final contractually scheduled payment date, or
- Remaining maturity or residual maturity, which is the period from the reference date (balance sheet date) until the final contractually scheduled payment date.

7.268 This *Manual* recommends a three-way classification (see Table 7.12) that allows for deriving debt statistics on both original and remaining maturity bases:

- Short-term debt on an original maturity basis
- Long-term debt due for payment within one year or less
- Long-term debt due for payment in more than one year.

7.269 To derive short-term debt on a remaining maturity basis, the second bullet above can be combined with the first bullet above. To derive long-term debt on an original maturity basis, the second bullet above can be combined with the third bullet above. Other aggregates on an original or a remaining maturity basis can be derived directly from Table 7.12. The classification codes in Table 7.12 correspond to those in Table 7.9; only a suffix has been added to indicate the type of maturity.

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Table 7.11 Cross-Classification of Financial Assets and Liabilities by the Institutional Sector of the Counterparty

	Monetary gold[1] and SDRs	Currency and deposits	Debt securities	Loans	Equity and investment fund shares	Insurance, pension, and standardized guarantee schemes [GFS]	Financial derivatives and employee stock options	Other accounts receivable/ payable
Financial assets:								
Domestic debtors								
General government[2]								
Central bank								
Deposit-taking corporations except the central bank								
Public deposit-taking corporations except the central bank								
Private deposit-taking corporations except the central bank								
Other financial corporations								
Public other financial corporations								
Private other financial corporations								
Nonfinancial corporations								
Public nonfinancial corporations								
Private nonfinancial corporations								
Households and nonprofit institutions serving households								
External debtors								
General government								
International organizations								
Financial corporations other than international organizations								
Central banks								
Financial corporations not elsewhere classified								
Other nonresidents								
Liabilities:								
Domestic creditors								
Same institutional breakdown as above								
External creditors								
Same *institutional breakdown as above*								

[1]Gold bullion does not have a counterparty. By convention, in this table, the counterparty to the stock position in gold bullion is shown as other nonresidents.

[2]Zero if data cover the consolidated general government. Further breakdown/of which lines could allow for the identification of subsectors and individual units (see Table 3.1).

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Table 7.12 Classification of Debt Liabilities and Financial Assets Corresponding to Debt Instruments by Maturity and by Type of Debt Instrument

	Short-term, by original maturity[1] (a)	Long-term by original maturity			Short-term by remaining maturity (a) + (b)
		With payment due in one year or less (b)	With payment due in more than one year = Long-term by remaining maturity (c)	Total (b) + (c)	
Financial assets corresponding to debt instruments	**62.1**	**62.2**	**62.3**	**62.4**	**62.5**
Monetary gold and Special Drawing Rights (SDRs)	6201.1	6201.2	6201.3	6201.4	6201.5
Currency and deposits	6202.1	6202.2	6202.3	6202.4	6202.5
Debt securities	6203.1	6203.2	6203.3	6203.4	6203.5
Loans	6204.1	6204.2	6204.3	6204.4	6204.5
Insurance, pension, and standardized guarantee schemes [GFS]	6206.1	6206.2	6206.3	6206.4	6206.5
Nonlife insurance technical reserves	62061.1	62061.2	62061.3	62061.4	62061.5
Life insurance and annuities entitlements	62062.1	62062.2	62062.3	62062.4	62062.5
Pension entitlements [GFS]	62063.1	62063.2	62063.3	62063.4	62063.5
Claims of pension funds on pension manager	62064.1	62064.2	62064.3	62064.4	62064.5
Provisions for calls under standardized guarantee schemes	62065.1	62065.2	62065.3	62065.4	62065.5
Other accounts receivable	6208.1	6208.2	6208.3	6208.4	6208.5
Trade credit and advances	62081.1	62081.2	62081.3	62081.4	62081.5
Miscellaneous other accounts receivable	62082.1	62082.2	62082.3	62082.4	62082.5
Domestic	**621.1**	**621.2**	**621.3**	**621.4**	**621.5**
Same instrument breakdown as above, but excluding monetary gold	6212.1–6218.1	6212.2–6218.2	6212.3–6218.3	6212.4–6218.4	6212.5–6218.5
External	**622.1**	**622.2**	**622.3**	**622.4**	**622.5**
Same instrument breakdown as above	6221.1–6228.1	6221.2–6228.2	6221.3–6228.3	6221.4–6228.4	6221.5–6228.5
Debt instruments (= gross debt)	63.1	63.2	63.3	63.4	63.5
Special Drawing Rights (SDRs)	6301.1	6301.2	6301.3	6301.4	6301.5
Currency and deposits	6302.1	6302.2	6302.3	6302.4	6302.5
Debt securities	6303.1	6303.2	6303.3	6303.4	6303.5
Loans	6304.1	6304.2	6304.3	6304.4	6304.5
Insurance, pension, and standardized guarantee schemes [GFS]	6306.1	6306.2	6306.3	6306.4	6306.5
Nonlife insurance technical reserves	63061.1	63061.2	63061.3	63061.4	63061.5
Life insurance and annuities entitlements	63062.1	63062.2	63062.3	63062.4	63062.5
Pension entitlements [GFS]	63063.1	63063.2	63063.3	63063.4	63063.5
Claims of pension funds on pension manager	63064.1	63064.2	63064.3	63064.4	63064.5
Provisions for calls under standardized guarantee schemes	63065.1	63065.2	63065.3	63065.4	63065.5
Other accounts payable	6308.1	6308.2	6308.3	6308.4	6308.5
Trade credit and advances	63081.1	63081.2	63081.3	63081.4	63081.5
Miscellaneous other accounts payable	63082.1	63082.2	63082.3	63082.4	63082.5
Domestic	**631.1**	**631.2**	**631.3**	**631.4**	**631.5**
Same instrument breakdown as above, but excluding monetary gold and SDRs	6312.1–6318.1	6312.2–6318.2	6312.3–6318.3	6312.4–6318.4	6312.5–6318.5
External	**632.1**	**632.2**	**632.3**	**632.4**	**632.5**
Same instrument breakdown as above	6321.1–6328.1	6321.2–6328.2	6321.3–6328.3	6321.4–6328.4	6321.5–6328.5

[1]This category includes arrears and interest on arrears.

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7.270 Measuring the value of outstanding long-term public sector debt (original maturity) falling due in one year or less may raise practical difficulties, in which instance, one proxy measure that may be used is the undiscounted value of principal payments on long-term public sector debt liabilities (original maturity basis) due to mature in one year or less. This proxy measure is incomplete in its coverage of interest payments falling due in the coming year but can be compiled using the principles for projecting payments in a debt-service schedule.

7.271 Statistics on a remaining maturity basis permit an assessment of liquidity risk by indicating when public sector debt payments will fall due. Information on payments becoming due in the short- to near-term is particularly relevant for this analysis. Statistics on a remaining maturity basis are also used for debt management purposes. Statistics on an original maturity basis provide an indication of the borrower's credit-worthiness and the type of markets in which it is borrowing.

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8 Transactions in Nonfinancial Assets

This chapter describes transactions in nonfinancial assets and their classification.

Introduction

8.1 Chapter 7 describes the balance sheet and the assets and liabilities recorded on it. As an integrated framework, GFS also includes the flows necessary to explain all changes between the balance sheet at the beginning of the period and the balance sheet at the end of the reporting period. As described in paragraphs 3.1–3.4, there are two types of flows—transactions and other economic flows—both of which can affect stock positions of assets and liabilities. This chapter describes the transactions that affect stock positions of nonfinancial assets. Chapter 9 describes the transactions that affect stock positions of financial assets and liabilities, and Chapter 10 describes other economic flows.

8.2 For each category of nonfinancial assets, there is an accounting identity linking successive balance sheets.[1] The identity states that:

The value of a category of nonfinancial assets on the balance sheet at the beginning of the reporting period

plus

The total value of that category of nonfinancial assets acquired in transactions during the reporting period

minus

The total value of that category of nonfinancial assets disposed of in transactions during the reporting

minus

The value of consumption of fixed capital for that category of nonfinancial assets during the reporting period

plus

The net value of other economic flows that affect that category of nonfinancial assets during the reporting period

equals

The value of the category of nonfinancial assets on the balance sheet at the end of the reporting period.

This identity requires that transactions, other economic flows, and stock positions be recorded consistently with regard to time of recording and valuation. The accounting rules governing these factors are described in Chapter 3.

8.3 Transactions can change stock positions of nonfinancial assets in different ways and all must be accounted for. The more important types of transactions follow:

- Existing assets of all types can be acquired from or disposed to other units by purchase/sale, barter, or transfer in kind.
- Newly produced fixed assets, inventories, and valuables can be sold or otherwise disposed of by their producers in the same manner as existing assets, or the producers can retain them for their own use.
- A government unit may produce goods and services for own use as fixed assets (i.e., own-account fixed capital formation). These transactions are classified as acquisitions of fixed assets (and shown as a memorandum item).
- Renovations, reconstructions, or enlargements that significantly increase the productive capacity or extend the service life of an existing fixed asset are classified as acquisitions of fixed assets even though physically they function as part of the existing asset. Land improvements are a separate category of fixed assets, distinct from the nonproduced land asset.

[1] With the exception of consumption of fixed capital, the same identity could be applied to financial assets and liabilities.

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- Consumption of fixed capital is an internal transaction that records the decrease in the value of fixed assets because they have been used repeatedly or continuously in production.
- Inventories can be acquired (additions) or disposed of (withdrawals) through internal transactions as well as transactions with other units. For example, withdrawals from inventories of materials and supplies for use in the production of general government services and transfers of completed production from work-in-progress inventories to inventories of finished goods are internal transactions. Recurrent losses and spoilage of goods held in inventories are also treated as internal transactions.

8.4 All transactions that increase a unit's holdings of nonfinancial assets are labeled acquisitions. With the exception of consumption of fixed capital, all transactions that decrease a unit's holdings of nonfinancial assets are labeled disposals. Thus, the results of transactions in a particular category of nonfinancial assets can be presented either as total acquisitions, total disposals, and consumption of fixed capital, or as *net investment in nonfinancial assets*.[2] The net investment in a nonfinancial asset is its acquisitions minus disposals minus consumption of fixed capital. The gross investment in a nonfinancial asset is its acquisitions minus disposals (i.e., consumption of fixed capital is not taken into account). On a cash basis, the purchases minus the sales of nonfinancial assets are referred to as the *net cash outflow from investment in nonfinancial assets*.

8.5 The remainder of this chapter first describes costs of ownership transfer, valuation, time of recording, consumption of fixed capital, and netting of transactions that affect nonfinancial assets and then provides details on the classification of transactions that affect specific categories of nonfinancial assets.

Costs of Ownership Transfer

8.6 Costs of ownership transfer are the costs associated with acquiring and disposing of nonfinancial assets (other than inventories[3]) and consist of:

- All professional charges or commissions incurred by both units acquiring or disposing of an asset, such as fees paid to lawyers, architects, surveyors, engineers, and valuers, and commissions paid to estate agents and auctioneers
- Any trade and transport costs separately invoiced to the purchaser
- All taxes payable by the unit acquiring the asset on the transfer of ownership of the asset
- Any tax payable on the disposal of an asset
- Any delivery and installation or disinstallation costs not included in the price of the asset being acquired or disposed of
- Any terminal costs[4] incurred at the end of an asset's life, such as those required to render the structure safe or to restore the environment in which it is situated.

8.7 The costs of ownership transfer on fixed assets, valuables, and nonproduced assets are treated as transactions in fixed assets. In particular, transactions in the:

- Costs of ownership transfer on fixed assets are recorded as transactions in the relevant fixed asset
- Costs of ownership transfer on valuables are recorded as transactions in *valuables* (312.1)
- Costs of ownership transfer on land are recorded, by convention, with *land improvements* (31114.1), a fixed asset
- Costs of ownership transfer on nonproduced assets other than land are recorded in fixed assets as transactions in *costs of ownership transfer on nonproduced assets other than land* (31133.1), as explained in paragraph 8.42; in the balance sheet, however, these costs of ownership transfer on nonproduced assets other than land are incorporated in the value of the asset to which they relate (see paragraph 3.111), even though the asset is nonproduced (i.e., there are no costs of ownership transfer on nonproduced assets other than land shown separately in the balance sheet).

[2] The net investment in inventories is referred to as "changes in inventories." Net investment in nonfinancial assets can be positive or negative.

[3] Usually, there are no costs of ownership transfer on inventories.

[4] In the case of some significantly large and important assets, such as oil rigs and nuclear power stations, there may also be major costs associated with the decommissioning of the asset at the end of its productive life. For some land sites, such as those used for landfill, there may be large costs associated with rehabilitation of the site. These are referred to collectively as terminal costs.

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8.8 Costs of ownership transfer are attributed to the purchaser or seller of the asset according to which unit bears the responsibility of meeting the costs. These costs of ownership transfer should be written off as consumption of fixed capital, as discussed in paragraph 6.60. Interest and other financing charges incurred in connection with a transaction are not costs of ownership transfer.

Valuation

8.9 General principles for valuation of transactions in assets and liabilities are discussed in paragraphs 3.108–3.112. Acquisitions and disposals of fixed assets and valuables are valued at market prices (i.e., exchange value plus costs of ownership transfer). Fixed assets acquired through barter or transfer in kind are valued at a market price-equivalent. Fixed assets produced for own-account capital formation or for transfers in kind are valued at their estimated market prices before adding any taxes less subsidies, transport, or distribution margins, or by their costs of production when satisfactory estimates of market prices cannot be made.[5]

8.10 Additions to and withdrawals from inventories are valued at market prices applicable at the time of the addition or withdrawal, which in the case of withdrawals may be quite different from their value when acquired.[6] No costs for installation or ownership transfer are added or subtracted for transactions in inventories.

8.11 Acquisitions and disposals of land are valued at their exchange value, and the costs of ownership transfer on land are included, by convention, with *land improvements* (311141.1). Acquisitions and disposals of nonproduced assets other than land are valued at their exchange value. The costs of ownership transfer on nonproduced assets other than land are recorded as a separate category of fixed assets, *costs of ownership transfer on nonproduced assets other than land* (31133.1), as explained in paragraph 8.42.

8.12 General government units may acquire or dispose of nonfinancial assets on a nonmarket basis as an element of their fiscal policy, either by purchasing an asset for more than its market value or by selling an asset for less than its market value. By their nature, such transactions involve a transfer component. If the asset's market value can be determined, then the transaction should be valued at that amount and a second transaction should be recorded as an expense to account for the transfer.[7] Usually, however, there is not an active market for the assets and it is difficult to estimate a market value. In this case, the value of the acquisition or disposal should be the amount of economic value exchanged, which could be in the form of ownership rights on physical objects (e.g., a dwelling) or intangible assets (e.g., a film original).

Time of Recording

8.13 As described in paragraph 3.62, on an accrual basis, transactions are recorded at the time economic value is created, transformed, exchanged, transferred, or extinguished. For transactions in nonfinancial assets, this time is when the economic ownership of the nonfinancial assets is obtained or relinquished. On a cash basis, transactions are recorded when cash payments are made.

8.14 Transactions (including by barter, payment in kind, or transfer in kind)[8] in nonfinancial assets are, in principle, recorded the moment when economic ownership changes, which often may depend on the provisions in the sales contract. When change of ownership is not obvious, the time of recording by the transaction partners[9] may be a good indication and, failing that, the moment when there is a change in physical possession or control.

8.15 The time of recording of the acquisition of a new nonfinancial asset depends on how the asset is acquired.

[5] In GFS, it is assumed that market prices of fixed assets constructed by general government units will not be known, and these values are calculated as the sum of expense on compensation of employees, use of goods and services, and the consumption of fixed capital used for own-account production of these assets. This treatment also applies to the production of valuables and major improvements to land when carried out on own account.

[6] Holding gains on inventories are discussed in paragraphs 10.16–10.17.

[7] The expense often will be a capital transfer to a market enterprise and classified as *capital transfers not elsewhere classified* (2822). It would be a capital grant if the recipient is a general government unit. For inventories, this type of transfer is a subsidy (see paragraph 6.91).

[8] These acquisitions and disposals are excluded from a pure cash basis of recording.

[9] To maintain symmetry in the macroeconomic system, the time of recording should be the same for both partners to the transaction.

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- If the asset is acquired from the producing unit as a finished good, then the timing is determined in the same manner as for the purchase of an existing asset—that is, when economic ownership changes hands. Typically, this time is not the time at which the asset was produced or the time at which it is put to use in production.
- When another unit produces buildings and structures under a contract of sale agreed in advance with the general government unit, and the production extends over more than one reporting period, then ownership of the structure is deemed to be transferred to the government unit as work proceeds; stage or progress payments may approximate the value of the transactions in fixed assets to be recorded.[10] In the absence of a contract of sale, the incomplete production each period is added to work in progress of the contractor (see also paragraph 7.37).
- When production is carried out on own account, there is no formal transfer of ownership. The producing unit effectively takes possession progressively as production proceeds, so that the asset is acquired as each transaction involved in its production is recorded. For example, if a government unit constructs a building using its own workforce, then each use of goods and services and work performed by employees is classified as an acquisition of the fixed asset as work takes place.

8.16 Consumption of fixed capital, in principle, should be recorded continuously throughout each reporting period. In practice, consumption of fixed capital can be computed only after the end of the reporting period because its value depends on the average price of the asset over the entire reporting period (see paragraphs 6.53–6.61).

8.17 Fixed assets acquired or disposed of by means of a financial lease are deemed to be acquired or disposed of when the lease is signed or economic control of the asset otherwise changes hands.

Consumption of Fixed Capital

8.18 Consumption of fixed capital is an internal transaction that reflects the fact that an institutional unit used up a portion of each of its fixed assets through its productive activities during the reporting period and the value of those assets declined correspondingly. As a result, *consumption of fixed capital* (23), which is recorded as an expense, is also recorded as a transaction that reduces the value of the respective category of fixed asset, so that there is no impact on expenditure nor net lending/net borrowing (see paragraph 4.20). The recording of consumption of fixed capital is discussed in detail in paragraphs 6.53–6.61 and Box 6.1.

Netting of Transactions

8.19 It is recommended that transactions in nonfinancial assets other than inventories be presented as acquisitions, disposals, and consumption of fixed capital, as indicated in Table 8.1. The net investment in a category of nonfinancial assets is computed as acquisitions minus disposals minus consumption of fixed capital.

8.20 Acquisitions of, use of, and disposals of inventories should be netted because the separate data for acquisitions and disposals are not economically meaningful. In addition, as a matter of practice, it is often impossible to estimate individual transactions in inventories (see paragraphs 8.44–8.47). Inventories are not subject to consumption of fixed capital.

Classification and Recording of Transactions in Nonfinancial Assets

8.21 The classification of transactions in nonfinancial assets is shown in Table 8.1. The table summarizes transactions in nonfinancial assets as acquisitions, disposals, and consumption of fixed capital.

8.22 The classification of transactions in nonfinancial assets is identical to the classification of stock positions in nonfinancial assets employed in Chapter 7 (Table 7.2). Chapter 7 also provides full definitions of the assets included in each category, and those definitions are not repeated here. This chapter provides guidance applicable to transactions affecting all or most categories of nonfinancial assets. The remainder of this section provides guidance only on those transactions for which the general guidance may not be sufficient.

8.23 In addition to the classification of transactions in nonfinancial assets described in this chapter, the Classification of the Functions of Government (COFOG) can also be applied to the acquisitions

[10] A transaction in other accounts receivable/payable is recorded if the value of the stage payment exceeds the value of the work put in place. As work proceeds, an acquisition of fixed assets is recorded by the final owner until the other accounts receivable/payable are exhausted.

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Table 8.1 Classification of Transactions in Nonfinancial Assets

	Acquisitions of	Disposals of	Consumption of fixed capital[1]	Net investment in nonfinancial assets
Nonfinancial assets	**31.1**	**31.2**	**31.3 = 23**	**31**
Fixed assets	**311.1**	**311.2**	**311.3**	**311**
Buildings and structures	3111.1	3111.2	3111.3	3111
Dwellings	31111.1	31111.2	31111.3	31111
Buildings other than dwellings	31112.1	31112.2	31112.3	31112
Other structures	31113.1	31113.2	31113.3	31113
Land improvements	31114.1	31114.2	31114.3	31114
Machinery and equipment	3112.1	3112.2	3112.3	3112
Transport equipment	31121.1	31121.2	31121.3	31121
Other machinery and equipment	31122.1	31122.2	31122.3	31122
Information, computer, and telecommunication (ICT) equipment	311221.1	311221.2	311221.3	311221
Machinery and equipment not elsewhere classified	311222.1	311222.2	311222.3	311222
Other fixed assets	3113.1	3113.2	3113.3	3113
Cultivated biological resources	31131.1	31131.2	31131.3	31131
Animal resources yielding repeat products	311311.1	311311.2	311311.3	311311
Tree, crop, and plant resources yielding repeat products	311312.1	311312.2	311312.3	311312
Intellectual property products	31132.1	31132.2	31132.3	31132
Research and development	311321.1	311321.2	311321.3	311321
Mineral exploration and evaluation	311322.1	311322.2	311322.3	311322
Computer software and databases	311323.1	311323.2	311323.3	311323
Computer software	3113231.1	3113231.2	3113231.3	3113231
Databases	3113232.1	3113232.2	3113232.3	3113232
Entertainment, literary, and artistic originals	311324.1	311324.2	311324.3	311324
Other intellectual and property products	311325.1	311325.2	311325.3	311325
Costs of ownership transfer on nonproduced assets other than land	31133.1	31133.2	31133.3	31133
Weapons systems	3114.1	3114.2	3114.3	3114
Inventories[2]				**312**
Materials and supplies				31221
Work in progress				31222
Finished goods				31223
Goods for resale				31224
Military inventories				31225
Valuables	**313.1**	**313.2**		**313**
Nonproduced assets	**314.1**	**314.2**		**314**
Land	3141.1	3141.2		3141
Mineral and energy resources	3142.1	3142.2		3142
Other naturally occurring assets	3143.1	3143.2		3143
Noncultivated biological resources	31431.1	31431.2		31431
Water resources	31432.1	31432.2		31432
Other natural resources	31433.1	31433.2		31433
Radio spectra	314331.1	314331.2		314331
Natural resources not elsewhere classified	314332.1	314332.2		314332

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Table 8.1 Classification of Transactions in Nonfinancial Assets *(concluded)*

	Acquisitions of	Disposals of	Consumption of fixed capital[1]	Net investment in nonfinancial assets
Intangible nonproduced assets	3144.1	3144.2		3144
Contracts, leases, and licenses	31441.1	31441.2		31441
Marketable operating leases	314411.1	314411.2		314411
Permits to use natural resources	314412.1	314412.2		314412
Permits to undertake specific activities	314413.1	314413.2		314413
Entitlement to future goods and services on an exclusive basis	314414.1	314414.2		314414
Goodwill and marketing assets	31442.1	31442.2		31442
Memorandum items				
Own-account capital formation				3M1
Compensation of employees				3M11
Use of goods and services				3M12
Consumption of fixed capital				3M13
Other taxes on production minus other subsidies on production				3M14

[1]Consumption of fixed capital is not recorded for inventories. It is recorded for nonproduced assets only to the extent of *costs of ownership transfer on nonproduced assets other than land* (a fixed asset). For land, the costs of ownership transfer are included, by convention, with *land improvements* (a fixed asset).

[2]In GFS, only the net changes in inventories resulting from transactions are recorded, but gross acquisitions and disposals may be recorded, if needed.

minus disposals of these assets. COFOG is described in the annex to Chapter 6.

Fixed Assets (311)[11]

8.24 The cost of acquisition of assets from third parties is determined by the market price of the transactions. Government or public sector units can also incur costs associated with the production or the maintenance of fixed assets. To determine the amount of these costs that should be recorded as the value of own-account production of fixed assets during the reporting period, a distinction between major improvements of assets and maintenance of assets is necessary. The section on Fixed Assets first describes how to distinguish transactions that should be recorded as acquisitions of fixed assets from transactions that should be recorded as expense related to maintenance. The recording of transactions in specific categories of assets follows.

Major improvements versus maintenance and repair

8.25 Major improvements (such as renovations, reconstructions, and enlargements) to existing assets that increase their productive capacity, extend their service lives, or both, are classified as acquisitions of fixed assets. On the other hand, maintenance and repair of fixed assets constitute an expense classified as the *use of goods and services* (22) (as mentioned in paragraph 6.45). By definition, however, major improvements do not lead to the creation of new assets that can be separately identified and valued. Instead, the value of such an improvement is added to the value of the existing underlying asset.

8.26 Although the distinction is not clear-cut, major improvements to assets are distinguished from maintenance and repairs by the following features:

- The decision to renovate, reconstruct, or enlarge an asset is a deliberate investment decision that may be undertaken at any time and is not dictated by the condition of the asset. Major renovations of ships, buildings, or other structures are frequently undertaken well before the end of their normal service lives.
- The major renovations, reconstructions, or enlargements increase the performance or capacity of existing assets or significantly extend their previously expected service lives. Enlarging or extending an existing road, building, or structure constitutes a major change in this sense, but a complete refitting or restructuring of the interior of a building also qualifies.

[11]The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in GFS.

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8.27 Maintenance and repairs are distinguished by two features:

- They are activities that owners or users of assets are obliged to undertake periodically in order to be able to utilize such assets over their expected service lives. They are current costs that cannot be avoided if the fixed assets are to continue to be used. The owner or user cannot afford to neglect maintenance and repairs as the expected service life may be drastically shortened otherwise.
- They do not change the fixed asset or its performance, but simply maintain it in good working order or restore it to its previous condition in the event of a breakdown. Defective parts are replaced by new parts of the same kind without changing the basic nature of the fixed asset.

Buildings and structures (3111)

8.28 In addition to the transactions reflecting the acquisition of newly constructed buildings and structures, acquisitions of buildings and structures include all amounts payable for site clearance and preparation and the cost of all fixtures, facilities, and equipment that are integral parts of buildings and structures.

8.29 Certain structures, such as buildings, roads, and bridges, may be produced for communal use by groups of households. After the construction is completed, the ownership of such structures may then be transferred to a general government unit that will assume responsibility for their maintenance. When the transfer occurs, an acquisition of a structure is recorded together with the receipt of a capital transfer in kind.

8.30 The construction of new public monuments, as well as major improvements to existing public monuments, constitutes an acquisition of buildings and structures, either as *dwellings* (31111), *buildings other than dwellings* (31112), or *other structures* (31113), as explained in paragraphs 7.42–7.43.[12] However, when the special archaeological, historical, or cultural significance of a structure or site not already recorded in the balance sheet is first recognized, it is recorded as an other change in the volume of assets, as explained in paragraph 10.50.

8.31 The costs of *land improvements* (31114) are recorded as transactions and, in subsequent periods, transactions in *consumption of fixed capital* (23) are recorded, based on the service life of the improvement. Any excess in the increase in the value of the land over the value of land improvements or any increase in price levels due to adjacent capital activity is recorded as holding gains. Other changes in the volume of assets (economic appearance) of the nonproduced asset *land* (5141) should be recorded when adjacent activities bring land into the asset boundary (see paragraph 10.52).

8.32 Acquisitions of tunnels and other structures associated with the mining of mineral deposits are classified as acquisitions of structures and not as improvements to land. These assets are used separately from the land through which they are drilled or bored. The costs of ownership transfer on land are included, by convention, with land improvements, and these costs are written off over the period the owner expects to own the land.

Machinery and equipment (3112)

8.33 The determination of which goods should be classified as machinery and equipment is normally straightforward. However, as explained in paragraphs 6.43 and 7.40, some flexibility may be needed in the recording of small/hand tools.

Other fixed assets (3113)

Cultivated biological resources (31131)

8.34 As explained in paragraphs 7.59–7.63, cultivated biological resources comprise *animal resources yielding repeat products* (311311) and *tree, crop, and plant resources yielding repeat products* (311312). Acquisitions of cultivated biological resources include acquisitions from other units of plants and animals that are cultivated for the products they yield year after year and the value of similar plants and animals produced on own account.[13] Disposals consist of animals and plants sold or otherwise disposed of, including animals sold for slaughter or slaughtered by their owners and plants cut down before the end of their service lives. Disposals do not include exceptional losses of animals and plants due to major outbreaks of disease, contamination, drought, famine, or other natural disasters, which are recorded as

[12] Consumption of fixed capital on new public monuments as well as major improvements to existing public monuments should be calculated on the assumption of appropriately long service lives.

[13] Plants and animals grown for a single use, such as animals grown for slaughter and trees grown for timber, are treated as inventories rather than fixed assets (see paragraphs 7.60–7.61).

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other changes in the volume of assets. Consumption of fixed capital on these resources includes incidental losses of animals and plants from natural causes, as well as the decline in an animal's or plant's value as it gets older.

8.35 The net investment in livestock that are cultivated for the products they yield year after year (e.g., dairy cattle) is equal to the total value of all mature animals and immature animals produced on own account or acquired by users of the livestock minus the value of their disposals minus consumption of fixed capital.

8.36 The net investment in plantations, orchards, etc. is equal to the value of the acquisitions of mature trees, shrubs, etc. (including immature trees, shrubs, etc. produced on own account) minus their disposals minus consumption of fixed capital. The value of immature trees, shrubs, etc. may be approximated, if necessary, by the value of accumulated costs incurred in their production.

Intellectual property products (31132)

8.37 As explained in paragraphs 7.64–7.73, intellectual property products comprise:

- *Research and development* (311321)
- *Mineral exploration and evaluation* (311322)
- *Computer software and databases* (311323)
- *Entertainment, literary, and artistic originals* (311324)
- *Other intellectual and property products* (311325).

8.38 The value of expenditure on *research and development* (311321) should be determined in terms of the economic benefits it is expected to provide in the future. It is treated as an asset except in cases where it is clear that the activity does not entail any economic benefits for its owner (see paragraphs 7.66–7.67).

8.39 As mentioned in paragraph 7.68, expenditure incurred on exploration is classified as the acquisition of *mineral exploration and evaluation* (311322). Mineral exploration expenditure includes the costs of actual test drillings and borings and all other costs incurred to make it possible to carry out the tests, such as prelicense, license, acquisition, and appraisal costs, the costs of aerial and other surveys, and transportation and other costs incurred to make the exploration possible. Consumption of fixed capital may be calculated for such assets by using average service lives similar to those used by mining or oil corporations in their own accounts.

8.40 *Computer software and databases* (311323) include acquisitions of computer software that comprise programs, program descriptions, and supporting materials for both systems and applications software that are expected to be used for more than one year. The net investment in nonfinancial assets in the form of computer software includes both the initial development and subsequent extensions of software, as well as acquisition of copies that are classified as assets. Software developed in-house is valued at its cost of production. This category also includes the purchase, development, or extension of large databases that the unit expects to use for more than one year. When a database is created, its value will generally have to be estimated by a sum-of-costs approach. These costs include the cost of preparing data in the appropriate format, staff time estimated on the basis of the amount of time spent in developing the database, and costs of items included as use of goods and services.[14] Not included are the cost of the database management system and the cost of acquiring or producing the data. Transactions in databases sold should be valued at their market price, which includes the value of the information content. If the value of a software component in a database that is sold is available separately, it should be recorded as the sale of software.

8.41 The production of new *entertainment, literary, and artistic originals* (311324) is recorded at their current market price when they are actually traded. However, this asset category is often undertaken on own account. Subsequently, they may be sold outright or by means of licenses. When produced on own account, it may be difficult to establish their market value, which depends on the present value of the future benefits the owner expects to derive from their use. In the absence of information, it may be necessary to value the acquisition of the original by its cost of production.

[14] If the database is created in-house, compensation of employees and use of goods and services related to this own-account capital formation are excluded from *compensation of employees* (21) and *use of goods and services* (22).

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Costs of ownership transfer on nonproduced assets other than land (31133)

8.42 Transactions in the costs of ownership transfer on nonproduced assets[15] other than land are treated as transactions in fixed assets because these costs are considered a produced asset. The costs of ownership transfer on nonproduced assets other than land are subject to consumption of fixed capital, which is also included in this category. However, in the balance sheet, these costs of ownership transfer, as well as the consumption of fixed capital on these costs, are reflected in the value of the respective nonproduced assets. The additional entries necessary for this treatment are discussed in paragraph 10.83. The treatment of costs of ownership transfer on nonproduced assets is illustrated in Figure 8.1.

Weapons systems (3114)

8.43 The acquisitions and disposals of weapons systems that meet the general definition of assets include vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. The acquisitions of most single-use weapons they deliver, such as ammunition, missiles, rockets, bombs, etc., are classified as transactions in military inventories and their use as withdrawals from military inventories. However, some single-use items, such as certain types of ballistic missile with a highly destructive capability, may be classified as fixed assets (see paragraph 7.74).

Inventories (312)

8.44 In principle, **net investment in inventories** (change in inventories) is measured by the value of the additions to inventories minus the value of withdrawals from inventories minus the value of any recurrent losses of goods held in inventories during the reporting period.[16] In general, additions to and withdrawals from inventories should be recorded according to the same principles used for recording transactions in other nonfinancial assets. Additions to inventories are recorded when products are purchased, produced, or otherwise acquired, and withdrawals from inventories are recorded when products are sold, used up in production, transferred to a different category of inventories, or otherwise relinquished.

8.45 In contrast to other nonfinancial assets, however, no costs of ownership transfer are included in the values of additions to or withdrawals from inventories, and no consumption of fixed capital is attributed to inventories, as indicated by the shaded area in Table 8.1. Further, only the net value of additions minus withdrawals of inventories is usually estimated rather than separate, gross values for additions and withdrawals, unlike for other nonfinancial assets. This estimate of the changes in inventories is used in the formula to determine an estimate of expense in the form of *use of goods and services* (22), as explained in paragraph 6.29.

8.46 To understand the various transactions in inventories, it is useful to distinguish between two functions performed by a unit: its function as a producer of goods and services and its function as an owner of assets. When a good is entered into inventories, it is acquired as an asset by the unit in its capacity as owner either by purchase (or barter) or by an internal transaction with itself as the producer. Conversely, a good leaving inventories represents the disposal of an asset by the owner either by sale or other use, by an internal transfer to the producer, or possibly as a result of recurrent losses (recurrent wastage, accidental damage, or pilfering).

8.47 Many transactions in inventories (i.e., additions to and withdrawals from) are purchases from or distributions to other units, but other acquisitions and disposals reflect internal transactions. All additions to and withdrawals from inventories, such as for use of goods or investment in fixed assets, should be valued at current market prices. Because of the continuous or frequent withdrawals from materials and supplies inventories and the additions to and withdrawals from work-in-progress inventories, information is usually not available to record these internal transactions accurately, and estimates may be necessary.

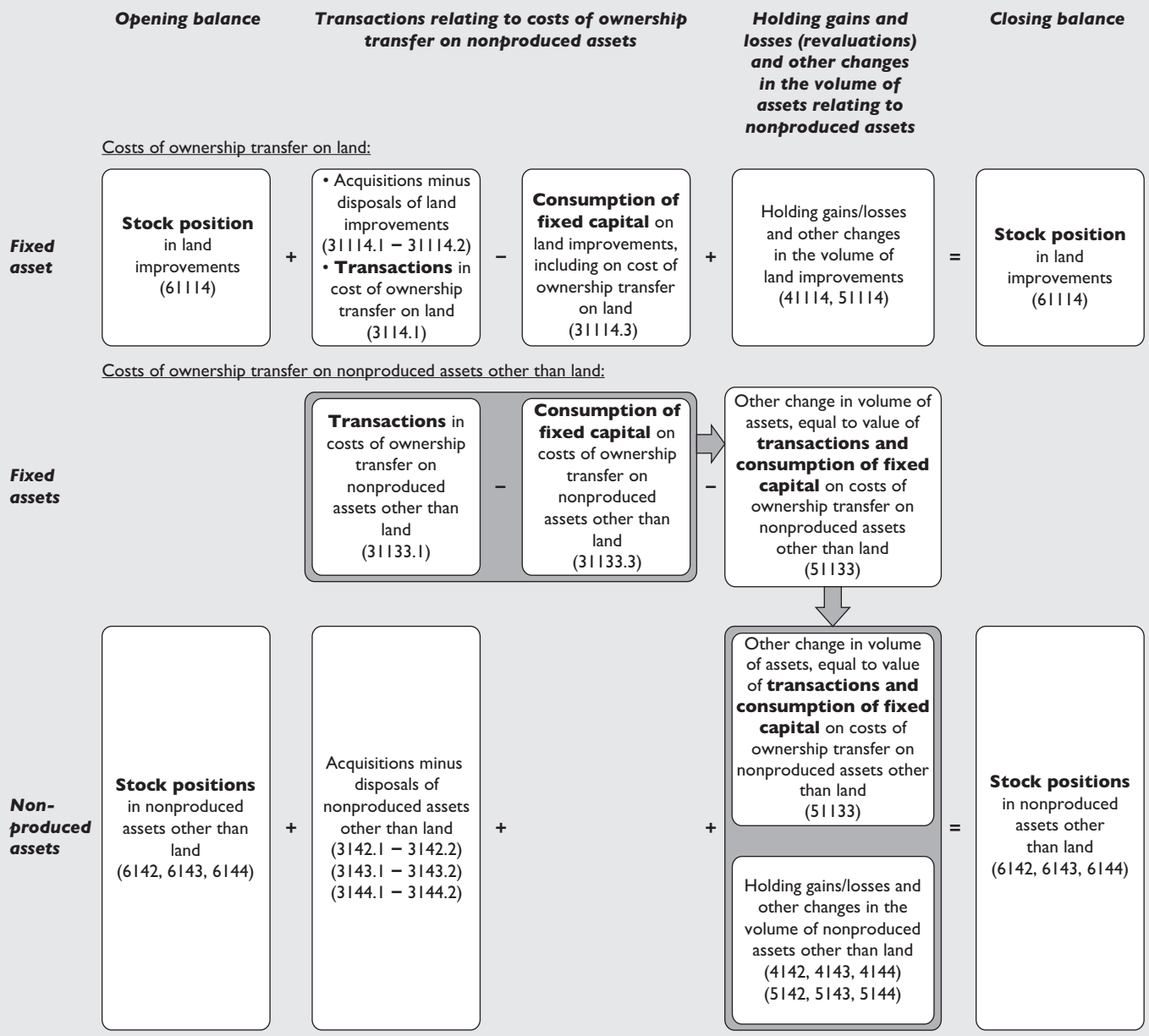
- When *materials and supplies* (31221) are transferred to a production process, a transaction is recorded for the withdrawal, which is balanced by an addition either to *work-in-progress inventories* (31222), *use of goods and services* (22), or, in the case of own-account capital formation, a

[15] Transactions in nonproduced assets are discussed in paragraphs 8.49–8.58.

[16] These changes in inventories are as a result of transactions. The value of the stock of inventories may also change due to other economic flows.

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Figure 8.1 Illustrating the Treatment of Costs of Ownership Transfer on Nonproduced Assets



- Costs of ownership transfer on land are, by convention, included with land improvements. This applies to the transactions as well as the stock position of land improvements.
- There are no stock positions in costs of ownership transfer on nonproduced assets other than land shown separately in the balance sheet. These costs are included with the respective nonproduced assets in the balance sheet.
- Transactions in the costs of ownership transfer on nonproduced assets other than land are recorded as part of fixed assets.
- Costs of ownership transfer on nonproduced assets (and on produced assets other than inventories—which are not shown in this example) are subject to consumption of fixed capital over the period the owner expects to hold the asset.
- Costs of ownership transfer on nonproduced assets other than land and consumption of fixed capital on these costs are reclassified, through other changes in the volume of assets, to the respective nonproduced assets to maintain the integration of stock positions and flows. These reclassifications are considered to take place at the time of recording the transactions. The costs of ownership transfer on land, which are included with land improvements, are not reclassified to land and remain part of the stock of land improvements.

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specific fixed asset or possibly *valuables* (313). In other words, the balancing entry depends on the nature of the production process. The acquisition of gold, diamonds, etc. intended for use in production is recorded under *materials and supplies* (31221), but the acquisition of the same items to hold as a store of value is recorded under *valuables* (313).

- Transactions that add to *work-in-progress inventories* (31222) are, in principle, recorded continuously as production takes place. The counterpart transactions are reduction in other assets, such as *materials and supplies*, and the other costs incurred in production.[17] When production is completed, all work in progress is reclassified as *finished goods* (31223). This reclassification is recorded as other changes in the volume of assets under the respective subcategories of inventories. Withdrawals of *work-in-progress inventories* (31222) should be valued at their cost of production, where all inputs are valued at their current market prices at the time of withdrawal rather than the prices paid for them. The difference between the prices payable for the inputs and their current market prices is a holding gain or loss. The ownership of work-in-progress inventories is transferable, if necessary. For example, it may be sold under exceptional circumstances, such as the liquidation of a public corporation.
- Work-in-progress inventories should be recorded for single-use cultivated biological resources. Any cultivation of resources with repeat yields, other than on own account or under an agreed contract with another unit, is also included in work-in-progress inventories. However, repeat-yield resources, being cultivated on own account or under an agreed contract with another unit, are recorded as the acquisition of fixed assets.
- A good is finished when its producer has completed its intended production process and such inventories of *finished goods* (31223) may be held only by the units that produce them. When finished goods are sold or otherwise disposed of (e.g., as compensation of employees in kind or social benefits in kind), a transaction must be recorded to reduce inventories of *finished goods* (31223), which is balanced by an increase in *use of goods and services* (22). The distribution of finished goods as compensation of employees in kind or social benefits in kind is always recorded as *use of goods and services* (22) by the unit that produced these goods (see paragraph 6.39).
- Finished goods entering inventories are valued at the prices of those goods before adding any taxes, transport, or distribution margins, at the times the entries take place; finished goods withdrawn from inventories are valued at the prices before adding any taxes, transport, or distribution margins, at the time when their withdrawals take place. The difference between the "entering" and "withdrawal" values of finished goods is a holding gain or loss.
- When goods held as *goods for resale* (31224) are sold or otherwise disposed of, two transactions are recorded. First, reduce inventories of *goods for resale* (31224) and record a counterpart transaction in expense, recorded as *use of goods and services* (22) expense at the purchase price. Second, record (at the sale price) a *sales of goods and services* (142), which is balanced by either an increase in *currency and deposits* (3302) or *other accounts receivable* (3308). The difference between the value recorded as sales of goods and services and use of goods and services is reflected in the *net operating balance* (NOB). By convention, goods acquired by government for distribution as social transfers in kind or other transfers in kind but that have not yet been so delivered are also included in goods for resale. The distribution of such goods is recorded as a reduction in inventories of *goods for resale* (31224), and an increase in *subsidies* (25), *grants* (26), *social benefits* (27), or *current transfers not elsewhere classified* (2821).
- Goods for resale added to inventories are valued at their actual or estimated purchase prices, including any transportation charges paid to other units but not the costs of any transport services produced on own account by the unit taking delivery. In principle, goods acquired by barter are valued at their estimated purchasers' prices at the time of acquisition. However, because there are no taxes or margins on bartered goods, the purchaser's price is the same as the basic price.

[17] As explained in paragraph 6.27, an adjustment is made to *use of goods and services* (22) to account for those items used to produce nonfinancial assets, such as work-in-progress inventories.

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Goods for resale withdrawn from inventories are valued similarly at the purchase prices at which they can be replaced when they are withdrawn, which may differ from the prices that were paid to acquire them and the prices for which they were sold.[18] Reductions in inventories are valued in this way whether the goods withdrawn are sold at a profit or at a loss, or even not sold at all as a result of physical deterioration, recurrent accidental damage, or pilfering.

- When *military inventories* (31225) are used or otherwise disposed of, their cost is recorded as *use of goods and services* (22) expense. A counterpart transaction is recorded as the withdrawal of *military inventories* (31225). Additions and withdrawals of military inventories are valued in a manner similar to finished goods or goods for resale, depending on how they were acquired.
- Recurrent losses of inventories resulting from physical deterioration, normal accidental damage, or pilfering should be treated as withdrawals in the same way as inventories withdrawn on purpose. In practice, determining the time of recording may be difficult because the time at which the inventories were stolen or spoiled may be unknown. Exceptional inventory losses are included as other changes in the volume of assets (see paragraph 10.70).

Valuables (313)

8.48 Acquisitions of valuables are valued at the prices payable plus any associated costs of ownership transfer incurred by the units acquiring the assets. Disposals are valued at the sales price minus any associated costs of ownership transfer incurred by the units disposing of the assets. Costs of ownership transfer may be significant for the services of appraisers, auctioneers, and dealers. Units fulfilling some functions of the monetary authority may have transactions in both monetary and nonmonetary gold, and care needs to be taken to classify them correctly and to record the other changes in the volume of assets needed to transfer gold from one category to the other.

Nonproduced Assets (314)

8.49 Transactions reflecting a change in the ownership of nonproduced assets should be recorded in the same manner as transactions in existing fixed assets. The recording of the costs of ownership transfer on nonproduced assets other than land and the consumption of fixed capital on these costs are discussed in paragraphs 8.42 and 10.83.

Land (3141)

8.50 Purchases and sales of land exclude the costs of ownership transfer on land for both buyers and sellers. These costs are, by convention, included in *land improvements* (31114). Actions that lead to major improvements in the quantity, quality, or productivity of land, or prevent its deterioration (such as land clearance,[19] land contouring, creation of wells and watering holes that are integral to the land in question, etc.), are also treated as resulting in *land improvements* (31114), not the acquisition of *land* (3141). When a government unit acquires land that is physically located in a foreign country (for use as an embassy, base, or other territorial enclave), the transaction converts the land into part of the economic territory of the country of the acquiring government and, therefore, it enters the balance sheet by means of a transaction (i.e., the acquisition of a nonfinancial asset).

8.51 Buildings, or other structures, and plantations are often purchased or sold together with the land on which they are situated, without separate valuations being placed on the structures and the land. Even if it is not feasible to obtain separate valuations, as may be the case for existing structures, it may be possible to determine whether the land or the structure accounts for most of their combined value and to classify the transaction as the purchase of land or of a structure, depending upon which has the greater value. If it is not possible to determine whether the land or the structure is the more valuable, by convention, the transaction should be classified as the purchase of a structure (i.e., as the acquisition of a fixed asset in the form of *buildings and structures* (3111)). A similar convention holds for plantations. In most

[18] The difference between the price at which goods for resale is added to inventories and the price at which it is withdrawn is a holding gain or loss.

[19] Costs relating to site clearance and preparation of land for purposes of construction are excluded; these are classified as the acquisition of buildings and other structures.

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cases, subsoil assets may be owned separately from the land and separate valuations should be estimated if possible. On the other hand, the law may stipulate that the ownership of the subsoil assets is inseparably linked to that of the land. For a financial lease of a building or plantation on the land when the assets are inseparable, see paragraph 7.95.

8.52 When governments acquire land (or other assets) under a compulsory sale by the owners, any difference between the market value of the assets acquired and any compensation provided is recorded as other changes in the volume of assets, in the form of an uncompensated seizure (see paragraph 10.62).

8.53 There is no consumption of fixed capital on land, but there are transactions in consumption of fixed capital on *land improvements* (31114) and costs of ownership transfer on land (which are included in land improvements).

Mineral and energy resources (3142)

8.54 Transactions *in mineral and energy resources* (3142) refer to acquisitions or disposals of deposits of mineral and energy resources in which the ownership of such assets passes from one institutional unit to another. Reductions in the value of known reserves of mineral and energy resources resulting from their depletion as a result of extracting the assets for purposes of production are not transactions but other changes in the volume of assets, as described in paragraph 10.52. Similarly, increases in the values resulting from discoveries are treated as other changes in the volume of assets. Decreases arising from reappraisals are also recorded as other changes in the volume of assets. The transactions in *mineral and energy resources* refer only to those mineral and energy resources over which ownership rights have been established.

Other naturally occurring assets (3143)

8.55 Transactions in noncultivated biological resources, water resources, and other natural resources relate to acquisitions or disposals of deposits of these resources in which the economic ownership of such assets passes from one institutional unit to another. Similar to mineral and energy resources, depletion of noncultivated biological resources, water resources, or other natural resources, because a portion of the asset has been extracted, is recorded as other changes in the volume of assets, as described in paragraph 10.52, and not as a transaction in nonfinancial assets.

Intangible nonproduced assets (3144)

8.56 As explained in paragraphs 7.104–7.117, intangible nonproduced assets consist of *contracts, leases, and licenses* (31441) and *goodwill and marketing assets* (31442).

8.57 Contracts, leases, and licenses may be marketable operating leases, licenses to use natural resources, permits to undertake specific activities and entitlement to future goods and services on an exclusive basis. The specific stocks and flows involved with contracts, leases, and licenses are discussed in Appendix 4.

8.58 As explained in paragraphs 7.113–7.117, goodwill is recorded in GFS only when its value is evidenced by a market transaction, usually the sale/purchase of the whole corporation. The amortization of goodwill and marketing assets or other intangible nonproduced assets is an other economic flow rather than a transaction (see paragraph 10.55).

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9 Transactions in Financial Assets and Liabilities

This chapter describes transactions in financial assets and liabilities and their classification.

Introduction

9.1 Chapter 7 describes the balance sheet and the assets and liabilities recorded on it. As an integrated framework, GFS also include the flows necessary to explain all changes between the balance sheet at the beginning of the period and the balance sheet at the end of the reporting period. As described in Chapter 3, there are two types of flows—transactions and other economic flows—both of which can affect stock positions of assets and liabilities. This chapter describes the transactions that affect stock positions of financial assets and liabilities, and Chapter 10 describes other economic flows.

9.2 The accounting identity given in paragraph 8.2 for nonfinancial assets also holds for financial assets and liabilities.[1] The identity states that:

> The value of a category of financial assets (liabilities) on the balance sheet at the beginning of the reporting period
>
> *plus*
>
> The total value of that category of financial assets (liabilities) acquired (incurred) in transactions during the reporting period
>
> *minus*
>
> The total value of that category of financial assets (liabilities) disposed of (extinguished) in transactions during the reporting period
>
> *plus*
>
> The net value of other economic flows that affect that category of financial assets (liabilities)
>
> *equals*
>
> The value of the category of financial assets (liabilities) on the balance sheet at the end of the reporting period.

This identity requires that transactions, other economic flows, and stock positions be recorded consistently with regard to classification, time of recording, and valuation. The accounting rules governing these factors are described in Chapter 3.

9.3 Transactions can change stock positions of financial assets or liabilities in different ways and all must be accounted for. The more important types of transactions follow:

- Transactions involving revenue, expense, the transfer of economic ownership of a good or nonfinancial asset, or the provision of a service or labor almost always entail a counterpart entry in transactions in financial assets and liabilities for means of payment or claims on future means of payment. Even many transactions in kind, such as barter transactions and remuneration in kind, could conceptually lead to counterpart transactions in financial assets (*other accounts receivable*) and/or liabilities (*other accounts payable*) when the timing of the exchange does not coincide. The sale of a good, service, or asset may have as its counterpart a change in currency or transferable deposit. Alternatively, the counterpart may be reflected as another type of financial asset or liability, such as other accounts receivable or payable.
- New financial claims are often created by transactions in which a creditor advances funds to a debtor. The creditor then acquires a financial asset and the debtor incurs a liability.
- Some transactions in financial assets and liabilities are simply exchanges of financial instruments.

[1] For ease of expression, assets will often be used as a reference to both assets and liabilities.

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- Financial claims are normally terminated by transactions. In some cases, the debtor pays the creditor the funds stipulated by the financial instrument, thereby terminating the claim. In other cases, the debtor buys its own instrument in the market.
- Accrued interest is deemed to be reinvested in an additional quantity of the underlying financial instrument by means of a transaction.
- The trading and settlement of financial derivative contracts.

9.4 All transactions that increase a unit's holdings of assets are labeled acquisitions. All transactions that decrease a unit's holdings of assets are labeled disposals. Transactions that increase liabilities are referred to as the incurrence of a liability. Transactions that decrease liabilities are variously titled repayments, reductions, withdrawals, redemptions, liquidations, or extinguishments. Thus, the results of transactions in a particular category of financial assets can be presented either as total acquisitions and total disposals or as net acquisitions. Similarly, changes in liabilities can be presented as total incurrences and total reductions or as net incurrences. Transactions that change a category of financial assets are never combined with transactions that change the same category of liabilities. That is, in GFS, the net acquisition of loans is not presented as the increase in loans held as financial assets minus the increase of loans as liabilities (also see paragraph 9.17).

9.5 As explained in paragraph 4.17, the *net operating balance* minus the *net investment in nonfinancial assets* equals *net lending (+) / net borrowing (–)*. If the operating balance is not exhausted by the net investment in nonfinancial assets, the resulting surplus is called *net lending* (+). Alternatively, if the net operating balance is not sufficient to cover the net accumulation of nonfinancial assets, the resulting deficit is called *net borrowing* (–). Transactions in financial assets and liabilities explain how net lending/net borrowing is financed by means of changes in holdings of financial assets and liabilities—that is, total financing. In other words, the net acquisition of financial assets minus the net incurrence of liabilities is conceptually equal to net lending/net borrowing.

9.6 The remainder of this chapter describes first the valuation, time of recording, netting, and consolidation of transactions that affect financial assets and liabilities. It then provides details on transactions that affect specific categories of financial assets and liabilities. The classification of transactions in financial assets and liabilities by residence and sector of the counterparty is also discussed.

Valuation

9.7 The value of an acquisition or disposal of an existing financial asset or liability is its exchange value—that is, the current market price. The value of a newly created financial claim is generally the amount advanced by a creditor to a debtor.

9.8 All service charges, fees, commissions, and similar payments for services provided in carrying out transactions and any taxes payable on transactions are excluded from transactions in financial assets and liabilities. They are expense transactions classified as *use of goods and services* (22). In particular, when new securities are marketed by underwriters or other intermediaries as agents for the unit issuing the securities, the securities should be valued at the price payable by the purchasers. The difference between that price and the amount receivable by the issuing unit is a payment for the services of the underwriters. When dealers have a margin between their buying and selling prices, the buyer and seller record transactions in financial assets and liabilities at the same mid-price—that is, the midpoint between the buyer's price and the seller's price.

9.9 When a security is issued at a discount or premium relative to its contractual redemption value, the transaction should be valued at the amount actually payable for the asset and not the redemption value. Any interest that is prepaid jointly with the acquisition of a security should be treated as accrued interest that had been reinvested in an additional quantity of the security. In this case, the value of the acquisition is the sum of the amount paid for the security directly plus the amount prepaid for accrued interest. When issued at a premium, the difference between the redemption and issue price is amortized over the life of the instrument and reduces (rather than increases) the amount of interest accruing in each period.

9.10 In some cases, the value of a financial asset is determined by the value of the counterpart item to the transaction. For example, the initial value of a loan

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resulting from a financial lease is usually the value of the nonfinancial asset leased (if no initial down payments or fees are involved). The value of other accounts payable resulting from the purchase of goods or services is the value of the goods acquired or services received.

9.11 As mentioned in paragraph 3.119, the value of a transaction expressed in a foreign currency is converted to the domestic currency using the midpoint of the buying and selling exchange rates at the time of the transaction.[2] If a transaction expressed in a foreign currency involves the creation of a financial asset or liability, such as other accounts receivable/payable, and is followed by a second transaction in the same foreign currency that extinguishes the financial asset or liability, then both transactions are valued at the exchange rates effective when each takes place.

9.12 Government units or public corporations may acquire or dispose of financial assets on a nonmarket basis as an element of their fiscal policy rather than as a part of their liquidity management. For example, they may lend money at a below-market interest rate or purchase shares of a corporation at an inflated price. It is generally accepted that concessional loans occur when units lend to other units and the contractual interest rate is intentionally set below the market interest rate that would otherwise apply. The degree of concessionality can also be enhanced with grace periods[3] and frequencies of payments and maturity periods favorable to the debtor. Since the terms of a concessional loan are more favorable to the debtor than market conditions would otherwise permit, concessional loans effectively include a transfer from the creditor to the debtor. However, the means of incorporating the transfer impact within the SNA and other macroeconomic statistics have not been fully developed, although various alternatives have been advanced. Accordingly, until the appropriate treatment of concessional debt is agreed, information on concessional debt should be provided in supplementary tables, and in the memorandum items *concessional loans at nominal value* (6M391) and *implicit transfers resulting from loans at concessional interest rates* (6M392), discussed in paragraph 7.246.

Time of Recording

9.13 On an accrual basis, transactions in financial assets and liabilities are recorded when economic ownership of the asset changes—that is, when the asset is created or liquidated—and when the addition or reduction in the amount of the financial instrument occurs, such as the accrual of interest and subsequent reduction when debt service payments are made.[4] This time is usually clear when the transaction involves an exchange of existing financial assets or the simultaneous creation or extinction of a financial asset and a liability. In most cases, it will be when the contract is signed or when money or some other financial asset is paid by the creditor to the debtor or repaid by the debtor to the creditor.

9.14 In some cases, the parties to a transaction may perceive economic ownership to change on different dates because they acquire the documents evidencing the transaction at different times. This variation usually is caused by the process of check clearing or the length of time checks are in the mail. The amounts involved in such "float" may be substantial in the case of transferable deposits and other accounts receivable or payable. If there is disagreement on a transaction between two general government units or a government unit and a public corporation, the date on which the creditor receives the payment is the date of record because a financial claim exists up to the point that the payment is cleared and the creditor has control of the funds.

9.15 When a transaction in a financial asset or liability involves a nonfinancial component, the time of recording is determined by the nonfinancial component. For example, when a sale of goods or services gives rise to a trade credit, the transaction should be recorded when economic ownership of the goods is transferred or when the service is provided. When a financial lease is created, the loan implicit in the transaction is recorded when control of the fixed asset changes.

[2] The difference between buying or selling prices and midpoint prices represents a service charge and should conceptually be reported as *sales of goods and services* (142) or *use of goods and services* (22). The service charge may be estimated from the average trade margin spread between the buying and selling rates. If not significant or not practical to identify, it is recommended to disregard any service charge in GFS.

[3] The treatment of grace periods is discussed in paragraphs 6.69.

[4] On the pure cash basis of recording, transactions are recorded when cash is paid or received. See Chapter 3 for more details on the cash basis of recording.

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9.16 Some transactions, such as the accrual of interest expense and its treatment as borrowing of an additional amount of the financial instrument, take place continuously. In this case, the transaction in the associated financial asset or liability also takes place continuously.

Netting and Consolidation of Flows

Netting

9.17 Transactions in financial assets and liabilities are presented in Table 9.1 as the net acquisition of each category of financial asset and the net incurrence of each category of liability. That is, in the GFS framework, only the net change in the holding of a type of asset is presented, not gross acquisitions and gross disposals, as with most nonfinancial assets. (Separate amounts for gross acquisitions and gross disposals may, of course, be presented if the underlying accounting records permit and the information is analytically meaningful.) When the same type of financial instrument is held both as a financial asset and a liability, transactions in financial assets are presented separately from transactions in liabilities rather than netting transactions in liabilities against transactions in financial assets.

Consolidation

9.18 As explained in paragraphs 3.152–3.168, **consolidation** is a method of presenting statistics for a set of units (or entities) as if they constituted a single unit. A consolidated set of accounts for a unit, or group of units, is produced by, first, an aggregation of all flows and stock positions within an agreed analytical framework, followed by the elimination, in principle, of all flows and stock positions that represent relationships among the units or entities being consolidated.

9.19 Transactions in financial assets are eliminated when the two parties to the transaction are units that are being consolidated. For example, if a local government unit purchases a security issued by the central government, both the acquisition of the financial asset and the incurrence of the liability would disappear in a presentation of statistics for the entire general government sector but not in a presentation of either the central or the local government subsector separately.

Arrears

9.20 As explained in paragraphs 7.247–7.250, **arrears** are defined as amounts that are both unpaid and past the due date for payment. In principle, amounts payable for any expense, for acquisition of nonfinancial assets, or related to any liability may become in arrears if the amounts are past due for payment (e.g., in the case of overdue debt service payments).

9.21 Some types of financial assets and liabilities, most notably debt securities, loans, financial derivatives, and other accounts receivable/payable, mature at scheduled dates, or series of dates, when the debtor is required to make specified payments to the creditor. If the payments are not made as scheduled, the debtor has effectively obtained additional financing by not making the scheduled payments. When arrears occur, no transactions should be imputed, but the arrears should continue to be shown in the same instrument until the liability is extinguished. However, if the contract provided for a change in the characteristics of a financial instrument when it goes into arrears, this change should be recorded as a reclassification in the form of other changes in the volume of the financial assets and liabilities (see paragraph 10.84). If the contract is renegotiated or the nature of the instrument changes from one instrument category to another (e.g., from bonds to equity), the resulting flow should be recorded as transactions in the repayment of the original liability and the creation of a new liability (see paragraph 3.97).

9.22 Nonetheless, interest accrues on liabilities in arrears (both principal and interest arrears) and is known as late interest. Late interest should accrue at the same interest rate as on the original debt instrument, unless the interest rate for arrears was stipulated in the original debt contract, in which case this stipulated interest rate should be used. The stipulated rate may include a penalty rate in addition to the interest rate on the original debt. For other liabilities in arrears, in the absence of other information, interest costs accrue on these arrears at the market rate of interest for overnight borrowing. Also, any additional charges relating to arrears (such as penalties) should be recorded as interest on arrears of the debtor at the time the charges accrue. If an item is purchased on credit and the debtor fails to pay within the period stated at the time the purchase was made, any extra charges incurred should be regarded as interest on arrears and accrue until the debt is extinguished.

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Table 9.1 Net Acquisition of Financial Assets and Net Incurrence of Liabilities Classified by Instrument and Residence of the Counterparty

32	**Net acquisition of financial assets**	**33**	**Net incurrence of liabilities**
3201	Monetary gold and Special Drawing Rights (SDRs)	3301	Special Drawing Rights (SDRs)
32011	Monetary gold		
32012	Special Drawing Rights (SDRs)		
3202	Currency and deposits	3302	Currency and deposits
3203	Debt securities	3303	Debt securities
3204	Loans	3304	Loans
3205	Equity and investment fund shares	3305	Equity and investment fund shares
32051	Equity	33051	Equity
32052	Investment fund shares or units	33052	Investment fund shares or units
3206	Insurance, pension, and standardized guarantee schemes [GFS]	3306	Insurance, pension, and standardized guarantee schemes [GFS]
32061	Nonlife insurance technical reserves	33061	Nonlife insurance technical reserves
32062	Life insurance and annuities entitlements	33062	Life insurance and annuities entitlements
32063	Pension entitlements [GFS]	33063	Pension entitlements [GFS]
32064	Claims of pension funds on pension manager	33064	Claims of pension funds on pension manager
32065	Provisions for calls under standardized guarantee schemes	33065	Provisions for calls under standardized guarantee schemes
3207	Financial derivatives and employee stock options	3307	Financial derivatives and employee stock options
32071	Financial derivatives	33071	Financial derivatives
32072	Employee stock options	33072	Employee stock options
3208	Other accounts receivable	3308	Other accounts payable
32081	Trade credit and advances	33081	Trade credit and advances
32082	Miscellaneous other accounts receivable	33082	Miscellaneous other accounts payable
321	**Domestic debtors**	**331**	**Domestic creditors**
3212–3218	*Same instrument breakdown as above, but excluding monetary gold*	3312–3318	*Same instrument breakdown as above*
322	**External debtors**	**332**	**External creditors**
3221–3228	*Same instrument breakdown as above*	3321–3328	*Same instrument breakdown as above*

9.23 When using the cash basis of recording, cash payments for the settlement of arrears should be recorded with a counterpart entry in the relevant categories of expense, net acquisition of nonfinancial assets, or net incurrence of liabilities. Recording arrears in this way recognizes the appropriate economic nature of these payments since they have not been recorded under the appropriate GFS categories in the past (see also paragraph 7.249).

Classification of Transactions in Financial Assets and Liabilities by Type of Financial Instrument and Residence

9.24 Table 9.1 presents the classification of transactions in financial assets by type of financial instrument and residence. This classification is consistent with the classification of the same financial assets and liabilities employed in Chapter 7 (Table 7.9). Chapter 7 also provides full definitions of the financial assets or liabilities included in each category, and those definitions are not repeated here. The remainder of this section provides guidance only on those transactions for which the general guidance may not be sufficient.

9.25 In principle, the classification of transactions in financial assets and liabilities by residence is based on the residence of the units that are a party to the transaction being recorded. The classification of stock positions in financial assets and liabilities in a unit's balance sheet (see paragraph 7.264) is based on the residence of the issuer of financial instruments (assets), and the residence of the holder of the financial instruments (liabilities). If a transaction in financial

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assets or liabilities between a resident and a nonresident unit involves an instrument originally issued by a resident, an entry in other changes in the volume of assets (reclassification) should be recorded to maintain the integrated GFS framework of flows and stock positions (see also paragraphs 9.85–9.87 and 10.79). In practice, available information may not permit the identification of the two parties to the transaction. Therefore, transactions recorded in the source data for external transactions in financial assets and liabilities may include those that take place not only between residents and nonresidents but also between two residents in nonresident financial assets and liabilities.

9.26 In addition to transactions in interest and principal on debt liabilities, general government and public sector units may undertake a range of complex debt-related transactions, such as assuming debt of other units, making payments on behalf of other units, debt rescheduling, debt forgiveness, debt defeasance, and financial leasing. The special features of these types of transactions are described in Appendix 3.

9.27 The classification of financial instruments in GFS, described in this chapter, does not include functional categories used in the Balance of Payment and International Investment Position, such as direct investment, portfolio investment, or international reserves.[5]

Monetary Gold and Special Drawing Rights (SDRs) (3201, 3221, 3301, 3321)[6]

Monetary gold (32011, 32211)

9.28 Transactions in monetary gold are the exclusive responsibility of the monetary authorities, which will normally be the central bank (a public financial corporation). It is possible, however, for a unit of the general government sector to undertake some monetary functions, in which case it may have transactions in monetary gold. When transactions in financial assets are classified by residence of the counterparty, the counterpart liability to transactions in monetary gold is shown as external because monetary gold can be held only as part of foreign reserves.[7]

9.29 Transactions in monetary gold can take place only between two monetary authorities or between a monetary authority and an international financial organization. If the monetary authority adds to its holdings of monetary gold by acquiring newly mined gold or existing gold offered on the private market, then the gold so acquired is said to have been monetized. No transaction in financial assets should be recorded. Instead, the acquisition of the gold should first be recorded as a transaction in nonfinancial assets, and then the reclassification of the gold as monetary gold should be recorded as an other economic flow. Demonetization of gold is recorded symmetrically (see paragraph 10.84).

9.30 Transactions in nonmonetary gold (including gold not held as reserves by the monetary authorities and all gold held by financial institutions other than the monetary authorities) are treated as acquisitions minus disposals of valuables (if the sole purpose is to provide a store of wealth) and otherwise as changes in inventories. Deposits, loans, and securities denominated in gold are treated as financial assets (not as gold) denominated in foreign currencies.

Special Drawing Rights (SDRs) (32012, 32212, 33012, 33212)

9.31 SDRs are held exclusively by participants of the IMF's SDR Department and prescribed holders, and are transferable among them. The creation of SDRs (referred to as allocations of SDRs) and the extinction of SDRs (cancellations of SDRs) are recorded as transactions. Transactions in SDRs also take place when a holder exercises its right to obtain foreign exchange or other reserve assets from other participants and prescribed holders and when SDRs are sold, loaned, or used to settle financial obligations.

9.32 At the time of the SDR allocation, the amounts recorded as SDR allocations (liabilities) and holdings (financial assets) are identical and on the same public sector unit's balance sheet. This public sector unit—as official holder—may, subsequently, exchange some or all of its SDR holdings (financial asset) with other official holders for a freely usable currency(ies) or to

[5] For information on these categories, see the *BPM6*, Chapter 6. See also Appendix 7 for more information on the linkages between GFS and the Balance of Payments and International Investment Position.

[6] The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in the GFS framework.

[7] See paragraphs 7.126–7.130 for more details on monetary gold.

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meet its liabilities. Consequently, the SDR allocations and holdings on the balance sheet of that public sector unit would no longer be identical; the SDR holdings would be less than the allocations because they have been exchanged. As a result, interest payable on the SDR allocation of that public sector unit will be larger than interest receivable on its SDR holdings. Interest receivable on the SDR holdings exchanged will accrue to the new holder. These transactions in SDRs (and resulting stock positions) are recorded at their gross amounts.

Currency and Deposits (3202, 3212, 3222, 3302, 3312, 3322)

9.33 Because the market price of domestic currency and deposits is fixed in nominal terms, the net acquisition of domestic currency and deposits is equal to the stock held at the end of the reporting period minus the stock held at the beginning of the period, adjusted for any currency that was lost, stolen, or destroyed. Calculation of the net acquisition of foreign currencies and deposits must exclude the effects of changes in exchange rates, which are recorded as holding gains or losses (as also mentioned in paragraph 10.23).

9.34 Currency is treated as a liability of the unit that issued the currency. Consequently, when a unit puts new currency into circulation, a transaction is recorded that increases its liability for currency. Usually, the counterpart to the increase in liabilities is an increase in the unit's financial assets, most likely deposits.[8] Transactions in gold and commemorative coins that do not circulate as legal tender are treated as transactions in inventories or valuables rather than currency (see paragraph 7.135). The cost of producing new currency is an expense transaction unrelated to the value of transactions in currency.

9.35 Transactions in unallocated accounts for precious metals (including gold) are classified under deposits (as explained in paragraph 7.15), except for transactions between two monetary authorities in unallocated gold accounts for reserves purposes. If a monetary authority acquires an unallocated gold account from a nonmonetary authority, the transaction is recorded as a transaction in currency and deposits and then reclassified as monetary gold (see paragraph 10.84).[9]

Debt Securities (3203, 3213, 3223, 3303, 3313, 3323)

9.36 Most transactions in bonds and other types of debt securities are covered by the general guidelines previously established. The accrual of interest on certain debt securities may deserve special attention and is summarized here (also see paragraphs 6.62–6.83). Interest is the amount debtors will have to pay their creditors over and above the repayment of the amounts advanced by the creditors. Interest accrues on a debt instrument for its entire life as determined by the conditions set at inception of the instrument. When payments are fixed in advance, accrued interest is determined using the original yield-to-maturity. A single, effective yield—established at the time of the security issuance—is used to calculate the amount of accrued interest in each period to maturity. This approach is known as the "debtor approach."

9.37 Most debt securities have a fixed or variable interest rate and may also be issued at a discount or, possibly, a premium. In such cases, the interest receivable by the holders of the debt securities has two components:

- The amount of money income receivable from coupon[10] payments each period, plus
- The amount of interest accruing each period attributable to the difference between the redemption price and the issue price.

9.38 On a cash basis, interest expense is recorded at the time it is paid in cash, with a reduction in currency and deposits as the counterpart.

Debt securities issued at par

9.39 For debt securities for which the issue and redemption prices are the same (i.e., issued at par), total interest accrued over the whole life of the debt

[8] Seigniorage profits (i.e., the difference between the face value of currency issued and its costs of production, including the costs of base metals) for the issuer of currency are implicitly included under currency and deposits and are not treated as revenue.

[9] See also *BPM6*, paragraph 9.20.

[10] A coupon payment is a contractually agreed cash amount paid by the issuer of the debt security to the holder, at each coupon date. It is calculated from the coupon rate, face value of the debt security, and the number of payments per year, and may differ from the accrued interest if debt securities are issued at a discount or a premium.

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securities is given by the periodic coupon payments. If coupon payments are fixed, accrued interest can be calculated by allocating the coupon payment to the relevant period using a daily compound formula.

Debt securities issued at a discount or premium

9.40 Debt securities issued at a discount (or premium), such as short-term bills of exchange and discounted and zero-coupon bonds, are recorded at the time of issue at the issue price.[11] The difference between the discounted issue price of such debt securities and their price at maturity (redemption price) is treated as interest accruing over the life of the debt security. For each reporting period, the holder of the debt security should record a transaction for the receipt of interest revenue arising from the difference between the issue and redemption prices and its reinvestment in an additional quantity of the debt security. The issuer of the debt security records the accrual of interest expense and an increase in its liability for debt securities. For debt securities issued at a premium, the difference between the issue price and the price at maturity should be amortized over the life of the instrument, reducing (rather than increasing) the amount of interest accruing in each period. On a cash basis, interest resulting from the discount should be recorded as an expense on redemption of the bond. Interest resulting from a premium should be recorded as a reduction in interest expense at the time of issue.

Index-linked debt securities

9.41 With an index-linked debt security,[12] an indexation mechanism links the amount to be paid at maturity or coupon payments (or both) to an indicator agreed by the parties. The values of the indicators are not known in advance. For debt securities with indexation of the amount to be paid at maturity, these amounts may be known only at the time of redemption. As a result, total interest flows before redemption cannot be determined with certainty. To estimate the change in the value of the debt security due to interest accrued before the values of the reference indicators are known, some proxy measures need to be used. In this regard, it is useful to distinguish the following three arrangements:

- Indexation of coupon payments only with no indexation of amount to be paid at maturity
- Indexation of the amount to be paid at maturity with no indexation of coupon payments
- Indexation of both the amount to be paid at maturity and coupon payments.

9.42 The principles describing the transactions for these index-linked debt securities revolve around determining the value of interest and are discussed in paragraphs 6.75–6.78.

Debt securities with embedded derivatives

9.43 For debt securities with embedded derivatives,[13] such as call, put, or equity conversion options, the recording of accrued interest is the same as for securities that do not have such features. For all periods leading up to the exercise of the option, the interest accrued is unaffected by the presence of the option. When the embedded option is exercised, the securities are redeemed and the accrual of interest ceases.

Loans (3204, 3214, 3224, 3304, 3314, 3324)

9.44 The terms of a loan contract frequently require periodic payments for all interest expense accrued since the previous periodic payment and a payment covering a portion of the original amount borrowed. On an accrual basis, interest accrues continuously over the reporting period and should be added to the principal; the payments of interest and principal are transactions in financial assets or liabilities (see paragraph 6.64). On a cash basis, periodic interest and principal payments are recorded as interest expense/revenue and transactions in financial assets or liabilities, respectively, when cash payments are made—no interest is accrued (see paragraph 6.65).

9.45 When goods are acquired under a financial lease, a change of economic ownership from the lessor to the lessee is deemed to take place, even though the leased goods remain legally the property of the lessor. This change in economic ownership is

[11] The issue price is the actual amount paid—that is, after the discount has been subtracted or premium added.

[12] It is possible for loans and other financial instruments to be index linked and the same transactions would be recorded.

[13] As explained in paragraph 7.148, securities with an embedded derivative are classified entirely as debt securities. A separate financial derivate component is not recorded.

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financed by a loan transaction: the lessor and lessee record a loan equal to the market value of the asset, this loan being gradually paid off over the period of the lease. The implication of treating a financial lease as a loan is that interest accrues on the loan. The rate of interest on the imputed loan equates the present value of the total amount payable in installments over the life of the lease (including any value to be repaid at maturity) with the market value of the asset at the time the lease is initiated. The installment covers interest accrued during the period as well as the component of the repayment of the principal.

9.46 As described in paragraphs 7.159 and 7.161, repurchase agreements and gold swaps are treated as loans with no change of economic ownership for the underlying assets that legally were sold. Similarly, the winding up of the repurchase agreement or swap according to the initial terms of the agreement is treated as a liquidation of a loan. The economic nature of an off-market swap is equivalent to a combination of borrowing (the lump sum) in the form of a loan transaction and an on-market swap transaction (financial derivative) (see paragraph 7.162).

Equity and Investment Fund Shares (3205, 3215, 3225, 3305, 3315, 3325)

Equity (32051, 32151, 32251, 33051, 33151, 33251)

9.47 The treatment of transactions in publicly traded shares is generally straightforward. Problems may be created, however, by the operations of quasi-corporations and public corporations.

9.48 Additions to the funds and other resources of a quasi-corporation, including in-kind transfers of nonfinancial assets, are treated as purchases of equity by the owner of the quasi-corporation. This includes new finance made available for use by the enterprise in purchasing fixed assets, accumulating inventories, acquiring financial assets, or redeeming liabilities. Similarly, receipt by the owner of proceeds from sales of any of the quasi-corporation's assets, transfers in kind from the quasi-corporation, and withdrawals by the owner of accumulated retained earnings of the quasi-corporation are treated as reductions in equity by the owner. Liquidating dividends payable to shareholders when an enterprise becomes bankrupt (or is otherwise wound up) should also be recorded as withdrawal of equity.

9.49 For government units, regular transfers to corporations or quasi-corporations to cover persistent operating deficits are *subsidies* (251), but if payments from government are irregular and are made to cover accumulated losses or exceptional losses due to factors outside the control of the enterprise, they are treated as a capital transfer under *capital transfers not elsewhere classified* (2822).[14] If government makes a transfer to a public corporation to finance all or part of the costs to finance its acquisition of nonfinancial assets, this also is recorded as equity unless there is no reasonable expectation of a sufficient rate of return on the investment, in which case the transfer is recorded as *capital transfers not elsewhere classified* (2822) (see Box 6.3). Regular withdrawals of the income from public corporations or quasi-corporations are property income under, respectively, *dividends* (1412) or *withdrawals of income from quasi-corporations* (1413). The exception occurs when dividends are disproportionately large relative to the recent level of dividends and earnings. Any dividends declared greatly in excess of the recent level of dividends and earnings should be treated as withdrawal of owners' *equity* (32051, 32151, 32251, 33051, 33151, 33251) from the public corporation. This will be the case for distributions by public corporations to shareholders of proceeds from privatization receipts and other sales of assets and large and exceptional one-off payments based on accumulated reserves or holding gains.

9.50 Government units may acquire equity in a public corporation or quasi-corporation as a result of legislation or an administrative change creating the corporation or quasi-corporation. In some cases, this event will amount to a reclassification of existing assets and liabilities, which is recorded as an other economic flow that results in an addition of equity to the government unit's balance sheet. An advance of funds to create the new enterprise is a transaction reflecting the purchase of equity. As explained in paragraph 6.121, retained earnings of a foreign direct investment enterprise are treated as if they were distributed and remitted to foreign direct investors in proportion to their ownership of the equity of the enterprise and then reinvested by them by means of additions to equity.

[14] See Box 6.3 for more details.

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9.51 From time to time, corporations restructure their shares and may offer shareholders a new number of shares for each share previously held. These bonus shares are not, however, treated as transactions, but as a form of redenomination. If a public corporation buys its own shares, the transaction is classified as being a reduction in the equity liability, rather than an acquisition of an asset. Because a corporation cannot have a claim on itself, the liability is deemed to be extinguished, even if the shares are not canceled.

9.52 Membership dues and subscription fees payable to international organizations are treated as the acquisition of equity in cases when there is a possibility—even if unlikely—of repayment of the full amount.[15] A capital contribution to an international organization or nonprofit institution is a capital transfer if it does not give rise to equity for the provider of the contribution (see paragraphs 6.94 and 6.124).

Privatization/Nationalization

9.53 Privatization generally is the disposal to private owners by a government unit of the controlling equity of a public corporation or quasi-corporation. Such a disposal is treated as a transaction in equity.[16] If a public corporation or quasi-corporation sells some of its assets and provides part or all of the proceeds to its parent government unit, then the provision of the proceeds would also be a disposal of equity of the government unit. Brokers' commissions and other privatization costs are expense transactions just as all other costs of ownership transfer related to the acquisition or disposal of a financial asset.

9.54 Government units also can be privatized. If the assets disposed of as a single transaction constitute a complete institutional unit, the transaction should be classified as a sale of equity. The government is assumed to have converted the unit to a quasi-corporation immediately prior to disposal by means of a reclassification of assets, which should be recorded as an other economic flow. If the assets disposed of do not constitute a complete institutional unit, then the transactions should be classified as a disposal of the individual nonfinancial and/or financial assets.

9.55 Nationalization is generally the acquisition from private owners by a government unit of the controlling equity of a private corporation or quasi-corporation. Such an acquisition is treated as a transaction in equity. In some exceptions, government units may acquire ownership of a private corporation or quasi-corporation by way of confiscation or appropriation. There is no payment to the owners (or the compensation is not commensurate with the fair value of the assets). This is not the result of a transaction by mutual agreement. The difference between the market value of the asset acquired and any compensation provided (a transaction) should be recorded as other changes in the volume of assets, in the form of an uncompensated seizure (see paragraph 10.62).[17]

Investment fund shares (32052, 32152, 32252, 33052, 33152, 33252)

9.56 Changes to the value of investment funds due to the issuance or repayment of shares or units are recorded as transactions. The increase (decrease) in the value of investment fund shares or units, other than from holding gains and losses, is recorded as distributed to the share- or unit holders and reinvested by the holders in the shares or units (see paragraph 5.121). This treatment is similar to the treatment of retained earnings of a foreign direct investment enterprise. Gains and losses arising from the value of an asset or fund to reflect its current market value are not recorded as transactions, but as holding gains or losses.

Insurance, Pension, and Standardized Guarantee Schemes [GFS] (3206, 3216, 3226, 3306, 3316, 3326)

9.57 General government units may incur liabilities for these reserves, entitlements, and provisions as operators of nonlife insurance and standardized guarantee schemes, nonautonomous pension funds, and unfunded pension schemes. General government units may acquire insurance technical reserves as financial assets in their capacity as holders of nonlife insurance policies. Public corporations can engage

[15] In most cases, these membership dues and subscription fees should be recorded as an expense in *use of goods and services* (22) if there is an exchange of a payment for some form of a service or, if no exchange, as a *current transfer not elsewhere classified* (2821).

[16] The public corporation is reclassified to a private corporation through an entry in other changes in the volume of assets and liabilities, as explained in Chapter 10.

[17] The same treatment would apply to the acquisition of land or any other nonfinancial asset under a compulsory sale.

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in all types of insurance activities.[18] When operating standardized guarantee schemes, such as student loan guarantees, deposit guarantees, and export credit guarantees, general government units record transactions in liabilities for *provision for calls under standardized guarantee schemes*. These transactions in liabilities comprise:

- Prepayments of net fees: fees prepaid in the reporting period less previously prepaid fees earned for the reporting period
- Provisions for outstanding calls: expected calls less any expected asset recoveries on the standardized guarantees provided in the recording period less any calls settled in the recording period (see paragraphs A4.78–A4.80).

Nonlife insurance technical reserves [GFS] (32061, 32161, 32261, 33061, 33161, 33261)

9.58 In general, nonlife insurance premiums are paid in advance of the period covered by the policy. On an accrual basis, all such prepaid premiums are transactions that increase the insurance unit's liability and the policyholder's asset for insurance technical reserves. As the period covered by the premium progresses, the insurance unit continuously earns the premium, which requires a transaction to decrease its liability and the policyholder's asset for nonlife insurance technical reserves.

9.59 When events occur giving rise to a valid claim, a transaction is recorded that increases reserves against outstanding claims as a liability of the insurance unit and an asset of the beneficiaries. If payment of the claim is delayed for a substantial length of time or consists of periodic payments over several reporting periods, the value of the transaction corresponds to the present value of the expected payments.

9.60 The change in unearned premiums and reserves against outstanding claims is shown as a transaction in liabilities of the insurer and a transaction in assets of the policyholders. The relevant transactions in revenue and expense are discussed in paragraphs 5.149–5.151 and 6.125.

9.61 On a cash basis, premiums received and claims paid are shown as a transaction in revenue and expense of the insurer and the policyholders when payments are made.

Life insurance and annuities entitlements (32062, 32162, 32262, 33062, 33162, 33262)

9.62 As noted in paragraph 7.179, it is unlikely for general government units to incur liabilities or hold assets with respect to life insurance and annuities, unless they provide such schemes to their employees. Changes in life insurance and annuities entitlements are transactions in liabilities for the insurer and transactions in financial assets for the policyholders. In the case of annuities, the transactions constitute a stream of ongoing payments, rather than a lump sum that reduces the liability. The treatment of life insurance and annuities is elaborated in paragraph A4.69.

Pension entitlements [GFS] (32063, 32163, 32263, 33063, 33163, 33263)

9.63 If a public sector unit operates a pension scheme, then it will have transactions in liabilities for pension entitlements.

9.64 For a defined-benefit scheme, actual and imputed social contributions receivable from employees, employers, or other institutional units on behalf of individuals or households with claims on the public sector unit for future pension benefits will increase the unit's liability for pension entitlements. The increase in the existing liability (because the future payments are discounted over fewer periods) is recorded as a transaction in pension entitlements with the corresponding entry being an expense in the form of imputed social contributions, as explained in paragraph 6.117. Payments to retired persons or their dependents and survivors in the form of periodic payments or lump sums reduce the liability, with a decrease in currency and deposits as the counterpart entry. On a cash basis, the benefits paid should be recorded as an expense in the form of *employer social benefits* (273).[19]

[18] It is assumed that general government units do not operate life insurance schemes and do not purchase life insurance policies. The treatment of insurance technical reserves created by life insurance activities of public corporations is similar to autonomous pension funds, but is not addressed separately here. Also see the *2008 SNA*, Chapter 17, and the *BPM6*, Appendix 6c.

[19] The cash treatment differs from the accrual treatment because there are no imputations for contributions and accumulated liabilities in a cash-based system. Furthermore, in a cash system, the benefits paid cannot be regarded as compensation of employees because they are paid to retired employees, not current employees—there is no exchange of labor involved at the time.

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9.65 For a defined-contribution scheme, transactions in pension liabilities for the pension fund are actual contributions receivable from employers on behalf of employees, from employees, and possibly from other individuals (formerly participating in a scheme, self-employed and unemployed persons, and retirees) plus contribution adjustments (property expense for investment income disbursement[20]) minus benefits payable. The same transactions in financial assets are recorded for the participants in the scheme. On a cash basis, transactions in liabilities of the insurance corporation are equal to social contributions and investment income received in cash minus benefit payments in cash.

9.66 On occasion, large one-off transactions (lump sums) may occur between a government and another institutional unit, often a public corporation, linked to pension reforms or to privatizations of public corporations. The goal may be to make the public corporation competitive and financially more attractive by removing existing pension liabilities from the balance sheet of the corporation. This goal is achieved by government assuming the liability in question in exchange for an asset or assets from the public corporation. If the value of the assets receivable is equal to the value of the liability assumed, the transaction is recorded as an exchange of assets and liabilities. However, the value of the asset(s) may not be the same value as the liability.

- If the value of the asset(s) receivable is less than the value of the liability incurred, an expense in the form of a capital transfer from government to the public corporation should be recorded for the difference. The assumer (government) records an increase in liabilities for pension entitlements, an increase in the relevant financial and/or nonfinancial assets, and an expense in the form of capital transfer to the public corporation (see paragraph 6.124). The public corporation records a decrease in liabilities for pension entitlements, a decrease in financial and/or nonfinancial assets, and revenue in the form of a capital transfer from government.
- If the value of the asset(s) receivable is more than the value of the liability incurred, a capital transfer from the public corporation to the government is recorded for the difference (see paragraph 5.148). The public corporation records a decrease in liabilities for pension entitlements, a decrease in financial and/or nonfinancial assets, and an expense in the form of a capital transfer to government.

9.67 Where a government unit assumes pension liabilities, the pension obligations absorbed by the social security fund continue to be classified as pension entitlement liabilities. These obligations are gradually extinguished as the benefits are paid out. As noted in paragraph 7.261, net implicit obligations for future social security benefits are shown as a memorandum item to the balance sheet.

Claims of pension fund on pension manager (32064, 32164, 32264, 33064, 33164, 33264)

9.68 As explained in paragraph 7.199, an employer may contract with a third party to administer a pension fund for its employees. When the funding of a deficit of the pension fund is the responsibility of the employer or other sponsor (pension manager), then a claim of the pension fund on the manager accrues. Similarly, if the employer or sponsor (pension manager) has a right to claim surpluses of the pension fund, then a claim of the manager to the pension fund may accrue.

Provision for calls under standardized guarantee schemes (32065, 32165, 32265, 33065, 33165, 33265)

9.69 As explained in paragraphs 7.201–7.202, standardized guarantee schemes have much in common with nonlife insurance and are thus recorded in similar ways. The treatment of standardized guarantee schemes is elaborated in paragraphs A4.78–A4.80.

Financial Derivatives and Employee Stock Options (3207, 3217, 3227, 3307, 3317, 3327)

Financial derivatives (32071, 32171, 32271, 33071, 33171, 33271)

9.70 Transactions involving financial derivatives may arise at inception, on secondary markets, with ongoing servicing (such as for margin payments), and at settlement. Transactions in derivatives preferably

[20] Holding gains and losses generated by the investment of cumulated pension entitlements are not included in investment income.

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should be shown separately for assets and liabilities, whenever possible, but net settlements are acceptable when gross reporting is impractical. Any commission payable to brokers or other intermediaries for arranging a financial derivatives contract is treated as a payment for a service. In many cases, however, financial derivatives transactions involve implicit service charges, and it is usually not possible to estimate the service element. In such cases, the entire value of the transaction should be treated as a transaction in financial derivatives.

9.71 At inception:

- The creation of a forward-type contract (see paragraphs 7.212–7.214) does not generally require the recording of a transaction in a financial derivative because risk exposures of equal value are usually being exchanged. That is, there is usually zero exposure and zero value for both sides. In some cases, however, there may be a nonzero transaction value at issue, such as with off-market swaps. (In addition, there may be a service charge for the issue.)
- The purchaser of an option (see paragraph 7.209) pays a premium to the seller, which is the acquisition price of the instrument. Sometimes a premium is paid after the inception of the contract. In that case, the value of the premium is recorded at the inception of the contract in the same manner as if it had been paid then, but is shown as being financed by other accounts receivable/payable between the writer and the purchaser.

9.72 Subsequent changes in the prices of derivatives are recorded as holding gains or losses, not as transactions, as explained in paragraph 10.42.

9.73 Sales of options in secondary markets—whether exchanges or over the counter—are valued at market prices and recorded as transactions in financial derivatives.

9.74 When a contract requires ongoing servicing (such as an interest rate swap) and a cash payment is received, there is a decrease (increase) in a financial derivative asset (liability) if, at the time of the payment, the contract is in an asset (liability) position. If compilers are unable to implement this approach because of market practice, all cash receipts should be recorded as reductions in financial assets, and all cash payments should be recorded as decreases in liabilities.

9.75 Margins are payments of cash or deposits of collateral that cover actual or potential obligations incurred through financial derivatives—especially futures or exchange-traded options. As discussed in paragraph 7.219, repayable margins in cash are classified as transactions in deposits or other accounts receivable/payable, and nonrepayable margins are classified as transactions in financial derivatives.

9.76 At settlement, either a cash payment is made or an underlying item is delivered.

- When a financial derivative is settled in cash, a transaction equal to the cash value of the settlement is recorded for the derivative. In most instances, when a cash settlement payment is received, a reduction in a financial derivative asset is recorded. When a cash settlement payment is made, a reduction of a financial derivative liability is recorded.
- When an underlying item is delivered, two transactions are recorded:
  - The transaction involving the underlying item is valued at the market price at the time. The entry for the underlying item is recorded under the relevant heading (goods, financial instrument, etc.).
  - The transaction involving the derivative is valued as the difference, multiplied by the quantity, between the market price for the underlying item and the strike price specified in the derivative contract.
- When more than one contract is settled—in cash, at the same time, and with the same counterparty—some of the contracts being settled are in asset positions and some are in liability positions. In this situation, transactions involving assets should be recorded separately from those involving liabilities, wherever possible, but net settlements are acceptable when gross reporting is impractical.

Employee stock options (32072, 32172, 32272, 33072, 33172, 33272)

9.77 General government units are very unlikely to issue stock options. Only entities with issued share capital can create employee stock options, so they may arise for public corporations in unusual cases. An employee stock option is created on a given date

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(the "grant" date), providing that an employee may purchase a given number of shares of the employer's stock at a stated price (the "strike" price) either at a stated time (the "vesting" date) or within a period of time (the "exercise" period) immediately following the vesting date.

9.78 At the grant date, a transaction in *employee stock options* should be recorded as the corresponding entry to *compensation of employees in kind* (2112). The value of the employee stock options recorded as compensation of employees should be spread over the period between the grant and vesting dates, if possible. Similarly, any increase in the value of the employee stock options between the grant and vesting date should be classified as compensation of employees. If this is not possible, for a pragmatic solution see paragraph 9.80.

9.79 When the option is exercised, the transaction in the employee stock option is recorded at a value that reflects the difference between the market price of the equity and the price paid by the buyer for the equity. Any change in the value between vesting date and exercise date is not treated as compensation of employees but as a holding gain or loss (see paragraph 10.43).

9.80 In practice, it is most unlikely that estimates of the costs of employee stock options to the employers are revised between the grant date and the exercise date. For pragmatic reasons, therefore, the whole of the increase between grant date and exercise date is treated as a holding gain or loss (see paragraph 10.43). Cancellation of employee stock options is recorded as other changes in the volume of assets (see paragraph 10.57).

9.81 Employee stock options do not generally raise separate issues to those for financial derivatives, but one special case occurs when an employee of a subsidiary is issued options for stock in the parent company. Because the parent is not the employer, the subsidiary records a transaction acquiring the option from the parent before granting the stock option to the employee. See also paragraph 7.222 regarding stock options provided to suppliers of goods and services to an enterprise.

Other Accounts Receivable/Payable (3208, 3218, 3228, 3308, 3318, 3328)

9.82 Other accounts receivable/payable consist of trade credits and advances and miscellaneous other items due to be paid or received. Transactions in trade credits occur when credit is extended directly to purchasers of goods and services. Advances are recorded for amounts paid in advance of work being performed, or for prepayments of goods and services (see paragraph 7.225).

9.83 Miscellaneous other accounts receivable/payable occur with respect to accrued but unpaid taxes, dividends, purchases and sales of securities, rent, wages and salaries, social contributions, social benefits, and similar transactions. Prepayments of taxes are also included in this category. Accrued but unpaid interest should be added to the principal of the underlying asset rather than included in this category.

9.84 This category is used to bridge the timing difference between the occurrence of economic events and the time the actual cash flows take place. It should not be used to record statistical discrepancies.

Classification of Transactions in Financial Assets and Liabilities by Sector and Residence

9.85 For a full understanding of financial flows and the role they play in government finance, it is often important to know not just what types of liabilities a general government unit uses to finance its activities and what types of financial assets it holds as investments. It is also important to know which sectors are providing the financing and what types of financial assets are held. In addition, it is often necessary to analyze financial flows between subsectors of the general government sector or the public sector. These flows of funds may be analyzed in a from-whom-to-whom framework.[21] Table 9.2 presents a classification of transactions in financial assets and liabilities based on the sector and residence of the two parties involved in the transactions.

9.86 An issuer of securities is usually not a party involved in a secondary market transaction in that security. However, when a transaction changes the residence or sector of the creditor, an entry in other

[21] See the *PSDS Guide*, Chapter 7, and *Handbook on Securities Statistics*, Part 2, for a detailed discussion of the from-whom-to-whom approach.

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Table 9.2 Net Acquisition of Financial Assets and Net Incurrence of Liabilities Classified by Residence of the Counterparty			
82	**Net acquisition of financial assets**	**83**	**Net incurrence of liabilities**
821	**Domestic debtors**	**831**	**Domestic creditors**
8211	General government	8311	General government
8212	Central bank	8312	Central bank
8213	Deposit-taking corporations except the central bank	8313	Deposit-taking corporations except the central bank
82131	Public deposit-taking corporations except the central bank	83131	Public deposit-taking corporations except the central bank
82132	Private deposit-taking corporations except the central bank	83132	Private deposit-taking corporations except the central bank
8214	Other financial corporations	8314	Other financial corporations
82141	Other public financial corporations	83141	Other public financial corporations
82142	Other private financial corporations	83142	Other private financial corporations
8215	Nonfinancial corporations	8315	Nonfinancial corporations
82151	Public nonfinancial corporations	83151	Public nonfinancial corporations
82152	Private nonfinancial corporations	83152	Private nonfinancial corporations
8216	Households and nonprofit institutions serving households	8316	Households and nonprofit institutions serving households
822	**External debtors**	**832**	**External creditors**
8221	General government	8321	General government
8227	International organizations	8327	International organizations
8228	Financial corporations other than international organizations	8328	Financial corporations other than international organizations
82281	Central banks	83281	Central banks
82282	Financial corporations not elsewhere classified	83282	Financial corporations not elsewhere classified
8229	Other nonresidents	8329	Other nonresidents

changes in the volume of assets (reclassification) should be recorded to maintain the integrated GFS framework of stock positions and flows (see paragraphs 9.25 and 10.79).

9.87 The composition of the sectors listed in Table 9.2 is described in Chapter 2. All nonresident units are referred to collectively as the external sector ("rest of the world" sector in the *2008 SNA*). In the GFS framework, it is important to know not only the total amount of financing receivable from nonresident units, but also the types of nonresident units supplying the financing.[22] In GFS, therefore, the sector classification principles could also be applied to nonresident units. In particular, all foreign governments and international organizations are treated as separate sectors in Table 9.2.

Classification of Debt Liabilities and Financial Assets Corresponding to Debt Instruments by Maturity

9.88 A supplementary classification of the stock positions of debt liabilities and financial assets corresponding to debt instruments by maturity and type of financial instrument is of particular interest and is shown in Table 7.12. If analytically useful, the same classification structure could be applied for transactions in these debt liabilities and financial assets corresponding to debt instruments.

[22] Often, in cases of traded debt securities, this will show only the initial holders.

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10 Other Economic Flows

This chapter describes the other economic flows that are recorded in the government finance statistics framework. The two major categories are holding gains and losses and other changes in the volume of assets.

Introduction

10.1 Other economic flows are changes in the volume or value of assets or liabilities that do not result from transactions. This chapter describes the two major categories of other economic flows that change net worth:

- A **holding gain or loss**[1] is a change in the monetary value of an asset or liability resulting from changes in the level and structure of prices, excluding qualitative or quantitative changes in the asset or liability. Holding gains and losses can apply to almost all assets and liabilities and, in the case of assets and liabilities expressed in a foreign currency, include gains and losses resulting from changes in exchange rates.[2]
- **Other changes in the volume of assets** are any changes in the value of an asset or liability that do not result from a transaction or a holding gain. Other changes in the volume of assets result from events that change the quantity or quality of an existing asset, events that add a new asset to the balance sheet or delete an existing asset from the balance sheet, and events that require a reclassification of existing assets.

[1] Revaluation may also be used with the same meaning as holding gain or loss.

[2] A holding gain or loss always affects net worth. The words gain and loss are used in reference to the direction of the change in net worth. A flow that increases the value of an asset or decreases the value of a liability will increase net worth and is referred to as a holding gain. A flow that decreases the value of an asset or increases the value of a liability will decrease net worth and is a holding loss. References to financial assets can be assumed to refer also to liabilities.

10.2 Other economic flows are recorded in a *Statement of Other Economic Flows*; an abbreviated version is shown in Table 10.1. The balancing item to this statement is described as the ***change in net worth due to other economic flows***, which is defined as the sum of the change in net worth due to holding gains or losses and the change in net worth due to other changes in the volume of assets.

- The balancing item ***change in net worth due to holding gains*** (or revaluations) is defined as the sum of the positive or negative holding gains on all assets and liabilities.
- The balancing item ***change in net worth due to other changes in the volume of assets*** is defined as the sum of the positive and negative other changes in the volume of assets and liabilities.

10.3 Many other economic flows change both the value of an asset or a liability and the value of net worth by the same amount. For example, holding gains that lead to an increase in the value of assets

Table 10.1 Statement of Other Economic Flows (Abbreviated)

9	Change in net worth due to other economic flows
91	Nonfinancial assets
92	Financial assets
93	Liabilities
4	Change in net worth due to holding gains and losses
41	Nonfinancial assets
42	Financial assets
43	Liabilities
5	Change in net worth due to other changes in the volume of assets and liabilities
51	Nonfinancial assets
52	Financial assets
53	Liabilities

Note: See Table 10.2 for a detailed classification of other economic flows.

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increase net worth. In contrast, other economic flows related to reclassifications do not affect total net worth. These reclassifications change the value of two assets or two liabilities by the same amount but with opposite signs, or they change one asset and one liability by the same amount—for example, the reclassification of a loan when it becomes negotiable (see paragraph 7.149).

10.4 Other economic flows are classified by the type of asset or liability affected. The classification of assets and liabilities given in Chapter 7 is used for this purpose. In Table 10.2, total other economic flows are classified as being either holding gains and losses or other changes in the volume of assets. In addition, other economic flows can be classified by the type of event that caused the flow in as much detail as needed for fiscal analysis. The types of holding gains or specific types of other changes in the volume of assets could be introduced as an expansion of the table, if considered useful. For example, subcategories of other changes in volume of assets could identify whether the changes are due to the appearance, disappearance, or change in classification of assets and liabilities.

Holding Gains

Holding Gains in General

10.5 Holding gains result from price changes and can accrue on almost all economic assets held for any length of time during a reporting period. It does not matter whether an asset is held the entire period, acquired during the period and held until the end of the period, held at the beginning of the period and disposed of during the period, or acquired and disposed of within the same period. In each case, a holding gain is possible and must be recorded for the entire difference between the opening balance sheet date (or at time of acquisition) and closing balance sheet date (or time of disposal).

10.6 Holding gains may be unrealized or realized:

- An **unrealized holding gain** is one accruing on an asset that is still owned or a liability that is still outstanding at the end of the reporting period. The values of the assets and liabilities in the closing balance sheet incorporate the unrealized holding gains or losses.
- A **holding gain is realized** when an asset is sold, redeemed, used or otherwise disposed of, or a liability incorporating a holding gain or loss is repaid. The value of transactions includes the value of realized holding gains or losses. In other words, unrealized holding gains are realized when transactions take place.

10.7 The holding gain is recorded when the price change occurs, which may be at a different time from when the holding gain is realized. Thus, to capture the full value of the holding gains and losses that arose during the reporting period, both realized and unrealized gains and losses need to be covered.

10.8 Holding gains do not include a change in the value of an asset resulting from a change in the quantity or quality of the asset (which are other changes in the volume of assets)—in particular:

- The decline in the value of the fixed assets due to physical deterioration, normal rates of obsolescence, and normal accidental damage should be recorded as *consumption of fixed capital* (23) and not as a holding loss.
- Debt securities issued at a discount may increase in value progressively prior to redemption because of the accrual of interest. The increase in the market value of a bill or bond due to the accrual of interest should be recorded as a transaction in the asset and is not a holding gain.

10.9 It is not possible to calculate total holding gains using only balance sheet data since the stock positions do not reflect each of the economic events that may have occurred during a reporting period (see paragraphs 3.1–3.4). To measure holding gains directly, therefore, the calculation requires records to be maintained of all individual transactions and individual other changes in the volume of assets plus the price of each asset at the time of the opening and closing balance sheets. Observable market prices for nonfinancial assets are generally not as readily available as for financial assets and liabilities. If, in practice, not all of the requisite data are available, alternative estimation techniques must be employed to calculate holding gains.

10.10 A commonly used alternative method to estimate holding gains and losses is based on the identity that the ending balance sheet value for a

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Table 10.2 Classification of Other Economic Flows

	Holding gains and losses	Other changes in the volume of assets	Total other economic flows
Change in net worth due to total other economic flows / holding gains and losses / other changes in the volume of assets	**4**	**5**	**9**
Nonfinancial assets	**41**	**51**	**91**
Fixed assets	**411**	**511**	**911**
Buildings and structures	4111	5111	9111
Dwellings	41111	51111	91111
Buildings other than dwellings	41112	51112	91112
Other structures	41113	51113	91113
Land improvements	41114	51114	91114
Machinery and equipment	4112	5112	9112
Transport equipment	41121	51121	91121
Machinery and equipment other than transport equipment	41122	51122	91122
Other fixed assets	4113	5113	9113
Cultivated biological resources	41131	51131	91131
Intellectual property products	41132	51132	91132
Weapons systems	4114	5114	9114
Inventories	**412**	**512**	**912**
Materials and supplies	41221	51221	91221
Work in progress	41222	51222	91222
Finished goods	41223	51223	91223
Goods for resale	41224	51224	91224
Military inventories	41225	51225	91225
Valuables	**413**	**513**	**913**
Nonproduced assets	**414**	**514**	**914**
Land	4141	5141	9141
Mineral and energy resources	4142	5142	9142
Other naturally occurring assets	4143	5143	9143
Noncultivated biological resources	41431	51431	91431
Water resources	41432	51432	91432
Other natural resources	41433	51433	91433
Intangible nonproduced assets	4144	5144	9144
Contracts, leases, and licenses	41441	51441	91441
Goodwill and marketing assets	41442	51442	91442
Financial assets	**42**	**52**	**92**
Monetary gold and Special Drawing Rights (SDRs)	4201	5201	9201
Currency and deposits	4202	5202	9202
Debt securities	4203	5203	9203
Loans	4204	5204	9204
Equity and investment fund shares	4205	5205	9205
Equity	42051	52051	92051
Investment fund shares or units	42052	52052	92052
Insurance, pension, and standardized guarantee schemes [GFS]	4206	5206	9206
Nonlife insurance technical reserves	42061	52061	92061
Life insurance and annuities entitlements	42062	52062	92062
Pension entitlements [GFS]	42063	52063	92063
Claims of pension funds on pension manager	42064	52064	92064
Provisions for calls under standardized guarantee schemes	42065	52065	92065
Financial derivatives and employee stock options	4207	5207	9207
Financial derivatives	42071	52071	92071
Employee stock options	42072	52072	92072

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Table 10.2 Classification of Other Economic Flows *(concluded)*

	Holding gains and losses	Other changes in the volume of assets	Total other economic flows
Other accounts receivable	4208	5208	9208
Trade credit and advances	42081	52081	92081
Miscellaneous other accounts receivable	42082	52082	92082
Domestic debtors	**421**	**521**	**921**
Same instrument breakdown as above, but excluding monetary gold	4212–4218	5212–5218	9212–9218
External debtors	**422**	**522**	**922**
Same instrument breakdown as above	4221–4228	5221–5228	9221–9228
Liabilities	**43**	**53**	**93**
Special Drawing Rights (SDRs)	4301	5301	9301
Currency and deposits	4302	5302	9302
Debt securities	4303	5303	9303
Loans	4304	5304	9304
Equity and investment fund shares	4305	5305	9305
Equity	43051	53051	93051
Investment fund shares or units	43052	53052	93052
Insurance, pension, and standardized guarantee schemes [GFS]	4306	5306	9306
Nonlife insurance technical reserves	43061	53061	93061
Life insurance and annuities entitlements	43062	53062	93062
Pension entitlements [GFS]	43063	53063	93063
Claims of pension funds on pension manager	43064	53064	93064
Provisions for calls under standardized guarantee schemes	43065	53065	93065
Financial derivatives and employee stock options	4307	5307	9307
Financial derivatives	43071	53071	93071
Employee stock options	43072	53072	93072
Other accounts payable	4308	5308	9308
Trade credit and advances	43081	53081	93081
Miscellaneous other accounts payable	43082	53082	93082
Domestic creditors	**431**	**531**	**931**
Same instrument breakdown as above	4312–4318	5312–5318	9312–9318
External creditors	**432**	**532**	**932**
Same instrument breakdown as above	4321–4328	5321–5328	9321–9328

category of assets must equal the opening balance sheet value plus the net value of transactions, other changes in the volume of assets, and holding gains that affect that category of assets or liabilities. If the information available on balance sheets, transactions, and other changes in the volume of assets is complete and accurate, then the net value of holding gains can be calculated to complete the identity. This formulation does not imply that the value of holding gains is a residual item—even if estimated this way, the results should always be carefully examined and evaluated.

10.11 For some analytic purposes, it may be desirable to divide the total value of holding gains accruing on a category of assets or liabilities into neutral and real holding gains.

- **Neutral holding gains and losses** over a period are the increase (decrease) in the value of an asset that would be required, in the absence of transactions and other changes in the volume of assets, to maintain command over the same amount of goods and services as at the beginning of the period. It is the value needed to preserve the real value of the asset.
- A **real holding gain** is defined as the value accruing to an asset as a result of a change in its price relative to the prices of goods and services in general. An increase in the relative price of an

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asset leads to a positive real holding gain, and a decrease in the relative price of an asset leads to a negative real gain.[3]

10.12 In concept, holding gains and losses occur continuously because prices change continuously. As a practical matter, holding gains for the entire reporting period are normally estimated at the end of the period.

Holding Gains for Particular Types of Assets

Fixed assets (411)[4]

10.13 Estimating the holding gains on fixed assets is complicated by the fact that the value of a fixed asset changes as a result of consumption of fixed capital as well as price changes. Consumption of fixed capital, however, is valued in terms of the average prices prevailing during a reporting period. Thus, estimating the change in the price of a given fixed asset of a given age and condition is critical for estimating both consumption of fixed capital and holding gains.

10.14 Holding gains may occur on existing fixed assets because the market price of the asset itself changes over time. If market prices are not readily available, market-value equivalent prices should be used (see paragraph 7.31). When assets of the same kind are still being produced and sold on the market, an existing asset should be valued in the opening or closing balance sheet at the current acquisition price of a newly produced asset minus the accumulated consumption of fixed capital (i.e., at written-down replacement cost) up to that time.

10.15 When new assets of the same type are no longer being produced, the valuation of existing assets may pose difficult conceptual and practical problems. If broadly similar kinds of assets are still being produced, it may be reasonable to assume that the prices of the existing assets would have moved in the same way as those of new assets if they were still being produced. Such an assumption becomes questionable, however, when the characteristics of new assets are much improved by technical progress.[5]

Inventories (412)

10.16 The estimation of holding gains on inventories is needed for the calculation of *use of goods and services* (22) using the indirect method, as illustrated in Table 6.3. However, estimation may be difficult because of a lack of data on transactions or other changes in the volume of inventories:

- Many transactions in inventories are internal transactions, and the prices prevailing at the time they occur may not be adequately recorded.
- Withdrawals from inventories include an allowance for recurrent losses that are part of the normal operations of a production process.
- Other changes in the volume of assets are likely to consist of goods destroyed by natural disasters, major fires, and other exceptional events. Estimating the prices and quantities involved in these events may be difficult.

10.17 Thus, holding gains on inventories exclude both exceptional and recurrent losses on inventories. Certain types of inventories (e.g., stationery) have stable prices and are held over reasonably short periods of time, in which case the holding gains or losses are normally minimal. In other cases, such as strategic stocks, more sophisticated methods have to be applied. As records on transactions and other changes in the volume of assets may not be available, it becomes necessary to try to deduce the value of changes in inventories from the value and quantities of the opening and closing inventories using methods that attempt to partition the difference between the values of the opening and closing stock positions of assets into transactions and holding gains. Such methods are only as good as the assumptions on which they are based.[6] In general, if assumptions are made, they should cover as short a period as possible. When there are high rates of inflation, estimating holding gains accurately in this way becomes more important.

[3] Information on the calculation and interpretation of neutral and real holding gains is in the *2008 SNA*, paragraphs 12.87–12.93.
[4] The numbers in parentheses after each classification category are the GFS classification codes. Appendix 8 provides all classification codes used in GFS.
[5] See Organisation for Economic Co-operation and Development, *Measuring Capital—OECD Manual: Measurement of Capital Stocks, Consumption of Fixed Capital and Capital Services* (Paris, 2009), for more details.
[6] Also see the *2008 SNA*, paragraph 12.99.

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Valuables (413)

10.18 The nature of valuables is that they are held as a store of value in the expectation that their value will increase over time. Any increase/decrease in value of an individual valuable is treated as a holding gain/loss.

Nonfinancial assets disposed of during the reporting period

10.19 There are no remaining costs of ownership transfer included in the value of the asset when it is sold to a new owner, as the amount the old owner receives is equal to the amount the new owner pays except for any costs of ownership transfer incurred by the new owner. This is because consumption of fixed capital is calculated on the value of the asset excluding the costs of ownership transfer over the whole of its life, and the consumption of fixed capital in respect of the costs of ownership transfer is calculated only over the period that the owner expects to hold the asset (see paragraph 6.60).

10.20 When a nonfinancial asset is disposed of in a market-related transaction[7] at a value that is different from the balance sheet value of the asset immediately prior to disposal, a revaluation should be recorded to reflect the current market value of the asset in the balance sheet. This applies to all nonfinancial assets but not to scrap.[8]

Monetary gold and Special Drawing Rights (SDRs) (4201, 4221, 4301, 4321)

10.21 The price of gold is usually quoted in dollars; therefore, monetary gold (including unallocated gold accounts) is subject to holding gains and losses because of changes in the exchange rate as well as in the price of gold itself.

10.22 The value of the SDR is based on a basket of key currencies; therefore, the value of SDRs is always subject to holding gains and losses. From time to time, new allocations of SDRs may be made; when this occurs, the allocation is recorded as a transaction.

[7] If there is a transfer element to the transaction, the economic value of the transfer should be recorded as a separate transaction (see paragraph 3.122).

[8] In cases where the scrap value does not coincide with the residual balance sheet value of the asset immediately before disposal, an adjustment is to be made to the value of the asset via the other changes in the volume of assets account.

Financial assets and liabilities with fixed monetary values

10.23 Not all financial assets and liabilities have market prices. Currency, deposits, most loans, and other accounts receivable/payable, such as trade credit and advances, are recorded at nominal value. As a result, holding gains resulting from market price changes on these assets are always zero in terms of the currency in which they are denominated. When these financial assets are denominated in a foreign currency or held as unallocated gold accounts (or similar accounts in other precious metals), their value in domestic currency terms can change because of a change in the exchange rate or a change in the value of the precious metal.

Debt securities (4203, 4213, 4223, 4303, 4313, 4323)

10.24 Debt securities typically have market prices that change over time. Changes in the value of the stock of debt securities between balance sheet dates arise from transactions in debt securities (i.e., acquisitions, disposals, and the accrual of interest), other changes in the volume of assets (such as write-offs), and revaluations (e.g., changes in the market rate of interest, exchange rate, expectation of creditworthiness, etc.).

10.25 When debt securities, especially deep-discount and zero-coupon bonds, are issued at a discount, then, in the absence of other changes, the price will gradually rise over the life of the bond until it reaches the maturity value. This gradual increase in the market price of a bond that is attributable to the accumulation of accrued interest is a transaction, not a holding gain. The converse treatment applies to bonds issued at a premium.

10.26 The values of debt securities may change when the market rates of interest and/or exchange rates change. With the exception of broad-based index-linked securities (see paragraph 6.77), changes in the values of debt securities that are attributable to changes in market rates of interest and exchange rates (for debt securities denominated in another currency) are holding gains. An increase in interest rates causes a decrease in the market value of the fixed-rate debt securities, which is a holding gain for the debtor and a holding loss for the creditor, and conversely for a decrease in interest rates.

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10.27 Prices of bonds may also change because of a change in the creditworthiness of the issuer or guarantor. Such changes give rise to holding gains.

10.28 As explained in paragraphs 6.76–6.77, when the amount to be paid at maturity or when the coupon payments and the amount to be paid at maturity are indexed to a narrow index (e.g., a gold index) that includes a holding gain motive, any deviation of the underlying index from the originally expected path leads to holding gains or losses.

10.29 Holding gains or losses may accrue on bills in the same way as for bonds. However, because bills are short-term debt securities with much shorter times to maturity, the holding gains generated by interest rate changes are often much smaller than on bonds with the same face values.

Equity and investment fund shares (4205, 4215, 4225, 4305, 4315, 4325)

10.30 General government units may have financial assets or liabilities in the form of equity and investment fund shares. For example, a general government unit may own all or part of the equity of a public corporation or the equity of a quasi-corporation. As with any other asset, a change in the monetary value of these financial assets resulting from price changes is a holding gain or loss.

10.31 Several events can affect the valuation of shares and other equity. For purposes of explanation, a distinction is made between:

- Shares issued by incorporated corporations that are listed (publicly traded) and unlisted shares whose value can be otherwise independently determined
- Unlisted shares issued by incorporated corporations whose value cannot be independently determined and other equity of unincorporated enterprises, such as quasi-corporations.

10.32 If the shares of a public corporation are publicly traded or their value can be independently determined, then the holding gains or losses of the government unit or other public corporation that owns the shares are determined by reference to the market price per share or the independently determined price per share. Several factors may affect the market price per share, such as market perceptions on the profitability of the corporation and when shares go ex-dividend. Valuation changes in shares are recorded as holding gains and losses.

10.33 As explained in paragraph 7.229, net worth is zero for quasi-corporations[9] and for public corporations for which the value of shares cannot be independently determined (most likely because the controlling government unit owns all of the shares). In these cases, the total value of the implicit equity of the quasi-corporation or shares of the corporation is equal to the total value of its assets minus the total value of its liabilities other than equity. As a result, a holding gain equal to the change in the total value of this measure of the equity needs to be recorded, taking into account all retained earnings, and other additions to and withdrawals from equity that may have occurred.

10.34 As mentioned in paragraphs 5.121 and 6.119, reinvested earnings on investment fund shares or of a foreign direct investment enterprise are treated as a type of property income and not holding gains.

Insurance, pension, and standardized guarantee schemes (4206, 4216, 4226, 4306, 4316, 4326)

10.35 When the reserves for nonlife insurance and standardized guarantee schemes are denominated in domestic currency, there are generally no holding gains and losses, just as there are none for currency or deposits and loans. In some exceptions, if an amount for a claim outstanding has been agreed upon and it has been agreed that it will be indexed pending payment, then there may be a holding gain or loss recorded for it.

10.36 Liabilities for pension entitlements include liabilities for the future payment of pensions and other retirement benefits of defined-benefit schemes. The value of these liabilities can change for several reasons, one of which is the passage of time. The liability is computed as the present value of the future benefits, and it will increase each period because there is one fewer period over which it is discounted. In GFS, this increase is treated as a *property expense for investment income disbursements* (2813) (see paragraphs 6.113–6.118).

10.37 In GFS, a holding gain is recorded with respect to the liability for a defined-benefit pension

[9]Because quasi-corporations do not issue shares, market prices do not apply to them.

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scheme when there is a change in the value of the liability because of a change in the interest rate used to discount the future benefits. The liability should be reviewed periodically and revalued as necessary for changes in market interest rates.

10.38 At first sight, it would seem that there are no other economic flows involved for a defined-benefit pension scheme since the two components recorded as the pension contributions and property expense for investment income disbursements are matched by equal-value increases in entitlements. However, because the nature of a defined-benefit pension scheme is that the level of benefit entitlements is determined by a formula, there are other factors that may intervene to affect changes in the level of entitlements. These factors include a price escalation clause, changes in the formula used to determine benefits, and demographic assumptions about lifespan.

10.39 The factors that change the level of entitlements (i.e., changes in the formula used to determine the benefits and demographic assumptions) should be recorded as other changes in the volume of assets (see paragraph 10.73); the adjustments from changes in the price escalation formula are recorded as holding gains or losses.

10.40 The impact of promotions, merit increases, and other real salary increases on entitlements is a special case.[10] Many defined-benefit pension schemes use a formula to set benefits based on either the final salary or average salary as a key determinant. Therefore, this implies that any promotion or other real increase in salaries means that the total pension entitlements accrued to date are increased to take account of the new salary level. This is a significant benefit for the individual and has consequences for the employer's pension liabilities. It is recommended that a simple and adequate solution would be to treat the impact of promotions for the unit as a whole as a price change and record this change as a holding gain. If the projected benefit obligation method is used to value pension entitlements, an adjustment in the form of other changes in the volume of assets is needed if the enterprise makes a structural change in the way promotions and merit increases are awarded (see paragraph 10.72).

[10] Also see the *2008 SNA*, paragraphs 17.180–17.186.

10.41 An equal-valued holding gain should be recorded with respect to the liability for a defined-contribution pension scheme whenever a holding gain is recorded with respect to the assets of the fund. The investment of accumulated pension entitlements of a defined-contribution pension scheme leads to holding gains (and possibly losses). These come about through the management of investment in assets held by the fund. The holding gains appear under entries for the relevant assets for the pension fund, with a matching entry for the increase in the liability of the pension fund toward the policyholders (households).

Financial derivatives and employee stock options (4207, 4217, 4227, 4307, 4317, 4327)

10.42 Financial derivatives have quoted prices or have prices that can be derived from the underlying item that is the subject of the derivative. Thus, financial derivatives register holding gains and losses.

10.43 Employee stock options can also register holding gains and losses. In principle, any change in value between the grant date and vesting date should be recorded as compensation of employees, while any change in the value between vesting date and exercise date is treated as a holding gain or loss. In practice, and for pragmatic reasons, the whole of the increase between grant date and exercise date is treated as a holding gain or loss (see paragraph 9.80). An increase in value of the share price above the strike price is a holding loss for the employer.

Financial assets denominated in foreign currencies

10.44 The value of a financial asset denominated in a foreign currency is its current value in the foreign currency converted into the domestic currency at the current exchange rate. Therefore, holding gains may occur not only because the price of the asset in the foreign currency changes but also because exchange rates change.

Debt instruments that do not accrue interest

10.45 There may be an unusually long time[11] before payment is due on an outstanding debt liability

[11] What constitutes an unusually long time in this context will depend on the circumstances. For example, for any given time period, the higher the level of interest rates or the longer the delay in payment, the greater is the opportunity cost of delayed payment.

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(or the corresponding financial asset in the form of a debt instrument) on which no interest accrues (see paragraph 7.30). If so, the value of the principal should be reduced by an amount that reflects the time to maturity and an appropriate existing contractual rate, such as for similar debt instruments. Once the value of the principal is reduced through a revaluation, interest should accrue until actual payment is made, at the rate used to discount the principal.

Other Changes in the Volume of Assets

10.46 Other changes in the volume of assets cover a wide variety of events. For the purpose of description, these events are divided into three groups:[12]

- Events that involve the appearance or disappearance of existing resources as economic assets. In other words, certain assets enter and leave the GFS balance sheet through events other than by transactions
- The effects of external events—exceptional and unexpected—on the economic benefits derivable from assets (and corresponding liabilities)
- Changes in classification.

10.47 Many other volume changes occur at specific times and should be recorded when the event occurs. Some other volume changes occur continuously or at frequent intervals, such as the depletion of subsoil and other naturally occurring assets or environmental damage to assets. These changes should be recorded in the same manner as holding gains.

Appearance or Disappearance of Existing Economic Assets

10.48 For a resource to be an economic asset, ownership rights over it must be enforced and it must be capable of providing economic benefits. If a resource that is known to exist but is not classified as an economic asset becomes an economic asset because of a change in relative prices, technology, or some other event, an entry in other changes in the volume of assets should be recorded to recognize the asset's value and add it to the balance sheet. Conversely, an economic asset may need to be removed from the balance sheet because it is no longer capable of supplying economic benefits or because the owner is no longer willing or capable of exercising ownership rights over the asset.

10.49 The recording of events relating to the appearance and disappearance of assets can be grouped according to the main type of asset under consideration based on whether they relate to:

- The economic recognition of produced assets
- Entry and exit from the asset boundary of natural resources
- Contracts, leases, and licenses
- Changes in goodwill and marketing assets, or
- Financial assets (and liabilities).

10.50 Usually, two types of assets can appear under the economic recognition of produced assets: public monuments and valuables. These are existing goods that may not already have been recorded in the balance sheets as public monuments or valuables for any of several reasons; they may date from a time before the reporting period covered by the accounts, they may have been originally recorded as expense for use of goods, or they may be structures that have already been written off.

- Public monuments are included with dwellings, buildings other than dwellings, or other structures, as appropriate, in the classification of fixed assets (see paragraphs 7.42–7.43). When the special archaeological, historical, or cultural significance of a structure or site not already recorded in the balance sheet is first recognized, it is classified as an economic appearance and recorded as other changes in the volume of assets. For example, such recognition might be accorded to an existing structure or site that is fully written off and thus no longer recorded in the balance sheet. Alternatively, a structure or site that is already within the asset boundary, but is new or only partially written off, may be assessed as having the status of a public monument. If the monument was previously written off, then its recognition as a public monument is recorded as an economic appearance of an asset. If it was previously classified as another type of asset, it is recorded as a reclassification of an asset (see paragraphs 10.80–10.84) and if at the same time a new valuation is placed on the monument, this increase in value is recorded as an economic appearance.

[12]The distinctions made here are only for purposes of description; the GFS classifications do not specify this breakdown.

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- Valuables, such as precious stones, antiques, and other art objects, for which the high value or artistic significance has not already been recorded in the balance sheet, should be recognized as an economic appearance. Hitherto, the object may have been of little value and not considered an asset. For example, the item might have been considered an ordinary good whose purchase was recorded as an expense, classified in *use of goods and services* (22). Recognition of its worth as a store of value leads to its entrance into the balance sheet as a valuable. The recognition of the value of a previously unvalued item is often necessitated by a sale (e.g., at auction). The sale is recorded as a transaction under the disposal of nonfinancial assets only after the asset first entered into the balance sheet of the seller through an entry in other changes in the volume of assets.

10.51 Conversely, a nonfinancial asset that no longer has economic value because of a change in technology, relative prices, or other event must be removed from the balance sheet. For example, the commercial exploitation of mineral reserves, land, forests, fish stocks, aquifers, and other naturally occurring assets may become unfeasible. If so, then a negative entry in other changes in the volume of assets would be recorded to remove the asset from the balance sheet.

10.52 It may be difficult to determine the exact time at which a natural asset should be added to the balance sheet, and to determine the value that should be attributed to it at that time. Often, the date at which the first substantial commercial exploitation begins or the signing of a contract to permit commercial exploitation is used to establish the time of recording. Several events may result in natural resources to enter or exit the asset boundary:

- Discoveries/extractions and upward/downward reappraisals of subsoil resources—The value of these resources may increase in the balance sheet by the discovery of new exploitable deposits, whether as a result of systematic scientific explorations or surveys, or by chance. Economic appearance may also occur because a deposit of subsoil minerals has become economically exploitable as a result of technological progress or relative price changes.
- Conversely, the value of these resources may decrease in the balance sheet by the depletion of deposits of subsoil assets as a result of the physical extraction and use of the assets, or from downward reappraisals that reduce their exploitability because of changes in technology or relative prices.
- Natural growth/harvesting of noncultivated biological resources—The natural growth of noncultivated biological resources, such as natural forests and fish stocks, may take various forms: a stand of natural timber may grow taller, or fish in the estuaries may become more numerous. Although these resources are economic assets, growth of this kind is not under the direct control, responsibility, and management of an institutional unit and thus is not treated as a transaction in net investment in fixed assets. In principle, natural growth should be recorded gross, and the depletion of these resources should be recorded as economic disappearance, as described in the next bullet. This recording would be consistent with the gross recording of transactions in acquisitions and disposals described under the net investment in nonfinancial assets. In practice, however, many countries will record natural growth net because only the net physical measures are likely to be available. The net physical measure multiplied by the market price for a unit of the asset may be used in estimating the value of the volume change to be recorded.
- The depletion of natural forests, fish stocks in the open seas, and other noncultivated biological resources included in the asset boundary of general government or public sector units as a result of harvesting, forest clearance, or other use beyond sustainable levels of extraction constitutes an economic disappearance of assets and should be recorded as negative other changes in the volume of assets.
- Transfers of other natural resources to/out of economic activity—Not all land included in the geographic surface area of a country is necessarily within the asset boundary of GFS. Land may make its economic appearance when, for example, general economic development in nearby areas transforms the land from a wild or waste state to a state in which ownership rights can be enforced and the land can be put to economic use.[13] Land may also make its economic

[13] For the treatment of land improvements, including land reclamation, see paragraphs 7.49–7.51.

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appearance (or enter the asset boundary) because of activity in the vicinity—for example, land that becomes more desirable because a new development is established nearby or an access road built. Any excess in the value of the land over the value of land improvements or any increase due to adjacent capital activity is recorded as economic appearance. For virgin forests, gathering firewood is not commercial exploitation, but large-scale harvesting of a virgin forest for timber is and brings the forest into the asset boundary. Similarly, drawing water from a natural spring does not bring an aquifer into the asset boundary of GFS, but a significant diversion of groundwater does. A move to charge for regular extraction from a body of surface water may also bring a water resource into the balance sheet.

- A government unit can create an economic asset by exerting ownership rights over a naturally occurring asset that had not previously been recognized as an asset, such as the electromagnetic spectrum or fish stocks in exclusive economic zones. When this occurs, the asset enters the balance sheet through other changes in the volume of assets.
- It is possible that some natural resources cease to be exploited because of changed technology or reduced demand for the resulting product, or for legislative reasons, such as the suspension of fishing to ensure the survival of fish stocks. When this change in use occurs, the asset is removed from the balance sheet through other changes in the volume of assets.
- Quality changes in natural resources due to changes in economic uses—In this case, the asset is already within the asset boundary. The change in quality of the asset due to changes in its economic use is regarded as the appearance of additional amounts of the asset. For example, the use of bare rural land changes when it becomes land underlying buildings and may result in a change in the balance sheet value that is effected through an other change in the volume of the asset.
- All degradation of land, water resources, and other natural assets caused by economic activity should be recorded as negative other changes in the volume of assets. The degradation may be the anticipated result from regular economic activity or less predictable erosion and other damage to land from deforestation or improper agricultural practices.
- The difference between a quality change and a price change is a matter of degree, and it may not always be clear whether other changes in the volume of assets or a holding gain is most appropriate. For example, activities adjacent to land may bring land into the asset boundary (recorded as another volume change), while the value of land in the vicinity may also increase due to a rise in general price levels of land (recorded as holding gains).

10.53 It is recommended to recognize assets in the form of contracts, leases, and licenses in the balance sheet of the holder only when the value of the asset can be realized (see paragraph 7.106). In this case, they are first recorded as other changes in the volume of assets and, subsequently, form the basis of a transaction (or series of transactions). The value of the contract, lease, or license that is treated as an asset is equal to the present value of the excess of the prevailing price over the contract price. The value will decline as the remaining contract period shortens. Changes in the value of the contract, lease, or license due to changes in the prevailing price are recorded as holding gains or losses (revaluations); changes due to the expiration of the time over which the contract, lease, or license is valid are recorded as other changes in volume of assets (i.e., to write off the cost of the asset). The rate at which the value is written down should be in accordance with internationally accepted accounting standards. The treatment of contracts, leases, and licenses is discussed more extensively in Appendix 4.

10.54 When an enterprise—whether a corporation, quasi-corporation, or unincorporated enterprise—is sold, the price payable may not equal the sum of all the assets minus the liabilities of the enterprise. The difference between the price payable and the sum of all the assets minus liabilities is called the purchased goodwill and marketing assets of the buyer. The value may be positive or negative (or zero). When the buyer includes this asset in the calculation of the net worth of the enterprise at the moment it is bought, net worth is exactly zero.

10.55 The value of purchased goodwill and marketing assets is calculated at the time of the sale, and entered in the books of the seller as an other

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change in the volume of assets. Subsequently, it is then exchanged as a transaction with the purchaser. Thereafter, the value of the purchased goodwill and marketing asset must be written down in the books of the purchaser via entries under other changes in the volume of assets. The rate at which it is written down should be in accordance with internationally accepted accounting standards. These standards are typically conservative in the amount that may appear on the balance sheet of an enterprise and should be subject to an "impairment test" whereby accountants can satisfy themselves that the remaining value is likely to be realizable in case of a further sale of the enterprise.

10.56 Goodwill that is not evidenced by a sale or purchase is not considered an economic asset in GFS. In some exceptions, a marketing asset may be subject to sale. When this is the case, entries should be made for the buyer and the seller along the lines of those made for purchased goodwill and marketing assets when the entire enterprise is sold.

10.57 Financial assets and liabilities may appear on or disappear from the balance sheet in several ways—for example:

- A creditor may determine that a financial claim can no longer be collected because of the debtor's bankruptcy or other factors. If so, the creditor writes off the debt and removes the claim from its balance sheet by means of an entry in other changes in the volume of assets.[14]
- Cancellations of employee stock options are recorded as other changes in the volume of assets.

10.58 The creation of SDRs (referred to as allocations of SDRs) and the extinction of SDRs (cancellations of SDRs) are treated as transactions, not other changes in the volume of assets.[15]

The Effect of External Events on the Value of Assets

10.59 There are three principal causes of the reduction in the value of an asset, or even its disappearance, that are not related to the nature of the asset but to conditions prevailing in the economy that impact either the value or ownership of assets. These are catastrophic losses, uncompensated seizures, and other changes in the volume of assets not elsewhere classified. Each is discussed in the remainder of this section.

Catastrophic losses

10.60 A **catastrophic loss** is the partial or complete destruction of a significantly large number of assets within any of the asset categories resulting from a large-scale, discrete, and recognizable event. Such events will generally be easy to identify. They are usually sudden or one-time events of large proportions. They include major earthquakes, volcanic eruptions, tidal waves, exceptionally severe hurricanes, droughts, and other natural disasters; acts of war, riots, and other political events; and technological accidents, such as major toxic spills or release of radioactive particles into the air. Included here are such major losses as deterioration in the quality of land caused by abnormal flooding or wind damage; destruction of cultivated assets by drought or outbreaks of disease; and destruction of buildings, equipment, or valuables in fires or earthquakes. An entry in other changes in the volume of assets is recorded to reduce or eliminate the value of any asset damaged or destroyed.

10.61 Although produced assets are the most likely candidates to be damaged or destroyed by a catastrophic loss, nonproduced assets and financial assets are also subject to damage or destruction. For example, major decreases in the value of land and other natural assets caused by abnormal flooding or wind damage and the accidental destruction of currency or bearer securities as a result of natural catastrophes or abnormal political events would be included.

[14] Usually, debt is written off as uncollectible because of the bankruptcy or liquidation of the debtor; however, it may sometimes be written off for other reasons, such as a court order. The write-off may be full or partial; partial write-offs may arise, for example, under a court order, or if the liquidation of the debtor's assets allows some of the debt to be settled. Recognition that the debt is uncollectible should be distinguished from internal accounting provisions of the creditor for the possibility of default (such as adjustments to fair value of nonperforming loans). Although such provisions may be useful for analysis, they do not mean that the debt should no longer be recognized as existing and should therefore not be considered as written off. In contrast, as described in paragraphs 6.124 and A3.7–A3.9, a reduction in a financial claim by mutual agreement between the creditor and debtor is a transaction rather than an other change in the volume of assets.

[15] See paragraphs 7.131–7.134 and 9.31.

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Uncompensated seizures

10.62 Government units may take possession of the assets of other institutional units without full compensation for reasons other than the failure to pay taxes, fines, or similar levies. Such seizures of assets, legal or illegal, are not capital transfers because they do not take place by mutual agreement of the units involved. The difference between the market value of the assets seized and any compensation provided is recorded as an other change in the volume of assets, in the form of an uncompensated seizure. Foreclosures and repossessions of assets by creditors are transactions when the contractual agreement between debtor and creditor provides this avenue of recourse.

Other volume changes not elsewhere classified

10.63 The value of a fixed asset is continuously reduced by consumption of fixed capital until the asset is disposed of or has no remaining value. It is possible for the assumptions underlying the calculation of consumption of fixed capital to be inaccurate, in which case corrections to the value of the asset need to be made through other changes in the volume of assets. Similarly, if the assumption about the rate of shrinkage of inventories was inaccurate, this should also be corrected through an entry in other changes in the volume of assets. Financial assets and liabilities, such as those related to insurance, pension, and standardized guarantee schemes, can also be affected by volume changes.[16]

Fixed assets (511)

10.64 The calculation of the consumption of fixed capital reflects an assumption about normal rates of physical deterioration, obsolescence, and accidental damage. Each of these assumptions may prove to be faulty. In that case, an adjustment in the form of other changes in the volume of assets must be made.

10.65 Physical deterioration may include the effect of unforeseen environmental degradation on fixed assets. Entries must, therefore, be made through other changes in the volume of assets for the decline in the value of the fixed assets from, for example, the unforeseen effects of acidity in the air and acid rain on building surfaces or vehicle bodies.

10.66 The introduction of improved technology can render an asset obsolete or accelerate the rate of obsolescence. For example, improved models of the asset or of a new production process that no longer requires the asset may lead to unforeseen obsolescence. In consequence, the amount included in consumption of fixed assets for their expected obsolescence may have been underestimated, so an entry in other changes in the volume of assets should be recorded.

10.67 The amount included for normally expected damage—as included in the calculation of consumption of fixed capital—may fall short of the actual damage. Adjustments must therefore be made through other changes in the volume of assets for the decline in the value of the fixed assets due to these events. While these losses may be larger than normal, they are not on a scale sufficiently large to be considered catastrophic—they are therefore included in other volume changes not elsewhere classified.

10.68 As explained in paragraph 6.60, costs of ownership transfer should, in principle, be written off over the expected time the asset will be in the possession of the purchaser. If the asset is disposed of before the costs of ownership transfer are completely written off, the remainder should be recorded as an other change in the volume of assets.

10.69 Production facilities with long construction periods may cease to have an economic use before they are completed or are put into service. For example, a nuclear power plant or industrial site may never be put into service. When the decision to abandon is made, the value of the fixed asset (or in some cases, work-in-progress inventories) as recorded in the balance sheet should be written off through an other change in the volume of assets.

Exceptional losses in inventories (512)

10.70 Exceptional inventory losses from fire, robbery, insect and vermin infestation of grain stores, and unusually high levels of disease in livestock, etc. are included as other changes in the volume of assets. In this context, exceptional losses indicate that the losses are not only large in value but also irregular in occurrence. Even very large losses that occur regularly should be taken into account when calculating the net change in inventories, as explained in paragraph 8.47. The adjustment for unforeseen damage could be an

[16] See paragraphs 10.39–10.40 and A2.54.

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increase in assets if the actual damage falls short of the amount covered by the allowance for losses.

Life insurance and annuities entitlements (52062, 52162, 52262, 53062, 53162, 53262)

10.71 For an annuity, the relationship between the expected net premiums and benefits is usually determined when the contract is entered into, taking account of mortality data available at that time. Any subsequent changes will affect the liability of the annuity provider toward the beneficiary, and the consequences should be recorded as other changes in the volume of assets.

Pension entitlements (52063, 52163, 52263, 53063, 53163, 53263)

10.72 In defined-benefit pension schemes, the level of benefits promised to participating employees is determined by a formula that is usually based on the participants' length of service and salary. Changes in pension entitlements that are imposed without negotiation are recorded as other changes in the volume of assets.[17] That is because such changes are assumed to be imposed unilaterally by the employer and do not constitute a capital transfer negotiated by mutual agreement.

10.73 As explained in paragraph 10.38, for a defined-benefit pension scheme, any changes in the value of the liability due to changes in the formula used to determine benefits and due to changes in demographic assumptions about the lifespan should be recorded as other changes in the volume of assets. If the projected benefit obligation method is used to value pension entitlements, an adjustment in the form of other changes in the volume of assets is needed if the enterprise makes a structural change in the way promotion and merit increases are awarded (see paragraph 10.40).

10.74 No such adjustments are needed for defined-contribution schemes where the benefits are determined solely in terms of the contributions and investment earnings of the scheme.[18]

[17] The cases where changes in pension entitlements are recorded as transactions are discussed in paragraphs 9.63–9.67. The distinction between transactions and other changes in the volume of assets remains theoretical, as it is recognized that the distinction between what is negotiated and what is imposed without negotiation will be difficult to determine in practice, with different situations prevailing in different countries.

[18] Also see the *2008 SNA*, Chapter 17, Part 2.

Provisions for calls under standardized guarantee schemes (52065, 52165, 52265, 53065, 53165, 53265)

10.75 Changes to provisions for calls under standardized guarantee schemes not resulting from transactions and holding gains and losses are shown as other changes in volume of assets. For example, such other changes in volume of assets occur whenever a significant change to the expected level of calls is recognized beyond any asset recovery (see paragraph A4.79).

Changes in Classification

10.76 The composition of the general government or public sector's balance sheet may change because there has been a reclassification of an entire institutional unit, the structure of a unit, or a group of assets and liabilities. A reclassification rearranges assets and liabilities without adding to or subtracting from total net worth.

Changes in sector classification and structure

10.77 An entire unit may be reclassified from the general government sector to another sector or to the general government sector from another sector without a change of ownership or control, normally because the unit either begins or ceases to sell its output for economically significant prices. When a unit is reclassified out of the general government sector, all of the unit's assets and liabilities are removed from the general government sector's balance sheet and the net value of those assets and liabilities is replaced by a financial asset, *equity and investment fund shares*, to reflect the continued ownership or control of the unit by a general government unit. The reverse will be true when a unit is reclassified into the general government sector. By contrast, when a public corporation is privatized, all of the unit's assets, liabilities, and net worth are reclassified from being that of a public corporation to a private corporation.[19]

10.78 A change in the structure of units is also recorded as an other change in the volume of assets—for example, when two general government units merge into a single unit, or a single unit splits into two units.

[19] In the balance sheet of the shareholder (such as government), the privatization transaction will lead to a reduction in the financial asset *equity and investment fund shares.*

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When two units are merged, all financial claims and liabilities that existed between them are eliminated. Symmetrically, when a unit splits into two or more units, new financial claims and liabilities may appear between the new units.

10.79 In cases where general government units issue negotiable securities that sell in secondary markets, the holders of the securities may change during the life of the security. In debt data classified by counterparties, this change in the debtor/creditor relationship should be recorded as a reclassification under other changes in the volume of assets (see also paragraphs 9.25 and 9.86). For example, a central government debt security may be sold originally to a bank and then subsequently sold by the bank to a local government unit. To show on the central government's balance sheet that the new holder of the security on the reporting date is the local government, entries in other changes in the volume of assets are recorded in the central government accounts, reducing the security liability to the bank and increasing the liability to the local government.[20] No transactions between the central government, bank, and the local government should be imputed to reclassify the holder of the securities.

Changes in classification of assets and liabilities

10.80 Depending on the degree of detail of the classifications of assets, there may be reclassifications of existing assets and liabilities from one category to another, usually when there is a change in the purpose for which an asset is used. The change in classification is recorded as other changes in the volume of assets with the same value for both entries. If the change in the use also means a change in its value, then a second entry in other changes in the volume of assets is recorded for the entrance into the asset boundary of the asset with the higher value. It is not recorded as a revaluation since the value increase is due to the change in use and is not due to price changes.

10.81 The use of a structure may be changed from a dwelling to a government office building or vice versa. If these types of structures are classified separately, then an entry in other changes in the volume of assets is recorded. The positive change in one asset category is balanced by a negative change in the other asset category. A conversion resulting solely from new investment in a building is not an other change in the volume of the asset but a transaction in fixed assets (see paragraph 8.28).

10.82 In all instances, work in progress needs to be reclassified to finished goods prior to sale, through an entry in other changes in the volume of assets. In principle, reclassification from one type of inventory to another or from fixed assets to inventories should not involve a change in value. If at the time of conversion, the previous value is different from the appropriate new value, an entry in other changes in the volume of assets should be recorded under economic appearance or disappearance as appropriate. If this is found to be happening systematically, the valuation techniques for inventories should be re-examined.

10.83 As explained in paragraph 8.42, transactions in the costs of ownership transfer of nonproduced assets other than land are classified as fixed assets and these costs are subject to consumption of fixed capital. To maintain the integration of stock positions and flows, the costs of ownership transfer of nonproduced assets other than land and the consumption of fixed capital relating to these costs are reclassified to the respective nonproduced assets through an entry in other changes in the volume of assets.[21] This reclassification is considered to take place at the time of recording the transactions in cost of ownership transfer and consumption of fixed capital, respectively.

10.84 Some examples of changes in the classification of financial assets and liabilities are:

- When monetary gold held in the form of gold bullion becomes a reserve asset, it enters the financial assets in the balance sheet as a reclassification via other changes in the volume of assets from valuables to monetary gold. At the time it is acquired by a monetary authority, it is first classified as inventory or a valuable.[22] The same

[20] Because the local government has a claim on central government, without the central government being involved in the transaction, the same other volume change would be recorded on the local government's balance sheet to show that the central government is the creditor.

[21] Two entries are recorded in other changes in the volume of assets: a reduction in the fixed asset *costs of ownership transfer on nonproduced assets other than land* (31133) and an increase in the value(s) of the respective nonproduced assets.

[22] Gold is reclassified to inventories if not primarily held as a store of value.

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recording is followed for allocated gold accounts that become part of monetary gold. When unallocated gold accounts become reserve assets, they are reclassified from currency and deposits to monetary gold, also through other changes in the volume of assets. Monetary gold may be sold to another monetary authority, but otherwise, any reduction in holdings follows a similar declassification path; the monetary gold is reclassified to be either a valuable or inventories (in the case of gold bullion) or currency and deposits (in the case of unallocated gold accounts). Subsequent transactions are recorded in terms of inventories or valuables or currency and deposits and not in terms of monetary gold.

- In cases when benefits under a defined-contribution pension scheme are converted to annuities, a reclassification should be recorded from pension entitlements to annuities entitlements.
- When loans become tradable in the conditions stated in paragraph 7.149, a reclassification should be recorded from loans to debt securities.
- If arrears arise and the contract provides for a change in the characteristics of a financial instrument when it goes into arrears, this change should be recorded as a reclassification in the other changes in the financial assets and liabilities account. The reclassification applies to situations where the original contract remains, but the terms within it changes (e.g., interest rates or repayment periods).
- If the amount payable under a derivative remains due for payment after the derivative matures, the amount due no longer represents a derivative because the value is fixed. It is therefore reclassified under other accounts receivable or payable.[23]
- Bonds that are convertible into equity are reclassified as *equity and investment fund shares* when the option is exercised.
- In cases where government units acquire equity in a public corporation or quasi-corporation as a result of legislation or an administrative change creating the corporation or quasi-corporation, this event will amount to a reclassification of the corporation's existing assets and liabilities that results in an addition of *equity and investment fund shares* to the balance sheets of government and the corporation (see paragraph 9.50).

[23]The creation and exhaustion of financial derivatives are transactions in financial assets (and liabilities), not other changes in the volume of assets.

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APPENDIX

1 Changes from the *GFSM 2001* and *GFSM 1986*

This appendix describes the changes in the Government Finance Statistics Manual 2014 (GFSM 2014) from the *Government Finance Statistics Manual 2001 (GFSM 2001), and describes the differences with the traditional approach to fiscal reporting as depicted in* A Government Finance Statistics Manual 1986 (GFSM 1986).

Introduction

A1.1 In the *GFSM 2014*, the guidelines in the *GFSM 2001* have been revised to harmonize with the updates in other macroeconomic statistical manuals and guides, such as the overarching *System of National Accounts 2008* (*2008 SNA*), the sixth edition of the *Balance of Payments and International Investment Position Manual* (*BPM6*), and the *Public Sector Debt Statistics: Guide for Compilers and Users* (*PSDS Guide*).

A1.2 The *GFSM 2014* addresses important international economic developments in recent years and takes into account improved recording and methodological treatments of various events. The changes incorporated can broadly be summarized as methodological changes agreed to in the update of the *2008 SNA*, clarifications on existing methodological guidelines, presentational changes, and editorial changes.

A1.3 The remainder of this appendix first describes the changes in the *GFSM 2014*, compared to the *GFSM 2001*. Since many countries are still in various stages of migrating from presenting fiscal statistics in a traditional way, based on the *GFSM 1986*, the second part of this appendix also provides a description of the difference between the guidelines in this *Manual* and the *GFSM 1986*.

Changes from the *GFSM 2001*

A1.4 The *GFSM 2014* retains the basic conceptual framework of its predecessor, the *GFSM 2001*. However, this *Manual* introduces improved treatments for recent developments and specific events, elaborates on aspects of reporting that have proved to be complex, and takes into consideration new needs of compilers and users of GFS. The remainder of this section describes the main changes, grouped according to the chapters of the *GFSM 2014*, before describing changes in terminology introduced in this *Manual*. The discussion of the changes includes cross-references to the relevant paragraphs in the chapters.

Chapter 1

A1.5 A definition for *fiscal policy*, *general government sector*, and *public sector* is introduced in paragraph 1.2.

A1.6 A section to describe the evolution of international statistical guidelines on government finance statistics, starting in the early 1970s, is presented in paragraphs 1.6–1.9. This section also broadly outlines the reasons for the update of the *GFSM 2001*.

A1.7 The section on the structure and features of the GFS framework introduces two supplementary statements—namely, the *Statement of Total Changes in Net Worth* and the *Summary Statement of Explicit Contingent Liabilities and Net Obligations for Future Social Security Benefits* (see paragraphs 1.18–1.19). These supplementary statements are added to the GFS framework due to their analytical usefulness for users of fiscal data.

A1.8 The valuation principle described in paragraph 1.29 indicates that *current market prices* are used to value economic flows and stock positions. This principle is clarified by indicating that market-value equivalents are used for assets and liabilities that are not traded in markets, or are traded infrequently.

A1.9 The important linkages between GFS and other macroeconomic datasets are introduced in

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paragraph 1.35, also recognizing the close relationship with accounting standards. Paragraph 1.39 highlights the importance of good dissemination practices as spelled out in the General Data Dissemination System, Special Data Dissemination Standard, and the Special Data Dissemination Standard Plus.

Chapter 2

A1.10 The delineation of general government and public sector institutional units is clarified. The chapter is reorganized to first delineate the domestic economy, and then it describes institutional units and the types of units that exist in macroeconomic statistics, before defining institutional sectors. These principles are then applied to delineate the general government and public sectors, and the practical application of the sector classification principles to selected cases is described.

A1.11 The concept of *residence* is elaborated on to align with guidance of *2008 SNA* and *BPM6* (see paragraph 2.6). The additional guidance includes defining and describing the treatment of *notional resident units* (see paragraph 2.13) and *nonresident special purpose entities* (see paragraph 2.15). Additional guidance on identifying *international and regional organizations* is presented in paragraphs 2.16–2.19. The treatment of multiterritory *regional enterprises* (see paragraph 2.20) and *currency union central banks* (see paragraph 2.21) is explained.

A1.12 The rationale for working with the institutional unit in macroeconomic statistics is explained in paragraph 2.23. In addition, the concepts *establishment* and *enterprise* are defined and explained in paragraphs 2.24 and 2.25, respectively.

A1.13 The description of the types of institutional units is organized to make a distinction between persons or groups of persons in the form of *households* and *legal or social entities* (see paragraph 2.27). Households are defined and described in paragraphs 2.28–2.29, while legal or social entities are defined, and the types of legal or social entities described in more detail (see paragraphs 2.30–2.38).

A1.14 The section on applying the definition of institutional unit to government introduces a discussion on *artificial subsidiaries* and *ancillary activities*, and applies these concepts to *resident SPEs* and a *government central borrowing authority* (see paragraphs 2.42–2.45).

A1.15 The definition and identification of *nonfinancial and financial corporations sectors* are presented in detail (see paragraphs 2.52–2.57). The additional guidance is provided to clarify the distinction between these corporations and government units. This includes the introduction of three broad classes of financial corporations—namely, financial intermediaries, financial auxiliaries, and other financial corporations—and specifically explains *financial intermediation*.

A1.16 The delineation of general government and public corporations is clarified using the concept of *market and nonmarket producers*. The application of the concept *economically significant prices* to determine whether a unit is a market or nonmarket producer is elaborated on (see paragraphs 2.65–2.75).

A1.17 Guidance is provided on how to determine whether a nonprofit institution is under control of government. *Indicators of control* and how to apply these to establish control of government are provided in Box 2.1.

A1.18 An extensive discussion on the *public corporations subsector* is introduced in paragraph 2.104. The rationale for the extension of GFS to include data for public corporations is described in paragraph 2.105, and the types of public corporations are presented in paragraphs 2.113–2.121. Guidance is provided on how to determine whether a corporation is under control of government (see paragraphs 2.107–2.112). *Indicators of control* and how to apply them to establish control of government over corporations are provided in Box 2.2.

A1.19 Using the concepts of residence, institutional units, control, and market versus nonmarket producers, a *decision tree* for sector classification of the public sector is introduced in paragraph 2.124 and Figure 2.4.

A1.20 A separate section describes the practical application of the sector classification principles to selected cases—these cases are the topics of frequently asked questions. Included are: the identification of *quasi-corporations* (see paragraph 2.125); distinguishing *head offices and holding companies* (see paragraph 2.128); *restructuring agencies* (see paragraph 2.129); *financial protection schemes* (see paragraph 2.132); *special purpose entities* (see paragraph 2.136); *joint ventures* (see paragraph 2.140); *sinking funds* (see paragraph 2.144); *pension schemes* (see paragraph 2.147);

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provident funds (see paragraph 2.148); *sovereign wealth funds* (see paragraph 2.152); *market regulatory agencies* (see paragraph 2.156); and *development funds and/or infrastructure companies or entities* (see paragraph 2.160).

A1.21 The annex to Chapter 2 of the *GFSM 2001*, describing *social protection*, is subsumed in Appendix 2 of the *GFSM 2014*. This appendix presents guidance on the identification and sectorization of entities involved in social protection, as well as guidance on the recording of the flows and stock positions related to their economic activities.

Chapter 3

A1.22 A distinction between *monetary* and *nonmonetary* transactions is introduced in paragraphs 3.8 and 3.19, respectively. This distinction also forms the basis for the distinction between transfers (capital and current transfers), exchanges, in-kind transactions, and internal transactions.

A1.23 A definition of stock positions is provided in paragraph 3.36. The concepts *economic benefits* and *ownership* are used to define economic assets, before a distinction is drawn between *legal* and *economic ownership* in paragraphs 3.38–3.39. These concepts are used to determine the *asset boundary* and define *assets* and *liabilities* (see paragraphs 3.42–3.50).

A1.24 The *GFSM 2014* reinstates a more balanced approach between having *both accrual and cash* information in an integrated statistical framework. Therefore, starting in paragraph 3.61, alternative recording bases are discussed with a reference to using the accrual basis of recording in the *Statement of Operations* (see paragraph 3.69) and using the cash basis of recording in the *Statement of Sources and Uses of Cash* (see paragraphs 3.67 and 3.103).

A1.25 Additional guidance on the application of the accrual basis of recording principles is described from paragraph 3.76 onward. Guidance on the time of recording and measurement of *taxes* and *other compulsory transfers* is presented in paragraph 3.77.

A1.26 The time of recording dividends when using an accrual basis of recording is defined as when the equity or shares go *ex-dividend* (see paragraphs 3.87 and 5.112).

A1.27 When using an accrual basis of recording, the time of recording transactions in goods and services, nonfinancial assets, and many financial assets and liabilities is defined as the moment when *economic ownership changes*. Recognition is given to cases where change of ownership is not obvious and additional guidance for those cases is provided (see paragraphs 3.88–3.97).

A1.28 Guidance on the time of recording other economic flows is described in paragraphs 3.98–3.102.

A1.29 Guidance on using the cash basis of recording in the *Statement of Sources and Uses of Cash* is elaborated in paragraphs 3.103–3.106.

A1.30 Guidance on valuation is elaborated on and the section is structured to present descriptions of the *general valuation rule* (see paragraph 3.107), *valuation of transactions* (see paragraphs 3.108–3.112), *valuation of stock positions* including *alternatives valuation methods* (see paragraphs 3.113–3.117), *valuation adjustments* in special cases (see paragraphs 3.118–3.125), and *valuation of other economic flows* (see paragraphs 3.126–3.129).

A1.31 The *GFSM 2014* introduces a discussion on *currency*, starting with a discussion on the *unit of account* for the compilation of GFS in paragraph 3.130. Guidance is provided on *currency conversions* for transactions and stock positions (see paragraphs 3.132–3.133) and the distinction between *domestic and foreign currency* (see paragraphs 3.134–3.136) and *currency of denomination* and *currency of settlement* (see paragraphs 3.137–3.139).

A1.32 Starting in paragraph 3.152, the *GFSM 2014* presents a detailed discussion of *consolidation*. The concept is defined (see paragraphs 3.153–3.154), a distinction is made between *intrasectoral* and *intersectoral consolidation* (see paragraphs 3.155–3.157), and *reasons* for consolidation are discussed (see paragraphs 3.158–3.160), before *conceptual guidelines* for the process of consolidation are presented (see paragraphs 3.161–3.164). Paragraphs 3.165–3.166 present practical guidelines on *implementing consolidation*, while paragraphs 3.167–3.168 describe consolidation principles used in other datasets.

Chapter 4

A1.33 The analytic objectives of the GFS framework were expanded to include the ability to assess management and policy decisions, as well as sustainability and liquidity decisions (see paragraphs 4.3–4.5).

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A1.34 Paragraph 4.7 elaborates on the coverage of GFS, emphasizing that data should cover the nonmarket activities of the general government sector, as well as the market activities of the public sector.

A1.35 Two additional statements are included in the GFS framework, to further enhance the analytical usefulness of GFS (see paragraphs 4.13–4.15 and 4.46–4.49):

- Statement of Total Changes in Net Worth
- Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits.

A1.36 The concept *expenditure* is reinstated as an aggregate in both the *Statement of Operations* and in the *Statement of Sources and Uses of Cash* (see paragraph 4.21, Table 4.1, and Table 4.2).

A1.37 The definition and identification of *policy lending* are elaborated on in Box 4.1.

A1.38 The composition of the item *net change in the stock of cash*, as presented in the *Statement of Sources and Uses of Cash*, is clarified—the item refers to the financial asset *currency and deposits* (3202), and should not include other financial instruments or overdrafts (see paragraph 4.33).

A1.39 The description of the *Balance Sheet* is expanded with a discussion on the use of the net worth concept in the case of public corporations (see paragraph 4.40).

A1.40 Box 4.1 in the *GFSM 2001* is replaced with an annex to Chapter 4 of the *GFSM 2014*, *Using GFS for Fiscal Analysis*. The annex offers an overview of how analysts can use the data in GFS to build well-defined and internationally comparable *fiscal indicators*. Some of the indicators can be observed or derived directly from the GFS framework, while others can be derived using GFS together with additional data.

Chapter 5

A1.41 The rationale for defining *revenue* as an increase in net worth resulting from a transaction is added in paragraph 5.1.

A1.42 The definition of *grants* (13) is revised to no longer refer to grants as *noncompulsory* transfers. The change accommodates cases where compulsory revenue sharing occurs between government units. The definition is also expanded to indicate that grants are transfers that do not meet the definition of a tax, subsidy, or social contribution (see paragraphs 5.5 and 5.101).

A1.43 Definitions of the respective categories of *other revenue* (14) are replaced by a definition of the main category *other revenue* (14), with only references to the subcategories it comprises (see paragraph 5.6).

A1.44 The section on defining revenue is enhanced with the inclusion of a discussion on the treatment of refunds and corrections, and with an explanation of the delineation between revenue and transactions in assets and liabilities (see paragraphs 5.7–5.8).

A1.45 The section on the time of recording and measurement of revenue is expanded to clearly indicate the time of recording when using the accrual basis of recording, as well as the cash basis of recording (see paragraphs 5.10–5.11). Further clarification is provided on applying an accrual basis of recording to revenue transactions (see paragraphs 5.12–5.17), as well as on the treatment of amounts assessed, but discovered to be uncollectable (see paragraph 5.20).

A1.46 The basis on which the classification of revenue should be made is presented in paragraph 5.21, while paragraph 5.22 describes the rationale for standardized summary classifications and the usefulness of adding subitems according to analytical use and need.

A1.47 Paragraphs 5.27–5.32 describe the treatment of *tax refunds and tax relief*. In this regard, the *GFSM 2014* adopted the gross recording of *payable tax credits*, while *nonpayable tax credits* continue to be treated on a net basis.

A1.48 The tax category *unallocable* (1113), in the *GFSM 2001*, is renamed *other taxes on income, profits, and capital gains* (1113) in the *GFSM 2014*, and a breakdown of the category is introduced to separately identify these taxes receivable from *general government units* (11131) and *unallocable taxes on income, profits, and capital gains* (11132) (see paragraph 5.42 and Tables 5.1 and 5.2). This change allows the identification of those taxes receivable from other general government units that are subject to consolidation.

A1.49 The tax attribution rules are described in paragraphs 5.33–5.38. The tax attribution rules applicable to cases where the activities of the *religious organizations* are funded from earmarked taxes

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collected by general government are clarified in paragraph 5.39.

A1.50 The *GFSM 2001* tax category for *taxes on financial and capital transactions* (1134) is moved from *property taxes* (113) to *general taxes on goods and services* (1141). In the *GFSM 2014*, this tax category retains its name, but with a different classification code—namely, *taxes on financial and capital transactions* (11414) (see paragraphs 5.52 and 5.61). This change aligns the *GFSM 2014* with the *2008 SNA*, which regards this tax as a tax on the sale rather than on the property itself. To maintain consistency with codes used in the *GFSM 2001*, the codes in taxes on property do not follow directly.

A1.51 A new definition for *excises* is introduced in paragraph 5.62.

A1.52 The concept *profits on fiscal monopolies* (1143) is clarified, and its application to public enterprises, lotteries, and other gambling activities is elaborated on (see paragraphs 5.63–5.68).

A1.53 The coverage of *taxes on specific services* is extended to include the *implicit taxes* that result from the central bank imposing a rate of interest other than the market rates (see paragraphs 5.70 and 6.89, Box 6.2).

A1.54 The coverage of *taxes on use of goods and on permission to use goods or perform activities* (1145) is clarified (see paragraph 5.72). Boundaries of this tax with *administrative fees* (paragraph 5.73), *taxes on business activities* (see paragraph 5.76), *other tax categories* (see paragraph 5.77), and *the acquisition or use of an asset* (see paragraph 5.78) are explained.

A1.55 *Taxes on use of goods and on permission to use goods or perform activities* (1145) are subdivided into *motor vehicle taxes* (11451) and *other taxes on the use of goods and on the permission to use goods or perform activities* (11452). For the latter, the *GFSM 2014* introduces several subcategories of taxes to clarify their classification (see paragraph 5.81 and Table 5.4). Furthermore, the accrual recording of business licenses and taxes on pollution (such as emission trading schemes) is elaborated on (see paragraph 5.81).

A1.56 The *implicit taxes* or *subsidies* created by multiple exchange rate regimes are introduced in paragraph 5.89. Furthermore, it is clarified that lumpsum payments receivable by government from monetary authorities should be disaggregated according to the economic nature of the components of the payment (see paragraph 5.90).

A1.57 The concept *social contributions* (12) is clarified (see paragraph 5.94), specifically making a distinction between voluntary and compulsory contributions, describing the flexibility arrangement for the recording of social contributions used in the *2008 SNA* (see paragraph 5.95), and presenting the boundary between social contributions and other categories of taxes (see paragraph 5.96).

A1.58 The treatment of *grants* is elaborated on, specifically describing the distinction between current and capital grants, grants in kind, and the time of recording in an accrual and cash basis of recording (see paragraph 5.103–5.105).

A1.59 The time of recording *dividends* when using an accrual basis of recording is clarified to be when the equity or shares go *ex-dividend* (see paragraphs 3.87, 5.112, and 6.109). In addition, it is clarified that legally constituted corporations, reclassified to be a general government unit, could also distribute dividends (see paragraph 5.113). The treatment of disproportionately large dividends is clarified (see paragraphs 5.115–5.116).

A1.60 The coverage of *property income from investment income disbursements* (1414) is expanded to include distributions to holders of investment fund shares or units (see paragraph 5.120).

A1.61 The concept *rent* (1415) is elaborated on to explain the distinction between a resource lease, the creation of an asset, *contracts, leases, and licenses* (31441), or the sale of the resource. Two types of resource rent, for land and subsoil assets, are described in detail and the boundary with the rental of produced assets is explained (see paragraphs 5.124–5.133).

A1.62 The *GFSM 2014* assumes the *2008 SNA* and *BPM6* treatment of *reinvested earnings on foreign direct investment* (1416) (see paragraphs 5.134–5.135 and 6.121).

A1.63 The classification of *administrative fees* (1422) is clarified to include fees payable for voluntary participation in deposit insurance or other guarantee schemes that do not qualify to be a standardized guarantee scheme. For it to be administrative fees, the amount payable should be in proportion to the cost of producing the service (see paragraph 5.138).

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A1.64 The treatment of fines and penalties imposed for evasion of taxes and bails set by courts is clarified in *fines, penalties, and forfeits* (143) (see paragraph 5.143).

A1.65 The *GFSM 2001* revenue categories for *voluntary transfers other than grants* (144) and *miscellaneous and unidentified revenue* (145) are subsumed in two new categories—namely, *transfers not elsewhere classified* (144) and *premiums, fees, and claims receivable related to nonlife insurance and standardized guarantee schemes* (145) (see paragraphs 5.145 and 5.149). Revenue from *subsidies* (14411) receivable is introduced as a separate category of transfer not elsewhere classified (see paragraph 5.146), while the other transfers are distinguished as *other current transfers not elsewhere classified* (14412) (see paragraph 5.147) and *capital transfers not elsewhere classified* (1442) (see paragraph 5.148).

A1.66 The revenue category *premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes* (145) (see paragraph 5.149) is introduced to allow for the appropriate recording of the revenue related to nonlife insurance and standardized guarantees. Subcategories provide for the identification of *premiums receivable* (14511), *fees for standardized guarantees receivable* (14512), *current claims receivable* (14513), and *capital claims receivable* (1452) (see paragraphs 5.150–5.151).

Chapter 6

A1.67 The rationale for defining *expense* as a decrease in net worth resulting from a transaction is added in paragraph 6.1.

A1.68 The distinction between economic classification of expense and functional classification of expense is clarified in paragraphs 6.2 and 6.3, respectively.

A1.69 The section on defining expense is enhanced with the inclusion of a discussion on the *treatment of refunds and corrections* and the delineation between expense and transactions in assets and liabilities (see paragraphs 6.4–6.5).

A1.70 The section on the *time of recording* expense is expanded to clearly indicate the time of recording when using the accrual basis of recording, as well as the cash basis of recording. Furthermore, the time of recording of the acquisition and *use of goods and services* (22) is clarified (see paragraphs 6.6–6.7).

A1.71 The definition of *compensation of employees* is clarified to emphasize the individual employer-employee relationship, and the exchange of manual and intellectual labor services (see paragraph 6.9). Furthermore, the nature of wages and salaries in cash (see paragraph 6.13) and in kind (see paragraph 6.17) is elaborated on.

A1.72 Guidance on estimating *imputed employers' social contributions* (2122) is elaborated on. A clear distinction between nonpension and employment-related pension benefits is introduced (see paragraphs 6.23–6.26).

A1.73 The section on the *use of goods and services* (22) is reorganized to: define the concept (see paragraph 6.27); make a distinction between the time of recording use of goods and services when using an accrual and cash basis of recording (see paragraphs 6.28–6.31); describe the boundary between use of goods and services and compensation of employees (see paragraph 6.33); describe the boundary between use of goods and services and transfers (see paragraph 6.37); describe the boundary between use of goods and services and transactions in the acquisition of nonfinancial assets (see paragraph 6.43); and describe other boundaries related to use of goods and services (see paragraph 6.50).

A1.74 Conceptually, the coverage of *use of goods and services* (22) in the *GFSM 2001* is changed to exclude *weapons and weapons systems* in the *GFSM 2014* (see paragraphs 6.49). These are recognized as the acquisition of a specific category of *nonfinancial assets* in the *GFSM 2014* (see paragraph 8.43).

A1.75 The relationship between *inventory* (612) and *use of goods and services* (22) is clarified in Table 6.3.

A1.76 The treatment in GFS of the *implicit fees for financial services* is explained (see paragraphs 6.52 and 6.81). These implicit fees include items such as financial intermediation services indirectly measured (FISIM), service fees implied by nonlife insurance premiums, and the implicit fees payable by governments to central banks for nonmarket services.

A1.77 The concept *consumption of fixed capital* (23) is elaborated on. The relation between consumption of fixed capital as recorded in the *2008 SNA* and in GFS is explained (see paragraph 6.53). The relation

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between consumption of fixed capital and depreciation as used in government financial records is also explained (see paragraph 6.54). The calculation of consumption of fixed capital is described in Box 6.1. Furthermore, the treatment of *costs of ownership transfer* as a component of consumption of fixed capital is explained in paragraphs 6.60 and 8.42.

A1.78 The description of *interest* (24) is clarified to show the relationship between interest as recorded in the *2008 SNA* and interest as recorded in the *GFSM 2014*. It is suggested to identify the counterpart for interest transactions to allow for consolidation (see paragraph 6.62). A discussion on recording interest, when using a cash basis of recording, is introduced in paragraph 6.65. Recording interest in the case of grace periods and step-up interest arrangements is explained in paragraphs 6.69–6.70. The recording of interest related to index-linked securities is explained in paragraphs 6.75–6.78. Furthermore, clarification is provided on the treatment of interest on debt securities with embedded derivatives, nonperforming loans, and arrears (see paragraphs 6.79–6.82).

A1.79 Recording *subsidies* (25) is clarified. The treatment of subsidies in cases when an institutional unit acts on behalf of another unit to redistribute the subsidies is explained in paragraph 6.84. It is also clarified that subsidies are receivable by all resident and nonresident producers, and that units such as general government units, nonprofits institutions serving households, and households can receive subsidies in their capacity as producers (see paragraph 6.86). The coverage of subsidies is extended to include the *implicit subsidy* that results from the central bank imposing a rate of interest other than the market rates (see paragraphs 5.70 and 6.89, Box 6.2). The discussion on subsidies also introduced the distinction between subsidies on products and subsidies on production to better align with this distinction in the *2008 SNA* (see paragraphs 6.89–6.90).

A1.80 To further delineate subsidies, a list of items that do not constitute subsidies is included (see paragraph 6.91), and Box 6.3 elaborates on transactions with public corporations with specific reference to the classification of "*capital injections*" into public corporations.

A1.81 The definition of *grants* (26) is revised to no longer refer to grants as *noncompulsory* transfers. This change accommodates cases where compulsory revenue sharing occurs between government units. The definition is also expanded to indicate that grants are transfers that do not meet the definition of a tax, subsidy, or social contribution (see paragraph 6.92).

A1.82 The treatment of *grants in kind* is elaborated on, specifically describing the distinction between current and capital grants, and the time of recording in, respectively, an accrual and cash basis of recording (see paragraph 6.93–6.95).

A1.83 The circumstances under which *social assistance benefits* (272) become payable are clarified to include contributions payable to social insurance schemes on behalf of households who cannot otherwise afford to participate in the scheme (see paragraph 6.101).

A1.84 The distinction between imputations for *employment-related nonpension social benefits* and *employment-related pensions and other retirement benefits* is clarified in paragraph 6.105.

A1.85 The time of recording *dividends* (2811) when using an accrual basis of recording is clarified to be when the equity or shares go *ex-dividend* (see paragraphs 3.87, 5.112, and 6.109). The treatment of disproportionately large dividends is clarified (see paragraphs 5.116 and 6.110).

A1.86 The coverage of *property expense for investment income disbursements* (2813) is expanded to include distributions to holders of investment fund shares or units (see paragraph 6.113).

A1.87 It is clarified that *rent* (2814) includes amounts payable under resource leases on land, subsoil resources, and on other natural resources. The measurement of such amounts payable is clarified in the context of the corresponding revenue item (see paragraph 6.120).

A1.88 The *GFSM 2014* assumes the *2008 SNA* and *BPM6* treatment of *reinvested earnings on foreign direct investment* (2815) (see paragraph 6.121).

A1.89 The *GFSM 2001* expense categories for *miscellaneous other expense* (282) are subsumed in two new categories in the *GFSM 2014*—namely, *transfers not elsewhere classified* (282) and *premiums, fees, and claims payable related to nonlife insurance and standardized guarantee schemes* (283) (see paragraphs 6.122 and 6.125, respectively). The transfers are

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distinguished as *current transfers not elsewhere classified* (2821) (see paragraph 6.123) and *capital transfers not elsewhere classified* (2822) (see paragraph 6.124).

A1.90 The expense category *premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes* (283) is introduced to allow for the appropriate recording of the expense related to nonlife insurance and standardized guarantee schemes. Subcategories provide for the identification of *premiums payable* (28311), *fees for standardized guarantees* (28312), *current claims payable* (28313), and *capital claims payable* (2832) (see paragraph 6.125).

A1.91 The discussion on the Classification of Functions of Government (COFOG) in Chapter 6 of *GFSM 2001* is moved to the annex to Chapter 6 in *GFSM 2014*.

A1.92 *COFOG* in GFS is limited to the expenditure of government, which differs from its application to all outlays of government as used in the OECD/UN classification (see paragraph 6.127 in the annex).

A1.93 The annex is reorganized to separately present: the structure of *COFOG* classifications (see paragraph 6.128); uses of *COFOG* (see paragraph 6.130); distinction between *individual and collective goods and services* (see paragraph 6.133); units of classification (see paragraph 6.140); problems in identifying functions of government (see paragraph 6.143); and the cross-classification of expenditure (see paragraph 6.148). No changes occurred in the functions themselves.

Chapter 7

A1.94 The usefulness of a set of balance sheets integrated with economic flows is elaborated on in paragraph 7.2.

A1.95 A distinction is drawn between *legal and economic ownership* in paragraphs 3.38–3.41 and 7.5–7.13. These concepts are used to determine the *asset boundary* and to provide an overview of assets and liabilities (see paragraphs 7.14–7.19).

A1.96 The asset boundary is clarified to not include *contingent assets and liabilities* (see paragraph 7.13), and financial claims are clarified to include: debt instruments; financial derivatives and employee stock options; equity and investment fund shares; and monetary gold in the form of unallocated gold accounts (see paragraph 7.15).

A1.97 The *GFSM 2001* treatment of *monetary gold and SDRs* (6201/6301) as financial assets without a corresponding financial claim is revised. In the *GFSM 2014,* only monetary gold in the form of *gold bullion* is regarded as a financial asset without a corresponding financial claim. Also, recognizing that transactions in SDR holdings may be entered into by two domestic units, the exclusion of SDRs from domestic financial asset flows is eliminated (see paragraphs 7.15 and 7.125–7.134, respectively).

A1.98 The concept of *produced versus nonproduced nonfinancial assets* is introduced in paragraph 7.17–7.19.

A1.99 The valuation of assets and liabilities is elaborated on in paragraphs 7.20–7.25. The usefulness of nominal value of financial instruments is presented in paragraph 7.21, while the treatment of *cost of ownership transfer* is described in paragraph 7.22. Possible methods of estimating current market prices are described in paragraphs 7.25–7.33.

A1.100 The time of recording *change in ownership* in fixed assets that are produced over two or more accounting periods, and those built under a public-private partnership, is elaborated on (see paragraphs 7.37 and 7.39, respectively).

A1.101 The creation of *notional units* to own fixed assets in territories where they are not residents is explained in paragraphs 2.13 and 7.91.

A1.102 Identifying *public monuments* and guidance on their recording are clarified in paragraph 7.42.

A1.103 The definition and identification of *dwellings* (61111) are clarified and guidance on the valuation of dwellings is provided in paragraphs 7.44–7.45.

A1.104 Within buildings and structures, a category of fixed assets for *land improvements* (61114) is added. The cost of ownership transfer on all land is included with land improvements (see paragraphs 7.49–7.51).

A1.105 Subcategories are introduced for *machinery and equipment other than transport equipment* (61122) to separately identify *information, computer, and telecommunications (ICT) equipment* (see paragraphs 7.56–7.57) and *machinery and equipment not elsewhere classified* (see paragraph 7.57).

A1.106 The definition and identification of *cultivated biological resources* (61131) are clarified, and

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the time of recording when the production of these fixed assets takes a long time to complete is elaborated on. Subcategories are introduced to further clarify the composition of this item (see paragraphs 7.59–7.63 and Table 7.5).

A1.107 The definition and identification of *intellectual property products* (61132) are elaborated on. Subcategories separately identify *research and development* (611321), *mineral exploration and evaluation* (611322), *computer software and databases* (611323), *entertainment, literary, and artistic originals* (611324), and *other intellectual property products* (611325). The coverage of this item is expanded to include research and development products so that patented resources no longer appear as nonproduced assets. Furthermore, the coverage of computer software is expanded to include databases (see paragraphs 7.64–7.73).

A1.108 *Weapons systems* are introduced as a separate fixed asset category (see paragraph 7.74).

A1.109 In the *GFSM 2014*, categories of *inventory* (612) are aligned with the categories used in *2008 SNA*. The category s*trategic stocks* (6121) is eliminated as a separate category of inventory and is subsumed in *goods for resale* (61224), and a category for military inventories is added (see paragraphs 7.75–7.86).

A1.110 The definition of *land* (6141) is clarified and guidance is provided on the valuation of land (see paragraphs 7.92–7.96).

A1.111 The *GFSM 2001* category *subsoil assets* is replaced by *mineral and energy resources* (6142). The ownership and recording of this category of asset are elaborated on in paragraphs 7.97–7.99.

A1.112 The classification of *other naturally occurring assets* (6143) is elaborated on. Subcategories for specific classes of *other naturally occurring assets* are introduced, and their definitions are clarified (see paragraphs 7.100–7.103 and Table 7.7).

A1.113 The category *intangible nonproduced assets* (6144) is clarified, and subcategories are introduced for *contracts, leases, and licenses* (61441) and *goodwill and marketing assets* (61442) (see paragraphs 7.104–7.117).

A1.114 Negotiability is introduced as a distinguishable feature of securities (see paragraph 7.119).

A1.115 *Market value* for valuing debt instruments is elaborated on by providing practical guidance on valuation (see paragraph 7.122).

A1.116 *Monetary gold and Special Drawing Rights* (6201, 6221, 6301, 6321) as financial instruments are elaborated on (see paragraphs 7.125–7.134).

A1.117 The coverage of *currency and deposits* (6202/6302) is clarified and the valuation of this instrument explained (see paragraphs 7.135–7.142).

A1.118 A description of various types of *debt securities* (6203/6303) and their recording is introduced in paragraphs 7.143–7.156.

A1.119 The description of *loans* (6204/6304) is expanded to clarify *financial leases* (see paragraph 7.158), *gold swaps* (see paragraph 7.161), and *off-market swaps* (see paragraph 7.162). The treatment of securities repurchase agreements is clarified as a collateralized loan (see paragraph 7.159). The valuation of loans and treatment of nonperforming loans are presented in paragraph 7.163.

A1.120 The category *equity and investment fund shares* (6205/6305) is elaborated on to distinguish various types of financial instruments (see paragraphs 7.164–7.177). *Investment fund shares* (62052/63053) have a specialized role in financial intermediation and are introduced as a separate category (see paragraphs 7.174–7.177).

A1.121 The category for the reserves of *insurance, pension and standardized guarantee schemes* (6206/6306) is clarified by introducing subcategories for: *nonlife insurance technical reserves* (see paragraphs 7.183–7.186); *life insurance and annuities entitlements* (see paragraphs 7.187–7.188); *pension entitlements* (see paragraphs 7.189–7.198); *claims of pension funds on pension managers* (see paragraphs 7.199–7.200); and *provisions for calls under standardized guarantee schemes* (see paragraphs 7.201–7.202).

A1.122 The coverage of *insurance, pension, and standardized guarantee schemes* (6206/6306) is expanded following recognition of *standardized guarantees* in a way similar to nonlife insurance and the recognition of *claims of pension funds on pension managers* (see paragraphs 7.201–7.202 and 7.199–7.200, respectively).

A1.123 The category *financial derivatives and employee stock options* (6207/6307) is clarified by defining

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the two concepts (see paragraphs 7.204 and 7.221, respectively), describing the types of financial derivatives (see paragraphs 7.209–7.218), and explaining the use of margins (see paragraphs 7.219–7.220).

A1.124 The main balancing item on the balance sheet, *net worth* (6), is clarified and the relationship with equity for public corporations explained (see paragraphs 7.228–7.233).

A1.125 The items recorded as memorandum items to the balance sheet are expanded to include: *net financial worth* (see paragraph 7.235), *various valuations of gross and net debt* (see paragraphs 7.236–7.245), *concessional loans* and the *implicit transfers resulting from loans at concessional interest rates* (see paragraph 7.246), *arrears* (see paragraphs 7.247–7.250), *explicit contingent liabilities* (see paragraphs 7.251–7.260), *net implicit obligations for future social security benefits* (see paragraph 7.261), and *nonperforming loans* (see paragraph 7.262).

A1.126 The classification of the counterparty of financial assets and liabilities by institutional sector is introduced in paragraphs 7.264–7.265 and Table 7.11.

A1.127 The classification of *debt liabilities* and their corresponding financial assets by *maturity* is introduced in paragraphs 7.266–7.271 and Table 7.12.

Chapter 8

A1.128 The concept of *net investment in nonfinancial assets* is introduced in paragraph 8.4, and a distinction drawn with *gross investment in nonfinancial assets* (i.e., consumption of fixed capital is not taken into account).

A1.129 The treatment of *costs of ownership transfer* associated with acquiring and disposing of nonfinancial assets (other than inventory) is clarified (see paragraphs 8.6–8.8).

A1.130 The *valuation* of transactions in nonfinancial assets is elaborated to make a clear distinction between valuation of acquisitions and disposals of: *fixed assets* (see paragraph 8.9); *inventories* (see paragraph 8.10); *land* (see paragraph 8.11); and *nonproduced assets other than land* (see paragraph 8.11).

A1.131 Time of recording transactions in nonfinancial assets is clarified to be when *economic ownership changes*. Guidelines for alternatives to use when change of ownership is not obvious are provided (see paragraphs 8.13–8.17).

A1.132 The classification of transactions in nonfinancial assets is identical to the classifications of the same stock positions introduced in Chapter 7 (see paragraph 8.22 and Table 8.1).

A1.33 The treatment of public monuments as *buildings and structures* (3111) is clarified in paragraph 8.30.

A1.134 Transactions related to *land improvements* (31114) are introduced as a separate category of transactions in paragraph 8.31.

A1.135 Transactions related to *cultivated biological resources* (31131) are clarified to include net investment in livestock that are cultivated for the products they yield, and net investment in plantations, orchards, etc. Guidance is provided on the valuation of these transactions (see paragraphs 8.34–8.36).

A1.136 Guidance on the transactions in *intellectual property products* (31132) is expanded to clarify the valuation of transactions related to *research and development* (311321) (see paragraph 8.38), *mineral exploration and evaluation* (311322) (see paragraph 8.39), *computer software and databases* (311323) (see paragraph 8.40), and *entertainment, literary, and artistic originals* (311324) (see paragraph 8.41).

A1.137 The treatment of *costs of ownership transfer on nonproduced assets other than land* (31133) is introduced in paragraph 8.42. Figure 8.1 is included to illustrate the treatment of these costs in the GFS framework.

A1.138 The recording of transactions related to the acquisition and disposals of *weapons systems* (3114) is introduced in paragraph 8.43.

A1.139 Transactions related to the additions and withdrawals of *inventory* (312) are elaborated on. A distinction is made between the owner of inventory acting as a producer of goods and services and acting as an owner of assets (see paragraphs 8.44–8.47).

A1.140 The nature and treatment of transactions in all the categories of *nonproduced assets* are elaborated on (see paragraphs 8.49–8.58).

Chapter 9

A1.141 An explanation of the relationship between *transactions* and the impact of these on financial assets/liabilities is introduced in paragraph 9.3. Similarly, the impact of *net lending/net borrowing* on the economy is explained in paragraph 9.5.

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A1.142 *Concessional loans* and their treatment in macroeconomic statistics are clarified in paragraph 9.12.

A1.143 *Arrears* are defined in paragraph 9.20, and the recording of transactions related to arrears is described in paragraphs 9.21–9.23.

A1.144 The classification of transactions in financial assets and liabilities by instrument and residence of the counterparty is described in paragraphs 9.24–9.27. The classification by instrument that follows is the same as those described in the balance sheet (Chapter 7).

A1.145 Transactions related to *monetary gold and special drawing rights* (3201/3301) are clarified in paragraphs 9.28–9.32.

A1.146 For *debt securities* (3203/3303), transactions related to interest and amortization are elaborated on (see paragraphs 9.36 – 9.43).

A1.147 The impact of recording transactions between the owners of enterprises and the enterprise is clarified. Transactions such as dividends, transfers, membership dues and subscription fees payable to international organizations, and other operations, such as privatization and nationalization, are clarified in the description of transactions in *equity* (32051/33051) (see paragraphs 9.47–9.55).

A1.148 The recording of the change in value of *investment fund shares or units*, other than from holding gains and losses, is described in paragraph 9.56.

A1.149 For *insurance, pension, and standardized guarantee schemes* (3206/3306), the transactions influencing these reserves are elaborated on for each subcategory of the reserves (see paragraphs 9.57–9.69).

A1.150 The coverage of *financial derivatives and employee stock options* (3207/3307) is expanded to separately identify employee stock options. Transactions related to *financial derivatives* (32071/33071) are clarified. A distinction is introduced between transactions at inception, on secondary markets, with ongoing servicing, and at settlement (see paragraphs 9.71–9.76). Transactions related to *employee stock options* (32072/33072) are introduced in paragraph 9.77.

A1.151 The classification of transactions in financial assets and liabilities by sector and residence is introduced in paragraphs 9.85–9.87 and Table 9.2.

A1.152 The classification of transactions in debt liabilities and their corresponding financial assets by maturity is introduced in paragraph 9.88. If analytically useful, the same classification structure could be applied for transactions as what is depicted for stock positions in Table 7.12.

Chapter 10

A1.153 Other economic flows are described and the two components of other economic flows—namely, holding gains and losses and other changes in the volume of assets—are defined in paragraph 10.1.

A1.154 The section on holding gains for particular types of nonfinancial assets is elaborated on. Specific guidance is added on: the difference between *unrealized* and *realized holding gains* (see paragraph 10.6); *neutral* and *real holding gains* (see paragraph 10.11); estimating the holding gains on *fixed assets* (see paragraphs 10.13–10.15) and *inventories* (see paragraphs 10.16–10.17); *valuables* (see paragraph 10.18); and *nonfinancial assets* disposed of during the reporting period (see paragraphs 10.19–10.20).

A1.155 The impact of various events on the valuation of financial instruments is elaborated on. Specific guidance is added on: *monetary gold and SDRs* (see paragraphs 10.21–10.22); financial assets and liabilities with fixed monetary values (see paragraph 10.23); *debt securities* (paragraphs 10.24–10.29); *equity and investment fund shares* (see paragraphs 10.30–10.34); *insurance, pension, and standardized guarantee schemes* (see paragraphs 10.35–10.41); and *financial derivatives and employee stock options* (see paragraphs 10.42–10.43).

A1.156 Paragraph 10.44 introduces holding gains and losses related to financial instruments denominated in foreign currencies, and debt instruments that do not accrue interest over an unusually long time are discussed in paragraph 10.45.

A1.157 Paragraph 10.46 introduces three events that result in other changes in the volume of assets—namely, the *appearance or disappearance* of existing resources as economic assets, the effects of *external events*, and *changes in classifications*.

A1.158 The appearance or disappearance of financial assets and liabilities from the balance sheet is elaborated on with specific reference to the appearance of public monuments and valuables (see paragraph 10.50). Circumstances under which natural

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assets, such as subsoil assets, noncultivated biological resources, other natural resources, or land, appear on the balance sheet are explained in paragraph 10.52.

A1.159 The effects of external events on the value of assets and liabilities are described in paragraph 10.59. Details on the recording of these events are provided and include *catastrophic losses* (see paragraph 10.60), *uncompensated seizures* (see paragraph 10.62), and *other volume changes not elsewhere classified* (see paragraph 10.63).

A1.160 Paragraph 10.68 introduces the reclassification of *costs of ownership transfer* on nonproduced assets other than land, and the *consumption of fixed capital* relating to these costs. The reclassification is necessary to maintain the integration of stock positions and flows.

A1.161 Paragraph 10.79 elaborates on the reclassifications of negotiable securities necessary due to secondary transactions.

A1.162 The reclassification of monetary gold held in the form of *gold bullion* when it becomes a reserve asset is introduced as an example of changes in the classification of financial assets and liabilities (see paragraph 10.84).

Cross-Cutting Changes in Terminology

A1.163 The following changes in terminology were made to further clarify the text of the *Manual*.

- References to GFS *system* are replaced with GFS *framework*—this allows a clear distinction with the *2008 SNA*.
- In the context of GFS, references to *accounting* principles and periods are replaced by references to *statistical guidelines* and *reporting periods*—this allows a clear distinction with the use of the term accounting in source data compilation in the context of public sector accounting.
- References to *flows* are replaced by references to *economic flows*, while it is acknowledged that flows will often be used as a short form for economic flows.
- References to the balances of assets and liabilities as *stocks* are replaced by references to *stock positions*—this allows a clear distinction with the use of the word "stocks" referring to a specific type of financial instrument.
- References to *net acquisition of nonfinancial assets* are replaced with references to *net investment in nonfinancial assets*—the former term is often misinterpreted as including only the acquisition minus disposals of nonfinancial assets, while consumption of fixed capital should also be included in this concept. Similar to what is customary in the case of operating balances, references to net/gross investment in nonfinancial assets can now be used to make a distinction for the including/excluding of consumption of fixed capital.
- References to *net lending/borrowing* are replaced with references to *net lending/net borrowing*, to enhance the precision in terminology.
- References to the Statement of Government Operations are replaced with references to Statement of Operations—this allows the use of this statement for government units as well as public sector units.
- References to *other nonrecurrent taxes on property* (1135) in the *GFSM 2001* are replaced with references to *capital levies* (1135)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *property income attributed to insurance policyholders* are replaced with references to *property income from investment income disbursements*—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to the expense for *social contributions* (212) are replaced by references to *employers' social contributions* (212)—this clarifies the economic nature of this item. Similarly, *actual social contributions* (2121) and *imputed social contributions* (2122) are replaced with *actual employers' social contributions* (2121) and *imputed employers' social contributions* (2122), respectively.
- References to the *outlays* of government are replaced with references to *expenditure*—this eliminates confusion with the use of outlays in the OECD/UN classification, which include expense, acquisition of nonfinancial assets, and transactions in financial assets and liabilities.
- References to *nonresidential buildings* (61112) are replaced with references to *buildings other than dwellings* (61112)—this allows the terminology in GFS to align with *2008 SNA* terminology.

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- References to *other machinery and equipment* (61122) are replaced with references to *machinery and equipment other than transport equipment* (61122)—this allows the revised GFS category to align with historic data and to subsume the *2008 SNA* categories of *information, computer, and telecommunications equipment* and *other machinery and equipment*.
- References to *cultivated assets* (61131) are replaced with references to *cultivated biological resources* (61131)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *subsoil assets* (6142) are replaced with references to *mineral and energy resources* (6142)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *intangible fixed assets* (61132) are replaced with references to *intellectual property products* (61132)—this allows the terminology in GFS to align with *2008 SNA* terminology. The word "products" is included to make clear that it does not include third-party rights, which are nonproduced assets.
- References to *securities other than shares* (6203/6303) are replaced with *debt securities* (6203/6303)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *shares and other equity* (6205/6305) are replaced with *equity and investment fund shares* (6205/6305)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *insurance technical reserves* (6206/6306) are replaced with *insurance, pension, and standardized guarantee schemes* (6206/6306)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *financial derivatives* (6207/6307) are replaced with *financial derivatives and employee stock options* (6207/6307)—this allows the terminology in GFS to align with *2008 SNA* terminology.
- References to *entity* when meaning a good, service, nonfinancial asset, etc. are replaced with references to *resource*—this eliminates the confusion with entities referred to in the context of institutional units.

Changes from the *GFSM 1986*

Introduction

A1.164 The integrated GFS framework described in the *GFSM 2014* represents a substantial modernization and expansion of the framework described in *A Manual on Government Finance Statistics, 1986* (*GFSM 1986*). Major changes have been made to definitions, classifications, balancing items, the coverage of units and economic events to be recorded in the GFS framework, and the timing at which economic events are to be recorded. The GFS framework is also more harmonized with other macroeconomic statistical frameworks than is the *GFSM 1986*. There are numerous detailed changes within each major topic, but an exhaustive listing of all such changes is beyond the scope of this appendix.

Coverage of Units

A1.165 The focus of the coverage of units in the GFS framework is the general government sector as defined in the *2008 SNA*. Its definition is based on the concept of an institutional unit, which is described in Chapter 2. The general government sector consists of all resident government units and all resident nonprofit institutions that are controlled by government. The coverage of the *GFSM 1986* is defined on a functional basis rather than a unit basis. It includes all units carrying out a function of government, but, in principle, only those transactions that are directly related to the functions of government are included. By implication, the transactions that do not represent the fulfillment of a fiscal policy are excluded. In particular, all transactions related to the functions of the monetary authority and other depository financial institutions are excluded.

A1.166 Supranational authorities are international organizations that have been endowed with the authority to raise taxes or other compulsory transfers within the territories of the countries that are members of the authority. Despite the fact that supranational authorities fulfill some of the functions of government within each member country, they are always considered nonresident institutional units. As a result, they are not included in the GFS framework for any country. In the *GFSM 1986*, transactions resulting from governmental functions carried out within a country by supranational organizations are included

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in the statistics for that country. It is possible, however, to compile statistics for supranational authorities using the GFS framework as if they constituted a separate country and to classify relevant categories of transactions by country.

Time of Recording Economic Events

A1.167 The time at which transactions and other economic flows are recorded is determined by the principles of accrual accounting in the GFS framework. That is, flows are recorded when economic value is created, transformed, exchanged, transferred, or extinguished. In the *GFSM 1986*, transactions are recorded when cash is received or paid. In general, flows are recorded at an earlier time under the accrual basis than under the cash basis.

A1.168 Recording flows on the accrual basis will automatically capture past-due obligations, such as arrears of debt principal, interest payments, or payments for goods and services. In the *GFSM 1986*, use of the cash basis means that arrears and changes in the level of arrears are not recorded.

A1.169 The accrual basis of recording permits the difference between the redemption value of a bond or similar security and its issue price to be recorded as interest as it is earned or incurred rather than when the security matures. In the *GFSM 1986*, the entire difference between the issue and redemption prices is recorded as interest when the security is redeemed.

Coverage of Events

A1.170 The coverage of events in the GFS framework is broader than in the *GFSM 1986* because the revised framework includes all economic events that affect assets, liabilities, revenue, or expense, rather than just those represented by a cash transaction. For example, barter and grants of goods and services are included. The *GFSM 1986* incorporates in-kind transactions only selectively and as memorandum items.

A1.171 The GFS framework includes other economic flows, which are all flows other than transactions that affect a unit's stock position of assets, liabilities, and net worth. Other economic flows must be included to fully reconcile the balance sheet at the beginning of an accounting period with the balance sheet at the end of the period. Examples of other economic flows are price changes and the destruction of assets. By definition, other economic flows are noncash events, which means that they are not part of the *GFSM 1986*.

Valuation

A1.172 Assets and liabilities are valued at current market prices in the GFS framework, including debt securities that may have a different nominal value. Several assets/liabilities are valued at nominal value as proxy for market value—for example, loans generally are not traded and therefore do not have market values. They are recorded at their nominal values. In the *GFSM 1986*, debt securities are always valued at the amount the government is obligated to pay when the debt matures, which may differ from both the nominal value and the current market value. The GFS framework includes a provision for recording the nominal value of debt securities as a memorandum item.

Gross and Net Recording of Flows

A1.173 The presentation of flows on a gross or net basis is, for the most part, the same in the GFS framework and the *GFSM 1986*. The major exception pertains to the sales and expenses of market establishments. Generally speaking, a market establishment is a part of a general government unit that is situated in a single location and whose primary activity is to produce and sell goods and services at economically significant prices. In concept, it is possible to compile complete accounting records with respect to an establishment's productive activity, including sales and the costs of production. In the GFS framework, the sales and costs of production of market establishments are presented on a gross basis as revenue and expense, respectively. In the *GFSM 1986*, the net value of sales less the costs of production is recorded as revenue if positive and as expenditure if negative.

Integration of Flows and Stocks

A1.174 The GFS framework is fully integrated—that is, the stock position at the end of a reporting period can be derived from the stock position at the beginning of the reporting period and the flows occurring during the period. As a result of this integration, all events that affect the financial performance, financial position, or liquidity situation of the general government sector are included. In the *GFSM 1986*, the stock positions included are limited to debt

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liabilities. The changes in the stock position of debt liabilities cannot be reconciled with the flows recorded. Flows in the *GFSM 1986* represent only cash flows and will not account for changes in stocks related to flows other than cash, such as discounts allowed, debt assumption, debt forgiveness, etc. Supplementary tables are included that indicate the additional data that would be needed to complete the reconciliation.

Definitions and Classifications

A1.175 Revenue in the GFS framework is an increase in net worth resulting from a transaction. Thus, revenue includes grants but excludes proceeds from disposals of nonfinancial assets. In the *GFSM 1986*, revenue is defined as the set of all nonrepayable receipts other than grants. Thus, revenue includes proceeds from disposals of nonfinancial assets.

A1.176 Similarly, expense in the GFS framework is a decrease in net worth resulting from a transaction. Purchases of nonfinancial assets do not affect net worth and are not considered expense transactions. The term "expense" replaces "expenditure" from the *GFSM 1986* because it is more closely associated with the accrual basis of recording and indicates that transactions in nonfinancial assets are excluded. Expenditure is defined in the *GFSM 1986* as the set of all nonrepayable payments and includes purchases of nonfinancial assets.

A1.177 The classifications of revenue are substantially different in the two manuals. Revenue in the *GFSM 1986* is classified as tax, nontax, or capital revenue. Grants form a separate, nonrevenue category of receipts. In the GFS framework, revenue is subdivided into taxes, social contributions, grants, and other revenue. In more detail:

- Taxes exclude social contributions in the revised GFS framework, but include them in the *GFSM 1986*.
- Social contributions in the GFS framework include social security contributions, which are classified as taxes in the *GFSM 1986*, and other social contributions to social insurance schemes operated for the benefit of government employees, which are classified as nontax revenue in the *GFSM 1986*.
- Other revenue in the GFS framework includes most of the category of nontax revenue in the *GFSM 1986* plus capital transfers, which are classified as capital revenue in the *GFSM 1986*.
- Capital revenue in the *GFSM 1986* consists of sales of nonfinancial assets and receipts of capital transfers. Sales of assets are not revenue in the GFS framework, but capital transfers are classified as revenue.

A1.178 Expense/expenditure is classified in two ways—by function and by economic type of transaction—in both the GFS framework and the *GFSM 1986*. The classification by function in both manuals is the *Classification of Functions of Government* (*COFOG*) published by the United Nations. The GFS framework incorporates the 2000 edition of *COFOG*.

A1.179 The classification of expense by economic type in the GFS framework is broadly similar to the corresponding classification in the *GFSM 1986*. The primary exception is that acquisitions of nonfinancial assets are not considered an expense in the GFS framework. Other changes include the following:

- Consumption of fixed capital is an expense in the GFS framework. As a noncash expense, it is excluded from the *GFSM 1986*.
- Transfer payments are classified by type of payment in the GFS framework. In the *GFSM 1986*, they are classified by the sector receiving the payment. The major types of transfer payments are subsidies, grants, social benefits, transfers not elsewhere classified, and premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes.

A1.180 A new classification is dedicated to net investment in nonfinancial assets resulting from transactions because they are not classified as revenue or expense in the GFS framework. The classification follows the parallel classification in the *2008 SNA*, which is based on the type of asset involved in the transaction. This classification includes consumption of fixed capital because it represents a decline in the value of fixed assets.

A1.181 "Lending minus repayments" is a category of transactions in the *GFSM 1986* representing the net acquisition of financial assets for policy purposes, and is classified together with expenditure for the calculation of the overall deficit/surplus. In the GFS framework, these transactions are classified together with other transactions in financial assets. However,

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if supplementary information is available on policy lending, both the overall balance and policy lending can be calculated from GFS source data, as a fiscal indicator (see annex to Chapter 4, Table 4A.2).

Balancing Items

A1.182 Several new balancing items are introduced in the GFS framework, a consequence of the view that fiscal analysis must include a variety of considerations and that no single measure is sufficient for all purposes. In the *GFSM 1986*, the analytic framework is focused on a single balancing item, the overall deficit/surplus, although provision is made for other balancing items.

A1.183 The analytic framework of the integrated GFS features several balancing items. The *Statement of Operations* includes the following:

- The net operating balance, which is defined as revenue minus expense and represents the change in net worth resulting from transactions
- Net lending/net borrowing, which is defined as the net acquisition of financial assets minus the net incurrence of liabilities, or, alternatively, as the net operating balance minus the net investment in nonfinancial assets; it is also equal to the gross operating balance minus gross investment in nonfinancial assets.

A1.184 The *Statement of Sources and Uses of Cash* includes the cash surplus/deficit to indicate the balance of cash flows from government operations and the gross investment in nonfinancial assets. It is similar to the overall deficit/surplus of the *GFSM 1986* except that net cash outflows from policy lending (lending minus repayment of policy-related transactions in financial assets or liabilities) are not subtracted.

A1.185 Another balancing item in the GFS framework is the overall balance, defined as net lending/net borrowing adjusted through the rearrangement of transactions in assets and liabilities that are deemed to be for public policy purposes. Notably, policy lending is added to expense while privatization proceeds (including fixed asset sales) are included as transactions in financial items in calculating the overall fiscal balance. It is the equivalent of the overall deficit/surplus in the *GFSM 1986*, but determined using the accrual basis of recording.

A1.186 Other balancing items in the GFS framework include net worth, net financial worth, the change in net worth, the change in net financial worth (all related to the balance sheet), the change in net worth from other economic flows, the primary balance, and savings. There are no similar balancing items in the *GFSM 1986*.

Harmonization with Other Statistical Systems

A1.187 The GFS framework is harmonized with other international macroeconomic statistical systems. That is, the basic concepts, definitions, and conventions are the same to the extent possible, given the objective of the GFS framework to provide data that support fiscal analysis. The other statistical manuals with which the GFS framework has been harmonized are the *2008 SNA*, the sixth edition of the IMF's *Balance of Payments and International Investment Position Manual*, and the IMF's *Monetary and Financial Statistics Manual* (in the process of being updated). In contrast, the *GFSM 1986* follows the 1968 version of the *SNA* where possible, but the degree of harmonization is much less, primarily because of the use of the cash basis of recording in the *GFSM 1986*. Appendix 7 of this *Manual* provides additional information on linkages of the GFS framework with other macroeconomic statistics.

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APPENDIX

2 Social Protection

This appendix describes the various organizational structures used to provide social protection and the associated government finance statistics compiled for the general government or public sectors.

Introduction

A2.1 Social protection is the systematic intervention intended to relieve households and individuals of the burden of a defined set of social risks.[1] **Social risks** are defined as events or circumstances that may adversely affect the welfare of households either by imposing additional demands on their resources or by reducing their income. Needs may occur due to sickness, unemployment, retirement, housing, education, or family circumstances. Many governments devote considerable economic resources to protect citizens and their employees against these risks.

A2.2 This appendix describes the nature of social protection, the boundary between social protection and private insurance, and the criteria used in the classification of social protection arrangements. A typology of social protection arrangements is presented. The typology has the purpose of identifying the type and sector attribution of social protection arrangements, in order to assist the compiler in the recording of flow and stock positions. Examples of the recording of specific flows related to various types of social protection arrangements are presented in tabular form.[2]

[1] The Classification of Functions of Government (COFOG) (see Annex to Chapter 6) has a category labeled social protection, but its scope differs from social protection described here, notably by excluding health care.

[2] A discussion of the issues involved in the organization and treatment of social protection schemes can also be found in the European Commission, *European System of Integrated Social Protection Statistics* (*ESSPROS) Manual 2008* (Luxembourg, 2008).

The Nature of Social Protection

A2.3 Households benefit from social protection in different ways:

- Households could receive benefits when they meet certain eligibility criteria that originated from a social risk without making any contributions. These benefits are classified as an expense that leads to a redistribution of income through transfers.
- Households could make contributions and receive benefits as transfers receivable in the event of the occurrence of the specified social risks. Neither the contributions nor the benefits constitute an exchange as no direct exchange of economic value occurs. The payment of the social contribution entitles the contributor to some contingent future benefits. The finances of these arrangements function similarly to nonlife insurance schemes (see paragraph A4.70). Such social protection arrangements are essentially a process of redistribution across a wide section of the population, with many individuals contributing resources so that those in need may benefit.[3] These social benefits are classified as an expense.
- Households (including employees, self-employed, and unemployed) could make contributions (actual and imputed) to a scheme to accumulate assets. They can withdraw from these accumulated assets in the event of the occurrence of the specified social risk. Examples are employment-related pensions and other retirement benefits, compulsory saving schemes, and other types of annuities. The finances of these arrangements function similarly to life insurance schemes (see paragraph A4.69). There is relatively little redistribution among the various households holding

[3] As described in paragraph 6.97, the category *social benefits* [GFS] differs from social benefits as defined in the *2008 SNA*.

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similar policies, and members of households are able to predict with a reasonable degree of certainty what they will receive and when. Therefore, contributions and payments of these benefits are transactions in financial assets and liabilities.

A2.4 Depending on the nature of the social protection arrangement, the unit that administers the arrangement could earn revenue (social contributions) and/or incur expense (social benefits) related to the social protection arrangement. ***Social contributions*** *[GFS]* (12) are actual or imputed revenue receivable by social insurance schemes to make provision for social insurance benefits payable (see paragraphs 5.94–5.100). As an expense, ***social benefits*** [GFS] (27) are current transfers receivable by households intended to provide for the needs that arise from social risks (see paragraphs 6.96–6.106). Alternatively, the unit that administers the arrangement could be involved in transactions in financial assets and liabilities, classified as *insurance, pensions, and standardized guarantee schemes* (see paragraphs 7.178–7.202).

A2.5 The social risks covered by social protection vary from country to country and from scheme to scheme. Generally, social protection may be divided into two classes—namely:

- Pensions and other retirement benefits
- All other social benefits, collectively described as nonpension social benefits.

A2.6 Pensions and other retirement benefits are payable when individuals cease employment upon retirement. Pensions may also be payable to other individuals—for example, a bereaved spouse or other dependents, or to someone suffering from a permanent disability. As indicated in Figure A2.1, pensions and other retirement benefits are provided to individuals via social assistance, social security, employment-related pension schemes, or private insurance.

A2.7 Nonpension social benefits include payments made to individuals when they are temporarily unemployed, suffering from a medical condition, or suffering from an event that prevents them from working for a period. The following list of typical nonpension social benefits illustrates their general nature:

- The beneficiaries, or their dependents, require medical, dental, and other treatments, or hospital, convalescent, or long-term care as a result of sickness, injuries, maternity needs, chronic invalidity, old age, etc. These social benefits are provided in kind in the form of treatment or care provided free or at prices that are not economically significant, or by reimbursing expense incurred by households or individuals.
- The beneficiaries have to support dependents of various kinds: spouses, children, elderly relatives, physically or mentally disabled persons, etc. These social benefits are usually payable in cash in the form of regular dependents' or family allowances.
- The beneficiaries suffer a reduction in income as a result of not being able to work full-time. These social benefits are usually payable regularly in cash for the duration of the condition or for a maximum period. In some instances, a lump sum may be provided additionally or instead of the regular payment. People may be prevented from working for various reasons, including involuntary unemployment, temporary layoffs, short-time working, sickness, accidental injury, the birth of a child, etc.
- The beneficiaries suffer a reduction in income because of the death of the main income earner. These social benefits are usually payable in cash, often in the form of regular allowances or, in some instances, a lump sum.
- The beneficiaries are provided with housing either free or at prices that are not economically significant, or by reimbursing some of the expense they incur.
- The beneficiaries are provided with allowances to cover education expenses incurred on behalf of themselves or their dependents; education services may occasionally be provided in kind (i.e., education services provided free or at prices that are not economically significant[4] to those subject to social risks).

A2.8 Social benefits can be provided in cash or in kind. If provided in kind, the goods or services could be produced by the unit providing the benefits, they could be purchased by the unit providing

[4] In this case, the social benefit will cover only the difference between the normal price of such services and the price payable.

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Figure A2.1 Boundary between Social Protection and Private Insurance

	Insurance				
	Social Insurance			Individual Insurance	
Social Protection					
Social Assistance	**Social Security Schemes**	**Employment-Related Social Insurance Schemes[1]**		**Private Insurance**	
		Nonpension Schemes	**Pension Schemes**	**Nonlife Insurance Schemes**	**Life Insurance Schemes**
Amounts receivable: - None Amounts payable: - Social assistance benefits (expense)	Amounts receivable: - Social security contributions (revenue) Amounts payable: - Social security benefits (expense)	Amounts receivable: - Other social contributions (revenue) Amounts payable: - Employment-related social benefits (expense)	Amounts receivable: - Incurrence of liabilities through actual and imputed contributions Amounts payable: - Reduction in liabilities through pensions paid	Amounts receivable: - Premiums (revenue) Amounts payable: - Claims (expense)	Amounts receivable: - Incurrence of liabilities through actual contributions Amounts payable: - Reduction in liabilities through pensions paid

[1] Including defined-contribution schemes, treated similar to life insurance.

the benefits from a market producer before distributing them to the household, or the households could purchase the goods and services and be reimbursed. Some benefits are provided indirectly, such as through tax allowances, exemptions, and deductions; benefits provided in this manner are not considered social benefits in GFS. However, if social benefits are made available via the tax system in the form of payable tax credits, these payable tax credits should be recorded on a gross basis and recorded as a social benefit payable by government (see paragraphs 5.29–5.32).

A2.9 In GFS, a social benefit expense is always a transfer payment because the benefits are provided without the recipients being required to provide something of equivalent value in return. Allowances provided as compensation of employees or loans provided by employers to employees are not social benefits. Transfers are defined and explained in more detail in paragraph 3.10.

A2.10 Social benefits do not include transfers payable in response to events or circumstances that are not normally covered by social insurance schemes. Therefore, transfers made in response to unusual events, such as natural disasters or destruction during wars, should be recorded as *transfers not elsewhere classified* (282) in GFS (see paragraphs 6.122–6.126).

Boundary between Social Protection and Private Insurance

A2.11 Social benefits are provided by general government employers to their employees and their dependents, or other units, such as trade unions and nonprofit institutions serving households. Social benefits are always provided in collective arrangements. Consequently, individual insurance policies taken out on the private initiative of individuals or households solely in their own interest are excluded from social protection arrangements. When individuals take out insurance policies in their own names, on their own initiative, and independently of their employers or government, the claims receivable are not treated as social benefits, even if the policies are taken out against the same kinds of social risks as those listed in paragraphs A2.6–A2.7—these private initiatives are treated as private insurance.

A2.12 Individual saving arrangements that maintain the integrity of the participants' contributions and are restricted to protecting against social risks are private insurance schemes. Under such arrangements,

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the contributions of the participants and/or their employers are kept in a separate account and may be withdrawn under specified circumstances, such as retirement, unemployment, invalidity, and death.

A2.13 Social protection arrangements (covering social assistance and social insurance) must be organized collectively for groups of workers or be available by law to all workers or designated categories of workers, possibly including unemployed persons as well as employed. Social insurance includes private social insurance schemes arranged for selected groups of workers employed by a single employer, and social security schemes (see paragraph 2.101).[5]

A2.14 Many social insurance schemes (covering social security schemes and employment-related insurance schemes) are organized collectively for groups of workers so that those participating do not have to take out individual insurance policies in their own names. In such cases, there is no difficulty about distinguishing social insurance from private insurance taken out on an individual basis. However, some social insurance schemes may permit, or even require, participants to take out policies in their own names. In order for an individual policy to be treated as part of a social insurance scheme, the eventualities or circumstances against which the participants are insured must be of the kind listed in paragraphs A2.5–A2.7, and, in addition, one or more of the following conditions must be satisfied:

- Participation in the scheme is obligatory either by law for a specified category of persons, whether employed or unemployed, or under the terms and conditions of employment of an employee, or group of employees.
- The scheme is a collective one operated for the benefit of a designated group of persons, whether employees or unemployed, participation being restricted to members of that group.
- An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, regardless of whether the employee also makes a contribution.

A2.15 The premiums payable, and claims receivable, under individual policies taken out under a social insurance scheme are recorded as social contributions and social benefits. Most individual policies that qualify as social insurance schemes are likely to be for pension provision, but it is possible that they may cover other eventualities—for example, to provide income if the policyholder is unable to work for a prolonged period because of ill health.

A2.16 Participation in insurance schemes, public or private, may be voluntary for the workers concerned, but it is more common for it to be obligatory. For example, participation in schemes organized by individual employers may be required by the terms and conditions of employment collectively agreed between employers and their employees. Participation in nationwide social security schemes organized by government units may be compulsory by law for the entire labor force, except perhaps for persons who are already covered by private schemes. Making a distinction in underlying source data between compulsory and voluntary social contributions is required when the total fiscal burden is calculated (see Table 4A.1). In contrast, social assistance is provided without any insurance involved (see paragraph A2.25).

Classification Criteria for Social Protection Arrangements

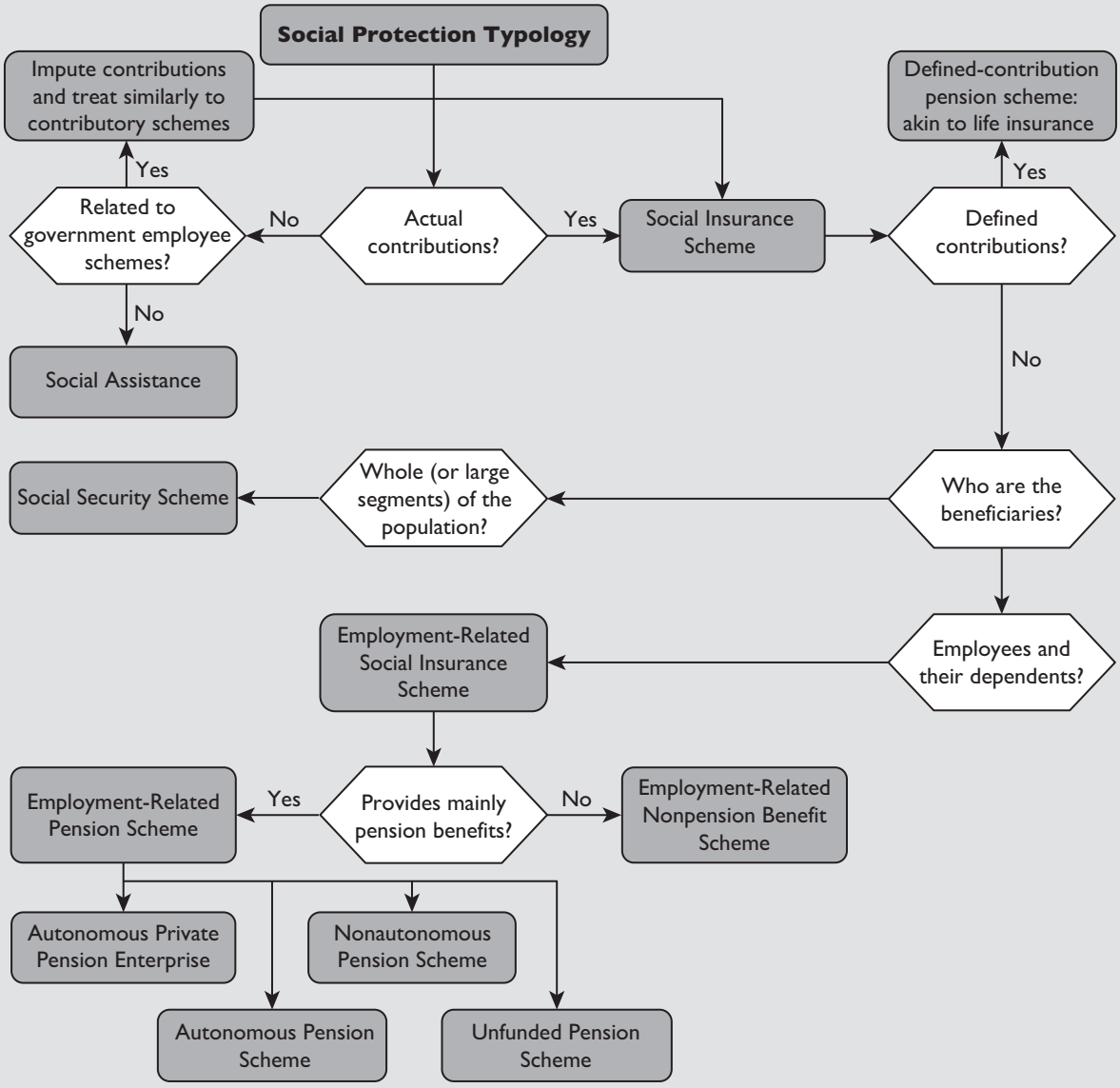
A2.17 As indicated in Figure A2.2, the following criteria are used in macroeconomic statistics to classify social protection arrangements:

- Contributory versus noncontributory—Contributory schemes require actual or imputed social contributions by the protected persons or by other parties on their behalf to obtain entitlement to the benefits. Noncontributory arrangements do not require the payment of contributions, but other eligibility requirements may apply.
- Compulsory versus voluntary—Compulsory schemes may be established by law and/or regulation or by agreement between employer and employees. In some cases, a scheme may be mixed, where some people are required to participate and others are allowed a choice. Participation in voluntary schemes is at free will.
- Cover the whole (or large segments of the) population or just government employees—Social protection is provided collectively to the general population (or a large segment of the general

[5] Social insurance schemes are a subset of social protection arrangements, and social security schemes are a subset of social insurance schemes.

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Figure A2.2 Typology of Social Protection



population), although possibly limited by eligibility criteria, while employment-related schemes provide benefits as part of the conditions of employment.[6]

- Provide pension and other retirement benefits, or other types of social benefits—Social protection arrangements distinguish between those that provide pensions and other retirement benefits, and those that provide other types of nonpension benefits, such as medical, unemployment, disability, etc. This distinction determines the transactions recorded for the arrangement; for example, employment-related pension schemes are considered to give rise to liabilities in the form of pension entitlements recorded under the debt instrument insurance, pension, and standardized guarantee schemes.
- Autonomous versus nonautonomous—A social protection scheme is autonomous when a

[6] As indicated in paragraph A2.12, individual insurance or saving arrangements that maintain the integrity of the participant's contributions are not considered social insurance.

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separate institutional unit exists[7] that is directly held responsible, and accountable, for the decisions and actions the unit takes. Where a separate institutional unit does not exist, the arrangement would be considered nonautonomous and be classified with the unit that controls it.

- Defined-contribution versus defined-benefit schemes—A defined-contribution scheme is one where the benefits are determined by the actual contributions made to the scheme, and the investment income and holding gains and losses earned on these and previous contributions. Under a defined-benefit scheme, the ultimate benefit is calculated by means of a formula embodied in the terms of the social insurance scheme. These benefits are usually determined in terms of the undertakings made by the employer or operator of the scheme.
- Funded versus unfunded schemes—A social insurance scheme is funded if contributions are held in a segregated fund (reserve), from which future benefits will be payable. If a segregated fund is sufficient to finance the present value of the future benefits payable, the scheme is fully funded. If the segregated fund is insufficient to finance the net present value of the future benefits payable, it is underfunded. If the reserve is more than sufficient to finance the net present value of the future benefits payable, it is overfunded. For an unfunded scheme, contributions are not held in a segregated fund (reserve). By definition, unfunded schemes have no separate pool of reserves and cannot be a separate institutional unit.

Typology of Social Protection Arrangements

A2.18 The classification of social protection is based on the type of social protection arrangement governing the payment of the benefits. Social protection can be organized as social assistance or social insurance schemes, with the latter organized as social security schemes or employment-related social insurance schemes. The units involved in the organization and operation of social protection can be general government units, public corporations, nonprofit institutions serving households, or private corporations.

[7] The definition of an institutional unit and the criteria that an entity must fulfill to be an institutional unit are described in paragraph 2.22.

A2.19 Using the various aspects of the classification criteria for social protection, as described earlier, Figure A2.2 provides a typology designed to assist compilers in identifying and classifying various social protection arrangements. Identifying the type of unit involved in social protection arrangements is an important step in determining the recording of flows and stock positions, which differs depending on the type of arrangement.

A2.20 The first level in the typology of social protection is based on whether payments of contributions are required to obtain entitlement to benefits. Where no contributions are required, social protection is provided as a social assistance arrangement (see paragraphs A2.25–A2.29). The requirement to make payments of social contributions by the protected persons or by other parties on their behalf to obtain entitlement to the benefits indicates the existence of a social insurance scheme (see paragraphs A2.30–A2.31). However, noncontributory employment-related social protection schemes provided by employers for the benefit of their employees are treated as if they were contributory schemes because contributions are imputed. The amounts necessary to obtain coverage against the specified social risks are imputed as social contributions, and another transaction imputes the employees' payment of the same amounts to the employer as social contributions (see paragraph A2.40).

A2.21 The next level in the typology of social protection is determined by whether the social insurance is arranged as a defined-contribution or defined-benefit scheme. Defined-contribution schemes will constitute either a compulsory savings arrangement or an employment-related pension scheme, and, as described in paragraph A2.12, these arrangements are treated similarly to life insurance. Paragraphs A2.55–A2.59 describe the treatment of defined-contribution schemes.

A2.22 Within social insurance, the types of beneficiaries covered by the scheme determine the next level in the typology. When the beneficiaries are the general population, or a large segment of the general population, the scheme would be a social security scheme, as discussed in paragraphs A2.33–A2.39. If individuals or households are eligible to receive social benefits as a group of employees, it is an employment-related social insurance scheme, as discussed in paragraph A2.40.

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A2.23 The typology of employment-related social insurance schemes further distinguishes based on the types of benefits provided by the scheme: Employment-related pension schemes provide pension and other retirement benefits and are discussed in paragraphs A2.41–A2.59; employment-related nonpension social insurance schemes provide nonpension benefits and are discussed in paragraphs A2.64–A2.66. These benefits may be provided in cash or in kind, similar to the benefits as described in paragraph A2.27.

A2.24 Employment-related pension and other retirement benefit schemes can further be distinguished by whether they are funded or unfunded (see paragraph A2.17). While unfunded schemes are always considered nonautonomous, for funded schemes a further distinction is made between those that are nonautonomous (see paragraph A2.44) or autonomous (see paragraph A2.47).

Social Assistance

A2.25 Social assistance provides social protection benefits to all persons who are in need without any formal requirement to participate as evidenced by the payment of contributions. The eligibility to receive social benefits is not conditional on the payment of contributions by the protected persons or by other parties on their behalf. There may, however, be specific eligibility criteria, such as a "means test," where the expression indicates a maximum qualifying level of income or assets. The benefits payable by such an arrangement are social assistance benefits. ***Social assistance benefits*** (272) are transfers payable in cash or in kind to households to meet the same needs as social insurance benefits but are not made under a social insurance scheme (see paragraph A2.30).

A2.26 All social assistance is organized and operated by government units and NPISHs. The benefits are payable to households, out of the unit's general resources, according to the specified criteria. Eligibility is purely related to the criteria stipulated in the social protection arrangement.

A2.27 Social assistance benefits may be provided in cash or in kind. The classification of this expense is further discussed in paragraphs 6.101–6.102, and Table A2.1 illustrates the recording of flows related to social assistance. Social assistance benefits in kind are recorded when:

Table A2.1 Illustrative Recording of Flows Related to Social Assistance

Description	Debit		Credit	
1.1 Government provides benefits payable to qualifying persons who have met the eligibility criteria of a social assistance arrangement				
Assistance to households in cash	2721	Social assistance benefits in cash	3212 / 3318	Currency and deposits / Other accounts payable[1]
1.2 Government provides goods purchased from market producers to persons who have met the eligibility criteria of a social assistance arrangement				
Government acquires the goods	31224	Inventories (goods for resale)[2]	3212 / 3318	Currency and deposits / Other accounts payable[1]
Government provides goods	2722	Social assistance benefits in kind	31224	Inventories (goods for resale)[2]
1.3 Government reimburses market providers or households for goods and services acquired from market entities in accordance with the conditions of a social assistance arrangement				
Government reimburses providers or households	2722	Social assistance benefits in kind	3212 / 3318	Currency and deposits / Other accounts payable[1]
1.4 Government produces and provides goods or services to the population in accordance with the condition of a social assistance arrangement				
The operational costs incurred in the production of the goods and services are recorded as relevant	21, 22, 23	Compensation of employees, use of goods and services, and consumption of fixed capital	3212 / 3318	Currency and deposits / Other accounts payable[1]

[1]In a cash reporting environment, the expense will be recorded at the time of the cash flow. In an accrual reporting environment, an other account payable should be recorded in cases where the payment is not made when the eligibility criteria have been met.

[2]The flow of inventories will be recorded only in an inventory accounting system.

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- Government provides directly to the households goods and services purchased from market producers.
- Market entities provide goods and services directly to households, with the government providing reimbursement either directly to the provider or to the household for expenses incurred. Although households are reimbursed in cash for eligible purchases of goods and services, the transaction should be recorded as social assistance benefits in kind.[8]

A2.28 A distinction should be made between social assistance benefits and certain other expense categories incurred by government—notably:

- When a government unit produces the goods and services provided to households as social assistance benefits, they are not recorded as social benefits but rather by type of expense incurred in producing these goods and services: *compensation of employees* (21), *use of goods and services* (22), and *consumption of fixed capital* (23).[9]
- If a government unit reimburses corporations for the cost of goods and services provided to targeted social assistance beneficiaries, the transfers are recorded as social assistance benefits in kind. These transfers to corporations should be distinguished from *subsidies* (25), which are transfers to enterprises intended to reduce prices or increase the provision of goods and services for the general population.
- Social assistance benefits do not include transfers payable in response to events or circumstances that are not normally covered by social insurance schemes (see paragraph A2.10).

A2.29 Typically, social assistance benefits will be recorded on an accrual basis as an expense when all eligibility criteria have been met and the benefits become payable. Although some benefits, such as disability or maternity payments, may be payable over several reporting periods, no liability for the future payments of social assistance benefits should be recorded on the balance sheet of government. Other accounts payable will be recognized only in cases where a benefit accrued but remained unpaid at the end of a reporting period.[10] However, to increase transparency and allow an analysis of the sustainability of social assistance policies, an estimate of the present value of social assistance benefits that have already been earned, according to the existing laws and regulations, but are payable in the future, could be calculated in a manner similar to the liabilities of an employment-related insurance scheme.

Social Insurance Schemes

A2.30 Social insurance schemes provide social protection and require formal participation by the beneficiaries, evidenced by the payment of contributions (actual or imputed). These schemes are organized in such a way that a third party, usually an employer or the government, encourages or obliges individuals to participate in a scheme that provides benefits for a number of identified circumstances, including pensions in retirement. Social insurance schemes have much in common with direct insurance (see paragraph A4.68) and may be run by insurance corporations. The payment of contributions (corresponding to premiums in the case of direct insurance) and benefits (corresponding to claims in the case of direct insurance) is recorded according to the nature of the scheme. Participation is usually linked to employment, and contributions are payable either by the participants, an employer, or both. Therefore, a social insurance scheme is an insurance scheme for which the following two conditions are satisfied:

- The benefits receivable are conditional on participation in the scheme and constitute social benefits.

[8] The economic substance of the transactions is recorded as if the government purchased the goods and distributed them to the beneficiaries. The intermediate step of acquisition and disposal of inventories of goods is netted out in the calculation of change in inventories.

[9] This treatment differs from the treatment in the *2008 SNA*. See Appendix 7, Box A7.1, for an explanation of the difference in the treatment of goods produced by government and transferred in kind.

[10] For example, assume person A has met the eligibility criteria for unemployment payments in period t1, and is entitled to receive benefits for six periods. Because of administrative delays, no benefit payment was made in the first period—therefore, an *other account payable* at the end of that period, equal to the value of payment for one period only, should be recorded. Similarly, if another payment is not made in the second period, the account payable will increase with the value of benefits for another one month. The full amount of benefits to be receivable over the six periods should not be recognized as an upfront payable, but rather be accrued continuously over the period of eligibility.

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- At least one of the following three conditions is met:
  - Participation in the scheme is obligatory either by law or under the terms and conditions of employment of an employee, or group of employees.
  - The scheme is a collective one operated for the benefit of a designated group of workers, whether employed or unemployed, participation being restricted to members of that group.
  - An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, regardless of whether the employee also makes a contribution.

A2.31 A **social insurance contribution** is the amount payable to a social insurance scheme in order for a designated beneficiary to be entitled to receive the social benefits covered by the scheme. A social insurance benefit is a social benefit payable because the beneficiary participates in a social insurance scheme and the identified circumstances have occurred.

A2.32 As indicated in paragraph A2.22, the types of beneficiaries covered by the social insurance scheme determine the next level in the typology of this scheme (see Figure A2.2). The individuals or households eligible to receive social insurance benefits are either a group of employees, the general population, or a large segment of the general population. Social security schemes are social insurance schemes that cover the community as a whole, or large sections of the community, and are imposed and controlled by government units. In contrast, as indicated in paragraph A2.40, social insurance schemes in which employers provide social insurance benefits only to their employees, former employees, or their beneficiaries are referred to as other employment-related social insurance schemes. Where the same scheme covers the general population and government employees, the scheme is treated as a social security scheme. However, if the conditions for participation and benefits payable, as determined by the employment contract, differ from those of the social security scheme for nongovernment employee participants, an employment-related scheme exists and the flows and stock positions of the two schemes should be distinguished within the social security fund (see paragraph 2.102).

Social security schemes

A2.33 Social security schemes are social insurance schemes covering the community as a whole, or large sections of the community, and are imposed and controlled by government units. These schemes cover a wide variety of programs, providing benefits in cash or in kind for old age, invalidity or death, survivors, sickness and maternity, work injury, unemployment, family allowance, health care, etc. There is not necessarily a direct link between the amount of the contribution payable by an individual and the benefits receivable.

A2.34 Social security schemes that are organized separately from the other activities of government units, hold their assets and liabilities separately from the latter, and engage in financial transactions on their own account qualify as institutional units. These institutional units are described as social security funds. A **social security fund** is a particular kind of government unit that is devoted to the operation of one or more social security schemes. These special types of government units are identified separately in a subsector to allow for the alternative methods of constructing subsectors of the general government sector (see paragraph 2.78). The existence of a social security fund depends on its organization as a separate institutional unit, not on other characteristics of the scheme, such as types of benefits provided or sources of finance.

A2.35 Not all social security schemes are operated by social security funds. Where a separate social security fund does not exist, the transactions of the social security scheme would be reported as an integral part of the transactions of the government unit that controls operations of the social security scheme. Social security schemes can therefore be operated by government units that are not social security funds. Consequently, statistics for the social security funds subsector may not include all social security schemes. If a social security scheme is not a separate institutional unit, however, there may be separate accounts to manage the scheme's finances, which would permit compiling supplementary statistics on social security activities with broader coverage than that of the social security subsector.

A2.36 By definition, social security schemes are contributory—participants in the scheme are required to make regular contributions to be eligible to

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receive benefits for themselves or their dependents. The primary receipts of social security schemes are social security contributions. As shown in Table 5.1 in Chapter 5, social security contributions are classified according to their source, which may be employers or households. Participation in social security schemes can be compulsory or voluntary. Further breakdown in the classification of these social contributions would allow a distinction between contributions receivable in cash and in kind, and between compulsory and voluntary contributions. In addition to social contributions, social security schemes may receive grants from general government resources and may earn property income from the investment of their assets.

A2.37 *Social security benefits [GFS]* (271) payable are current transfers and are classified as one of the social benefits categories. These can further be classified as being payable in cash or in kind (see Table 6.1). Social security benefits in kind can be provided to beneficiaries in the same ways as social assistance benefits in kind (see paragraphs A2.27–A2.28). Table A2.2 illustrates the recording of some of the flows related to social security schemes.

A2.38 Social security schemes are characterized by a degree of contingent reciprocity. Social security contributions secure entitlements to benefits that are contingent on the event underlying the social risk occurring. Nonetheless, the amount and timing of receipts of benefits by beneficiaries (if any) are subject to various eligibility criteria without necessarily a direct relationship between the amount of the contribution payable by an individual and the benefits receivable. Therefore, the link between benefits and contributions is not considered sufficiently strong to give rise to a financial claim on the part of contributors. The potential individual claims of contributors (and therefore the corresponding government obligations) are regarded as contingent. Also, because social security benefits can be changed at will by the government or legislature as part of its overall economic policy, there is uncertainty about the eventual payment or level of payment of these social benefits.[11] As a result, in GFS, no liabilities are associated with the potential future claims on social security schemes. An expense is recorded only when payment of the benefits is due.

A2.39 However, a high expectation exists that social security benefits earned according to the existing laws will be payable in the future. Therefore, an estimate equal to the net implicit obligations for future social security benefits should be presented as a memorandum item to the Balance Sheet, and details of it presented as a supplementary statement, the *Summary Statement of Explicit Contingent Liabilities and Net Implicit Obligations for Future Social Security Benefits* (see paragraphs 4.47 and 7.261).

Other employment-related social insurance schemes

A2.40 Other employment-related social insurance schemes derive from an employer-employee relationship in the provision of pension entitlement and other social benefit to employees as part of the conditions of employment. By definition, these schemes are contributory and, for government or public sector units, protect only their own employees and dependents. The provision of social insurance benefits by government to its own employees is considered to be part of an actual or implicit contract between the government, as employer, and the employees, to compensate them for the provision of their labor services. Therefore, employment-related social insurance schemes give rise to requited expense transactions for government when the social contributions became payable. To accurately reflect the accrued costs of employment, the actual and imputed social insurance contributions should be recorded as *employers' social contributions* (212) in the expense category for *compensation of employees* (21) (see Table 6.1).

Employment-related pensions and other retirement benefit schemes

A2.41 Employment-related social insurance schemes that provide pensions and other retirement benefits can be organized as a funded or unfunded social insurance scheme. Table A2.3 illustrates the recording of some of the flows of employment-related pensions.

A2.42 There are three types of employment-related pension schemes:

- A nonautonomous pension scheme that is therefore regarded as an integral part of the employer

[11] The amounts of social security contributions receivable and benefits payable may be deliberately changed in order to achieve objectives of government policy. The change may have no direct connection with the functions of social security. For example, the contributions and benefits may be raised or lowered in order to influence the level of aggregate demand in the economy, or to ensure fiscal sustainability.

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Table A2.2 Illustrative Recording of Flows Related to Social Security Schemes

Description	Debit		Credit	
2.1 The government social security scheme receives contributions from various contributors				
Social security contributions receivable from employees, self-employed, and unemployed	3212 / 3218	Currency and deposits / Other accounts receivable[1]	1211 / 1213	Social security contributions: Employee contributions/self-employed, and unemployed
Social security contributions receivable from employers	3212 / 3218	Currency and deposits / Other accounts receivable[1]	1212	Social security contributions: Employer contributions
2.2 The government as employer makes contributions to social security schemes on behalf of its employees				
Government contributions as employer become payable	2121	Actual employers' social contributions	3212 / 3318	Currency and deposits / Other accounts payable[1]
2.3 The government social security scheme provides social security benefits to the eligible beneficiaries in accordance with the conditions of the scheme				
Social security scheme benefits become payable	2711	Social security benefits in cash	3212 / 3318	Currency and deposits / Other accounts payable[1]
2.4 The government social security scheme provides goods purchased from market producers to qualifying beneficiaries				
Social security scheme acquires the goods	31224	Inventories (goods for resale)[2]	3212 / 3318	Currency and deposits / Other accounts payable[1]
Social security scheme provides goods to households	2712	Social security benefits in kind	31224	Inventories (goods for resale)[2]
2.5 The government social security scheme reimburses market providers or households for goods and services provided by market entities to eligible beneficiaries in accordance with the conditions of the scheme				
Social security scheme reimburses providers or households	2712	Social security benefits in kind	3212 / 3318	Currency and deposits / Other accounts payable[1]
2.6 The government social security scheme produces and provides goods or services to the population in accordance with the conditions of the scheme				
No social security benefits are recorded in GFS—the operational costs incurred in the production of the goods and services are recorded as relevant	21, 22, 23	Compensation of employees, use of goods and services, and consumption of fixed capital	3212 / 3318	Currency and deposits / Other accounts payable[1]

Note: The net implicit obligation for future social security benefits should be recorded as a memorandum item (see paragraph 7.261).

[1]In a cash reporting environment, the revenue/expense will be recorded at the time of the cash flow. In an accrual reporting environment, an other account receivable/payable should be recorded in cases where the payment is not made when the eligibility criteria have been met.

[2]The flow of inventories will be recorded only in an inventory accounting system. In a cash reporting environment, social benefits in kind will not be recorded. The purchases of goods and services distributed as social benefits in kind will be included in purchases of goods and services (22).

- A separate institutional unit that operates a pension scheme that is therefore regarded as an autonomous pension fund
- A scheme managed by an insurance enterprise on behalf of the employer regarded as a financial corporation.

A2.43 The manner in which the employment-related pension scheme is organized determines the recording of the associated transactions. Insurance enterprises and autonomous pension funds are units of the financial corporations sector, while nonautonomous pension funds and unfunded employment-related social insurance schemes are units of the general government sector.

Nonautonomous employment-related pension schemes

A2.44 Nonautonomous social insurance schemes are operated by the employer, and these schemes are usually unfunded schemes because they are organized by the employer without assigning specific accounts or otherwise creating special reserves for the payment of benefits. Instead, the benefits are payable from the employer's general resources.

A2.45 A nonautonomous pension fund for public sector employees does not meet the criteria to be considered an institutional unit, and is therefore deemed to be included in the unit that operates the scheme. This is also the case when the employer has established

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Table A2.3 Illustrative Recording of Flows Related to Employment-Related Pension Schemes

Description	Debit		Credit	
3.1 The government makes pension contributions on behalf of its employees to an autonomous pension fund maintained by an insurance company (i.e., it is part of the private financial corporation sector)				
Government pays social contributions as component of compensation of employees	2121	Actual employers' social contributions	3212 / 3318	Currency and deposits / Other accounts payable[1]
3.2 The government makes pension contributions on behalf of its employees to an autonomous pension fund set up by government as a separate institutional unit (i.e., it is part of the public financial corporation sector)				
Government pays social contributions as component of compensation of employees	2121	Actual employers' social contributions	3212 / 3318	Currency and deposits / Other accounts payable[1]
3.3 The government operates a funded nonautonomous pension fund for its employees (i.e., a separate reserve is maintained in the government account but it is not an institutional unit)				
Government pays social contributions as component of compensation of employees	2121	Actual employers' social contributions	3212 / 3318	Currency and deposits / Other accounts payable[1]
Receipts of social contributions by the pension fund account giving rise to a liability	3212 / 3218	Currency and deposits / Other accounts receivable[1]	3316	Insurance, pension, and standardized guarantee schemes
Government, as owner of the pension fund account, receives property income on the investments of the pension fund	3212 / 3218	Currency and deposits / Other accounts receivable[1]	1411 / 1412	Interest Dividends
Government attributes the property income to the policy holders[2]	2813	Property expense for investment income disbursements	3316	Insurance, pension, and standardized guarantee schemes
Government provides pension benefit payments to eligible beneficiaries	3316	Insurance, pension, and standardized guarantee schemes	3212 / 3318	Currency and deposits / Other accounts payable[1]
3.4 Government operates an unfunded nonautonomous pension fund for its employees (i.e., there are no actual contributions and no separate reserve is maintained in the government account)				
Government provides pension benefit payments to eligible beneficiaries: cash basis of recording	2731	Employment-related social benefits in cash	3212	Currency and deposits
Imputed social contributions as component of compensation of employees: accrual basis of recording	2122	Imputed employers' social contributions	3316	Insurance, pension, and standardized guarantee schemes
Government provides pension benefit payments to eligible beneficiaries: accrual basis of recording	3316	Insurance, pension, and standardized guarantee schemes	3212 /	Currency and deposits
Government recognizes the increase in liability for benefit entitlements due to time passing	2813	Property expense for investment income disbursements	3316	Insurance, pension, and standardized guarantee schemes
3.5 All defined-benefit schemes can also be subject to other economic flows				
Pension liabilities increase due to unilateral changes in conditions of the scheme	5	Other changes in the volume of assets and liabilities	5316	Insurance, pension, and standardized guarantee schemes
Pension liabilities increase due to changes in interest rates used to calculate the present value of the liability	4	Holding gains/losses	4316	Insurance, pension, and standardized guarantee schemes

[1]In a cash reporting environment, the revenue/expense will be recorded at the time of the cash flow. In an accrual reporting environment, an other account receivable/payable should be recorded in cases where the payment is not made when the eligibility criteria have been met.

[2]These disbursements will primarily be reinvested in the fund as social contributions, while the portion that will meet the cost of operating the fund should be recorded as the purchases of a financial service from the pension fund.

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segregated reserves, but the organization and operations of the scheme do not meet the criteria to be an institutional unit (see paragraph 2.22). The economic flows and stock positions of nonautonomous employment-related pension funds are integrated with those of the controlling employer. All of the assets, liabilities, transactions, and other economic events of the pension fund are combined with the corresponding items of the employer operating the scheme, which may be a general government unit or a public corporation. The treatment of the assets, liabilities, transactions, and other economic events related to the nonautonomous pension fund is similar to that of an autonomous pension fund. However, in this case, the contributions payable as a component of compensation of employees, the receipt of the contributions by the pension scheme, and the associated liabilities are recorded by the same level of government. These flows are not eliminated in consolidation because households are regarded as, respectively, the recipient and payer. These flows should be rerouted as described in paragraph 3.28.

A2.46 In accordance with the accrual basis of recording, the amount that would be required to cover the accrual of the social benefits must be imputed. This will also ensure that the full cost of employment is accounted for by recording the imputed social contributions, with a counterpart entry that creates the associated liability for these pension benefits. This imputation recognizes the economic flows during the period in which the underlying economic event takes place. It also improves transparency because it records the cost of providing the social benefits to its employees and flags the risks associated with the future demands on resources. When these pension benefits are paid, the payment is recorded as a reduction in liabilities.[12]

Autonomous employment-related pension schemes

A2.47 To be regarded as autonomous, the entity responsible for the employment-related pension scheme must have the characteristics of an institutional unit (see paragraph 2.22). These institutional units are considered to provide financial services (i.e., insurance/pensions) to the household sector, and are therefore classified in the financial corporations sector. They are classified as either private or public financial corporations, depending on whether they are controlled by the private or public sectors (see Box 2.2).

A2.48 An employer may contract with a third party to administer the pension funds for its employees. The employment-related pension scheme is then managed through an insurance enterprise or an autonomous pension fund. The employer's primary responsibility with respect to the scheme is to pay the social contributions on behalf of its employees. The government unit records the payment as part of compensation of employees, under actual social contributions (see Table 6.1 and paragraph 6.21). No other transactions are recorded by the government unit as employer, as it has no direct liability for future provision of social benefits.

A2.49 However, in cases where the employer continues to determine the terms of the pension schemes and retains the responsibility for any deficit in funding, as well as the right to retain any excess funding, the employer is described as the pension manager and the unit working under the direction of the pension manager is described as the pension administrator. If the agreement between the employer and the third party is such that the employer passes the risks and responsibilities for any deficit in funding to the third party in return for the right of the third party to retain any excess, the third party becomes the pension manager as well as the administrator.

A2.50 When the pension manager is a unit different from the administrator, and the responsibility for any deficit, or claims on any excess, rests with the pension manager, the claim of the pension fund on the pension manager should be shown under the liability, *claims of pension funds on pension managers* (63064). By contrast, if the pension fund makes more investment income from the pension entitlements it holds than necessary to cover the increase in entitlements, the difference is payable to the pension manager of the scheme. The pension manager records this claim on the pension administrator as a financial asset, *claims of pension funds on pension managers* (62064).[13]

[12] When using the cash basis of recording, the only flow recorded for these unfunded pension schemes is the *employment-related social benefits* expense, with a counterpart entry as a decrease in *currency and deposits*. The expense is recorded when cash payments are made.

[13] Although this financial asset effectively represents a claim of the pension manager on the pension fund, the same line item title is used for both the asset and liability accounts.

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A2.51 If government controls the financial corporation that manages the employment-related pension scheme for government employees, the corporation will be part of the public financial sector, and the relevant flows and stock positions would be recorded when compiling GFS for the public sector. The receipt of social contributions by this insurance enterprise or pension fund gives rise to a liability, classified in the financial instrument *insurance, pensions, and standardized guarantee schemes* (6306), and more specifically in *pension entitlements* (63063). The liability originates from the obligation to pay future pension benefits—any subsequent payment of the benefits will be recorded as a reduction in this liability. Although the social contributions are payable directly by the employer to the financial corporation, they are recorded in GFS as if payable by the employer to households as compensation of employees: households in turn pay the contributions to the financial corporation. Because of this rerouting, these transactions should not be eliminated in consolidation of the public sector (see paragraph 3.28).

A2.52 For the financial corporation, revenue from the investment of the financial reserves should be classified as the relevant category of property income. However, since these resources are considered to give rise to an asset of the policyholders, such income should be attributed to policyholders. An expense is recorded, classified as *property expense for investment income disbursements* (2813), with a counterpart entry that increases the liability to reflect the policyholders' increase in claims for pension entitlements.

A2.53 Autonomous employment-related pension schemes can be organized as a defined-benefit pension scheme or a defined-contribution pension scheme.

Defined-benefit pension schemes

A2.54 A **defined-benefit pension scheme** is one where the benefits payable to an employee on retirement are determined by the use of a formula, either alone or as a minimum amount payable. The level of benefits promised to participating employees is determined by a formula embodied in the terms of the social insurance scheme. These terms are usually based on factors such as the participants' length of service and salary.[14] The calculation of imputed contributions and net present value of future benefits requires advanced actuarial techniques, beyond the responsibility of GFS compilers. The present value of future benefit entitlements increases each period because there is one fewer period over which it is discounted. This increase should be a transaction in property expense for *investment income disbursements* (2813) (see paragraph 6.113). Furthermore, a holding gain should be recorded with respect to the liability in order to reflect any change in the value of the liability because of a change in the interest rate used to discount the future benefits. A change in the liability resulting from a change in the benefit structure should always be treated as an other volume change, because it does not constitute a transaction but represents a unilateral change brought about by the employer.

Defined-contribution pension schemes

A2.55 A **defined-contribution pension scheme** is one where the benefits payable to an employee on retirement are defined exclusively in terms of the level of the funds built up from the contributions made over the employee's working life and the increases in value that result from the investment of these funds by the manager of the scheme. The risk of the scheme to provide an adequate retirement income is thus borne by the employee, and the benefits that will be payable depend on the assets of the fund.[15] For a defined-contribution pension scheme, a pension fund is always deemed to exist.

A2.56 Contributions to a defined-contribution pension scheme are invested on behalf of the employees as future beneficiaries. The investment income on the cumulated assets of the pension fund is recorded as revenue for the fund, classified according to the nature of the respective property income revenue (usually including *interest* (1411), *dividends* (1412), or

[14] There are four sources of changes in pension entitlements in a defined-benefit pension scheme: (i) the current service increase—it is the increase in entitlement associated with the wages and salaries earned in the current period; (ii) the past service increase—it is the increase in the value of the entitlement due to the fact that for all participants in the scheme, retirement (and death) is one year nearer; (iii) a decrease due to the payment of benefits to retirees of the scheme; and (iv) other factors—that is, factors that are related to other changes in the volume of assets.

[15] Defined-contribution schemes are also referred to as money-purchase schemes.

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rent (1415)). The investment income is also recorded as being distributed to the beneficiaries (classified as *property expense for investment income disbursements* (2813)), who are deemed to reinvest the income in the pension fund as contributions. Therefore, the investment income payable on defined-contribution entitlements is equal to the investment income on the financial investments plus any net operating surplus earned by renting land or buildings owned by the fund.

A2.57 The value of the pension entitlement liability of a defined-contribution pension scheme is the market value of the financial assets held by the pension fund on behalf of the future beneficiaries. Any changes in the market value of these investments of the pension fund would include holding gains and losses. These holding gains and losses should be recorded as changes in the value of the relevant assets of the institutional unit administering the pension fund. In addition, these holding gains or losses should also be attributed to the policyholders. Therefore, a matching entry for the holding gain or losses in the liability of the pension fund toward households should be recorded.

A2.58 For a defined-contribution pension scheme, the risks and costs associated with the scheme are borne by the beneficiaries. There are no imputed contributions for defined-contribution pension schemes, unless the employer operates the scheme directly. In that case, the value of the costs of operating the scheme is treated as an imputed contribution payable to the employee as part of compensation of employees. This amount is recorded by the employer as the sale of a financial service to the employees, classified as *imputed sales of goods and services* (1424) (see paragraph 5.140). When the fund is operated by a unit other than the employer, the operating costs are financed from investment income retained by the fund to meet its costs and generate a profit. Therefore, in keeping with the recording of insurance, the investment income generated is treated as being attributed in full to the beneficiaries in the household sector who use part of the income to purchase a financial service from the fund, and reinvest the remainder with the fund.

A2.59 As indicated in paragraphs A2.3 and A2.21, defined-contribution schemes are similar to life insurance schemes.[16] However, a scheme that may be defined in terms similar to a defined-contribution scheme, but with a guaranteed minimum benefit specified, or other hybrid schemes, should be treated as defined-benefit pension schemes in macroeconomic statistics.

Government assumption of employment-related pension obligations of other institutional units

A2.60 On occasion, large one-off transactions (lump-sum transactions) may occur between a government and another institutional unit, often a public corporation, linked to pension reforms or to privatization of the public corporations. The goal may be to make the corporation competitive, or financially more attractive, by removing existing pension liabilities from its balance sheet. This goal is achieved by government assuming the liability in exchange for an asset or assets from the other institutional unit. When the value of the asset(s) receivable is the same as the value of the liability assumed, the transaction is recorded as a transaction in financial assets and liabilities for both units involved.

A2.61 However, if the value of the asset(s) receivable by government is less than the value of the liability assumed, an expense in the form of a capital transfer from government to the corporation is recorded for the difference. The assumer (government) records an increase in liabilities for pension entitlements, an increase in the relevant financial and/or nonfinancial assets, and an expense in the form of capital transfer to the corporation (see paragraph 6.91). The corporation records a decrease in liabilities for pension entitlements, a decrease in financial and/or nonfinancial assets, and revenue in the form of a capital transfer from government.

A2.62 If the value of the asset(s) receivable is more than the value of the liability incurred, a capital transfer receivable from the corporation to the government is recorded for the difference (see paragraph 5.148). The corporation records a decrease in liabilities for pension entitlements, a decrease in financial and/or nonfinancial assets, and an expense in the form of a capital transfer to government.

[16] The treatment of the flows and stock positions of these schemes is similar to the treatment of compulsory savings schemes.

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A2.63 Even if the arrangement transforms the pension liability, so that it is to be administered as part of a social security fund, the initial assumption of the pension obligation should be recorded as in the foregoing paragraphs. The pension obligations absorbed by the social security fund continue to be classified as pension entitlement liabilities. These obligations are gradually extinguished as the benefits are paid out.

Employment-related nonpension social insurance schemes

A2.64 Employment-related nonpension social insurance schemes can be operated by the government or by autonomous nongovernment entities. In either case, the actual or imputed employers' contributions are included as an expense in the compensation of employees, under social contributions. For funded schemes, the actual contributions made to the scheme are classified under actual employers' social contributions. For unfunded schemes, the amount that would be required to purchase equivalent social benefits must be imputed by the employer, and should be classified under imputed employers' social contributions. Where a scheme is operated by the government, a simultaneous transaction equal to the actual or imputed social contributions is recorded as revenue from the household sector back to government, and classified under actual social security contributions or imputed social contributions. The social benefits provided by the government are classified as an expense under employment-related social benefits. Table A2.4 illustrates the recording of some of these flows of employment-related nonpension social insurance schemes.

A2.65 Some employers provide nonpension social benefits directly to their employees, former employees, or dependents without involving an insurance enterprise or autonomous pension fund, and without creating a special fund or segregated reserve for the purpose. Employees may be considered as being protected against various specified social risks, even though no reserves are built up to provide for future entitlement to social security benefits. An expense for employers' social contributions should therefore be imputed for such employees (see paragraph 6.22), equal in value to the amount of social contributions revenue needed to obtain the de facto entitlements to the accrued social benefits. These amounts take into account any actual contributions made by the employer or employee. The amounts depend not only on the levels of the benefits currently payable but also on the impact on future employer's liabilities of demographic and actuarial factors, such as expected changes in the numbers, age distribution, and life expectancies of their present and previous employees. Therefore, the values that should be imputed for the contributions ought, in principle, to be based on the same kind of actuarial considerations that determine the levels of premiums charged by insurance enterprises.

A2.66 In practice, however, it may be difficult to estimate such imputed contributions. The government unit may make estimates itself, perhaps on the basis of the contributions payable into similar funded schemes, in order to calculate its likely liabilities in the future. Otherwise, the only practical alternative may be to use the unfunded nonpension benefits payable by government during the same reporting period as an estimate of the imputed remuneration that would be needed to cover the imputed contributions. This is a second best option as the value of the imputed contributions may diverge from the unfunded nonpension benefits actually paid in the same period, due to factors such as the changing composition and age structure of the government labor force.

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Table A2.4 Illustrative Recording of Flows Related to Employment-Related Nonpension Social Insurance Schemes

Description	Debit		Credit	
4.1 Social insurance contributions receivable from employers and employees				
Social insurance contributions receivable from employees	3212 / 3218	Currency and deposits / Other accounts receivable[1]	1221	Other social contributions: Employee contributions
Social insurance contributions receivable from employers	3212 / 3218	Currency and deposits / Other accounts receivable[1]	1222	Other social contributions: Employer contributions
4.2 The government as employer makes contributions to social insurance schemes on behalf of its employees				
Government contributions as employer becomes payable	2121	Actual employers' social contributions	3212 / 3318	Currency and deposits / Other accounts payable[1]
4.3 Government as employer imputes contributions to the social insurance scheme where no or insufficient contributions to obtain entitlement to benefits were made				
Imputed contributions	2122	Imputed employers' social contributions	1223	Imputed contributions
4.4 Employer social insurance scheme provides benefits to government employees				
Employer social insurance scheme pays benefits in cash	2731	Employment-related social benefits in cash	3212 / 3318	Currency and deposits / Other accounts payable[1]
4.5 Employer social insurance scheme provides goods purchased from market producers to employees in accordance with the conditions of the scheme				
Employer social insurance scheme acquires the goods	31224	Inventories (goods for resale)[2]	3212 / 3318	Currency and deposits / Other accounts payable[1]
Employer social insurance scheme provides goods to households	2732	Employment-related social benefits in kind	31224	Inventories (goods for resale)[2]
4.6 Employer social insurance scheme reimburses market providers or households for goods and services provided by market entities in accordance with the conditions of the scheme				
Employer social insurance scheme reimburses providers or households	2732	Employment-related social benefits in kind	3212 / 3318	Currency and deposits / Other accounts payable[1]
4.7 Government produces and provides goods or services to their employees in accordance with an employer's social insurance scheme				
No employer social insurance benefits are recorded in GFS—the operational costs incurred in the production of the goods and services are recorded as relevant	21, 22, 23	Compensation of employees, use of goods and services, and consumption of fixed capital	3212 / 3318	Currency and deposits / Other accounts payable[1]

Note: The net implicit obligation for future social security benefits should be recorded as a memorandum item (see paragraph 7.261).

[1]In a cash reporting environment, the revenue/expense will be recorded at the time of the cash flow. In an accrual reporting environment, an other account receivable/payable should be recorded in cases where the payment is not made when the eligibility criteria have been met.

[2]The flow of inventories will be recorded only in an inventory accounting system.

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APPENDIX

3 Debt and Related Operations

This appendix provides guidance on selected issues that may arise in the recording of flows and stock positions related to public sector debt.

Introduction

A3.1 In the recording of debt[1] of the general government or public sectors, complex methodological issues can arise with regard to flows (i.e., transactions and other economic flows) and stock positions associated with the debt liabilities. Some of the most common issues are discussed in detail, with examples of their treatment, in Chapter 4 of the *PSDS Guide*. This appendix provides a summary of the same issues and their treatment.

Debt Reorganization

A3.2 Debt reorganization (also referred to as debt restructuring) is defined as an arrangement involving both the creditor and the debtor (and sometimes third parties) that alters the terms established for servicing an existing debt. Governments are often involved in debt reorganization, as debtor, creditor, or guarantor.

A3.3 Debt reorganization usually involves relief for the debtor from the original terms and conditions of debt obligations. This may be in response to liquidity constraints, where the debtor does not have the cash to meet debt service payments due, or sustainability issues, where the debtor is unlikely to be able to meet its debt obligations in the medium term.

A3.4 A failure by a debtor to honor its debt obligations (e.g., default) does not constitute debt reorganization because it does not involve an arrangement between the creditor and the debtor. Similarly, a creditor can reduce the value of its debt claims on the debtor in its own accounts through debt write-offs—unilateral actions that arise, for example, when the creditor regards a claim as unrecoverable, perhaps because of bankruptcy of the debtor, and, as a result, no longer carries the claim on its balance sheet. Again, this is not considered debt reorganization.

A3.5 The four main types of debt reorganization are:

- *Debt forgiveness*, which is a reduction in the amount of, or the extinguishing of, a debt obligation by the creditor via a contractual arrangement with the debtor.
- *Debt rescheduling or refinancing* (or debt exchange), which is a change in the terms and conditions of the amount owed, which may result in a reduction in debt burden in present value terms.
- *Debt conversion and debt prepayment* (or debt buybacks for cash), where the creditor exchanges the debt claim for something of economic value, other than another debt claim, on the same debtor; examples of debt conversion are debt-for-equity swaps, debt-for-real-estate swaps, debt-for-development swaps, and debt-for-nature swaps.[2]
- *Debt assumption* when a third party is also involved.

A3.6 A debt reorganization package may involve more than one of the types just mentioned; for example, most debt reorganization packages involving debt forgiveness also result in a rescheduling of the part of the debt that is not forgiven or cancelled.

Debt Forgiveness

A3.7 Debt forgiveness (or debt cancellation) is defined as the voluntary cancellation of all or part of a

[1] Gross debt and net debt are defined in paragraphs 7.236–7.245.

[2] Some agreements described as debt swaps are equivalent to debt forgiveness from the creditor together with a commitment from the debtor country to undertake a number of development, environmental, etc., expenses. These transactions should be considered under debt forgiveness, as counterpart funds are not provided to the creditor.

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debt obligation within a contractual arrangement between a creditor and a debtor. With debt forgiveness, there is a mutual agreement between the parties involved and an intention to convey a benefit. In contrast, with debt write-off, there is no such agreement or intention—it is a unilateral recognition by the creditor that the amount is unlikely to be collected (see paragraphs A3.32–A3.34).[3] Debt forgiven may include all or part of the principal outstanding, inclusive of any accrued interest arrears (interest that fell due for payment in the past) and any other interest costs that have accrued. Debt forgiveness includes forgiveness of some, or all, of the principal amount of a credit-linked note arising from an event affecting the entity on which the embedded credit derivative was written. Also included is forgiveness of principal that arises when the debt contract stipulates that the debt will be forgiven if a specified event occurs, such as forgiveness in the case of a type of catastrophe. Debt forgiveness does not arise from the cancellation of future interest payments that have not yet fallen due and have not yet accrued.

A3.8 Debt forgiveness is always recorded as a capital grant or transfer from the creditor to the debtor, which extinguishes the financial claim and the corresponding debt liability. A government or public sector unit may be involved in debt forgiveness as a creditor or a debtor. Market prices are the basis for valuing debt forgiveness, except for loans, where nominal value is used.

A3.9 Although no transactions are recorded for debt forgiveness under the cash basis of recording, the stock positions relating to the debt liability and the corresponding financial asset would reflect the debt forgiveness.

Debt Rescheduling and Refinancing

A3.10 Debt rescheduling and refinancing involve a change in an existing debt contract and its replacement by a new debt contract, generally with extended debt service payments.[4] Debt rescheduling involves rearrangements on the same type of instrument, with the same principal value and the same creditor as with the old debt. Debt refinancing entails a different debt instrument, generally at a different value, and possibly with a different creditor.[5] For example, a creditor may choose to apply the terms of a Paris Club (see *PSDSG*, paragraphs 10.125–10.134) agreement either through a debt rescheduling option (changing the terms and conditions of its existing claims on the debtor) or through refinancing (making a new loan to the debtor that is used to repay the existing debt).

Debt rescheduling

A3.11 Debt rescheduling is a bilateral arrangement between the debtor and the creditor that constitutes a formal postponement of debt service payments and the application of new and generally extended maturities. The new terms normally include one or more of the following elements: extending repayment periods, reductions in the contracted interest rate, adding or extending grace periods for the payment of interest and principal, fixing the exchange rate at favorable levels for foreign currency debt, and rescheduling the payment of arrears, if any. In the specific case of zero-coupon securities, a reduction in the principal amount to be paid at redemption to an amount that still exceeds the principal amount outstanding at the time the arrangement becomes effective could be classified as either an effective change in the contractual rate of interest or a reduction in principal with the contractual rate unchanged. Such a reduction in the principal payment to be made at maturity should be recorded as debt forgiveness, or debt rescheduling if the bilateral agreement explicitly acknowledges a change in the contractual rate of interest. Paris Club creditors provide debt relief to debtor countries in the form of rescheduling, which is debt relief by postponement or, in the case of concessional rescheduling, reduction in debt service obligations during a defined period (flow treatment) or as of a set date (stock treatment).

[3] Debt forgiveness is unlikely to arise between commercial entities.

[4] If the original terms of the contract provide that the maturity or interest rate terms, or both, change as a result of, for example, a default or decline in credit rating, then this involves a reclassification. In practice, these reclassification entries cancel out within the same instrument category unless the original and new terms have a different principal, different instrument classification, or different maturity classification. In contrast, if the original terms of a debt (typically a loan or debt security, but also other debt instruments) are changed through renegotiation by the parties, this is treated as transactions in the repayment of the original debt and the creation of a new debt liability.

[5] From the debtor perspective, debt refinancing may involve borrowing from a third party to repay a creditor. The definition of debt refinancing used here is a narrower concept reflecting transactions between the debtor and same creditor only.

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A3.12 With debt rescheduling, the applicable existing debt is recorded as being repaid and a new debt instrument (or instruments) created with new terms and conditions. This treatment does not apply, however, to interest arrears that are rescheduled when the conditions in the existing debt contract remain unchanged. In such a case, the existing debt contract is not considered as rescheduled, only the interest arrears. A new debt instrument is recorded for the rescheduled interest arrears.

A3.13 The debt rescheduling transaction is recorded at the time agreed to by both parties (the contractually agreed time), and at the value of the new debt (which, under a debt rescheduling, is the same value as that of the old debt). If no date is set, the time at which the creditor records the change of terms is decisive. If the rescheduling of obligations due beyond the current period is linked to the fulfillment of certain conditions, when the obligations fall due (such as multiyear Paris Club rescheduling), entries are recorded only in the period when the specified conditions are met.

Debt refinancing

A3.14 Debt refinancing involves the replacement of an existing debt instrument or instruments, including any arrears, with a new debt instrument or instruments. It can involve the exchange of the same type of debt instrument (such as a loan for a loan) or different types of debt instruments (such as a loan for a bond). For example, a public sector unit may convert various export credit debts into a single loan, or exchange existing bonds for new bonds through exchange offers given by its creditor (rather than a change in terms and conditions).

A3.15 The treatment of debt refinancing transactions is similar to debt rescheduling. The debt being refinanced is extinguished and replaced with a new financial instrument, or instruments. The old debt is extinguished at the value of the new debt instrument, except for nonmarketable debt (e.g., a loan) owed to official creditors.

A3.16 If the refinancing involves a direct debt exchange, such as a loan-for-bond swap, the debtor records a reduction in liabilities under the appropriate debt instrument and an increase in liabilities to show the creation of the new obligation. The transaction is recorded at the value of the new debt (reflecting the current market value of the debt), and the difference between the value of the old and new debt instruments is recorded as a holding gain or loss. However, if the debt is owed to official creditors and is nonmarketable, the old debt is extinguished at its original value with the difference in value with the new instrument recorded as debt forgiveness (see paragraphs A3.7–A3.9). Where there is no established market price for the new bond, an appropriate proxy is used. For example, if the bond is similar to other bonds being traded, the market price of a traded bond would be an appropriate proxy for the value of the new bond. If the debt being swapped was recently acquired by the creditor, the acquisition price would be an appropriate proxy. Alternatively, if the interest rate on the new bond is below the prevailing interest rate, the discounted value of the bond, using the prevailing interest rate, could serve as a proxy. If such information is not available, the face value of the bond being issued may be used as a proxy. See also debt-for-equity conversion in paragraph A3.21).

A3.17 The balance sheet reflects the changes in the stock positions as a result of the transactions extinguishing the old debt instrument and creating the new debt instrument along with any valuation changes. For example, a loan-for-bond exchange will generally result in a reduction in the liabilities of the debtor (reduction in the claim of the creditor on the debtor) because the loan is recorded at nominal value, while the bond is recorded at market value, which may be lower.

A3.18 If the proceeds from the new debt are used to partially pay off the old (existing) debt, the remaining old debt is recorded being extinguished and a new debt instrument is created (equal to the value of the remaining old debt extinguished), unless the old debt is paid off through a separate transaction.

A3.19 If the terms of any new borrowings are concessional, the creditor could be seen as providing a transfer to the debtor. Debt concessionality is discussed in paragraphs A3.39–A3.41.

Debt Conversion and Debt Prepayment

Debt conversion

A3.20 Debt conversion (swap) is an exchange of debt—typically at a discount—for a nondebt claim (such as equity), or for counterpart funds that can be used to finance a particular project or policy. In essence, public sector debt is extinguished and a nondebt liability created in a debt conversion.

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A3.21 A common example of debt conversion is debt-for-equity swaps.[6] Determining the value of the equity may be difficult if the equity is not actively traded on a market, as is likely to be the case if the unit that issued the equity is a controlled public corporation. If the equity is not traded, its valuation should be based on one of the methods set out in paragraph 7.173.

A3.22 Further examples of debt conversions are other types of debt swaps (such as external debt obligations for exports or "debt-for-exports") or debt obligations for counterpart assets that are provided by the debtor to the creditor for the creditor to use for a specified purpose, such as wildlife protection, health, education, and environmental conservation (debt-for-sustainable-development).

A3.23 Direct and indirect debt conversions should be distinguished. A direct swap leads directly to the acquisition of a nondebt claim on the debtor (such as a debt-for-equity swap). An indirect debt conversion involves another claim on the economy, such as a deposit, that is subsequently used to purchase equity.

Debt prepayment

A3.24 Debt prepayment consists of a repurchase, or early payment, of debt at conditions that are agreed between the debtor and the creditor. The debt is extinguished in return for a cash payment agreed between the debtor and the creditor. The transaction is recorded at the value of the debt prepaid. Debt prepayment could be driven by the debtor's need to reduce the cost of its debt portfolio by taking advantage of favorable economic performance or market conditions to repurchase debt.

A3.25 If the debt is owed to official creditors and is nonmarketable (e.g., a loan), an element of debt forgiveness could be involved (i.e., if the prepayment occurs within an agreement between the parties with an intention to convey a benefit). As explained in the section on debt forgiveness (see paragraph A3.8), a capital transfer or capital grant from the creditor to the debtor is recorded for debt forgiveness, which reduces the value of the outstanding liability/claim.

[6] Often, a third party is involved in a debt-for-equity swap, buying the claims from the creditor and receiving equity in a public corporation (the debtor).

Debt Assumption and Debt Payments on Behalf of Others

Debt assumption

A3.26 Debt assumption is a trilateral agreement between a creditor, a former debtor, and a new debtor (typically a government unit), under which the new debtor assumes the former debtor's outstanding liability to the creditor, and is liable for repayment of debt. Calling a guarantee is an example of debt assumption. If the original debtor defaults on its debt obligations, the creditor may invoke the contract conditions permitting the guarantee from the guarantor to be called. The guarantor unit must either repay the debt or assume responsibility for the debt as the primary debtor (i.e., the liability of the original debtor is extinguished). A public sector unit can be the debtor that is defaulting or the guarantor. A government can also, through agreement, offer to provide funds to pay off the debt obligation of another government unit owed to a third party.[7]

A3.27 The statistical treatment of debt assumption depends on (i) whether the new debtor acquires an effective financial claim on the original debtor, and (ii) if there is no effective financial claim, the relationship between the new debtor and the original debtor and whether the original debtor is bankrupt or no longer a going concern.[8] This implies three possibilities (see Figure A3.1):

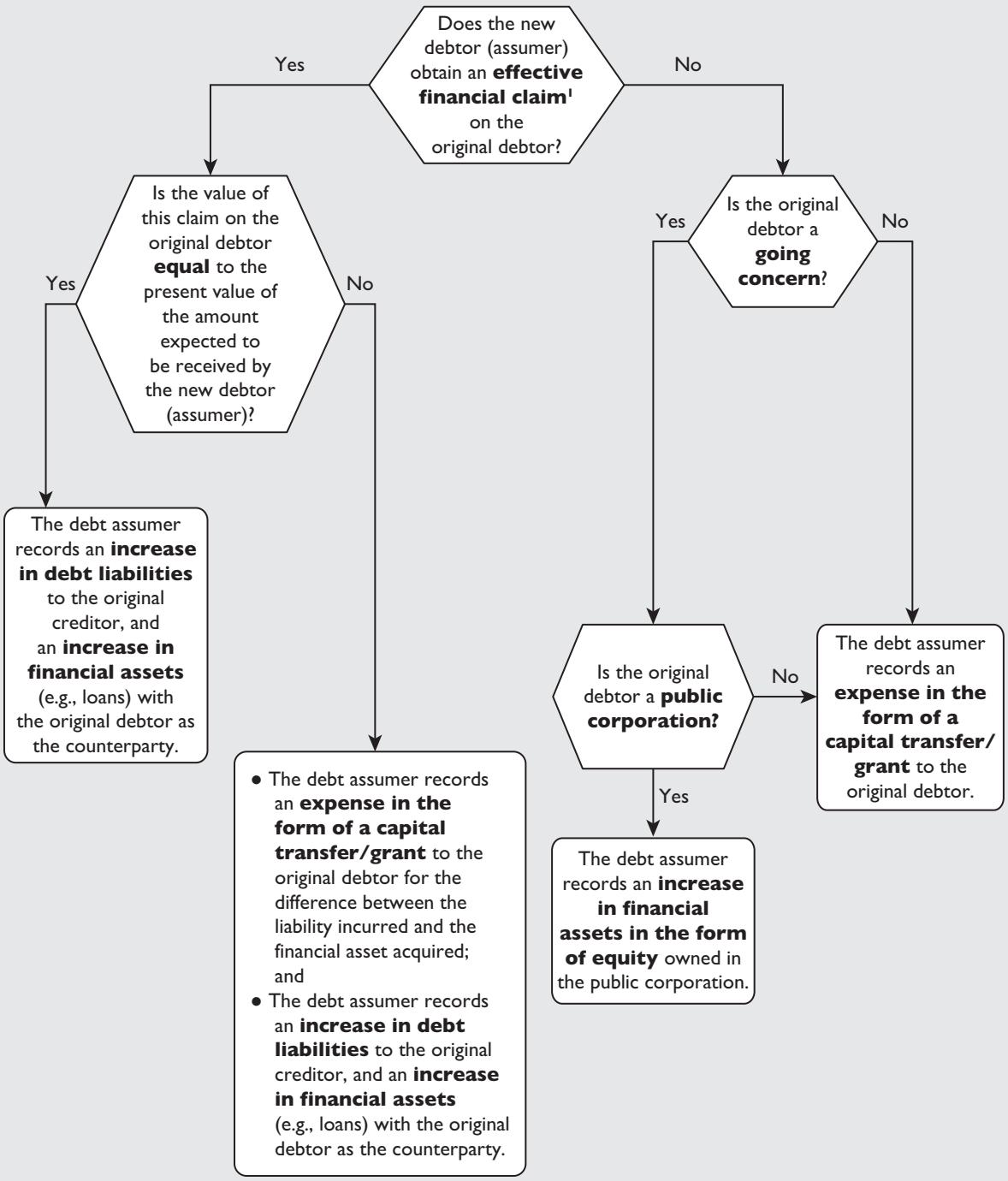
- The debt assumer (new debtor) acquires an effective financial claim on the original debtor. The debt assumer records an increase in debt liabilities to the original creditor, and an increase in financial assets, such as in the form of loans, with the original debtor as the counterparty. The original debtor records a decrease in the original debt liability to the creditor and an increase in liabilities, such as in the form of a loan, to the debt assumer. The value of the debt assumer's claim on the original debtor is the present value

[7] For example, a central government unit offering to provide funds to pay off the debt of a local government unit owed to a bank.

[8] An "effective financial claim" is understood to be a claim that is supported by a contract between the new debtor and the original debtor, or (especially in the case of governments) an agreement, with a reasonable expectation to be honored, that the original debtor will reimburse the new debtor. A "going concern" is understood to be an entity in business, or operating for the foreseeable future.

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Figure A3.1 Decision Tree for the Statistical Treatment of Debt Assumption



[1]An "effective financial claim" is understood to be a claim that is supported by a contract between the new debtor and the original debtor, or (especially in the case of governments) an agreement, with a reasonable expectation to be honored, that the original debtor will reimburse the new debtor.

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of the amount expected to be received by the assumer. If this amount is equal to the liability assumed, no further entries are required.

If the amount expected to be recovered is less than the liability assumed, the debt assumer records an expense in the form of capital transfer/grant to the original debtor for the difference between the liability incurred and the financial asset acquired in the form of loans. For the debt assumer, gross debt increases by the amount of debt assumed.

- The debt assumer (new debtor) does not acquire an effective financial claim on the original debtor. This may be the case when the original debtor is bankrupt or no longer a going concern, or when the debt assumer seeks to convey a benefit to the original debtor. The debt assumer records an expense in the form of a capital transfer/grant to the original debtor, and an increase in debt liabilities to the original creditor. The original debtor records revenue in the form of a capital transfer/grant, which extinguishes the debt liability on its balance sheet.

  The exception to this case is when the original debtor is a public corporation that continues to be a going concern, which is discussed next.

- The debt assumer (new debtor) does not acquire an effective financial claim and the original debtor is a public corporation that continues to be a going concern. The debt assumption amounts to an increase in the equity owned by the debt assumer in the public corporation (original debtor). The debt assumer records an increase in debt liabilities to the original creditor, and an increase in financial assets in the form of equity and investment fund shares. The public corporation records a decrease in the debt liability to the original creditor, and an increase in nondebt liabilities in the form of equity and investment funds shares.

A3.28 A special case is where debt assumption involves the transfer of nonfinancial assets (such as fixed assets or land) from, for example, a public corporation (original debtor) to the debt assumer (new debtor). In this case, the debt assumer records an increase in debt liabilities to the original creditor and the acquisition of a nonfinancial asset(s). If the market value of the nonfinancial asset(s) is equal to the value of the liability assumed, no further entries are required. A capital transfer/grant between the debt assumer and original debtor is recorded for any difference between the value of the liability assumed and the market value of the nonfinancial assets.

A3.29 Although no transactions are recorded for debt assumption under the cash basis of recording, the stock positions would change due to the debt assumption. Any subsequent payments in cash relating to the assumed debt would be recorded as interest, and/or transactions in financial assets other than cash and liabilities, as relevant.

Debt payments on behalf of others

A3.30 Rather than assuming a debt, a public sector unit may decide to repay that debt or make a specific payment on behalf of another institutional unit (original debtor), without a guarantee being called or the debt being taken over. In this case, the debt stays recorded solely on the balance sheet of the other institutional unit, the only legal debtor. While this activity is similar to debt assumption, as the existing debt remains with unaltered terms, debt payment on behalf of others is not considered debt reorganization. Such a situation may occur where a debtor is experiencing temporary liquidity difficulties rather than permanent solvency problems.[9]

A3.31 The treatment of debt payments on behalf of others depends on whether the public sector unit paying the debt acquires an effective financial claim on the debtor.

- If the paying unit obtains an effective financial claim on the original debtor, the paying unit records an increase in financial assets (e.g., loans) and a decrease in currency and deposits. The recipient (debtor) records a decrease in the original debt liability and an increase in another liability—which may be debt or nondebt—to the paying unit. If the claim of the paying unit on the debtor is in the form of a debt instrument, gross debt and net debt of the paying unit and recipient (debtor) do not change. However, if the claim of the paying unit on the debtor is in the form of a nondebt instrument—for example, equity:
  - For the paying unit, gross debt remains unchanged, but net debt increases (due to the

[9] Debt payments on behalf of others are different from the case where debt may be considered to be assumed at inception when a guarantee has a very high likelihood to be called, as described in paragraph 7.258.

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reduction in its financial assets in the form of currency and deposits).

- For the recipient (debtor), gross debt and net debt decrease (due to the reduction in the debt liability).

- If the paying unit does not obtain an effective financial claim on the original debtor, the paying unit records an expense in the form of a capital transfer—classified according to the nature of the recipient—and a decrease in financial assets in the form of currency and deposits. The receiving unit (debtor) records a revenue in the form of a capital transfer—classified according to the nature of the paying unit—and a decrease in the original debt liability.

Other Debt-Related Issues

Debt Write-Offs and Write-Downs

A3.32 Debt write-offs or write-downs refer to unilateral reductions by a creditor of the amount owed to it. This usually occurs when a creditor concludes that a debt obligation has no value or a reduced value because part or all of the debt is not going to be repaid (frequently because the debtor is insolvent). For example, a public corporation that borrowed from the general government unit may be insolvent. As a result, the general government unit's claim loses some, or all, of its value and is written down or written off on the balance sheet of the government unit (creditor).[10] In contrast, a unilateral write-off by a debtor, or debt repudiation, is not recognized in the macroeconomic statistical systems.

A3.33 Unlike debt forgiveness (see paragraphs A3.7–A3.9), which is a mutual agreement and, therefore, a transaction, a debt write-off or write-down is a unilateral action and, therefore, recorded as other changes in the volume of assets. The financial asset is removed from the balance sheet of the creditor and the corresponding liability should be removed from the balance sheet of the debtor, also through other changes in the volume of assets, to maintain consistency in the macroeconomic statistics.[11]

[10] If a bankruptcy still allows some of the debt to be settled, it is possible that the creditor writes off only a part of the claim.
[11] Provisions by the creditor for bad debts or expected losses (sometimes referred to as "write-down") are not recorded in macroeconomic statistics.

A3.34 Although no transactions are recorded for a debt write-off or write-down under the cash basis of recording, the stock positions relating to these operations would be reduced, reflecting the debt write-off or write-down.

New Money Facilities

A3.35 In some arrangements that assist the debtor to overcome temporary financing difficulties, new money facilities are agreed with the creditor to repay maturing debt obligations. The two debt instruments involved—the maturing debt obligation and the new money facility—are treated separately.

A3.36 The creditor records a reduction in the original claim on the debtor and an increase in a new claim on the debtor. Similarly, the debtor records a reduction in the original liability to the creditor and an increase in a new liability to the creditor. If the terms of the new borrowings are concessional, the creditor could be seen as providing a transfer to the debtor. (Debt concessionality is discussed in paragraphs A3.39–A3.41.)

Debt Defeasance

A3.37 With **defeasance**, a debtor unit removes liabilities from its balance sheet by pairing them with financial assets, the income and value of which are sufficient to ensure that all debt-service payments are met. Defeasance may be carried out by placing the assets and liabilities in a separate account within the institutional unit concerned or by transferring them to another unit. In either case, the macroeconomic statistical systems do not recognize defeasance as affecting the outstanding debt of the debtor. Thus, no transactions with respect to defeasance are recorded in the GFS framework, as long as there has been no change in the legal obligations of the debtor. When the assets and liabilities are transferred to a separate account within the unit, both assets and liabilities should be reported on a gross basis. If a separate entity resident in the same economy is created to hold the assets and liabilities, that new unit should be treated as an ancillary entity and consolidated with the defeasing unit.

A3.38 The sectorization of restructuring agencies (also referred to as "defeasance structures") is discussed in paragraphs 2.129–2.131.

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Debt Concessionality

A3.39 There is no consistent definition or measure of debt concessionality in macroeconomic statistics. However, it is generally accepted that concessional loans occur when units lend to other units and the contractual interest rate is intentionally set below the market interest rate that would otherwise apply. The degree of concessionality can be enhanced with grace periods,[12] and frequencies of payments and maturity periods favorable to the debtor.

A3.40 Since the terms of a concessional loan are more favorable to the debtor than market conditions would otherwise permit, concessional loans effectively include a transfer from the creditor to the debtor. However, the means of incorporating the transfer impact within macroeconomic statistics have not been fully developed, although various alternatives have been advanced. Accordingly, until the appropriate treatment of concessional debt is agreed, information on concessional debt should be provided in a memorandum item to the balance sheet (see paragraph 7.246) and/or in supplementary tables.

A3.41 The case of Paris Club debt concessionality is discussed in Chapter 4 of the *PSDS Guide*.

Debt Arising from Bailout Operations

A3.42 A bailout refers to a rescue from financial distress. It is often used when a government unit provides either short-term financial assistance to a corporation to help it survive a period of financial difficulty, or a more permanent injection of financial resources to help recapitalize the corporation. A bailout may, in effect, constitute nationalization if the government acquires control of the corporation it is bailing out. Bailouts of financial institutions are a case in point. They are likely to involve highly publicized, one-time transactions often involving large amounts and are, therefore, easy to identify.

A3.43 Analysts generally refer to "capital injections" made by government into corporations when some significant financial support is provided to capitalize or recapitalize the corporation in financial distress. The *2008 SNA* uses "capital injections" to mean a direct intervention that is recorded in macroeconomic statistics either as a capital transfer, a loan, an acquisition of equity, or a combination of these. Direct intervention by general government units may take various forms—for example:

- Providing recapitalization through an injection of financial resources ("capital injection") or the assumption of a failed corporation's liabilities.
- Providing loans and/or acquiring equity in the corporations in distress (i.e., "requited recapitalization") on favorable terms, or not.
- Purchasing assets from the financially distressed corporation at prices greater than their true market value.

A3.44 Indirectly, general government may intervene by extending the range of guarantees it is prepared to offer.

A3.45 Broadly, two main issues arise with bailout operations:

- The first issue is the sectorization of the entity or unit created to finance or manage the sales of assets and/or liabilities of the distressed corporation. The sectorization is important, in particular, for determining whether its transactions, other economic flows, and stock positions (debt liabilities and other assets and liabilities) are within the general government sector or public corporations sector.
- The second issue is the appropriate statistical treatment of "capital injections."

The sectorization issue

A3.46 A government might create a restructuring agency (or "defeasance structure") in the form of a special purpose entity (SPE), or other type of public body, to finance or to manage the defeasance of impaired assets or repayment of liabilities of the distressed corporation.[13] As is the case with all entities in macroeconomic statistics, the sectorization of a restructuring agency should reflect the underlying economic nature of the entity. Thus, the sectorization rules, as outlined in Chapter 2, should be applied to

[12] The grace period is the period from the disbursement of the loan until the first payment due by the debtor.

[13] In the case of banks with impaired assets, such entities are commonly referred to as "bad banks."

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determine whether such an entity or unit should be treated as part of the general government sector or public financial corporations sector:

- If a public institutional unit is created by government solely to assume management of the assets or liabilities of the distressed corporation, and is not a market producer, the unit should be classified in the general government sector because it is not involved in financial intermediation.
- If the new unit has other functions and the management of the assets or liabilities of the distressed corporation is a temporary task, its classification as a government unit or a public financial corporation is made according to the rules described in the section on restructuring agencies in paragraphs 2.129–2.131.

Statistical treatment of "capital injections"

A3.47 The assistance provided by government (or another public sector unit) to the unit suffering financial distress is usually recorded as a loan, a capital transfer, or an equity injection. Figure A3.2 provides a decision tree for the statistical treatment of "capital injections."

A3.48 When a public sector unit (investor unit), such as a government unit, intervenes by means of a capital injection that is legally in the form of a loan to the corporation in distress, the statistical treatment depends on whether the investor unit obtains an effective financial claim on the corporation, as described in paragraph A3.27.

A3.49 When a public sector unit, such as government, intervenes by means of a capital injection other than a loan to the corporation in distress, the statistical treatment depends on whether a realistic return[14] can be expected on this investment:

- If the public sector unit (investor unit) can expect a realistic return on the investment, the investor unit records an increase in financial assets in the form of equity and investment fund shares, and a decrease in financial assets (e.g., currency and deposits) or an increase in liabilities, depending on how the acquisition of equity is financed. The corporation in financial distress records an increase in financial assets (e.g., currency and deposits), and an increase in nondebt liabilities in the form of equity and investment fund shares.
- The portion of the investment on which no realistic return can be expected—which may be the entire investment—is treated as a capital transfer.

A3.50 A capital injection in the form of a capital transfer (full or partial) is recorded when the funds are provided:

- Without receiving anything of equal value in exchange
- Without a reasonable expectation of a realistic rate of return
- To compensate for the impairment of assets or capital as a result of large operating deficits accumulated over two or more years, and exceptional losses due to factors outside the control of the enterprise.

A3.51 The unit providing the assistance records expense in the form of a capital transfer and a decrease in financial assets (e.g., currency and deposits) or an increase in liabilities, depending how this capital transfer is financed. The recipient records revenue in the form of a capital transfer and an increase in financial assets in the form of currency and deposits.

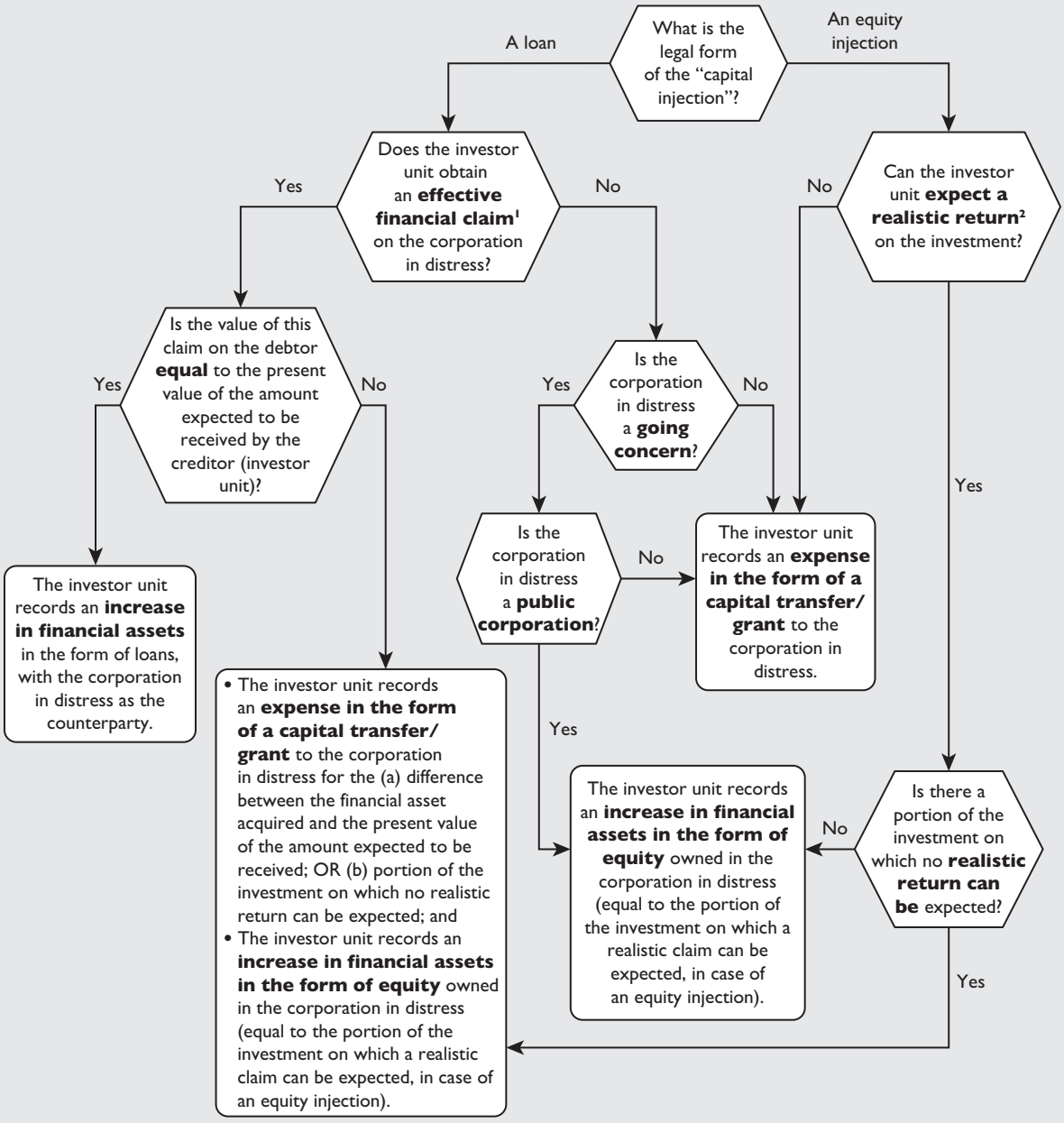
A3.52 In determining the magnitude of the capital transfers, the following points need to be taken into account:

- If the government buys assets from the corporation to be assisted, the amount paid may be more than the true market price of the assets.
- The purchase of assets should be recorded at the current market price, and, except for loans, a capital transfer should be recorded for the difference between the market price and the actual amount paid.
- Governments often buy loans from financial institutions during a bailout. Unless a loan becomes tradable and is traded at an established market value, it is always recorded in balance sheets at nominal value. Only if a market for the loans develops and the loans are regularly traded, they are reclassified as securities (see paragraphs 7.157 and 7.163) and also recorded at market value.

[14] A realistic rate of return on funds is indicated by the intention to earn a rate of return that is sufficient to generate dividends or holding gains at a later date, and that is a claim on the residual value of the corporation.

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Figure A3.2 Decision Tree for the Statistical Treatment of "Capital Injections"



[1]An "effective financial claim" is understood to be a claim that is supported by a contract between the new debtor and the original debtor, or (especially in the case of governments) an agreement, with a reasonable expectation to be honored, that the original debtor will reimburse the new debtor.

[2]A realistic rate of return on funds is indicated by the intention to earn a rate of return that is sufficient to generate dividends or holding gains at a later date, and that is a claim on the residual value of the corporation.

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- When government buys a loan that has a fair value much less than its nominal value, no capital transfer for the difference in value is recorded as loans are recorded at nominal value on the balance sheet. Any difference between the price paid and the nominal value is recorded as a valuation change (see *BPM6* paragraph 9.33). However, if there is reliable information that some loans are irrecoverable, their value is reduced to zero in the balance sheet (with an "other volume change") and a capital transfer is recorded equal to the value paid by the government to the corporation. If some or all of these loans subsequently become recoverable, this is shown as a revaluation in the government's balance sheet.
- If government extends a guarantee as part of a bailout, the guarantees should be recorded according to whether this is a one-off guarantee or part of a standardized guarantee scheme (see paragraphs 7.254–7.260 for details on the statistical treatment of guarantees).

A3.53 Additional factors should be taken into account for borderline cases, such as the following:

- If the capital injection is covering large operating deficits accumulated over two or more years or exceptional losses due to factors outside the control of the enterprise, the capital injection is, by definition, a capital transfer.
- If capital injection is made to a quasi-corporation that has negative equity (see paragraph 6.91), the capital injection is always a capital transfer.
- If the capital injection is undertaken for specific purposes relating to public policy in order to compensate a bank in financial distress for anticipated defaults/bad assets/losses within its balance sheet, the capital injection is a capital transfer, unless a realistic return can be expected, in which instance an equity investment is recorded.
- If there are private shareholders providing a significant share (in proportion to their existing shareholding) of equity during the injection, then the capital injection is an equity investment since the assumption is that private investors would be seeking a return on their investment.

Debt of Special Purpose Entities

A3.54 Special purpose entities (SPEs) are described in paragraphs 2.136–2.139. For GFS, the appropriate units and institutional sectorization of the SPE must be determined. If the SPE is part of the public sector, its debt should be part of the debt of the public sector or relevant subsector.

A3.55 As noted in paragraphs 2.41–2.45, governments may establish public corporations that sell goods or services exclusively to government, without tendering for a government contract in competition with the private sector. Such a public corporation is called an artificial subsidiary and should be classified as part of the general government sector (its parent unit). Often, such government artificial subsidiaries are set up as SPEs. These units, which are legally corporations, should be classified as part of the general government sector and their debt liabilities are thus part of general government debt.

A3.56 A government may conduct fiscal activities through an entity that is resident abroad. For example, a government may fund its outlays by issuing securities abroad through an SPE. This SPE is not part of the general government sector in either home or host economy. Such entities are not treated in the same way as embassies and other territorial enclaves because they operate under the laws of the host economy. Governments may be direct investors in these units/entities. However, special imputations of transactions and stock positions between the government and the SPE abroad must be used to ensure that any fiscal operations undertaken through nonresident entities are reflected in the transactions and stock positions of the home government concerned.[15] As a result, the government will show an actual, or imputed, debt to its SPE arising from any debts the SPE incurs on behalf of the government.

A3.57 When an SPE entity resident in one economy borrows on behalf of the government of another economy, and the borrowing is for fiscal purposes, the statistical treatment in the accounts of that government is as follows:

[15] The reason for having a special approach for government entities is that, unlike in the private sector, the nonresident entity undertakes functions at the behest of general government for public policy, not commercial purposes. Without this approach, a misleading picture of government expenditure and debt could arise.

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- At the time of borrowing—A transaction creating a debt liability of the government to the borrowing entity is imputed equal to the amount borrowed. The counterpart entry is an increase in the government's equity in the borrowing entity.
- At the time funds or assets acquired with the funds (as applicable) are transferred to the government—A transaction for the flow of funds or assets is recorded, matched by a reduction of the government's equity in the borrowing entity by the same amount.
- At the time expenses are incurred, or assets are transferred by the borrowing entity to a third party (i.e., are not transferred to the government), where applicable—A current or capital transfer between the government and the entity is imputed, with the matching entry of a reduction in the value of the government's equity.

A3.58 These entries are made symmetrically for both the government and the borrowing entity. The entries do not affect the transactions or stock positions between the borrowing entity and its creditors or other third parties, which are recorded as they occur, with no imputations.

Debt Arising from Securitization

A3.59 Securitization occurs when a unit, named the originator, conveys the ownership rights over financial or nonfinancial assets, or the right to receive specific future flows, to another unit, named the securitization unit. In return, the securitization unit pays an amount to the originator from its own source of financing. The securitization unit obtains its own financing by issuing debt securities using the assets or rights to future flows transferred by the originator as collateral.[16] When asset-backed securities are issued by a public sector unit, they form part of public sector debt.

A3.60 Securitization results in debt securities for which coupon or principal payments (or both) are backed by specific financial or nonfinancial assets or future revenue streams. A variety of assets or future revenue streams may be used for securitization, including residential and commercial mortgage loans, consumer loans, government loans, and credit derivatives. A general government unit may issue debt securities backed by specific earmarked revenue. In macroeconomic statistical systems, the ability to raise taxes or other government revenue is not recognized as a government asset that could be used for securitization.[17] Nevertheless, the earmarking of future revenue, such as receipts from toll roads, to service debt securities issued by a general government (or public sector) unit may resemble securitization (see paragraphs A3.64 and A3.66).

A3.61 Securitization schemes vary within and across debt securities markets. At the broadest level, a distinction is made about whether a securitization unit is involved. In securitization schemes where debt securities are issued by a securitization unit, the issuing institutional unit is a financial intermediary in the financial corporations sector. The securitization unit is often an SPE. However, as described in paragraph 2.137, resident SPEs functioning in only a passive manner relative to general government and carrying out fiscal activities are not treated as separate institutional units in the macroeconomic statistical systems. Such SPEs are treated as part of the general government sector regardless of their legal status—therefore:

- If a securitization unit is involved, four types of schemes may be distinguished from a macroeconomic statistics perspective:
  - True-sale securitization,[18] which is schemes involving a true transfer (sale) of assets—from a macroeconomic statistics perspective[19]—from the original asset owner's balance sheet to that of the securitization unit

[16] For a detailed discussion of securitization, see *Handbook on Securities Statistics*, Bank for International Settlements, European Central Bank, and International Monetary Fund, May 2009, as well as the *2008 SNA*, paragraphs 22.131–22.133. The *Handbook* also considers that securitization can occur when there is no securitization unit or transfer of assets.

[17] For example, future tax revenue has not yet accrued, presumably because the event that leads to the tax liability has not yet taken place, and consequently no asset exists on the government balance sheet.

[18] "Type 2" schemes in the *Handbook on Securities Statistics* and the "first case" of securitization in the *2008 SNA*.

[19] To be treated as a sale, the asset must already appear on the balance sheet of the public sector unit (e.g., central government) and there must be a full change of ownership to the securitization unit, as evidenced by the transfer of the risks and rewards linked to the asset. The following must be considered: (i) The purchase price should equal the current market price, otherwise it is not a sale; and (ii) if the originator (e.g., central government) guarantees repayment of any debt related to the asset acquired by the securitization unit, it is unlikely that all of the risks associated with the asset have been transferred and there is, therefore, no sale.

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- No true-sale securitization,[20] which is schemes that do not involve a true transfer of assets—from a macroeconomic statistics perspective—from the original asset owner's balance sheet to that of the securitization unit (see footnote 19)
- No asset securitization,[21] which is schemes involving securitization of future revenue streams that are not recognized as assets in macroeconomic statistics
- Synthetic securitization with a securitization unit,[22] which is schemes involving the transfer of credit risk only (but not the transfer of assets), through a securitization unit.

- If no securitization unit is involved, two types of securitization are possible:
  - On-balance sheet securitization,[23] which is schemes in which the original asset owner issues new debt securities and there is no transfer of assets
  - Synthetic securitization without a securitization unit,[24] which is schemes involving the transfer of credit risk only (but not the transfer of assets), through the direct issue of debt securities by the original asset owner.

A3.62 True-sale securitization involves debt securities issued by a securitization unit where the underlying assets have been transferred from the original asset owner's (i.e., the originator's) balance sheet to that of the securitization unit. The securitization unit uses the proceeds from selling the debt securities to investors to finance the acquisition of the assets. The revenue stream from the pool of assets (typically, interest payments and principal repayments on the loans) is used to make the coupon payments and principal repayments on the debt securities issued. In case of a true-sale securitization by a public sector unit, the original asset owner's gross debt remains unchanged. The gross debt of the securitization unit increases as a result of the securities issued. If this unit is a public financial corporation, its debt is part of public sector debt. A resident securitization "unit" controlled by a government unit that is an SPE but does not meet the requirements of an institutional unit is treated as part of general government regardless of its legal status. Such an SPE's debt is part of general government's debt (see also paragraph A3.61).

A3.63 If no true sale had taken place from a macroeconomic statistics perspective (see footnote 19), the amount received from the securitization unit by the public sector unit as the originator is treated as borrowing, usually in the form of a loan.[25] The debt securities issued by the securitization unit are part of public sector debt, if the securitization unit is part of the public sector.

A3.64 No asset securitization involves securitization of future revenue streams. As mentioned in paragraph A3.60, the ability to raise taxes or other government revenue is not recognized as a government asset that could be used for true-sale securitization. In most cases, it is not the rights to the future revenue that are used as collateral, but the obligation of the public sector unit to use a sufficient amount of the future income to repay the borrowing in full. If more income is earned than is needed to repay the borrowing, the excess is retained by the public sector unit. So, if "rights" to future government revenue are transferred to a securitization unit, the amount received from the securitization unit by the public sector unit, arising from the proceeds of the debt securities issue, is treated as borrowing, usually in the form of a loan.[26] The revenue stream continues to accrue to government and government uses these proceeds to repay the loan from the securitization unit. The debt securities issued by the securitization unit are part of public sector debt if the securitization unit is part of the public sector.

A3.65 Synthetic securitization involves transfer of the credit risk related to a pool of assets without transfer of the assets themselves, either through a securitization unit or through the direct issuing of debt securities by the original asset owner.

- Synthetic securitization with a securitization unit: The owner of a pool of assets buys credit default

[20] Derived from the "first case" of securitization in the *2008 SNA*.
[21] The "second case" of securitization in the *2008 SNA*.
[22] "Type 3" schemes in the *Handbook on Securities Statistics*.
[23] "Type 1" schemes in the *Handbook on Securities Statistics*.
[24] "Type 3" schemes in the *Handbook on Securities Statistics*.

[25] When both the originator and the securitization unit are in the public sector, this loan will be eliminated from public sector debt through consolidation.
[26] When both the originator and the securitization unit are in the public sector, this loan will be eliminated from public sector debt through consolidation.

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swaps (CDS) (protection buyer) from the securitization unit (protection seller) for a premium to obtain protection against possible default losses on the pool of assets.[27] The protection seller issues a debt instrument. The proceeds from the issue of debt securities by the securitization unit are invested in low-risk, low-return financial assets (such as deposits), and the income accrued on this investment, together with the premium from the CDS, finances coupon payments on the debt securities due by the securitization unit to the investors. On maturity, the holders of the debt securities are reimbursed, provided there has been no default on the pool of assets. If there is a default, the protection buyer is compensated by the protection seller for the default losses related to the pool of assets, while the holders of the debt securities (investors) suffer losses for the same value, a realized holding gain for the protection seller.

The debt securities issued by the securitization unit are part of public sector debt if the securitization unit is part of the public sector.

- Synthetic securitization without a securitization unit: The owner of the asset issues credit-linked notes (CLN). CLN are debt securities that are backed by reference assets (such as loans and bonds), with an embedded CDS allowing credit risk to be transferred from the issuer to investors. There is usually a higher interest rate to compensate the investors for taking on higher risks. Credit protection for the pool of assets is sold by the investors to the protection buyer (or issuer of the CLN) by buying the CLN. Repayment of principal and interest on the notes is conditional on performance of the pool of assets. If no default occurs during the life of the note, the full redemption value of the note is paid to investors at maturity. If a default occurs, investors receive the redemption value of the note minus the value of the default losses.

  With synthetic securitization without a securitization unit, the debt securities (CLN) issued by a public sector unit are part of that unit's debt.

A3.66 On-balance sheet securitization involves debt securities backed by a future revenue stream generated by the assets. The assets remain on the balance sheet of the debt securities issuer (the original asset owner), typically as a separate portfolio. There is no securitization unit involved. The issue of debt securities provides the original asset owner with funds and the debt securities form part of the original asset owner's debt.

[27] A credit default swap is a financial derivative whose primary purpose is to trade credit default risk.

Debt Arising from Off-Market Swaps

A3.67 In macroeconomic statistics, swaps give rise to financial derivatives, which are nondebt instruments (see paragraph 7.215). However, off-market swaps have a debt component.

A3.68 An **off-market swap** is a swap contract that has a nonzero value at inception as a result of having reference rates priced differently from current market values—that is, "off-the-market." Such a swap results in a lump sum being paid, usually at inception, by one party to the other. The economic nature of an off-market swap is a combination of borrowing (i.e., the lump sum), in the form of a loan, and an on-market swap (financial derivative). The loan component of an off-market swap is debt and, if a public sector unit receives the lump-sum payment, this will be part of public sector debt. Examples of swaps contracts that may involve off-market reference rates include interest rate and currency swaps.

A3.69 Because the economic nature of an off-market swap is equivalent to a combination of a loan and a financial derivative, two stock positions are recorded in the balance sheet:

- A loan—a debt instrument—which is equal to the nonzero value of the swap at inception and with a maturity date equivalent to the expiration date of the swap
- A financial derivative (swap) component—a nondebt instrument—that has a market value of zero at inception.

A3.70 The loan position is a liability of the party that receives the lump sum, while the derivative position may appear either on the financial asset or liability side, depending on market prices on the balance sheet date.

A3.71 Future streams of flows relating to these stock positions are also partitioned between those relating to the loan and financial derivative component, respectively.

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On-Lending of Borrowed Funds

A3.72 On-lending of borrowed funds refers to a resident institutional unit, A (usually central government), borrowing from another institutional unit(s), B (usually a nonresident unit), and then on-lending the proceeds from this borrowing to a third institutional unit(s), C (usually state or local governments, or public corporation (s)), where it is understood that unit A obtains an effective financial claim on unit C. On-lending of borrowed funds is motivated by several factors—for example:

- Institutional unit A may be able to borrow from unit B at more favorable terms than unit C could borrow from unit B
- Institutional unit C's borrowing powers are limited by factors such as foreign exchange regulations; only unit A can borrow from nonresidents.

A3.73 On-lending results in (at least) two separate financial claims. These claims should not be offset against each other in government finance and public sector debt statistics; institutional unit B has a debt claim on unit(s) A, and unit(s) A has a debt claim on unit C, which may be consolidated (see paragraph A3.76). Depending on the residence of institutional unit(s) B and C, respectively, these debt liabilities (and the corresponding financial claims) are classified as domestic or external.

A3.74 The statistical treatment of the two claims to be recorded if the resident institutional unit (A), which on-lends the borrowed funds to unit(s) C, obtains an effective financial claim on unit(s) C, depends on:

- The residence of the creditor(s) from which unit A is borrowing (i.e., unit(s) B)
- The residence of unit(s) C to which unit A is on-lending the borrowed funds (see Table A3.1).

A3.75 The classification of the debt liability of institutional unit A to unit(s) B depends on the type of instrument(s) involved: typically, such borrowing is in the form of loans and/or debt securities. In such cases, institutional unit A's debt liabilities in the form of loans and/or debt securities increase (credit) as a result of the borrowing from unit(s) B, with a corresponding increase (debit) in unit A's financial assets in the form of currency and deposits. These events result in an increase in the gross debt position of unit A, but no change in its net debt position.

Table A3.1 Summary of the Statistical Treatment of On-Lending of Borrowed Funds by Institutional Unit A

1. Unit A borrows from unit(s) B	Depending on the residence of institutional unit(s) B, unit A has a domestic/external debt liability to unit(s) B. (Institutional unit(s) B has a domestic/external financial claim on unit A.)
2. Unit A on-lends to unit(s) C	Depending on the residence of institutional unit(s) C, unit A has a domestic/external financial claim on unit(s) C. (Institutional unit(s) C has a domestic/ external liability to unit A.)

A3.76 The debt liability of institutional unit(s) C to unit A, as a result of the on-lending of the borrowed funds, is typically in the form of a loan. In other words, institutional unit C's debt liabilities increase (credit) as a result of the borrowing from unit A, with a corresponding increase (debit) in unit C's financial assets in the form of currency and deposits. Institutional unit A's financial assets (e.g., loans) will increase (debit) as a result of the on-lending to unit C and its financial assets in the form of currency and deposits will decrease (credit). If institutional unit(s) C is classified to the same sector, subsector, or group of units as unit A, this debt liability (and corresponding financial claim) is eliminated in consolidation.

A3.77 The amortization of each of the debt liabilities (and corresponding financial assets) is recorded in the books of the unit in whose balance sheet the debt liability appears. Thus, if institutional unit A has a debt liability to unit B, the amortization of this (usually external) liability (debit) is recorded in the books of unit A, even if these borrowed funds were on-lent to unit C.

A3.78 Similarly, the amortization of institutional unit C's (usually domestic) debt liability (debit) to unit A is recorded in the books of unit C. Unit A would record a decrease (credit) in its (domestic) financial claims on unit C. The amortization of institutional unit C's debt liability to unit A improves unit C's gross debt position, while its net debt position remains the same.

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Stock Positions and Related Flows with the IMF

A3.79 This section briefly describes the stock positions and flows in countries' financial assets and liabilities arising from membership in the International Monetary Fund (IMF), as they relate to public sector debt statistics. Debt data compilers first have to determine in which public sector unit(s) to record the stock positions and related flows with the IMF. Stock positions and flows in financial assets and liabilities of member countries with the IMF are usually recorded in the accounts of the public sector unit as determined by the legal and institutional arrangements in the member country.

A3.80 The IMF conducts its dealings with a member through the fiscal agency and the depository:

- Each member country designates a fiscal agency to conduct financial transactions with the IMF on behalf of the member.[28]
- Each member is also required to designate its central bank as a depository for the IMF's holdings of the member's currency.[29] In most member countries, the central bank is both the fiscal agency and the depository.

A3.81 The next sections discuss member countries' quotas in the IMF, their reserve positions in the IMF, remuneration (interest) receivable from the IMF, the account that is used for administrative payments (the "No. 2 Account"), and their Special Drawing Rights (SDRs) allocations and holdings.

Quotas

A3.82 Member countries are assigned a quota on joining the IMF. A quota is the capital subscription, expressed in SDRs, that each member must pay the IMF on joining and consists of two components:

- Reserve asset component—A member is required to pay 25 percent of its quota in SDRs or in currencies specified by the IMF. This 25 percent portion is a component of the member's reserve assets and is known as the "reserve tranche." In the public sector unit's accounts, subscribing this portion is shown as a transaction involving an increase in external financial assets in the form of currency and deposits—that is, the reserve tranche position, which is a liquid claim on the IMF (debit), offset by an equal reduction in existing external financial assets[30] (credit).
- Domestic currency component—The remaining 75 percent of the quota is payable in the member's own currency at the designated depository. The payment is made either in domestic currency (IMF No. 1 Account) or if the member country so chooses, by issuance of a promissory note (in the IMF Securities Account). The No. 1 Account is used for the IMF's operational transactions (e.g., purchases and repurchases), and small transfers may be made from this account to the No. 2 Account, which is used for the payment of local administrative expenses incurred by the IMF in the member's currency.[31] The promissory notes are encashable by the IMF on demand. The domestic portion of the quota payment is not recorded in the public sector unit's accounts, because it is considered in economic terms to be of a contingent nature. No interest is payable on either the deposit account or the note.

A3.83 There are periodic reviews of the size of member quotas. Recording transactions that reflect a change in a member's quota is the same as the recording that takes place when the quota is initially paid.

Reserve position in the IMF

A3.84 A member country's reserve position in the IMF equals the sum of the reserve tranche plus any indebtedness of the IMF (under bilateral loan agreements, notes, or participation in standing borrowing agreements such as the General Agreements to Borrow and New Agreements to Borrow) in the General Resources Account that is readily available to the member country (for further details, see *BMP6*, paragraph 6.85). The reserve tranche represents the member's unconditional drawing right on the IMF, created by the foreign exchange portion of the quota subscription, plus increases (decreases) through the

[28] The fiscal agency may be the member's treasury (ministry of finance), central bank, official monetary agency, stabilization fund, or other similar agency. The IMF can deal only with, or through, the designated fiscal agency.
[29] If the member has no central bank, it shall designate such other institution as may be acceptable to the IMF.
[30] The type of instrument varies.
[31] When the IMF uses funds from the No. 2 Account to pay for the acquisition of goods and services, the member country shows a reduction in this account and an offset transaction in the use of goods and services.

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IMF's sale (repurchase) of the member's currency to meet the demand for use of IMF resources by other members in need of balance of payments financing. A member's reserve position in the IMF constitutes part of its reserve assets (external financial assets).

A3.85 To utilize its reserve tranche in the IMF, a member must present a declaration of a balance of payments need and purchase foreign exchange from the IMF with its own currency. The domestic currency, equal to the value of the foreign exchange, is paid into the IMF's No. 1 Account with the member's depository or through the issuance to the IMF of a noninterest-bearing promissory note recorded in the IMF's Securities Account. The transaction is recorded in the public sector unit's accounts as a reduction in the member's external financial assets in the form of currency and deposits (i.e., the reserve tranche position in the IMF), which is offset by an increase in the member's external financial assets (i.e., foreign exchange).

Credit and loans from the IMF

A3.86 A member may make use of IMF credit or concessional loans under the trusts administered by the IMF (for financing for low-income countries) to acquire additional foreign exchange from the IMF. The use of IMF credit and concessional loans results in the same outcome—that is, the member entering into these agreements has access to foreign exchange in return for agreeing to meet a set of conditions. Both IMF credit and concessional loans are classified in the public sector unit's accounts as external liabilities in the form of loans, although the two types of arrangements are executed in different ways:

- When a member country uses IMF credit, it "purchases" foreign exchange from the IMF in return for its domestic currency deposited in the IMF No. 1 Account (or backed by the issuance of a promissory note). Use of IMF credit is shown as the member's loan liability (denominated in SDRs) in the accounts of the public sector unit, reflecting the economic nature of the transaction. Liabilities under IMF credit arrangements are extinguished when the member uses foreign exchange to "repurchase" its domestic currency.
- The concessional loans, also denominated in SDRs, result in the member borrowing foreign exchange with a commitment to repay. Such loans do not affect the IMF No. 1 Account. Repayments must be made in SDRs or freely useable currencies.

A3.87 If the value of the member's domestic currency changes in relation to the SDR, "maintenance of value payments" are made once a year in the No. 1, No. 2, and Securities Accounts in domestic currency to maintain a constant SDR liability. Because the liability is denominated in SDRs, the maintenance of value payments are not entered as transactions in the central bank's accounts, but as holding gains/losses (revaluations) when the domestic currency is used as the unit of account.

A3.88 When the central bank passes on proceeds from IMF borrowing to a general government unit:

- The central bank has a domestic financial claim (loan) on the general government unit and the general government unit has a domestic debt liability to repay (principal and interest).
- The central bank has an external debt liability to repay, and may use the debt service payments received from the general government unit to do so.

Remuneration

A3.89 The IMF pays its members "remuneration" quarterly (in SDRs) on the basis of their reserve tranche position, except for a small portion related to prior quota payments in gold that are interest-free resources to the IMF. This remuneration should be recorded on an accrual basis as interest income (revenue) of the public sector unit, which is realized as an increase in its external financial assets in the form of currency and deposits.

IMF No. 2 Account

A3.90 As discussed in paragraph A3.82, the IMF No. 2 Account is used by the IMF for administrative payments and is reflected as a liability in the public sector unit's accounts. Transactions involving the No. 2 Account are recorded as increases or decreases in this liability and are offset by the source of funds (in the case of an increase) or the use of funds (in the case of a decrease). When the IMF transfers funds from the No. 1 Account to the No. 2 Account, the public sector unit's accounts will show an increase in its reserve tranche (i.e., currency and deposits). The

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increase reflects the reduction in IMF holdings of the member's currency in the No. 1 Account and is offset by an increase in the member's liabilities relating to currency and deposits.

Special Drawing Rights (SDRs)

A3.91 The SDR is an international reserve asset created by the IMF in 1969. The SDR is administered by the IMF's SDR Department, which is required by the IMF's *Articles of Agreement* to keep its accounts strictly separate from those of the General Department. Members participating in the SDR Department incur the financial asset or liability position unto itself. Given that financial claims on and liabilities to members in the SDR system are attributed on a cooperative basis, a residual partner category—other nonresidents—is used as the counterparty to SDR holdings and allocations.[32]

A3.92 SDR allocations received by a country are recorded as a liability in the form of SDRs (part of gross debt of the public sector unit) with a corresponding entry for SDR holdings as a financial asset. The calculation of a public sector unit's net debt takes into account SDR holdings and SDR allocations. Interest income on SDR holdings (revenue) and interest expense on SDR allocations are accrued on a gross basis to the outstanding financial asset and liability, respectively.

A3.93 The SDR allocation is debt of the recipient (i.e., the participant in the SDR Department), and forms part of public sector debt. The SDR holdings are part of the public sector's financial assets. However, the international statistical systems do not specify on which balance sheet SDR holdings and allocations should be recorded (e.g., the central bank or a general government entity such as the ministry of finance or treasury). This is because SDR allocations are made to IMF members that are participants in the SDR Department of the IMF, and it is for those members to follow domestic legal and institutional arrangements to determine the ownership and recording of SDR allocations and SDR holdings in the public sector.

A3.94 For GFS and public sector debt statistics, it is particularly relevant in which public sector unit's accounts the SDR holdings and allocations are recorded. If the SDR allocation is recorded on the government's balance sheet, the allocation is part of general government debt. If the SDR allocation is on the central bank's balance sheet, the allocation is not part of general government debt but still part of public sector debt.

A3.95 SDRs are held exclusively by participants, the IMF, through the General Resources Account, and prescribed holders,[33] and are transferable among them. At the time of the SDR allocation, the amounts recorded as SDR allocations (liabilities) and holdings (financial assets) are identical and on the same public sector unit's balance sheet. This public sector unit—as official holder—may, subsequently, exchange some or all of its SDR holdings (financial asset) with other official holders for freely usable currency(ies). In this case, the SDR allocations and holdings on the balance sheet of the public sector unit are no longer identical; the SDR holdings are less than the allocations because they have been converted into freely usable currencies (i.e., currency and deposits). As a result, interest payable on the SDR allocation of public sector unit will be larger than interest receivable on its SDR holdings. Interest receivable on the SDR holdings exchanged will accrue to the new holder.

[32] See paragraph 7.264 for a discussion of the classification of the counterparty by institutional sector.

[33] The IMF has prescribed a limited number of international financial institutions as holders of SDRs.

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APPENDIX

4 Some Cross-Cutting Issues

This appendix applies government finance statistics principles to illustrate the recording of: leases, licenses, permits, and contracts; public-private partnerships; and insurance and standardized guarantee schemes.

Introduction

A4.1 Some cross-cutting issues relate to the recording of the impact of specific events on revenue, expense, and flows and stock positions of assets and liabilities. Aspects of recording these events are described in various chapters of this *Manual.* However, bringing all of these together enhances the clarity of recording these events. This appendix deals with three such issues:[1]

- Leases, licenses, permits, and contracts
- Public-private partnerships (PPPs)
- Insurance and standardized guarantee schemes.

Leases, Licenses, Permits, and Other Contracts

Introduction

A4.2 Many transactions are specified in terms of a contract between two institutional units. The majority of contracts are such that one unit provides a good, service, or asset to the other unit for an agreed payment at an agreed time (possibly immediately after agreeing on the price). Such contracts may be written and legally binding or may be informal or even only implicit. However, these contracts are simply agreements about the terms under which goods, services, and assets are provided to the recipient along with the ownership of the item. In particular, these contracts can help to determine the point at which the transactions should be recorded in GFS in accordance with the accrual principles described in paragraphs 3.69–3.75.

A4.3 For certain types of contracts and legal agreements, variously described as leases and licenses (or permits), the terms of the agreement may affect not only the time of recording of transactions but also the classification of transactions and the ownership of the item subject to the agreement. The purpose of this section is to provide guidance on how transactions entered into under these more complex arrangements should be recorded in GFS.

Leases

A4.4 Three types of leases are recognized in macroeconomic statistics: operating leases, financial leases, and resource leases. Each of these leases relates to the use of a nonfinancial asset. Fundamental to the distinction between the different types of leases is the difference between legal and economic ownership. The legal owner of resources is the institutional unit entitled by law and sustainable under the law to claim the benefits associated with the asset. By contrast, the economic owner of resources is entitled to claim the benefits associated with the use of the asset in the course of an economic activity by virtue of accepting the associated risks. This distinction between legal and economic ownership is elaborated upon in paragraphs 3.37–3.41 and 7.5. The legal owner is often the economic owner as well. When they are different, the legal owner has divested itself of the majority of risks in return for agreed payments from the economic owner. Thus:

- In the case of operating leases and resource leases, there is no change of economic ownership: the legal owner continues to be the economic owner. Resource leases are agreements for the use of natural resources, such as land and radio spectrum. Operating leases are agreements for the use of all other nonfinancial assets.
- In the case of financial leases, there is a difference between economic ownership and legal

[1] While social protection and debt operations can also be regarded as cross-cutting issues, these issues are described separately in Appendixes 2 and 3.

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ownership of the asset. Financial leases can apply to all nonfinancial assets, including natural resources under some circumstances.

A4.5 The following paragraphs discuss the treatment of operating leases, financial leases, and resource leases in detail.

Operating leases

A4.6 Operating leasing is the activity of renting out produced assets under arrangements that provide use of a tangible asset to the lessee, but do not involve the transfer of the bulk of risks and rewards of ownership to the lessee. The legal and economic owner is called the lessor. One indication that an operating lease exists is that the responsibility for repair and maintenance of the asset lies with the legal owner. Under an operating lease, the asset remains on the balance sheet of the lessor.

A4.7 Amounts payable under an operating lease for the use of the asset are referred to as rentals and are recorded as payments for a service. In principle, any fixed asset may be subject to an operating lease. The character of operating leases may most easily be described in relation to fixed assets since operating leases often concern vehicles, office equipment (e.g., photocopiers), construction equipment, buildings, etc. The service provided by the lessor to the lessee goes beyond the mere provision of the asset. It includes other elements, such as the convenience for the lessee that the lessor takes responsibility for the maintenance and security of the asset—an important point from the user's view. In the case of equipment, the lessor, or owner, normally maintains a stock of equipment in good working order that can be hired on demand or at short notice. The lessor is normally a specialist in the operation of the equipment, a factor that may be important in the case of highly specialized equipment, where the lessee may not have the necessary expertise or facilities to maintain the equipment properly. The lessor may also undertake to replace the equipment in the event of a serious or prolonged breakdown. In the case of a building, the lessor is responsible for the structural integrity of the building, and would usually be responsible in the case of damage—for example, due to a natural disaster. The lessor is usually also responsible for ensuring that elevators, heating, and ventilation systems function adequately.

A4.8 Operating leases often aim at meeting the needs of users who require certain types of equipment only intermittently. Many operating leases are for short periods, although the lessee may renew the rental when the period expires and the same user may hire the same piece of equipment on several occasions. Because of the evolution of increasingly complicated types of machinery, especially in the electronics field, the servicing and backup facilities provided by a lessor are important factors that may influence a user to rent. Other factors that may persuade users to rent over long periods rather than purchase are considerations regarding the lessor's balance sheet, cash flow, or tax liability.

A4.9 The service provided under an operating lease should be recorded as *use of goods and services* (22) for the lessee and *sales of goods and services* (142) for the lessor. *Consumption of fixed capital* (23) on the fixed asset involved is recorded in the accounts of the lessor.

Financial leases

A4.10 A **financial lease** is a contract under which the lessor, as legal owner of an asset, conveys substantially all risks and rewards of ownership of the asset to the lessee. The economic nature of the arrangement is such that the lessor is deemed to provide a loan to allow the lessee to acquire the majority of risk and rewards of ownership, but the lessor retains legal title (ownership) as collateral for the loan. In other words, the lessee becomes the economic owner of the asset. Under a financial lease, the lessor records a loan to the lessee with which the lessee acquires the asset. Thereafter, the leased asset is shown on the balance sheet of the lessee and not of the lessor; the corresponding loan is shown as an asset of the lessor and a liability of the lessee.

A4.11 Financial leases are distinguished from other types of leases because substantially all risks and rewards of ownership are transferred from the legal owner of the nonfinancial asset (the lessor) to the user of the nonfinancial asset (the lessee). The following provisions in the lease contract would normally lead to a lease being classified as a financial lease:

- The lease contract transfers legal ownership of the asset to the lessee at the end of the lease term, or
- The lease contract gives the lessee the option to acquire legal ownership of the asset at the end of

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the lease term at a price that is sufficiently low that the exercise of the option is reasonably certain, or

- The lease term is for the major part of the economic life of the asset, or
- At inception, the present value of the lease payment amounts to substantially all of the value of the asset, or
- If the lessee can cancel the lease, the losses of the lessor are borne by the lessee, or
- Gains or losses in the residual value of the asset accrue to the lessee, or
- The lessee has the ability to continue the lease for a secondary period for a payment substantially lower than market value.

A4.12 These provisions in the lease contract may not be conclusive that substantially all of the risks have been conveyed. For example, if the asset is conveyed to the lessee at the end of the lease at its fair value at that time, the lessor holds substantial risks of ownership. The lease is then considered to be an operating lease. Financial leases are also called "finance leases" or "capital leases," highlighting that the motivation (paragraphs A4.10–A4.11) is to finance the acquisition of a nonfinancial asset. Internationally accepted accounting practices generally recognize financial leases in the same manner as in GFS.[2] A treatment akin to financial leases is also adopted for some public-private partnerships[3] (PPPs) (see paragraphs A4.58–A4.65 and the *2008 SNA*, paragraphs 22.154–22.163).

A4.13 The statistical treatment of financial leases is designed to capture the economic reality of such arrangements, by treating assets under a financial lease as if they were purchased and owned by the user. The lessee (economic owner) records the acquisition of the asset that is financed by an imputed loan. The loan is redeemed through payments during the contract (consisting of interest and original principal elements) and any residual payment at the end of the contract (or alternatively, by the return of the good to the lessor). If the lessor is a financial intermediary, part of the payment is also treated as a service charge (see paragraph 6.81).

A4.14 It is common, but not necessary, for a financial lease to cover the whole economic life of the asset. Regardless of whether the lease is for the whole economic life of the asset or for less, the value of the imputed loan, at inception, corresponds to the market value of the asset, and is valued at nominal value throughout its life, in the same way as other loans. The value of the loan consists of the present value of the future payments due to the legal owner plus the value of the asset at the end of the lease, as specified in the lease agreement.

A4.15 At the inception of the lease, the value of the asset appearing on the balance sheet of the lessee should be equal to the value of the loan owed to the lessor at that time. At the end of the lease term, the asset may be returned to the lessor to cancel the loan, or a new arrangement, including the outright purchase of the asset, may be reached between the lessor and lessee. If the lease is for less than the expected economic life of the asset, the lease usually specifies the value to the lessor at the end of the lease or the terms under which the lease can be renewed. Any variation in the price of the asset from the value specified in the lease agreement is borne by the lessee.

Resource leases

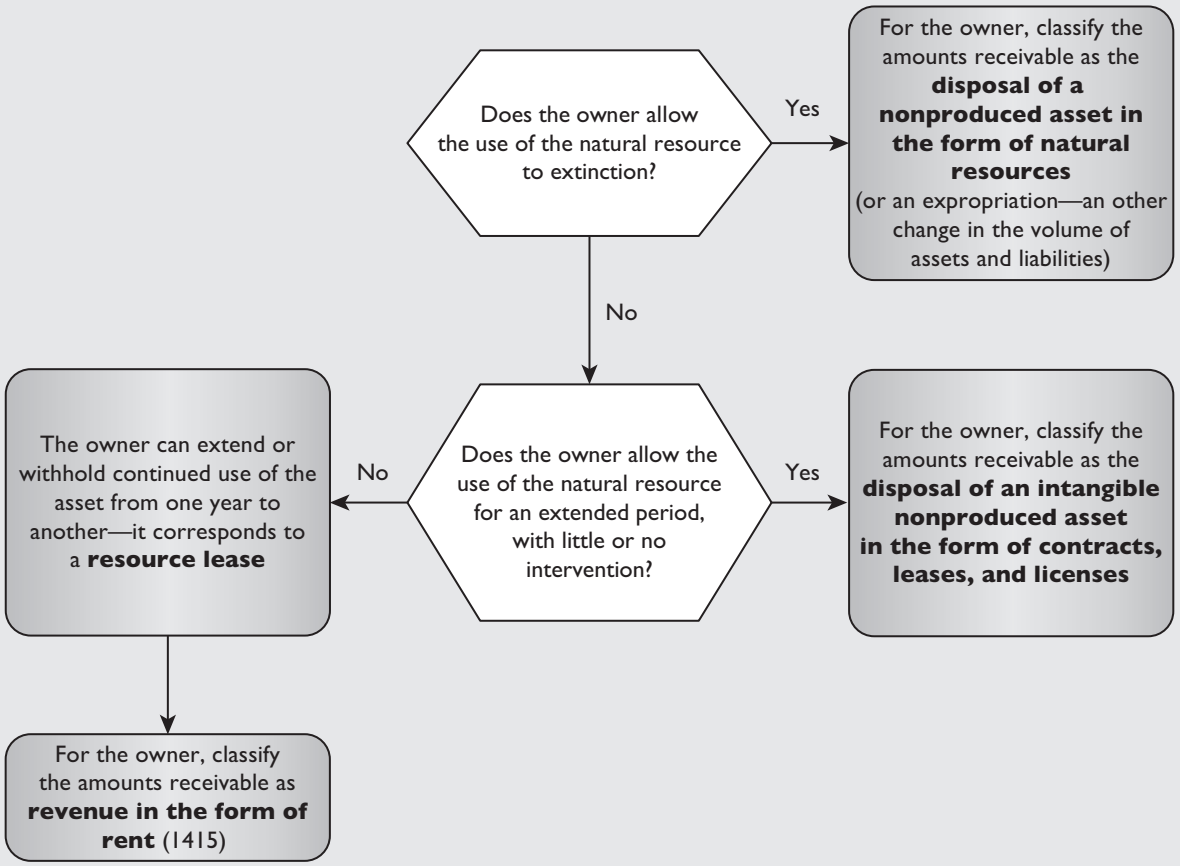
A4.16 A **resource lease** is an agreement whereby the legal owner of a natural resource that macroeconomic statistics treat as having an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent. In the case of resource leases, there is no change of economic ownership and, therefore, the resource continues to be recorded on the balance sheet of the lessor, even though it is used by the lessee. Payments due under a resource lease are recorded as revenue or expense in the form of *rent* (1415 or 2814). By convention, no consumption of fixed capital is applied to natural resources. Depletion of a natural resource is instead recorded as an other change in the volume of assets (see paragraph 10.52).

[2] At the time of publication of this *Manual*, the treatment of financial and operating leases is under review by international accounting standard setters.

[3] For example, a build, own, operate, transfer scheme could be established to assign the risks and rewards of ownership to the government, and the private partner would be treated as the provider of a financial lease.

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Figure A4.1 Illustrating the Treatment of Licenses and Permits to Use a Natural Resource



A4.17 Land is the classic case of an asset subject to a resource lease, but all other natural resources are also treated this way. An exception, when a long-term lease of land may be recorded as the sale of land, is described in paragraph A4.26.[4]

Licenses and Permits to Use a Natural Resource

A4.18 In many countries, licenses and permits to use natural resources are issued by government because government claims ownership of the resources on behalf of the community. However, government could also issue these licenses and permits if the resources are privately owned.

A4.19 As illustrated in Figure A4.1, there are three different sets of conditions that may apply to the use of a natural resource:

- The owner may permit the resource to be used to extinction. This option results in the sale (or possibly an expropriation) of the nonproduced resource asset itself.
- The owner may permit the resource to be used for an extended period of time in such a way that, in effect, the user controls the use of the resource during this time with little if any intervention from the legal owner. This permit leads to the creation of an intangible nonproduced asset classified as *contracts, leases, and licenses*

[4] Further discussions of natural resources in the next section also indicate other cases where the use of a resource should be taken as the sale of the resource.

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(31441) for the user, distinct from the resource itself; however, the value of the resource and the value of the nonproduced asset in the form of *contracts, leases, and licenses* are linked. An inverse relationship will exist between the value of the resource itself and the value of the intangible asset.[5]

- The owner can extend or withhold permission to continued use of the asset from one year to the next. This option corresponds to a resource lease on which *rent* is payable/receivable (see paragraphs A4.16–A4.17).

A4.20 The differences in treatment between the various options are not clear-cut.[6] There is no single, universal, and clear-cut criterion to distinguish between rent and asset sales, so a range of criteria should be considered in making the decision (see Box A4.1).

A4.21 The considerations listed in Box A4.1 can be seen as a more specific parallel to the distinction of economic ownership from legal ownership used in distinguishing between operating and financial leases described earlier. The conditions for treatment of the payment as the acquisition of an asset or rent are indicative rather than prescriptive. A decision on the appropriate treatment when some of the conditions are not met will necessitate consideration of how to record those transactions. For example, if, on balance, the decision is to treat the payment as rent, but a large upfront payment was made, this should be treated as a prepayment, recorded on an accrual basis. However, if the recipient is not willing to consider a refund if the contract is suspended, this is indicative of the sale of an intangible nonproduced asset rather than the payment of rent.

A4.22 The application of these principles to the main types of natural resources is described in the following text.

Radio spectrum

A4.23 Payment for a mobile phone license constitutes the sale of an asset rather than a payment for rent when the licensee acquires effective economic ownership rights over the use of the spectrum.[7]

A4.24 If the sale of such a license constitutes the sale of an asset, two possible treatments may apply: the sale of the spectrum itself or the sale of a permit to use the spectrum.

- When the life spans of the license and of the spectrum coincide, the payment for a license is treated as the sale of the spectrum itself (*other natural resources: radio spectrum* (314331)). The latter situation applies always when licenses are granted indefinitely.
- When the life span of the license is different from the life span of the spectrum, the payment for a license is treated as the sale of an intangible nonproduced asset classified as *permits to use natural resources* (314412) by the legal owner (licensor) to the economic owner (licensee).

A4.25 When the license agreement is treated as the sale of an intangible asset, in its own right, its value is established at the time of its sale. The value of the license declines with the remaining period of validity to a value of zero when the license expires. Symmetrically, the value of the spectrum to the lessor falls when the license acquires a value and progressively increases as the license expires. This reflects the potential for a further sale of the right to use the spectrum for another period.[8]

Land

A4.26 Land may be sold outright (i.e., when the legal ownership is transferred from one institutional unit to another)[9] or may be subject to a resource lease (e.g., tenant farmers usually pay regular rent to their landlord). A resource lease on land may instead be considered as a sale of the *land* (3141) if the

[5] The encumbered value of the resource is based on the present value of future rental payments taking the existence of the lease into account. The value of the resource increases as the contract winds down, while the value of the contract decreases over the same period. Also see Box A4.3.

[6] Also see this issue articulated in the context of the case of mobile phone licenses in *SNA News and Notes,* Volume 14, United Nations, 2002.

[7] To decide whether ownership is effectively transferred, the six criteria presented in Box A4.1 are to be considered.

[8] This recording ensures a neutral effect on the net worth of the overall economy during the life of the license.

[9] As described in paragraph 2.13, land may not be recorded as being sold to a nonresident unit. In such cases, a notional resident unit is created that holds title to the land; the nonresident unit then owns the equity in the notional resident unit.

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Box A4.1 Criteria to Determine Whether a License Represents an Asset Sale or Rent

Several criteria need to be considered:

- Costs and benefits assumed by licensee—The greater the extent of the risks and benefits associated with the right to use an asset incurred by the licensee, the more likely the classification of a transaction as the sale of an asset as opposed to rent. Pre-agreement on the value of payments (whether by lump sum or by installments) effectively transfers all economic risks and benefits to the licensee and points, therefore, to the sale of an asset. If, on the other hand, the value of payment is contingent on the results from using the license, risks and benefits are only partially transferred to the licensee and the situation is more readily characterized as payment of rent. In the case of mobile phone licenses, the total amount payable is often pre-agreed. An additional indication of the degree to which commercial risks have been passed to the licensee is to examine the hypothetical case where a licensee goes bankrupt. If, in such a case, the licensor reimburses none of the upfront payment made by the licensee, this would constitute a strong case against a characterization of the transaction as rent, as apparently the licensee has incurred all the risks involved.
- Upfront payment or installment—As with other indicators, the mode of payment is in itself not conclusive for a characterization as a transaction in assets or rent payment. Generally, the means of paying for a license is a financial issue and not a relevant factor in determining whether it is an asset. However, business practice shows that upfront payments of rent for long periods (15–25 years in the case of mobile phone licenses) are unusual and this favors an interpretation as sale of an asset.
- Length of the license—Licenses granted for long periods suggest the transaction should be treated as the sale of an asset, and for shorter periods treated as payments for rent. The timeframe involved in mobile phone licensing (15–25 years) is considered rather unusual as a period for which to conclude a fixed payment of rent and therefore a further indication favoring an interpretation as sale of an asset.
- Actual or de facto transferability— The possibility to sell the license is a strong indication of ownership and if transferability exists, this is considered a strong condition to characterize the licensing act as the sale of third-party property rights. In practice, mobile phone licenses are often transferable either directly (by the corporation selling the license to another corporation) or indirectly (through the corporation being acquired through a takeover).
- Cancellation possibility— The stronger the restrictions on the issuer's capacity to cancel the license at its discretion, the stronger the case for treatment as a sale of an asset. Conversely, when licenses can easily be cancelled at the discretion of the issuer, ownership over benefits and risks has not been fully transferred to the licensee and the transaction qualifies more readily as rent.
- Conception in the business world and international accounting standards— Businesses, in accordance with international accounting standards, often treat a license to use the spectrum as an asset. Again, in itself this does not lead to treatment as an asset in the national accounts, and there are other areas where companies choose to present figures in their accounts in ways that are not consistent with the national accounts. But the treatment of the acquisition of mobile phone licenses as capital investment in company accounts provides an added incentive to treat them in a similar way in the national accounts.

Not all or a majority of these considerations have to be satisfied to characterize the license as a sale of an asset. However, to qualify as *rent* (1415 or 2814) of a natural resource asset (rather than the sale of an asset), at least some of the following conditions should hold:

- The contract is of short-term duration, or renegotiable at short-term intervals. Such contracts do not provide the lessee with a benefit when market prices for the leased asset go up in the way that a fixed, long-term contract would. Such benefits are holding gains that typically accrue to owners of assets.
- The contract is nontransferable. Nontransferability is a strong but not a sufficient criterion for the treatment of license payments as rent, because, although it precludes the lessee from cashing in on holding gains, it does not preclude the lessee from reaping comparable economic benefits (e.g., using the license in a business).
- The contract contains detailed stipulations on how the lessee should make use of the asset. Such stipulations are often seen in cases of rent of land, in which the owner wishes to retain control over the usage of the land. In the case of licenses, examples of such stipulations would be that the contract states what regions or types of customers should be served, or that it sets limits on the prices that the lessee may charge.
- The contract includes conditions that give the lessor the unilateral right to terminate the lease without compensation—for instance, for underuse of the underlying asset by the lessee.
- The contract requires payments over the duration of the contract, rather than a large, upfront payment. Although this condition is essentially financial in character and thus cannot be decisive on the type of the lease, it may indicate a degree of control for the lessor to direct the use of the nonproduced asset. The case for a treatment as rent is further supported if the payments are related to the revenue the lessee derives from the license.

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lease satisfies most or all of the criteria to be considered a sale of an asset in Box A4.1. When the land is leased in other circumstances, the payments are recorded as *rent* (1415 or 2814) under a resource lease agreement.

A4.27 In some jurisdictions, the land under buildings remains in the legal ownership of a landlord other than the owner of the buildings. If regular payments are made to the landlord, these are recorded as *rent* (1415 or 2814). However, it is sometimes the case that, even though the land legally belongs to another unit, the right to occupy it for an extended period is payable in a single upfront payment often when the building is acquired. In such a case the payment is recorded as the acquisition of a nonproduced asset, classified as *land* (3141) if the value of the land can be established separately from that of the building. If not, the composite asset should be classified in the category representing the greater part of the value (see paragraphs 7.94 and 8.51). In such a case, when the building changes ownership, the purchase price includes an element representing the present value of future rent payments. Therefore, the land is recorded as if the ownership is transferred along with the building above the land. If, at the end of the land lease, a further payment is liable for extension of the lease for another long-term period, this should be recorded as an acquisition of another nonproduced asset, as described earlier.

Timber

A4.28 For timber, four possibilities are distinguished: the sale of a natural resource asset, the sale of a permit, rent of a natural resource asset, or sale of forests that are produced assets.

- Sale of a natural resource asset—If government gives a unit permission to clear an area of natural forest, or to fell at its discretion without any restriction in perpetuity, the payments made to government (the owner) constitute the sale of the natural resource asset, classified as *noncultivated biological resources* (31431).[10]
- Sale of a permit—When licenses or permits issued to use the natural resource, such as timber, satisfy the criteria to be a separate asset, the assets are classified as *contracts, leases, and licenses* (31441).
- Rent of a natural resource asset—It is common for timber felling to be allowed, subject to strict limits with a fee payable per unit volume of timber felled (stumpage). The limits are usually such that the harvest of timber is sustainable and so the payments are recorded as *rent* (1415 or 2814) in the case of a natural forest. The option to have a lease permitting felling at the lessee's discretion but subject to the restoration of the land, in an acceptable forested state, at some time in the future is improbable.
- Sale of goods and services—When cultivated forests are produced assets in the form of inventories, the extraction of timber is treated as the *sale of goods and services* (142).

A4.29 Illegal logging is prevalent in some countries. In such cases, the quantity of timber extracted should be recorded as other changes in the volume of assets (i.e., uncompensated seizure).

Fish

A4.30 Natural stocks of fish with an economic value are an asset, and the same considerations apply to them as to other natural resources.[11] Two possibilities exist for commercial fishing:

- Fishing quotas are permits that may be allocated in perpetuity or for extended periods to particular institutional units—for example, where fishing is an established way of life and there may be little alternative economic employment. In such circumstances, the quotas may be transferable and, if so, there may be a well-developed market for them. Fishing quotas may, therefore, be considered as transferable permits to use a natural resource. Such permits are assets in macroeconomic statistics and classified as *permits to use natural resources* (614412) in the balance sheet.

[10] The sale of forested land may be recorded as the sale of the timber and the land separately, depending on the intended use of each.

[11] It is not realistic to consider that permission would be given to exhaust fish stocks, but illegal fishing may either reduce the stock position below the point of sustainability or exhaust it altogether. In these cases, an other volume change in the stock position should be recorded.

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- An alternative regime is to issue a permit for a strictly limited period of time, less than a year, to a nominated institutional unit, often a nonresident. This is a common practice in some islands in the South Pacific, for example. In these cases, the revenue from the licenses should be recorded as *rent* (1415) because it is a resource lease.

A4.31 A license for recreational fishing has long been considered, by convention, as payment of a tax under *other taxes on the use of goods and on permission to use goods or perform activities* (11452). This treatment is not changed by the wider considerations for commercial fishing.

Water

A4.32 A natural body of water with an economic value can be sold in its entirety either as part of the land that surrounds it or as a separate entity.

A4.33 As is the case for fish, it is unlikely that economic ownership would be ceded under a long lease with no preconditions on the quantity and state in which a similar amount of water should be returned to the owner. However, it is possible that surface water could be leased under a long lease for recreational purposes, for example. The treatment of such leases should be the same as for land (see paragraphs A4.26–A4.27).

A4.34 Regular payments for the extraction of water from natural water bodies (as opposed to the delivery of it) should be treated as *rent* (1415 or 2814). However, extraction of water as a produced commodity (e.g., purchases from a reservoir) should be recorded as the sale of goods and services.

Mineral and energy resources

A4.35 Mineral and energy resources differ from land, timber, and fish in that, although they also constitute a natural resource, they cannot be used sustainably. All extraction necessarily reduces the amount of the resource available for the future. This consideration necessitates a different set of recommendations for how transactions relating to their use should be recorded.

- When a unit, such as government, owning a mineral or energy resource cedes all rights over it to another unit, this constitutes the sale of the resource classified as *mineral and energy resources* (3142). Like land, mineral resources can be owned only by resident units; if necessary, a notional resident unit must be established to preserve this convention.
- When a unit extracts a mineral or energy resource under an agreement where the payments made each year are dependent on the amount extracted, the payments (sometimes described as royalties) are recorded as *rent* (1415 or 2814). The depletion of the resource itself is recorded as other changes in the volume of assets.[12]

Sharing Assets

A4.36 There are two ways in which assets may be shared, and the two cases require different treatments:

- The asset may be wholly legally owned by two or more units, each at different points in time.
- Alternatively, the risks of and benefits from the asset may be shared by two or more units at a single point in time.

A4.37 In macroeconomic statistics, even though the asset may be owned by different units at different times, when a balance sheet is drawn up, the whole of the value of the asset is attributed to one unit.

- For an asset subject to an operating lease, there is no ambiguity. The legal owner is also the economic owner and is the unit that shows the asset on its balance sheet.
- An asset subject to a financial lease is shown on the balance sheet of the economic owner. This is consistent with the views that the value of the asset represents the stream of future benefits coming from the asset and the economic owner is the unit entitled to receive these benefits in return for accepting the risks associated with using the asset in production.
- For an asset subject to a resource lease, the value is shown on the balance sheet of the legal owner.

[12] The reasons for recommending the simple recording of payments each year from the extractor to the owner as rent and changes in the size and value of the resource as other changes in the volume of assets of the legal owner are given in the *2008 SNA*, paragraph 17.343.

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A4.38 When licenses to use natural resources such as radio spectrum, land, timber, and fish satisfy the criteria to be classified as intangible assets under *permits to use natural resources* (314412), they are part of the subclass of nonfinancial assets in the form of *contracts, leases, and licenses* (31441) and are shown on the balance sheet of the licensee.

A4.39 Sharing the risks and rewards of an asset between different units at a point in time is unusual. The most common occurrence is that a single unit undertakes the activity in which the asset is used and that unit shares the returns among the owners in the form of distributed property income. However, occasionally it is possible that such a single unit does not exist and it is not meaningful to try to create it statistically. This is most common when the participating units are resident in different economies, as may be the case with an airline, or in the case of some unincorporated joint ventures. The terms under which unincorporated joint ventures are established are diverse, but one form allows that all members share the assets equally. In such cases, macroeconomic statistics record the assets shared between the owners in proportion to their ownership shares.

A4.40 In some joint ventures that are recognized as institutional units, one party may contribute an asset as its share of the costs. If this happens, an injection of equity equal to the value of the asset should be recorded along with the acquisition of the asset in question by the joint venture.

Permits to Undertake a Specific Activity

A4.41 In addition to leases and licenses to use an asset as described in the previous sections, permission may be granted by government to engage in a particular activity, independently of any assets involved in the activity. Permission to extract minerals in return for the payment of rent, for example, is not covered by this type of permit because the permit derives from the government's ownership of the assets. The permits that give permission to engage in a particular activity are designed to limit the number of individual units entitled to engage in the activity. Such permits may be issued by government or by private institutional units and different treatments apply to the two cases. This section deals only with permits issued by government. Permits issued by units other than government are not discussed here because their treatment does not affect the government accounts.[13]

Permits issued by government

A4.42 When governments restrict, for example, the number of cars entitled to operate as taxis or limit the number of casinos permitted by issuing licenses, they are, in effect, creating monopoly profits for the approved operators and recovering some of these profits as the "permission fee." Such fees are recorded as *other taxes on the use of goods and on permission to use goods or perform activities* (11452). This principle applies to all cases where government issues licenses to limit the number of units operating in a particular field where the limit is fixed arbitrarily and is not dependent only on qualifying criteria.

A4.43 In principle, if the license is valid for several reporting periods, the payment should be recorded on an accrual basis with an entry in *other accounts receivable* (3208) or *other accounts payable* (3308) for the amount of the license fee covering future reporting periods. However, if government does not recognize a liability to repay the licensee in the case of a cancellation, the whole of the fee payable should be recorded as a single tax payment at the time it is paid.

A4.44 The incentive to acquire such a license is the licensees' expectation that they acquire the right to make monopoly profits at least equal to the amount payable for the license. For the license holder, this stream of future income is treated as an asset if the licensee can realize this by on-selling the asset. The asset first appears in the accounts of the licensee as an other change in the volume of assets. Subsequent increases and decreases in its value are recorded as holding gains or losses. These types of assets are described as *permits to undertake a specific activity* (614413). The value of the asset is determined by the value at which it can be sold or, if no such information is available, is estimated at the present value of the future stream of monopoly profits.

A4.45 If the payment for the license is being recorded on an accrual basis, the licensee has in the

[13] See the *2008 SNA*, paragraphs 17.360–17.362. Similarly, contracts for time share arrangements are not discussed in this *Manual* (see the *2008 SNA*, paragraphs 17.344–17.348).

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balance sheet an asset under *other accounts receivable* equal to the value of the license fee covering future reporting periods and an asset recorded as *permits to undertake specific activities* (614413) for the value of the license covering the excess of the monopoly profits over the cost. If the license is on-sold, the price paid by the new owner reflects both the value of the right to receive a refund from the government if the license is cancelled and the present value of the future stream of monopoly profits. If the license was recorded as a single reporting period tax payment, the value of the asset for the licensee is the value at which it can be sold or, if no such information is available, is estimated as the present value of the future stream of monopoly profits. Box A4.2 outlines the statistical treatment of permits issued by government using four examples.

Conditions for government permits recognized as assets

A4.46 A permit issued by government to undertake a specific activity may be treated as an asset (*permits to undertake specific activities* (614413)) only when all the following conditions are satisfied:

- The activity concerned does not utilize an asset belonging to government; if it does, the permission to use the asset is treated as an operating lease, a financial lease, a resource lease, or possibly the acquisition of an asset representing permission to use the asset at the discretion of the licensee over an extended period.
- The permit holder must be legally and practically able to sell the permit to a third party.
- The number of permits is limited, thereby allowing the holder to make monopoly profits when undertaking the activity concerned.
- The permit is not issued subject to a qualifying criterion. Revenue raised from the issuance of permits that are subject to qualifying criteria are treated as either *taxes on the use of goods and on permission to use goods, or perform activities* (11452) or payments for services under *administrative fees* (1422).

A4.47 Even if all these conditions are satisfied, if in practice the permits are not on-sold, it is not relevant to record the permits as assets. If any of the conditions is not satisfied, the payments are treated as *taxes on the use of goods and on permission to use goods or perform activities* (11452)—that is, without the creation of an asset in the form of *permits to undertake specific activities* (614413). (There may be an account payable in cases when the permit holders make payments that will accrue over more than one reporting period.)

Permits to use natural resources as sinks

A4.48 Governments may issue emission permits as a means of controlling total emissions. These permits do not involve the use of a natural asset (there is no economic value placed on the atmosphere so it cannot be considered an economic asset). However, it is inherent in the concept that these permits will be tradable and that there will be an active market for them.

A4.49 The payments for emission permits issued by government are treated as *taxes on the use of goods and on permission to use goods or perform activities* (11452), at the time the emissions occur. The timing difference between the payments received by government for the permits and the time the emission occurs gives rise to a transaction in financial liabilities classified as *other accounts payable* (3308) for government and a financial asset classified as *other accounts receivable* (3208) for the holder. The difference between the prepaid tax value of the permit and the market value of the permit represents a marketable contract (nonproduced nonfinancial asset) for the holder. The creation and disappearance of the nonproduced nonfinancial asset are recorded as an other change in volume of assets.

A4.50 The case of payments for discharging water may be considered as an example of the different possible ways of treating the payments:

- If a payment to discharge water is a fine imposed by government intended to inhibit discharge, the fine should be treated as revenue for government classified as *fines, penalties, and forfeits* (143). If such a fine is imposed on government or public sector units by another institutional unit, the fine is included in expense, classified as *current transfers not elsewhere classified* (2821).

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Box A4.2 Statistical Treatment of Permits Issued by Government: Examples

Suppose unit A contracts with government to buy a permit to operate a casino for three years at a total cost of 12. A expects to make monopoly profits of 7 per year because the permit excludes other casinos from operating. The government may or may not be prepared to make a refund if A relinquishes the permit. A may utilize the permit for the three years for which it is valid or may sell it to unit B at the end of year 1. The recordings under these four possibilities are examined as follows.

Case 1: Government does not offer a refund and A keeps the permit for three years

At the start of year 1, A pays tax of 12 and through an other change in the volume of assets recognizes an asset worth 21 initially. Government records only tax revenue of 12. Assuming no market price changes or discount factor, by the end of the year the value of the asset has reduced by 7 as an other volume change, because one of the three years for which the permit was initially valid has expired. At this point the asset is contributing 14 to A's net worth. By the end of the second year A writes off an additional 7 as an other volume change, leaving a contribution to net worth of 7. By the end of the third year the asset is worth zero.

Case 2: Government does not offer a refund and A sells the permit to B after one year

At the start of year 1, A pays tax of 12 and through an other change in the volume of assets recognizes an asset worth 21 initially. Government records only tax revenue of 12. Assuming no market price changes or discount factor, by the end of the year the value of the asset has reduced by 7 as an other volume change, because one of the three years for which the permit was initially valid has expired. At this point, the value of the asset is 14. However, B is prepared to pay only 13 for the asset and A accepts this offer. A therefore reduces the value of the asset by 1 through a holding loss (revaluation change), before selling it for 13. B acquires the asset for 13 and, assuming no further market price changes, its value reduces by 6.5 in the other change in volume of assets account in each of the two following years.

Case 3: Government offers a possibility to refund and A keeps the permit for three years

At the start of year 1, A makes a payment of 12 to government, which is recorded as a payment of tax of 4 for the year. The remainder of the amount is a prepayment of a tax and, therefore, at the end of the year government has an other account payable to A of 8. The value of the permit to A is only the excess of the monopoly profit over the total amount that A will have to pay to government. At the start of year 1, A recognizes an asset with a value of 9 (the difference between 7 and 4 for three years) through an other change in the volume of assets. Assuming no market price changes or discount factor, by the end of year 1 this permit asset is worth only 6. At the end of that year, A's net worth includes an other account receivable from government of 8 and the remaining value of the permit of 6. The total value of A's assets is 14 as in case 1. During the second year, A's other account receivable from government reduces by 4 which is used to pay the accrued tax in year 2. In that year, the value of the permit also reduces by 3 from 6 to 3. At the end of the second year, A's net worth includes an other account payable from government of 4 and, assuming no further market price changes, a permit worth 3, bringing total assets to 7 as in case 1. At the end of year 3, both the other account payable and the value of the permit are reduced to zero.

Case 4: Government offers a possibility to refund and A sells the permit to B after one year

At the start of year 1, A makes a payment of 12 to government which is recorded as a payment of tax of 4 for the year. The remainder of the amount is a prepayment of a tax and, therefore, at the end of the year government has an other account payable to A of 8. The value of the permit to A is only the excess of the monopoly profit over the other account payable. At the start of year 1, A recognizes an asset with a value of 9 (the difference between 7 and 4 for three years) through an other change in the volume of assets. Assuming no market price changes or discount factor, by the end of the year, this permit asset is worth only 6. At the end of the year, A's net worth includes an other account receivable from government of 8 and the remaining value of the permit of 6. The total value of A's assets is 14, as in case 1. However, B is prepared to pay only 13 for the asset and A accepts this offer. As in case 2, A has to reduce the value of the permit by 1 through a holding loss (revaluation change) before selling the asset to B for 13. The other account payable from government of 8 is transferred to B and the asset (permit) is sold for 5. B's net worth is unchanged because B has paid A 13 but received the other account payable of 8 and an asset (permit) valued at 5 in return. In year 2, the other account payable is reduced by 4 and a tax payment of 4 is recorded and, assuming no further market price changes, the permit declines in value from 5 to 2.5. At the end of year 3, both the other account payable and the value of the permit are reduced to zero.

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- If a limited number of permits are issued with the intent to restrict discharges, the payment should be treated as *taxes on the use of goods and on permission to use goods or perform activities* (11452) if the medium into which the water is discharged is not regarded as an asset in macroeconomic statistics.
- If the medium into which the water is discharged is an asset and the necessary conditions are met concerning the terms on which the discharge is permitted, then the payment for the permit should be treated in the same way as the payment for a license to use the radio spectrum for mobile phones. If the payment is linked to remedial action, the payment is a payment for a service, unless the amount levied is out of proportion to the costs involved in subsequent water treatment, in which case the payment should be treated as *other taxes on the use of goods and on permission to use goods or perform activities* (11452).

Contracts for future production

A4.51 Although human capital is not recognized as an economic asset, there are cases where a contract that entitles the holder to limit the ability of a named individual to work for others may be regarded as an asset. Prolific and lucrative contracts may be for sports players where, for example, one football club can "sell" a player to another. In fact, the club is not selling the person, but rather the exclusive rights to have that person working for it. Similar contracts exist for the rights to publish literary works or musical performances. Such contracts are treated as assets, classified as *entitlement to future goods and services on an exclusive basis* (614414) within the asset class of contracts, leases, and licenses.

A4.52 Similar contracts may exist for the production of nonfinancial assets in future. An examination of the practice of purchasing the options of future aircraft production revealed, however, that in this case there is no transferable asset and a change of mind on the part of the potential purchaser or failure to deliver on the part of the supplier is settled by a change in the arrangements between the two parties and does not lead to the sale of the option to a third party. If an instance arises where the option to purchase nonfinancial assets is treated in the same way as a contract for a named individual's performance, the same classification would apply.

Leases as Assets

A4.53 As stated in paragraph A4.2, contracts underlie many transactions recorded in macroeconomic statistics and it is important to understand what the implications are for the time of recording and classification of transactions arising from a contract. Permits or licenses to use natural resources may constitute an asset, as may permits to undertake specific activities and contracts for future production.

A4.54 As indicated in paragraphs 7.105–7.106, a contract may be considered an asset when it is transferable to a third party (i.e., a unit other than the two specified in the original contract)—for example, a marketable operating lease acquiring a value as an asset. An example is given in Box A4.3. Assets reflecting such third-party property rights are always transitory: they exist only for the length of the lease and where there is a difference between the encumbered and unencumbered values.

A4.55 Permits to use natural resources and contracts for future production may also give rise to these types of third-party property rights assets. Similarly, permits to undertake specific activities may give rise to these types of assets even though the original payment, if payable to government, was treated as a tax. Financial leases do not give rise to these types of assets. If the value of the asset being leased increases by more than the payments due under the financial lease, the lessee may have the option of selling the asset, repaying the loan, and keeping the difference.

A4.56 In the case of marketable operating leases, the lease may be treated as an asset only when the two following conditions are satisfied:

- The lease specifies a predetermined price for the use of an asset that differs from the price the asset could be leased for at the current time.
- The lessee is able legally and practically to realize this price difference by subcontracting the lease to a third party.

A4.57 In practice, it is recommended that such assets should be recorded only when the value of the asset is significant and the lessee can actually exercise the right to realize the price difference.

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Box A4.3 Practical Example of Leases as Assets

Suppose a lease on an apartment agreed some time ago specifies the rental at 100 per month but its current market rent is 120 per month. From the lessor's point of view, the apartment is "encumbered" by the existing lease; that is, it carries a penalty (in this case of 20 per month) because of the existence of the lease. The encumbered value of the apartment is based on the present value of future rental payments taking the existence of the lease into account; that is, the future income stream is 100 for the remaining period of the lease and 120 thereafter (ignoring any allowance for inflation). The unencumbered value of the apartment is a present value based on an income stream of 120 per month from the current period forward. The value to be entered in the landlord's balance sheet is the encumbered value, which is also all the landlord (lessor) can hope to realize if he sold the apartment while the tenant has the right to maintain the lease. To realize the unencumbered value, the lessor would have to pay the tenant the difference between the unencumbered value and the encumbered value to be free of the lease. This amount, the encumbrance, can in some circumstances be treated as an asset of the tenant. The circumstances are that it is both legally possible and is practicable for the tenant to sublet the apartment to a third party. Because of the difficulty of identifying when such assets may exist, it is recommended that in practice these assets be recorded only when there is evidence that they have been realized.

The encumbered value of the apartment may be higher than the unencumbered value if rentals have fallen since the lease was agreed. In this case, it is the landlord who benefits from the discrepancy between the contract price and the market price because the value of the apartment in his balance sheet is still the encumbered value. If the tenant wishes to cancel the lease, he may have to pay the landlord the difference between the encumbered value and the unencumbered value. Only in the exceptional case where the tenant pays a third party to assume the lease at the price specified in the lease does this payment represent an asset of negative value to the tenant. Once the lease expires or is cancelled, the value of the apartment returns to its unencumbered value.

Public-Private Partnerships

Introduction

A4.58 Public-private partnerships (PPPs) are long-term contracts between two units, whereby one unit acquires or builds an asset or set of assets, operates it for a period, and then hands the asset over to a second unit. Governments engage in PPPs for a variety of reasons, including the expectation that private management may lead to more efficient production and that access to a broader range of financial sources can be obtained. Such arrangements are usually between a private corporation and government, but other combinations are possible, with a public corporation as either party or a private nonprofit institution as the second unit. For ease of reference, the second unit will be referred to as the private corporation. These schemes are referred to by different names depending on the type of contracts that are in place. Examples are: private finance initiatives (PFIs); design, build, operate, and transfer schemes (DBOT); build, own, and transfer schemes (BOTs); or build, own, operate, and transfer schemes (BOOTs). For ease of reference, the remainder of this section will refer to PPPs.

A4.59 The nature of activities that PPPs are involved with varies greatly. Generally, the private corporations construct and operate assets of a kind that are usually the responsibility of the general government or public corporations. These commonly include roads, bridges, water supply and sewerage treatment works, hospitals, prison facilities, electricity generation and distribution facilities, and pipelines.

A4.60 The private corporation expects to recover its costs and to earn an adequate rate of return on its investment. The government may make periodic payments during the contract period,[14] or, alternatively, the private corporation may sell the services to the public (e.g., a toll road), or a combination of the two. The price is often regulated by the government and set at a level that will allow the private corporation to recover its costs and earn a return on its investment (benchmark price). If the regulated price is set at a level below such a benchmark price, the government will have to compensate the private partner, usually through subsidies or other transfers. There can be many variations in PPP contracts regarding aspects such as the disposition of the assets at the end of the contract, the required operation and maintenance of the assets during the contract, and the price, quality, and volume of services produced. At the end of the contract period, the

[14] The contract period refers to the length of the contractual agreement between the parties involved in the PPP.

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Box A4.4 Determining the Economic Ownership of PPP-Related Assets

The economic owner of the assets related to a PPP is determined by assessing which unit bears the majority of the risks and which unit is expected to receive a majority of the rewards of the asset.

The factors that need to be considered in assessing economic ownership of PPP-related assets include those associated with acquiring the asset and those associated with using the asset.

Some of the risks associated with acquiring the asset are:

- The degree to which the government controls the design, quality, size, and maintenance of the assets
- Construction risk, which includes the possibility of additional costs resulting from late delivery, not meeting specifications, or building codes, and environmental and other risks requiring payments to third parties.

Some of the risks associated with operating the asset are:

- Supply risk, which covers the degree to which the government is able to control the services produced, the units to which the services are provided, and the prices of the services produced
- Demand risk, which includes the possibility that the demand for the services, either from government or from the public at large in the case of a paying service, is higher or lower than expected
- Residual value and obsolescence risk, which includes the risk that the value of the asset will differ from any price agreed for the transfer of the asset to government at the end of the contract period
- Availability risk, which includes the possibility of additional costs or the incurrence of penalties because the volume and/or quality of the services do not meet the standards specified in the contract.

The relative importance of each factor is likely to vary with each PPP. It is not possible to state prescriptive rules that will be applicable to every situation. The provisions of each PPP arrangement must be evaluated to decide which unit is the economic owner.

government may gain legal and economic ownership of the assets, possibly without payment.

A4.61 The decision about economic ownership of the asset and whether to record PPP-related assets and liabilities in the government's or the private corporation's balance sheet is not straightforward. The private corporation is responsible for acquiring/constructing the fixed assets, although the acquisition/construction is often supported by the backing of the government. The contract often allows government to specify the design, quality, capacity use, and maintenance of the asset in accordance with government standards. Typically, the assets have service lives much longer than the contract period so that, for this reason alone, the government will control the assets, bear the risks, and receive the rewards for a major portion of the assets' service lives. Thus, it is frequently not obvious whether the private corporation or the government controls the assets over their service lives or which party bears the majority of the risks and benefits from the majority of the rewards.[15]

Determining Economic Ownership of PPP-Related Assets

A4.62 The statistical treatment depends on the economic ownership of the asset(s) involved. In macroeconomic statistics, a distinction is made between legal ownership and economic ownership (see paragraphs 3.38–3.41) based on risks and benefits. With a PPP, the legal and economic owner may be different parties. Box A4.4 summarizes the associated risks to be considered.

A4.63 The macroeconomic statistics approach is broadly consistent with considerations listed by the International Public Sector Accounting Standards Board (IPSASB) for the recognition and measurement of a service concession asset.[16] While it is not possible to prescribe rules applicable to every PPP type of arrangement, the considerations presented in Box A4.4 should guide the decision on which party is the economic owner of the asset(s) during and at the end of the PPP contract period. The International

[15] "Majority" should be assessed from an economic point of view. A single risk and reward may imply the "majority" in some cases, while in other cases, a number of separate risks and rewards combined may do so.

[16] *IPSAS 32* spells out some guidelines for recognizing and measuring assets and liabilities relating to service concession assets (i.e., PPP-related assets).

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Box A4.5 Practical Applications of the Economic Ownership Concept

To operationalize the criteria for economic ownership—that is, whether the majority of risks and rewards accrue to government or to the private corporation—countries have followed different approaches.

Under Eurostat's guidelines to its member states, a sufficient condition for a PPP to be excluded from government's accounts has been that the private corporation bears the construction risk in the project and either the availability or the demand risks in using the asset in production. In 2010, Eurostat clarified how other elements, in addition to these three principal risk categories, should be analyzed to determine the distribution of risks between the public and private sectors—notably: the existence and scope of grantor guarantees; majority financing by the grantor of capital cost during the construction phase; and financial aspects of termination clauses (see *Manual on Government Deficit and Debt – Implementation of ESA 95, 2012 Edition*, section VI.5).

Some countries are following internationally accepted accounting standards (e.g., IPSAS) applicable to financial leases (see paragraphs A4.10–A4.15). If a PPP contract is deemed to be a financial lease, an asset and liability are recorded on the public sector unit's balance sheet, interest and depreciation are recorded as operating expenses, and amortization is recorded as a transaction in financial assets and liabilities. IPSASs treat a lease as a financial lease to the extent that the following criteria are met: (i) the contract period covers most of the useful life of the asset; (ii) the asset is transferred to the lessee (the public sector unit in this case) at the end of the contract; (iii) the lessee can purchase the asset at a bargain price at the end of the contract; (iv) the present value of payments prescribed in the contract is close to the fair market value of the asset; and (v) the asset is useful mainly to the lessee.

Public Sector Accounting Standards (IPSASs) considerations of control of the asset include aspects of risks and rewards, and should, in principle, lead to the same conclusions on economic ownership. Box A4.5 presents a brief discussion on how some countries apply, in practice, the concept of economic ownership related to PPPs.

Statistical Treatment

A4.64 The following description of the statistical treatment of PPPs is based on the guidelines prescribed in the *2008 SNA*.[17] If the government is considered the economic owner of the asset(s) during the contract period but does not make any explicit payment at the beginning of the contract, a transaction must be imputed to cover the acquisition of the asset(s). The recording of these depends on the specific contract provisions, how they are interpreted, and possibly other factors. Most frequently, these contracts will be recorded as the acquisition of the asset through an imputed financial lease because of the similarity with actual financial leases. In other cases, for example, a loan that equals the market value of the asset at acquisition could be imputed, the actual government payments to the private corporation could be partitioned, so that a portion of each payment represents the repayment of the loan (see paragraphs A4.10–A4.15), and the remainder could represent an expense for *use of goods or services*, *subsidies*, etc., in accordance with the contract.

A4.65 If the private corporation is considered the economic owner of the asset(s) during the contract period, any debt associated with the acquisition of the asset(s) should be attributed to the private corporation. Normally, the government obtains legal and economic ownership of the assets at the end of the contract without any significant payment. However, two approaches are possible to account for the acquisition of the asset(s) by government:

- Over the contract period, government gradually builds up a financial claim (e.g., *other accounts receivable*) and the private corporation gradually accrues a corresponding liability (e.g., *other accounts payable*), such that both values are equal to the residual value of the assets at the end of the contract period. At the end of the contract period, government records the acquisition of the asset, with a reduction in the financial claim (*other accounts receivable*) as the counterpart entry. The other unit records the disposal of the asset, with a reduction in the liability (*other accounts payable*) as the counterpart entry. Implementing this approach may be difficult because it requires new

[17] The *PSDS Guide* presents examples of the recording of financial leases (see Box 4.11) and the recording of debt and flows arising from PPPs (see Box 4.16).

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transactions to be constructed using assumptions about expected asset values and interest rates.

- An alternative approach is to record the change of legal and economic ownership from the private unit to government as a capital transfer at the end of the contract period. At the end of the contract period, government records revenue in the form of a capital transfer that finances the acquisition of the asset and the private unit records an expense in the form of a capital transfer payable to government, financed by the disposal of the asset. The capital transfer approach does not reflect the underlying economic reality as well as the first alternative, but data limitations, uncertainty about the expected residual value of the assets, and contract provisions allowing various options to be exercised by either party make recording a capital transfer in GFS acceptable on pragmatic grounds.

Insurance and Standardized Guarantee Schemes

Introduction

A4.66 An insurance policy is an agreement between an insurer and another institutional unit, the policyholder. Under the agreement, the policyholder makes a payment (premium) to the insurance corporation, which makes a payment (claim) to the policyholder if or when a specified event occurs. The policyholder protects itself against certain forms of risk. By pooling the risks, the insurer aims to receive more from the receipt of premiums than it has to pay out as claims to the insured.

A4.67 This section describes types of insurance and standardized guarantee schemes. It first defines some terminology and then provides statistical guidance on the recording of the relevant flows and stock positions related to nonlife insurance and standardized guarantee schemes.

Types of Insurance and Standardized Guarantee Schemes

A4.68 The most common form of insurance is called *direct insurance*, whereby the policy is issued by an insurer to another type of institutional unit.[18] There are two types of direct insurance—namely, life and nonlife insurance. Both types of insurance involve pooling risks. Insurers receive many (relatively) small regular payments of premiums from policyholders and pay much larger sums to claimants when the contingencies covered by the policy occur. During the interval between the receipt of premiums and the payment of claims, the insurance corporation earns income from investing the premiums received. This investment income affects the levels of premiums and benefits set by the insurer.

A4.69 Life insurance is an activity whereby a policyholder makes regular payments to an insurer, in return for which the insurer guarantees to provide the policyholder (or in some cases another nominated person) with an agreed sum, or an annuity, at a given date or earlier if the policyholder dies beforehand. For life insurance, an important relationship exists between premiums and benefits during the policy period. For policyholders, the benefits receivable are expected to be at least as great as the premiums payable, and this type of insurance can be seen as a form of saving. The insurer combines this aspect of a single policy with the actuarial calculations about the insured population concerning life expectancy (including the risks of fatal accidents) when determining the relationship between the levels of premiums and benefits. Life insurance mainly redistributes premiums payable over a period of time as benefits payable later to the policyholders or his/her beneficiaries. Essentially, life insurance premiums and benefits are transactions in financial assets and liabilities and not transactions in revenue and expense. Public sector units' involvement in life insurance is most often provided in the context of social protection in the form of employment-related pension schemes and other social protection schemes, such as compulsory saving schemes. The GFS treatment of these types of schemes is elaborated in Appendix 2.

A4.70 Nonlife insurance is an activity similar to life insurance except that it covers all other risks, accidents, sickness, fire, etc. For nonlife insurance, the risks are spread over all policyholders, and the number of claimants is typically much smaller than the number of policyholders. Nonlife insurance includes policies that provide a benefit in the case of death within a given period but in no other circumstances, usually called term insurance. With nonlife insurance, a claim is payable only if a specified contingency occurs and not otherwise. This type of insurance consists of redistribution in the current period

[18] Another form of insurance is provided by one insurer to another insurer, which is referred to as reinsurance.

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between all policyholders and a few claimants. While public corporations may be involved in various types of insurance schemes, general government units are usually not involved in nonlife insurance other than social insurance, as discussed in Appendix 2.

A4.71 Standardized guarantees are those kinds of guarantees that are issued in large numbers, usually for fairly small amounts, along identical lines. There are three parties involved in these arrangements, the borrower (debtor), the lender (creditor), and the guarantor. Either the borrower or lender may contract with the guarantor to repay the creditor if the debtor defaults. Similar to nonlife insurance, it is not possible to determine the likelihood of any particular debtor defaulting. Nevertheless, because the guarantees are very similar and numerous, it is possible to estimate the general likelihood of defaults the guarantor will have to cover. It is standard practice to estimate how many out of a batch of similar debts will default.[19] Therefore, standardized guarantees are based on the same paradigm as that for nonlife insurance, and a similar treatment is adopted for these guarantees. Standardized guarantees are distinguished from one-off guarantees based on two criteria:

- They are characterized by often repeated transactions with similar features and pooling of risks.
- Guarantors are able to estimate the average loss based on available statistics by using probability-weighted concepts.

A4.72 Standardized guarantees may be provided by a financial institution, including, but not limited to, insurance corporations. It is possible (but unlikely) that nonfinancial corporations provide these kinds of guarantees. However, government units are often involved as the guarantor in standardized guarantee schemes. The most common examples are export credit guarantees, deposit insurance schemes,[20] and student loan guarantees. Specifically, when a government unit provides standardized guarantees without fees or at such low rates that the fees are significantly less than the calls and administrative costs, the unit should be treated as a nonmarket producer within the general government. If government recognizes the probability of having to finance some of the calls under the guarantee scheme to the extent of including a provision in its accounts, a transfer of this size from government to the units concerned and a liability of this amount (under provisions for calls under standardized guarantees) should be recorded. If a standardized guarantee scheme is operated by a corporation or quasi-corporation on behalf of government, any transfers to cover recurrent losses are classified as subsidies (see paragraph 6.89) and any transfers to cover large operating deficits accumulating over two or more years or exceptional losses due to factors outside the control of the corporation/quasi-corporation are recorded as capital transfers (see paragraphs 6.91–6.124).

Defining Terminology Used in Insurance

A4.73 Defining some of the terms peculiar to the insurance industry is helpful in clarifying the discussion on the statistical treatment of insurance and standardized guarantees. The term "premiums" is used for payment to the insurer, while the term "fees" is used to describe the payment to the guarantor in the case of standardized guarantees. Payments by the insurer are called "claims" in the case of nonlife insurance policies and "benefits" in the case of life insurance policies. In the case of standardized guarantees, "calls" relate to expected defaults on the guarantees.

A4.74 The *actual premium* (fee) is the amount payable to the insurer (guarantor) to secure insurance coverage for a specific event over a stated time period. Coverage is frequently provided for one year at a time, with the premium payable at the outset, though coverage may be provided for shorter (or longer) periods and the premium (fee) may be payable in installments—for example, monthly.

A4.75 The *premium earned* is the part of the actual premium that relates to coverage provided in the reporting period. For example, if a new annual policy with a premium of 120 units comes into force on April 1, and GFS are being prepared for a calendar year, the premium earned in the calendar year is 90. The **unearned premium** is the amount of the actual premium received that relates to the period past the reporting period. In the example just given, at the end of the reporting period there will be an unearned

[19] This default risk establishes the liability arising from standardized guarantees.

[20] If participation in such a deposit insurance or other guarantees is compulsory—that is, if beneficiaries cannot opt out of the scheme and the payment is clearly out of proportion to the service provided—it will not constitute a standardized guarantee scheme, but should be recorded as *taxes on use of goods and on permission to use goods or perform activities* (1145) as described in paragraphs 5.73–5.76.

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premium of 30, intended to provide coverage for the first three months of the next reporting period.

A4.76 *Net premiums* are defined as actual premiums plus premium supplements minus the insurance service charge payable by the policyholders. Premiums are usually payable regularly, often at the start of an insurance period, whereas claims fall due later, in the case of life insurance, often many years later. The amounts accumulating between the periods the premiums were payable and when a claim becomes payable create a liability (reserves) for the insurer. These amounts are at the disposal of the insurer to invest in assets and earn income from it. The income allows the insurance corporation to charge lower premiums than would be the case otherwise. The property income earned in this way is attributed to the policyholders and is subsequently recorded as premium supplements from the policyholders.

A4.77 A *claim (benefit or call)* is the amount payable to the policyholder by the insurer in respect of an event covered by the policy occurring in the period for which the policy is valid. Claims generally become due when the event occurs, even if the payment is made some time later. An exception is made in cases where making a claim is possible only long after the event has happened.[21] In such a case, the claim is recorded at the time the insurance company accepts the liability. Claims that become due are described as claims incurred. In some contested cases, the time between the occurrence of the event giving rise to the claim and the settlement of the claim may be several years. Claims on an accrual basis are recognized as due when an event takes place that gives rise to a valid claim, regardless of whether paid, settled, or reported during that period.

Statistical Treatment of Nonlife Insurance and Standardized Guarantees

A4.78 Under a nonlife insurance policy (or standardized guarantee), the insurer (or guarantor) accepts a premium (or fee) from a client and holds it in reserve (liability) until a claim (or call) is made or the period of the insurance expires. In the meantime, the insurer (guarantor) invests the amounts available due to prepayments of premiums, reserves held against outstanding claims, and actuarial reserves held against outstanding risks. These assets generate investment income. The property income represents income forgone by the client, and so is treated as property expense attributed to the policyholders. It is therefore rerouted and subsequently recorded as an implicit supplement to the actual premiums. The insurer (guarantor) sets the level of the actual premiums (fees) to be such that the sum of the actual premiums plus the property income earned on assets, minus the expected outstanding claims will leave a margin that the insurer can retain. As an insurer or guarantor, the general government or public sector unit incurs liabilities equal to the present value of the expected claims or calls on outstanding guarantees, net of any recoveries.[22] The statistical treatment of nonlife insurance and standardized guarantee schemes in GFS will depend on whether the general government or public sector unit acts as the insurer (guarantor), or whether they are policyholders.

Flows and stock positions recorded by public sector units as nonlife insurers or guarantors

A4.79 General government units are not likely to operate an insurance scheme, but if they do and if they maintain separate reserves, they would record transactions related to the nonlife insurance in the same way as other insurers. On the other hand, general government units are often involved as the guarantor in standardized guarantee schemes. For general government or public sector institutional units acting as an insurer or guarantor of standardized guarantees, recording these events would require recording the following entries in GFS:

- *Actual premiums (fees) receivable*—The amount of actual premiums (fees) receivable represents premiums earned and prepayment of premiums.[23] The portion of actual premiums (fees) receivable representing premiums (fees) earned for the reporting period represents revenue, classified as *premiums* (14511) or *fees for standardized guarantees* (14512), respectively. Prepaid

[21] For example, an important series of claims were recognized only when exposure to asbestos was established as a cause of serious illness and was judged to give rise to claims under an insurance policy valid at the time of the exposure.

[22] These recoveries could include recoveries from the insured, reinsurance, defaulting borrowers, or third parties.

[23] An implicit service charge is implied by nonlife premiums. However, these charges can be calculated only in the context of an analysis of the whole of the economy. Therefore, the implicit service charge is not recognized in GFS.

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premiums (fees) represent a transaction in financial asset and liabilities, and are recorded as an increase in liabilities for *nonlife insurance technical reserves* (33061) or *provisions for calls under standardized guarantee schemes* (33065).

- *Property income earned on the investment of reserves*—Usually, the reserves related to insurance or standardized guarantees are invested in financial assets and the revenue generated by these investments is generally in the form of *interest* (1411) or *dividends* (1412). Sometimes, however, the reserves may be used to generate net operating surpluses either in a separate establishment or as a secondary activity. The most common example is *rent* (1415) generated from real estate assets.
- *Property income attributed to policyholders*—Property income generated by the investment of reserves is deemed to be an implicit premium supplement.[24] Therefore, the insurer or guarantor should attribute the property income to the policyholders[25] by recording an expense, classified as *property expense for investment income disbursements* (2813). The counterpart entry to this expense is a transaction resulting in an increase in liabilities for *nonlife insurance technical reserves* (33061) or *provisions for calls under standardized guarantee schemes* (33065).
- *Claims (calls) payable*—An expense for expected claims (calls) should be recognized in *premiums, fees, and current claims* (2831) or *capital claims* (2832), as relevant, and with a counterpart entry as an increase in the liability related to *nonlife insurance technical reserves* (33061) or *provisions for calls under standardized guarantee schemes* (33065). For standardized guarantee schemes, the expense recorded is the expected level of calls (minus any expected asset recoveries) on the standardized guarantees provided in the recording period. When claims (calls) are paid, transactions are recorded reducing liabilities related to nonlife insurance technical reserves or provisions for calls under standardized guarantees with a corresponding reduction in assets or an increase in other liabilities.
- *Holdings gains and losses*—In some exceptions, if an amount for a claim outstanding has been agreed upon and it has been agreed that it will be indexed pending payment, there may be a holding gain or loss recorded for it.
- *Other changes in volume of assets and liabilities*—Changes to provisions for calls under standardized guarantee schemes not resulting from transactions and holding gains and losses are shown as other changes in volume of assets—for example, whenever a significant change to the expected level of calls is recognized, beyond any asset recovery.

Flows and stock positions recorded by public sector units as nonlife policyholders and holders of standardized guarantees

A4.80 The recording of flows and stock positions related to standardized guarantees differs from the recording of one-off guarantees (see paragraph 7.256). For general government or public sector institutional units as nonlife insurance policyholders, or holders of standardized guarantees, the recording of their activities would require the following entries in GFS:

- *Actual premiums (fees) payable* — The amount of actual premiums payable represents premiums incurred, prepayment of premiums, and an implicit services charge payable. Because the implicit service charge can be calculated only in the context of an analysis of the whole of the economy, it is not recognized in GFS as an expense. The portion of actual premiums payable representing premiums incurred for the reporting period is an expense, classified as *premiums* (28311) or *fees for standardized guarantees* (28312), respectively. Prepaid premiums represent a transaction in financial assets and liabilities, and should be recorded as an increase in the financial assets in the form of *nonlife insurance technical reserves* (32061) or *provisions for calls under standardized guarantee schemes* (32065).
- *Property income attributed to policyholders*—As explained in paragraph A4.78, property income generated by insurers (guarantors) on the investment of reserves is deemed to be an implicit

[24] The attribution should, in principle, be made according to the proportion of reserves (stock of reserves) attributed to the different classes of insurance and policyholders. In practice, the usual method is to distribute the investment income in proportion to the actual premiums.

[25] In the case of standardized guarantees, the institutional unit that benefits from the guarantee may not be the same as the unit paying the fee for the guarantee. In this case, the property income is distributed to the unit paying the fee. The distributed property income is treated as a supplementary fee.

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premium supplement, attributed to the policyholders. Conceptually, general government or public sector institutional units as policyholders might potentially record property income revenue, classified as *property income from investment income disbursements* (1414). The counterpart entry to this revenue is an increase in the financial asset for *nonlife insurance technical reserves* (32061) or *provisions for calls under standardized guarantee schemes* (32065). However, the revenue related to this item is not always known to GFS compilers. Therefore, this revenue is not recorded in GFS and remains an adjustment item between GFS and national accounts.

- *Claims receivable*—Claims become due when the event that gives rise to a valid claim occurs, regardless of whether paid, settled, or reported during the reporting period. The policyholder recognizes revenue for the claim at the time an event giving rise to a claim occurred, or in the case of a standardized guarantee, at the time a call can be made in terms of the contract. These claims receivable should be recognized as revenue classified as *premiums, fees, and current claims* (1451) or *capital claims* (1452), as relevant, and with a counterpart entry as an increase in a financial asset in the form of *nonlife insurance technical reserves* (32061) or *provisions for calls under standardized guarantee schemes* (32065). Upon actual payment of the claims, a decrease is recorded in the relevant insurance reserve, with a corresponding increase in cash or other financial assets.

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APPENDIX

5 Regional Arrangements

This appendix describes various regional arrangements for monetary and economic cooperation and the implications of these arrangements for government finance statistics.

Introduction

A5.1 This appendix addresses the main issues for GFS that arise from regional arrangements. **Regional arrangements** involve coordination of institutional units in several countries for a particular monetary or economic purpose. These arrangements are often supported by regional organizations that operate across borders that need harmonized macroeconomic statistics to monitor economic development and the progress toward meeting the goals of the regional arrangement. The statistical issues that may arise in compiling harmonized data tend to be the same as those addressed in the GFS framework: definitions, coverage, time of recording, frequency, classifications, and presentation formats. An effective way of achieving this harmonization is by using a common methodology, such as the *GFSM 2014*.

A5.2 Where regional arrangements create regional organizations by means of an intergovernmental legal arrangement (e.g., a treaty), these institutions are classified as an international/regional organization if they satisfy the criteria to be an institutional unit and satisfy the criteria to be an international organization.[1] Regional organizations are created for many purposes, including supporting, guiding, and even governing aspects of the economic relationships or integration processes among the region's economies. Regional organizations can be financial (e.g., regional central or development banks) or nonfinancial (e.g., administrative or economic organizations).

[1] International organizations are discussed in paragraphs 2.16–2.21.

A5.3 Regional arrangements tend to strengthen economic relations among the governments of the participating countries and between the regional organizations and the governments of the participating countries. As these economic relations can lead to significant flows and stock positions, it is important to have guidelines on their recording in GFS.

A5.4 This appendix presents the major types of regional arrangements, and points out the main GFS issues observed in each case. The appendix then examines using GFS under regional arrangements and, finally, it analyzes the requirements for harmonization to promote optimal coordination of policies and consistency in data.

Types of Regional Arrangements

A5.5 In the course of the last decades, numerous regional arrangements have been set up with various degrees of cooperation and integration between the participating countries. Such regional arrangements include:

- Customs unions, which have common tariff and other trade policies with nonmember economies
- Economic unions, which harmonize certain economic policies to foster greater economic integration
- Monetary and currency unions, which provide for a single monetary policy and the use of a single currency across an area.

Custom Unions

A5.6 A **custom union** is a form of regional arrangement whereby agreement exists on a common tariff (custom duties) vis-à-vis the other economies, while the movement of goods within the arrangement tends to be duty-free, although it may exclude exemptions

in certain sectors.[2] This type of arrangement is different from bilateral cooperation agreements between two countries in commercial areas that have little impact, if any, on GFS.[3]

A5.7 In compiling GFS for members of a customs union, the main issue is the recording of custom duties in the accounts of the member governments participating in the union. Duties on imports from countries outside the customs union are usually collected on a mutually agreed basis at custom union entry points. As these entry points may be concentrated in one or a small group of members of the customs union, revenue-sharing formulas among member countries are implemented. Recording customs duties in the GFS of individual members of the customs union is thus affected by the institutional and administrative organization of the customs union.

A5.8 The following paragraphs set out four possible types of regional arrangements:[4]

- A designated agency levies,[5] collects, and distributes the proceeds from the duties.
- A designated agency levies and distributes duties, but member governments collect duties on behalf of the designated agency.
- Member governments have collective rights (i.e., the right is shared by everyone in the group) to levy, collect, and distribute the duties.
- Member governments have collective rights to levy the duties, but only one member collects and distributes the duties.

[2] Examples of such arrangements are: the Mercosur, which comprises Argentina, Bolivia, Brazil, Paraguay, Uruguay, and Venezuela; and the Southern African Customs Union, which comprises Botswana, Lesotho, Namibia, South Africa, and Swaziland.

[3] Bilateral trade agreements may also be observed between a regional arrangement and third countries or between regional arrangements. "Free trade agreements" generally fall under this category.

[4] There could be other, less formal or less complete arrangements. In the case of Mercosur countries, for instance, duties have so far been recorded for each individual country as taxes on international trade and transactions, as goods from third countries transiting from one union member to another are regarded as imports and exports among different custom union members. In 2010, Mercosur members agreed on a customs code that will allow the final confirmation of a genuine customs union and the redistribution of customs duties among members.

[5] To levy a tax implies that the agency has the authority to impose the tax, either as principal or through the delegated authority of a principal, and the agency has final discretion to set and vary the rate of the tax.

A5.9 In all four scenarios where there are economic arrangements involving a small group of economies, it is recommended that the governments involved agree on common, appropriate recording procedures to avoid bilateral asymmetries.[6] The required information should be readily available from customs services. If a portion of the amount of customs duties is retained as collection fees (regardless of how the amount is calculated by the collecting agency or government), these fees should be recorded gross of the grants expense when the customs pool is distributed to the members. The retained amount should be recorded as *incidental sales by nonmarket establishments* (1423) in the accounts of the collecting agency or government, and *use of goods and services* (22) in the accounts of the member government receiving the grants.

A5.10 Tax attribution rules (see paragraphs 5.33–5.38) should be used to determine the attribution of customs duties revenue and the transfers associated with sharing the revenue pool among the members. The recording of such customs duties and grant transfers for four types of arrangements are discussed in paragraphs A5.11–A5.18.

A designated agency levies, collects, and distributes the proceeds from the duties

A5.11 In this case, the designated agency has the right to levy and collect the customs duties and distribute the proceeds. If the designated agency is recognized as an institutional unit, it may satisfy the criteria to be an international organization (see paragraphs 2.16–2.21), in which case all the transactions described should be between this international organization and the member governments. Otherwise it would be a resident of one member country, in which case all the transactions described should be between that government and all the other member governments. If the designated agency is not a separate institutional unit, it should be classified with the government unit that controls it.

[6] Member countries of the Central American Common Market (CACM) (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua) apply a common external tariff for products manufactured and imported from outside of the CACM. However, each CACM member is allowed to determine any product exceptions.

A5.12 The customs duty revenue is attributed to the designated agency and should be recorded as *customs and other import duties* (1151) at the time the underlying economic event occurs (e.g., imports of goods or services) that gives rise to the customs duties, along with a counterpart entry increasing *currency and deposits* (3202) or *other accounts receivable* (3208).

A5.13 A revenue-sharing agreement may determine that the designated agency is to distribute the revenue pool to the participating national governments on the basis of an underlying economic event (e.g., imports of goods or services). In this case, revenue in the form of a *grant* (13), with a counterpart entry in *other accounts receivable* (3208), is recorded in the accounts of the member countries at the time the underlying economic event occurs. In the accounts of the designated agency, an equal amount of expense in the form of a *grant* (26) with a counterpart entry in *other accounts payable* (3308) should be recorded. Depending on the sector classification of the designated agency, the grant revenue should be recorded as either *current grants from international organizations* (1321) or *current grants from foreign governments* (1311), while the grant expense should be classified as *grants to foreign governments* (261) or *grants to other general government units* (263). The size of the grant depends on the nature of the revenue-sharing agreement. However, these revenue distributions may display an element of income redistribution among the members of a regional arrangement. That is, the distributions are not based on underlying economic events but are rather made to an agreed and negotiated formula. In this case, the grant should be recorded at the time the member economy acquires an unconditional claim on the designated agency. At the time of distribution, the member economies extinguish the *other accounts receivable* (3208), with a corresponding increase in the financial asset *currency and deposits* (3202). Conversely, the designated agency would record a decrease in *other accounts payable* (3308) and a decrease in the financial asset *currency and deposits* (3202).

A designated agency levies and distributes duties but member governments collect duties on behalf of the designated agency

A5.14 If national governments act as collecting agents on behalf of the designated agency for the customs duties from importers in their own economy, the collecting national government should record only transactions in financial assets and liabilities when the economic event occurs. A liability in the form of *other accounts payable* (3308) to the designated agency should be recorded, with a counterpart entry in *currency and deposits* (3202) or *other accounts receivable* (3208). Because the customs duty revenue is attributed to the designated agency, they should record a financial claim on the member collecting the customs duties, in the form of *other accounts receivable* (3208) as the revenue in the form of customs duties accrues. When the collecting national government makes the payment to the designated agency, this member government records a reduction in financial assets in the form of *currency and deposits* (3202), with a counterpart entry to extinguish the liability in the form *other accounts payable* (3308).

A5.15 Distributions of the revenue pool by the designated agency are treated as described in paragraph A5.13.

Member governments have collective rights to levy, collect, and distribute the duties

A5.16 If member governments have collective rights to levy the customs duties under the customs union agreement, the custom duty revenue is attributed to the member governments according to the underlying economic activity that gives rise to the customs duties. The total customs duty revenue attributed to each member government is in proportion to the respective underlying economic activity that gives rise to the customs duties. Each member government records customs duties due on their imports on an accrual basis (i.e., when the underlying economic event occurred), regardless of how the revenue pool is to be shared or where the customs duties are collected. Should the customs union agreement provide for any member government to receive a larger share of the customs pool than is evidenced by the underlying economic activities, a *grant revenue* (13)/*expense* (261) should be recorded between member governments at the time the unconditional claims are established, with a corresponding entry in *other accounts receivable* (3208)/*payable* (3308).

A5.17 It is possible that the ports of entry for the customs union are situated in one or a small group of member economies. If so, there could be a

discrepancy between the customs duty revenue collected by a member state and that member's share of the customs pool. In these circumstances, an increase in liabilities in the form of an *other accounts payable* (3308) is recorded for the collecting government at the time that such a claim can be established, with the corresponding increase in financial assets in the form of *currency and deposits* (3202) for the collecting government. The differences between the customs revenue collected by each of the customs union members and the total of each member's share of the customs pool should sum to zero across the customs union, as the customs revenue collected by the customs union equals the revenue to be shared among member governments.

Member governments have collective rights to levy the duty, but only one member collects and distributes the duties

A5.18 If member governments have collective rights to levy the duty, the tax revenue is attributed to the member governments according to the underlying economic activity that gives rise to the customs duties. If one of the member governments collects all the customs revenue, the recording is as described in paragraphs A5.16–A5.17. In this case, however, only the collecting government will record an increase in liabilities in the form of *other accounts payable* (3208), as all other economies will have claims in the form of *other accounts receivable* (3308) on the collecting economy for their share of the customs revenue.

Economic Unions

Introduction

A5.19 For statistical purposes, an economic union is a union to which two or more economies belong. **Economic unions** are established by means of an intergovernmental legal agreement among sovereign countries or jurisdictions with the intention of fostering greater economic integration. In an economic union, some of the legal and economic characteristics associated with a national economic territory are shared among the different countries or jurisdictions. These elements include: (i) the free movement of goods and services within the economic union and a common tax regime for imports from nonmember economies (free trade zone); (ii) the free movement of financial resources within the economic union; and (iii) the free movement of (individual and legal) persons within the economic union.[7] Also, in an economic union, specific regional organizations are created to support the functioning of the economic union. Some form of cooperation and coordination in fiscal and monetary policy usually exists within an economic union.

A5.20 This type of regional arrangement represents greater cooperation than in a customs union agreement (which may have been a first step) because the members agree to harmonize a significant part of the conditions in which economic activity is undertaken over the whole union territory. The main example is the European Union (EU). The EU takes the form of common legislation in some areas, most notably in competition or product norms. Harmonization of taxes is also being envisaged in some areas. The aim of such unions is to unify markets by enlarging their size, improving efficiency, and developing specialization. Economic unions usually achieve a large, if not total, freedom of circulation for goods, services, capital, and individuals by removing the obstacles to such movements.

A5.21 Economic unions may also cover common policies in other fields. These may take a range of forms, from simple coordinated policy measures to a strongly harmonized framework and even to a centralized, direct management by supranational bodies having an autonomous budget and strict policy rules.

A5.22 An economic union requires specific entities endowed with the authority to manage an autonomous budget. These entities may have more or less autonomy to perform their tasks, in accordance with the institutional arrangements agreed between the members of the union.

A5.23 There may be significant grants payable and receivable between member states of an economic union to support certain economic activities or to develop the region. Nevertheless, the size of common budgets observed in existing economic unions is much smaller than member states' budgets. The flows involved are a small portion of total revenue and expense of the individual member states.[8] All requirements related to fiscal policy are generally seen as

[7] As noted in paragraph 2.11, an economy and, by extension, an economic union can include physical or legal (special) zones to which, to some extent, separate laws are applied.

[8] In the European Union, the common budget amounted to about 1 percent of GDP of the union at the time of drafting this *Manual*.

cooperation/coordination arrangements rather than effective common fiscal policies.

Residence in an economic union

A5.24 The economic territory of an economic union consists of the economic territory of the member countries or jurisdictions, and the regional institutions that comprise the same, or a subset of the same, economies and are set up to manage the functioning of the economic union.

A5.25 Being a resident of an economy of an economic union implies being a resident of the economic union. Regional organizations that operate within the boundaries of the economic union territory are also residents of the union. However, regional organizations whose membership of economies is not the same as, nor a subset of, those in the economic union should be regarded as nonresidents of the economic union.[9]

Recording some specific transactions related to regional organizations

A5.26 The common budget of the union that is managed by a regional organization may be funded by different types of sources. The main sources are taxes and grants. For example, in the EU, the majority of EU budget resources is based on gross national income (GNI) and value-added tax revenues of individual countries.

A5.27 Direct levies for the account of the common budget—in practice often collected by member governments—are recorded as taxes of the common budget in accordance with the tax attribution principle (see paragraphs 5.33–5.40). Such revenue cannot be considered as part of government revenue of the member economy because they are collected by the member economy on behalf of the union. In accordance with the accrual basis of recording, the collection of the taxes will give rise to *other accounts payable* (3308) for the collecting member government, and *other accounts receivable* (3208) in the accounts of the regional organization, at the time the taxes accrue to the international organization. These tax flows must be recorded gross of any collection fees. If there are specific provisions related to collection fees (based on actual expenses, a forfeited amount, or a percentage), the latter should be considered as revenue generated by *incidental sales by nonmarket establishments* (1423) in the accounts of the member government, and an expense for *use of goods and services* (22) in the accounts of the regional organization.

A5.28 The union agencies may also be financed directly by contributions from the members, according to agreed criteria. Such contributions may be agreed portions of certain taxes and fees. These taxes and other revenues are attributed to the member governments and are not collected on behalf of the union, but for their own account. Therefore, the respective member governments record the full collectable amount as taxes and other revenues in their accounts, and a subsequent grant payable to the regional organization.

A5.29 Expense of the regional organization covers its administrative and operating costs, but also costs associated with executing common policies for the benefit of the members of the union. Administrative and operating costs impact mainly the economy where the regional organization is physically located. These amounts are usually not significant and, where a common budget is developed, they represent a small portion of total expense of the regional organization. Of these, a small part could possibly be transactions with the host government and should be recorded in the government accounts of the member in accordance with the economic nature of the transaction.

A5.30 Expense associated with executing common policies for the benefit of the members of the economic union impacts specific categories of beneficiaries in the respective member countries. To accurately record these transactions, the ultimate beneficiary and nature of the expense should be identified regardless of the practical and/or institutional arrangements for channeling the amounts payable from union agencies to these economic beneficiaries.

- Where such expenses from the union budget managed by the regional organization cover costs directly benefiting the recipient member government units (in the context of a given program—e.g., projects for infrastructures, research and development), revenue in the form of *grants from international organizations* (132) should be recorded in the member government accounts when all conditions have been met.
- Where member government units act as agents on behalf of the union, all transactions conducted

[9] See paragraphs 2.6–2.21 for a description of the use of the residence criteria in GFS.

on behalf of the union should, over time, be neutral on the member government revenue and expense.[10] For example, if the member government receives amounts from the regional organization to distribute on behalf of the union to beneficiaries, only transactions in financial assets and liabilities should be recorded in the member government accounts. The national government records the incurrence of a liability for amounts received, classified as *other accounts payable* (3308) that are distributable to other economic beneficiaries. The actual distribution to the ultimate beneficiary reduces this account payable by the government unit. For the beneficiary, these amounts should be recorded as the appropriate category of revenue receivable—usually some kind of transfer receivable such as *grants* (13), *subsidies* (14411), or *transfers not elsewhere classified* (144). The regional organization would record the amounts payable in the corresponding categories of expense such as *grants* (26), *subsidies* (25), or *transfers not elsewhere classified* (282).

- Amounts distributable by government, acting as an agent for the union, may take the form of reimbursements claimed by the final beneficiary. These claims are usually on the basis of documents evidencing spending by the beneficiaries. Any amounts distributed by government on the basis of such claims by the beneficiaries give rise to a financial claim of government on the regional organization, notably *other accounts receivable* (3208), while the regional organization incurs a liability, *other accounts payable* (3308). Where the member government is acting on behalf of nongovernment units, it is possible that the member government anticipates repayments from the common union budget. Such anticipated repayments are also recorded as transactions in financial assets and liabilities, notably *other accounts receivable/payable* (3208/3308) between the government and the regional organization.
- When governments' claims on the regional organization for amounts reimbursed on the regional organization's behalf are not fully redeemed by the regional organization, the member government's recording depends on the circumstances:
  - The member government could decide to cover the expense made by final beneficiaries from the member government budget sources. The expense is recorded with a counterpart entry in the reduction of the claims on the regional organization. Such an expense should be classified according to the economic nature of the transfer—usually some type of transfer payable such as *grants* (26), *subsidies* (25), or *transfers not elsewhere classified* (282). The time of recording the expense is determined by the time of the government decision to cover the expense.
  - The regional organization could indicate that a reimbursement by the member country should not have been made. The member government could recover the funds from the beneficiaries, or record the amount as expense of the member country.

A5.31 Full coverage of data for an economic union requires that these data include data from member countries as well as from the union agencies. Furthermore, to consolidate the accounts of the union—that is, eliminating all the flows and stock positions among member countries and the union agencies—sectors of the counterparties should be available for data on transactions, stock positions, and other economic flows. Compiling union accounts will allow an analysis of the whole union's flows and stock positions. This will also allow monitoring of the contributions of individual members to the union and measure the impact of the union on each member economy through redistribution mechanisms.

Monetary and Currency Unions

A5.32 A **monetary union** exists where there is the presence of a single monetary policy among economies, established by an intergovernmental legal agreement. In a monetary union, the decision-making related to monetary policy is transferred to a centralized body. There are different models—for instance, a single central bank for the whole union (possibly having only branches in the national economies)[11] or a federal-like system where national central banks

[10] In some cases, by agreement, a part of the expense, in the context of programs managed at the union level, may be financed by the member government; for this portion of the expense the impact on the member government finances will not be neutral.

[11] This arrangement is applied in the case of the West African Economic and Monetary Union (WAEMU) and the Economic and Monetary Community of Central Africa (CEMAC). WAEMU includes Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. CEMAC includes Cameroon, the Central African Republic, Chad, the Republic of Congo, Equatorial Guinea, and Gabon.

still exist, keeping some specific activities not directly linked to monetary policy.[12]

A5.33 However, the core characteristic of a monetary union is that the monetary policy is exclusively conducted at the union level. There is a single set of intervention rates, and the national central banks (or branches) may in no way autonomously adjust the monetary policy to national conditions. They may, however, perform some specific tasks in the implementation process of the monetary policy, such as the management of collaterals that may be required for access to central bank liquidity and the delivery of banknotes in the different economies.[13]

A5.34 If a monetary union replaces national currencies with a common currency, they form a currency union. For statistical purposes, a **currency union** is defined as a union to which two or more economies belong and that has a regional central decision-making body, commonly a currency union central bank, endowed with the legal authority to conduct a single monetary policy and issue the single currency of the union.

A5.35 Monetary and currency unions do not raise specific issues for GFS, even in cases where a single, common central bank is a substitute for a domestic central bank in the context of the relationships between central bank and government. The currency union central bank is an institutional unit in its own right, owning assets and incurring liabilities, and is nonresident of any currency union member economy but resident in the currency union (see paragraph 2.21). Distributions of profits of such regional central banks should be classified as income on the financial asset to which member economies' subscriptions are attributed.

Using the *GFSM* Statistical Framework under Regional Arrangements

A5.36 Participation in regional economic arrangements may require some cooperation and coordination of fiscal policies. However, it is only in the context of monetary unions where such cooperation and coordination are generally viewed as an indispensable element for ensuring its optimal functioning.

A5.37 In a monetary union, there is one single monetary policy that interacts with fiscal policies primarily carried out at the national level of each member country. At the same time, fiscal conditions may impact monetary policies.

A5.38 Therefore, to conduct proper monetary policies, monitor macroeconomic imbalances in member economies, and consolidate accounts for the union, fiscal statistics should be compiled in a consistent manner for all members of the union. Consistency in compiling fiscal data will allow the accurate measurement of differences in aggregates such as the tax burden, the share of government expense to GDP, the respective weight of different types of taxes in the total tax burden, the composition of expense, the implementation of budgetary rules, etc.

A5.39 Where coordinated fiscal policies are agreed in a union, the scope of such fiscal cooperation/coordination has consequences for the statistical reporting framework. Fiscal targets may be defined and monitored at the union level. Examples of such key variables are the level of *gross/net debt*, *operating balance*, *net lending/net borrowing*, or, in the case of the cash basis of recording, the *cash surplus/deficit*. Quantitative targets (or "reference values") may be set at the union level, and these targets may be expressed as nominal amounts or ratios to gross domestic product.[14]

A5.40 Coordinated fiscal policies may also call for more disaggregated data. For instance, the calculation of primary balances requires that data on interest income and expense are available. Similarly, eliminating the influence of the business cycle on the level of revenue and expenditure by calculating the structural balance may require additional information (see annex to Chapter 4). In addition, measuring the outcome of specific economic objectives may require data on very detailed types of expenses, such as those related to social development goals or the government employee wage bill. The statistical framework for a union should be designed with a sufficient degree of detail, and should be applied by all members in a fully consistent manner, in order to capture the relevant information

[12] This arrangement is applied in the case of the European Monetary Union with the "Euro system" made up of the national central banks of the EU member states.

[13] See the *BPM6*, Appendix 3.

[14] In the case of the West African Economic and Monetary Union (WAEMU), these quantitative targets, called "convergence criteria," are important for the multilateral surveillance exercised by the WAEMU Commission to ensure the convergence of the economic performance and policies of the member countries.

needed to monitor the progress with the implementation of fiscal coordination objectives.

Harmonization Requirements for GFS in Economic or Monetary Unions

A5.41 The harmonization of GFS in the context of economic and monetary unions is important. It may be useful to introduce guidelines additional to the *GFSM* for economic and monetary unions. Additional guidelines could provide "rulings" or "fiscal policy rules" on specific transactions, aggregates, or balancing items that may occur in the member countries of the regional arrangement. It may also be useful to further clarify existing guidelines on concepts and definitions where it is observed that countries in a union interpret these guidelines differently, or application of these guidelines poses practical problems for members. Some examples of harmonizing regional arrangements are presented in Box A5.1.

A5.42 A common reason for fiscal data not being comparable across countries is the delineation of the general government sector. In most countries, there are borderline cases relating to units selling goods or service as their principal activity with various levels of financial support from government units (in the form of *subsidies*, *grants*, and *other current transfers*). Agreement on precise guidelines for the classification and sectorization of such units is an important factor in ensuring comparable data. When in doubt about these classifications, an appropriate dispute resolution mechanism should exist. In this context, the concept of economically significant prices might be clarified with a practical perspective. It is also recommended to publish institutional lists of general government and public sector units of individual countries to show transparently which units are included in the general government and public sectors.

A5.43 Another possible reason for data not being comparable across countries is the time of recording of economic events. In many countries, government units still apply the cash basis of accounting. International statistical guidelines and accounting standards have adopted the accrual basis of recording. Although an increasing number of governments have adopted accrual recording, many countries still use various mixes of source data based on cash- and accrual-based accounts. The differences in time lags between the economic events and the associated cash flows could distort the assessment of fiscal stance during a given year if a cash basis of accounting is mainly used. It is, therefore, preferable that fiscal targets include both cash and accrual measures. If no accrual source data are available, the countries in a union should agree on the methodology used to estimate the adjustments to convert cash data into accrual data. In practice, the adjustments required are especially relevant for *taxes*, *social contributions*, and *interest*.

A5.44 Attaining comparability in the measurement of *gross* and *net debt* across all countries in an economic or monetary union may be difficult in practice. In this *Manual* and the *PSDS Guide*, all debt instruments issued by government units are considered to be part of the coverage of debt (see paragraphs 7.236–7.245). Where the definition of gross and net debt in a union departs from international agreed definitions of debt, the data should be clearly labeled, and any departure from the required coverage and standard definition should be disclosed to the users of the data. Debt instruments excluded from the union definition of debt could be shown in memorandum items to allow comparability between data of the union members and other countries and to avoid the problem of "hidden" liabilities.

Box A5.1 Regional Arrangements in the Harmonizing of GFS

Customs Union of Belarus, Kazakhstan, and Russian Federation

The Customs Union between Belarus, Kazakhstan, and Russia came into existence in 2010. Common trade controls and external tariffs exist, and two regional organizations make decisions related to the union. These agencies are financed by transfers from member countries. Customs duties collected at the first point of entry are redistributed to members via special accounts of members in the respective treasuries and the central banks. While no specific harmonization effort for fiscal data was implemented, the importance of consistency in recording trade data and valuations, and recording collection and redistributions related to customs collections is being considered by the member countries.

Eastern Caribbean Currency Union

In 2012, a proposal to migrate from the existing reporting format (based on the *GFSM 1986*) to a presentation highlighting the integration of stocks and flow as recommended by the *GFSM 2001* was endorsed by the Eastern Caribbean Central Bank and the member countries.

European Union

The excessive deficit procedure, defined by the Maastricht Treaty (article 104) and in force in the European Union since 1994, is a well-known regional arrangement in the compilation of fiscal data. The conceptual references for the debt and deficit aggregates are based on the *European System of Accounts (ESA)*. The compilation practices and reporting requirements are legally binding in the European Union; regulations adopted by the European Commission form the basis for reporting. Eurostat issued the *Manual on Government Deficit and Debt* to aid member states in the application of *ESA* principles. This *Manual* addresses the most common statistical issues raised in the EU.

Mercosur

At the 40th meeting of Mercosur economy ministers and central bank chairmen in December 1998, the need to have statistical data based on a common methodology in Mercosur was acknowledged. This common methodology materialized in 2000, as a result of the member countries' decision to coordinate their macroeconomic policies with joint convergence targets. The preparation of harmonized statistics was agreed on, starting with six indicators: nominal fiscal balance of the national government, primary fiscal balance of the national government, net debt of the national government, net debt of the consolidated public sector, change of net debt of the consolidated public sector, price level, and the construction of a new indicator of the structural fiscal balance. Further efforts have been made since then in order to harmonize the Mercosur statistics according to international standards.

South African Development Community (SADC)

In 2010, participants from member countries of SADC endorsed a proposal by the SADC Secretariat to adopt the *GFSM 2001* presentation of fiscal statistics, beginning in 2012. Preliminary work on converting the historical SADC fiscal database (based on the *GFSM 1986*) was completed, and countries made a commitment to begin compiling a *Statement of Sources and Uses of Cash* and a *financial balance sheet*.

West African Economic and Monetary Union (WAEMU) and Economic and Monetary Community of Central Africa (CEMAC)

In June 2009, the Council of Ministers of WAEMU adopted five regulations (directives) related to public finance management. One of the directives is related to the common reporting format of government fiscal operations known as Tableau des operations financières de l'État (TOFE). The TOFE directive is based on the *GFSM 2001* methodology. The long-term objective of this directive is for member countries to produce comparable general government data for both flows and stocks. In December 2001, similar directives, including a TOFE directive, were adopted by the Council of Ministers of the CEMAC. In both monetary unions, a transition period was determined to fully implement the directives. (At the time of publishing this *Manual*, CEMAC was undertaking a revision of its public finance directives, one of which is related to common reporting formats for government fiscal operations.)

APPENDIX

6 GFS and International Public Sector Accounting Standards

This appendix provides a generalized description of the relationship between the government finance statistics reporting guidelines and the International Public Sector Accounting Standards.

Introduction

A6.1 This *Manual* recognizes the close relationship between guidelines for reporting GFS and accruals-based public sector accounting standards. Many of the accounting rules, concepts, and procedures used in macroeconomic statistics are based on those used in public sector accounting. International developments in statistical methodology and accounting standards for the public sector have been coordinated over recent years, to improve government reporting and fiscal transparency. A government's preparation of fiscal statistics that meet the guidelines set out in this Manual is facilitated by application of high-quality accrual accounting standards, such as International Public Sector Accounting Standards (IPSASs). This is because a comprehensive accruals accounting system greatly improves the source data necessary for compilation of GFS. Governments should be aware of the scope that exists for them to design their Chart of Accounts so that data capture works efficiently for the dual purpose of generating GFS and accounting information.

A6.2 The Task Force on Harmonization of Public Sector Accounting, created in 2003, was the first formal initiative at the international level with the objective to harmonize statistical guidelines and accounting standards. The Task Force's major outputs were: (i) guidance in the area of public sector statistics that informed the update of the *2008 SNA*, and (ii) a research report that systematically documented similarities and differences between the two reporting systems. International organizations and the International Public Sector Accounting Standards Board (IPSASB) continue efforts to align guidelines as far as possible, while identifying and reconciling unavoidable differences that may continue to exist.

A6.3 Because both IPSASs and statistical reporting guidelines are dynamic and change over time, this appendix focuses only on the basic principles that explain why the two reporting frameworks differ. Detailed information on specific differences can be found on the IPSASB's website and through reference to individual IPSASs and detailed chapters of the *GFSM 2014*.

A6.4 This appendix focuses specifically on the links between GFS and IPSASs, because IPSASs are international standards and recognized as best practice for public sector financial reporting. IPSASs form a comprehensive set of full accruals accounting standards. Public sector accounting standards developed in many national jurisdictions are based on IPSASs. This means that comparison with IPSASs provides a clear, comprehensive basis for a GFS reporting guidelines comparison with accounting standards, while leaving scope for those who apply other, non-IPSAS-based, full accruals accounting standards to adjust this overview for their own national differences.

Comparison of IPSASs and GFS Reporting Guidelines

A6.5 There is considerable overlap between IPSASs and GFS reporting guidelines. This section provides a generalized description of the relationship between IPSASs and the GFS reporting guidelines, focusing on the conceptual differences that explain why the two reporting frameworks differ in certain areas. It provides a summary of how to reconcile these two very similar yet—in important ways—different sets of information. If suitable adjustments are made to address the differences described here, IPSAS-based

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financial reporting information can be used as a high-quality source for the data necessary for GFS reports. Independent audit of IPSAS-based financial reports enhances their reliability for GFS purposes.

A6.6 The description in this appendix is the same as the one included in Section 2 of the IPSASB Consultation Paper, *IPSASs and Government Finance Statistics Reporting Guidelines*.[1] Readers are referred to the *GFSM 2014* or the latest edition of the *Handbook of International Public Sector Accounting Pronouncements* for more detailed explanations of the applicable reporting guidelines and standards.

A6.7 The information provided here is at a high level, and focuses on identification of differences between the two frameworks. It is not designed to provide detailed current information about either IPSASs or GFS reporting guidelines. Detailed information on specific topics can be found through reference to individual IPSASs, the *2008 SNA*, the *ESA 2010*, and the *GFSM 2012*. Both IPSASs and GFS reporting guidelines are dynamic and change over time. IPSASs, for example, have annual improvements, which typically impact on a number of different standards. The IPSASB's Conceptual Framework Project may also result in changes to IPSASs. For the most current IPSASs and detailed information on them, it is important to refer to the Standards themselves.

A6.8 Differences between IPSASs and GFS reporting guidelines are of two main types: (i) underlying conceptual differences, and (ii) presentation and terminology differences.

Conceptual Differences between IPSASs and GFS Reporting Guidelines

A6.9 The conceptual differences between IPSASs and GFS reporting guidelines are discussed under the following headings:

- Objectives
- Reporting entity
- Recognition criteria for some assets, liabilities, revenue, and expense
- Valuation (measurement) differences for certain types of assets and liabilities
- Revaluations and other volume changes.

[1] See www.ifac.org/publications-resources/ipsass-and-government-finance-statistics-reporting-guidelines.

A6.10 Box A6.1 compares IPSASs and GFS reporting guidelines in these areas.

Objectives

A6.11 GFS reporting guidelines and IPSASs have different objectives for the two sets of financial information produced. GFS reports are used to: (i) analyze fiscal policy options, make policy, and evaluate the impact of fiscal policies, (ii) determine the impact on the economy, and (iii) compare outcomes nationally and internationally. The focus is on evaluating the impact of the general government and public sector on the economy, and the influence of government on other sectors of the economy. The GFS reporting framework was developed specifically for public sector input to other macroeconomic accounts, although a range of countries adopt GFS reporting for their fiscal reporting, and for measuring compliance with fiscal rules. By contrast, IPSAS-based financial statements are used to: (i) evaluate financial performance and position, (ii) hold management accountable, and (iii) inform decision-making.

A6.12 Although the two sets of financial information necessary to meet these different objectives have many similarities, the different objectives do result in some fundamental differences in how and what information is reported. For example, in GFS reports, one distinction for transactions in financial assets and liabilities is whether the counterparty of the transactions is a resident or nonresident. In contrast, IPSAS-based financial statements report these transactions according to whether they are current or noncurrent assets or liabilities, with classification also in terms of their maturities and supplementary information provided on risks.

Reporting entity

A6.13 One of the fundamental differences between GFS reporting guidelines and IPSASs relates to the definition of the reporting entity and the process of consolidation (collectively often referred to as "identification of the reporting entity boundary"). Under GFS reporting guidelines, as described in Chapter 2 of the *GFSM 2014* and in Chapter 4 of the *2008 SNA*, institutional units are aggregated and consolidated into statistical sectors and subsectors. The focus of statistical reporting is primarily on consolidated sectors and subsectors. Although it is theoretically possible to

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Box A6.1 Summary Comparison of GFS and IPSASs

There is considerable commonality between IPSAS and GFS reporting guidelines. There are also some important conceptual differences within each area. Presentation and terminology differences are described in paragraph A6.34.

Government Finance Statistics	IPSASs
Objectives	
Evaluate economic impact: Government finance statistics are used to (i) analyze and evaluate the outcomes of fiscal policy decisions, (ii) determine the impact on the economy, and (iii) compare national and international outcomes. The GFS reporting framework was developed specifically for public sector input to other macroeconomic datasets.	Evaluate financial performance and position: General purpose financial statements are used to (i) evaluate financial performance and financial position, (ii) hold management accountable, and (iii) inform decisionmaking by users of the general purpose financial statements.
Reporting entity	
Institutional units and sectors: The statistical reporting unit is an institutional unit, defined as an entity that is capable, in its own right, of owning assets, incurring liabilities, and engaging in economic activities in its own name. The reporting entity may be an institutional unit, but the primary focus is on a group of institutional units (consolidated sector or subsector). Control and the nature of economic activities determine consolidation and the scope of the reporting entity. The general government sector does not include institutional units primarily engaged in market activities.	Economic entity and consolidation: The reporting unit for financial statements is an economic entity, defined as a group of entities that includes one or more controlled entities. Control is the main criterion that determines consolidation. The whole of the government reporting entity, at the highest level of consolidation, may include, in addition to government departments, subnational bodies such as state governments, and government-owned businesses that primarily engage in market activities.
Recognition criteria	
The key difference relates to some liabilities.	
Economic events recognized: GFS recognize economic events on the accrual basis of recording when economic value is created, transformed, exchanged, transferred, or extinguished. To maintain symmetry for both parties to the transaction, some provisions recognized in IPSAS reporting may not be recognized under GFS reporting. While not recognized, those provisions may instead be disclosed as GFS memorandum items, as is the case, for example, with exposures to explicit one-off guarantees and provisions for doubtful debts.	Past events with probable outflows recognized: IPSASs recognize liabilities, including provisions, when a past economic event has taken place; the amount can be reliably estimated; and future outflows are probable. These factors allow, in certain cases, recognition of items that do not involve a counterparty recognizing a symmetrical amount. For example, so long as criteria are met, IPSASs require recognition of restructuring provisions.
Valuation (measurement)	
Current market prices: Current market prices are used for all flows and stocks of assets/liabilities, but allowance is made for the use of alternative valuation methods where an active market does not exist.	Fair value, historic cost, and other bases: Fair value, historic cost, or other bases are used for the measurement of assets and liabilities. Similar assets and liabilities must be valued consistently and the bases disclosed. Where an entity reports an item using historic cost, IPSASs often encourage disclosure of fair value if there is a material difference between the reported cost and the item's fair value. Often IPSASs also allow entities to choose between fair value and historic cost.
Revaluations and other value changes	
Record all revaluations and changes in volume in the Statement of Other Economic Flows: Separating all these "other economic flows" is viewed as useful for fiscal analysis, on the basis that revaluations and changes in volume do not represent fiscal policy decisions directly within the control of government. GFS distinguishes between value changes and volume changes.	Realized and unrealized gains and losses: Some gains or losses due to revaluations or changes in volume of assets are reported in the Statement of Financial Performance, while others are reported directly in the Statement of Changes in Net Assets/Equity. Some other gains and losses—for example, market value changes for property, plant, and equipment carried at historic cost—are not reported at all.

Note: IPSASs = International Public Sector Accounting Standards.

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create GFS reports for individual institutional units, separate statistical reports for individual units are usually not disseminated. Each individual entity in the economy is analyzed with respect to its ability to hold assets and liabilities and exercise full economic ownership over them, to determine if it can be considered an institutional unit.

A6.14 Those government-controlled units that are primarily engaged in nonmarket (including redistributive) activities are included within the general government sector. Although all resident government-controlled entities, including public corporations engaged in market activities, are included within the public sector, nonmarket activities determine the delineation of the general government sector, as a distinct subsector within the public sector. The general government sector does not include institutional units primarily engaged in market activities. The general government sector presents consolidated data, which means that transactions and stock positions between general government sector units are eliminated.

A6.15 In IPSASs, the "reporting entity" is a government or other public sector organization, program, or identifiable activity that prepares general purpose financial reports (GPFRs). Within a jurisdiction, reports may be prepared on either a compulsory or voluntary basis. A key characteristic of a reporting entity is that there are users who depend on GPFRs for information about the entity. A reporting entity may be a "group reporting entity."

A6.16 A group reporting entity consists of two or more separate entities that present GPFRs as if they are a single entity. A group reporting entity is identified where one entity has the authority and capacity to direct the activities of one or more other entities so as to benefit from the activities of those entities. It may also be exposed to a financial burden or loss that may arise as a result of the activities of entities whose activities it has the authority and capacity to direct. If these conditions are met, then the entity is described as a "controlling entity," with control defined according to the principle of exercisable power to govern the financial and operating policies of another entity so as to benefit from its activities.

A6.17 The requirement to consolidate entities differs in IPSASs and GFS. Under IPSAS 6, Consolidated and Separate Financial Statements, consolidated financial statements are the financial statements of a group of entities presented as those of a single entity. This means that a controlling entity will consolidate the financial statements of all of its controlled entities, irrespective of whether they are: (i) resident units, (ii) market/nonmarket entities, or (iii) the IPSAS equivalent of a market entity—that is, a "government business enterprise" (GBE). This contrasts with the general government sector consolidation approach, described earlier, where nonresident and resident market institutional units are included as a single line showing net investment, rather than fully consolidated into the general government sector.

A6.18 Nevertheless, IPSASs provide for the disclosure of financial information about the general government sector. IPSAS 22, Disclosure of Financial Information about the General Government Sector, specifically sets aside the application of IPSAS 6 while retaining the application of all other IPSASs. This allows—though does not require—an aggregate presentation that does not consolidate controlled interests in entities in other sectors.

A6.19 IPSASs also have a requirement (see IPSAS 18, Segment Reporting) that a reporting entity provides disaggregated financial information about each of its segments. The information provided includes segment assets, liabilities, revenue, and expense. Segments are usually defined either in terms of geographical regions or services. GFS include data on expenditure by function of government.

Recognition criteria

A6.20 GFS reporting guidelines and IPSASs both aim to recognize economic events in the period in which they occur. Neither GFS reporting guidelines nor IPSASs allow the application of precaution or prudence to justify the reporting of provisions that anticipate future possible events. However, they differ in their recognition criteria for certain liabilities, because GFS treats uncertainty about future economic outflows differently from IPSASs. The effect of this difference is that IPSASs require more items to be recognized as liabilities than does GFS.

A6.21 In macroeconomic statistics, a liability is not recognized until a claim by the counterparty exists. Maintaining symmetry in the macroeconomic statistical system is a fundamental principle. Therefore,

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GFS guidance is that probable exposures such as contingencies and one-off guarantees should be disclosed in memorandum items, until such time as these are called. Some liabilities for government employee benefit payments and certain guarantee schemes are not contingencies, but instead are recognized as liabilities. IPSASs require that where there is a present obligation and an outflow will probably occur, the amount should be estimated and, if it can be reliably estimated, should be recognized as a liability in the statement of financial position (balance sheet).

A6.22 The key area of difference is that of "provisions," which IPSASs define as liabilities of uncertain timing or amount (see IPSAS 19, Provisions, Contingent Liabilities and Contingent Assets, paragraph 18). Provisions include obligations for which there is no counterparty—for example, provisions for restructuring and environmental restoration. Provisions may also involve an estimate of economic outflow for a group of obligations (e.g., warranties), on the basis that it is probable that the entity will have to meet a claim by a proportion of the overall group.

A6.23 This difference with respect to liability recognition will have consequential differences for expense and asset recognition. For example, recognition of a provision for restructuring will, under IPSASs, require recognition of a related expense, because there is no compensating increase in asset value. Recognition of a provision for eventual site restoration during construction of a landfill will, under IPSASs, be capitalized, adding to the overall investment in the asset. Under IPSASs, it is also possible for an increase or decrease in the amount of a provision to occur due to an improved estimate. An increase could result in expense recognition, while a decrease could result in revenue recognition. GFS would not recognize either these changes in assets/liabilities or the resulting revenue/expense until a point in the process where another party can be identified as receiving value.

A6.24 GFS and IPSASs apply the same broad recognition criteria to assets, with the result that, with a few exceptions such as assets arising from oil and gas exploration, the same financial and nonfinancial assets are recognized. Revenue related to asset recognition is generally also reported at the same point. But other differences, such as asset measurement differences, can affect the asset value recognized and therefore the amount of revenue recognized. The timing of revenue recognition may differ due to differences between when GFS and IPSASs consider either that related obligations have been discharged or that related conditions have been removed.

Valuation (measurement) bases

A6.25 The valuation principles in GFS and IPSASs provide scope for the majority of assets and liabilities to be valued on the same basis—that is, at current market values, except where IPSASs require the use of historic cost or some other measurement basis. Both GFS and IPSASs allow proxies for current market value. For example, depreciated replacement cost can be used as a proxy for the current value of specialized assets, if no market price information is available.

A6.26 The general valuation principle of GFS is to use current market prices for all assets, liabilities, and related value changes—that is, for all stocks and flows. As explained in Chapter 3 of the *GFSM 2014*, where an active market does not exist, the GFS reporting guidelines recommend the use of nominal values for financial instruments, and an estimate of the value of other assets/liabilities. These estimates could be based on: (i) prices of similar products in similar markets, (ii) the costs of production of similar assets at the reporting date, or (iii) the discounted present value of expected future returns on the asset. (See also paragraphs 3.107–3.129 for a complete discussion of the valuation principles of GFS.)

A6.27 IPSASs allow, but generally do not require, the use of "fair value" for many, but not all, assets, liabilities, and related value changes. IPSASs define "fair value" as the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's-length transaction. This is similar to the basis for market price used in GFS. IPSASs also allow assets and liabilities to be valued at historic cost.

A6.28 Under IPSASs, financial liabilities (with some exceptions) and financial assets that are (i) held-to-maturity investments, (ii) loans and receivables, or (iii) investments in equity instruments that cannot be measured at fair value because fair value cannot be determined reliably are measured at either cost or amortized cost, usually minus impairment losses (see IPSAS 29, Financial Instruments: Recognition and

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Measurement). Other marketable financial instruments are measured at fair value. Employee-related liabilities and long-term provisions other than financial instruments are measured at net present value, which may approximate market price. Property, plant, and equipment (PP&E) and intangible assets can be valued either at fair value or at depreciated historic cost. Inventory is valued at cost, with a requirement to reduce to net realizable value, if the inventory's net realizable value falls below cost. IPSASs allow investment properties to be measured at fair value, except for those for which a fair value is not reliably determinable on a continuing basis (see IPSAS 16, Investment Property, paragraph 62). Biological assets are valued at fair value minus costs to sell, provided that fair value can be reliably measured.

A6.29 Where an item is reported at its historic cost, IPSASs often encourage or require disclosure of fair value, if there is a material difference between the item's historic cost and its fair value. For example, this is the case for property, plant, and equipment, intangible assets, and investment properties. In these three cases, the use of historic cost is optional under IPSASs. This means that governments can choose to value such assets at fair value. If an entity chooses fair value, then an initial valuation is made at cost, followed by subsequent measurements at fair value. Fair value measurement is not necessarily done annually. Interim measurements will be at the fair value determined at the most recent revaluation minus accumulated depreciation or amortization. While the choice of fair value should, theoretically, align IPSAS measurement with GFS measurement, other factors can, in practice, result in differences. Statisticians' measurement practices can involve sampling, indexing to inflation, and other estimation techniques that can generate different values from those produced by financial accountants.

A6.30 IPSASs require disclosure of the valuation basis for assets and liabilities. This means that IPSAS information makes clear whether a current market price has been used to value assets and liabilities. If historic cost has been used to value assets or liabilities, then the IPSAS source data will need to be adjusted from historic cost to current market price before it can be used for GFS. The adjustment will be straightforward where IPSASs already require disclosure of a market price valuation, which may be the case for some types of assets and liabilities where fair value is materially different from cost.

Treatment of revaluations and other volume changes

A6.31 GFS differentiates between transactions (economic flows by mutual agreement) and other economic flows. GFS records all holding gains and losses (revaluations) and other changes in the volume of assets and liabilities in the *Statement of Other Economic Flows*, which separates them from transactions. This distinction is useful for fiscal analysis. Other economic flows represent economic value gained or lost due to events that are not directly under the control of the government.

A6.32 IPSASs require the majority of changes in value to be recorded in the Statement of Financial Performance. Gains and losses recorded in the Statement of Financial Performance are then included in the total net amount that flows from the Statement of Financial Performance into the Statement of Changes in Net Assets/Equity. As a result, the Statement of Changes in Net Assets/Equity reports the total impact of all recognized value changes. Some unrealized gains and losses are not allowed to be recorded in the Statement of Financial Performance and must, instead, be recorded directly in the Statement of Changes in Net Assets/Equity. The main items are foreign exchange gains and losses related to foreign subsidiaries, and revaluations of property, plant, and equipment.

A6.33 Traditionally, the distinction between realized and unrealized gains/losses was viewed as the main difference between items recorded in the Statement of Financial Performance versus those excluded from this statement and, instead, recorded only in the Statement of Changes in Net Assets/Equity. The Statement of Financial Performance was viewed as showing realized gains/losses, while the Statement of Changes in Net Assets/Equity showed unrealized gains/losses. However, IPSASs now require many unrealized value changes to be included in the Statement of Financial Performance. For example, value changes due to unrealized revaluations of employee liabilities and impairments are included in the Statement of Financial Performance. The two main exceptions recorded in the Statement of Changes in Net Assets/Equity (foreign exchange fluctuations and revaluations of property, plant, and equipment, and intangible assets) are both unrealized, but they are also viewed as potentially obscuring an entity's financial performance, partly because they are viewed as outside of management's control, and

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partly because gains in one year may be reversed in subsequent years.

Presentation and Terminology Differences

A6.34 Presentation and terminology differences between IPSASs and GFS reporting guidelines also exist. As a result, the GFS and IPSAS financial statements and disclosures look different, even though the information reported is largely the same, apart from the recognition and measurement differences discussed elsewhere in this paper. This subsection describes the main presentation and terminology differences between GFS guidance and IPSAS requirements.

A6.35 The main presentation and terminology differences are as follows:

- Different names for the IPSAS equivalents of the GFS statements.
- The types of classification structures included in the balance sheet (statement of financial position), operating statement (statement of financial performance), and cash flow statement for the two reporting frameworks differ, which, in some cases, also necessitate differences in terminology.
- GFS sets out a minimum level of detail for a comprehensive list of standard line items that all entities must report in their GFS statements, while IPSASs establish a minimum set of standard line items, while providing principles and guidance on further line items that a reporting entity may need to report.
- The way in which additional information about the data is disclosed differs in the two frameworks.
- The definition and/or value of key statement totals (such as total assets, net worth, total revenue, and surplus/deficit) may differ.

A6.36 Each of these main differences is discussed in paragraphs A6.37–A6.46.

Different names for statements

A6.37 The IPSAS equivalents to the GFS statements have different names (see IPSAS 1, Presentation of Financial Statements). The IPSAS equivalent to the GFS Balance Sheet is a "Statement of Financial Position," although "Balance Sheet" and "Statement of Assets and Liabilities" are acceptable alternatives under IPSASs. The IPSAS equivalent to the GFS Statement of Operations is a "Statement of Financial Performance," although "Income Statement," "Statement of Revenues and Expenses," "Operating Statement," and "Profit and Loss Statement" are acceptable alternatives under IPSASs. The GFS Statement of Other Economic Flows is partly captured in the IPSAS "Statement of Changes in Net Assets/Equity" and partly in the IPSAS "Statement of Financial Performance." The IPSAS equivalent to the GFS Statement of Sources and Uses of Cash is called a "Cash Flow Statement."

A6.38 IPSAS financial statements may also include a "Comparison of Budget and Actual Amounts," for which there is no GFS equivalent. This information must be provided by all entities that publish an approved budget (see IPSAS 1, Presentation of Financial Statements and IPSAS 24, Presentation of Budget Information in Financial Statements). It is presented either as a separate financial statement or as additional columns in the financial statements. A separate statement must be used when the budget is on a different basis from the actual reported results. For example, if the budget is prepared on a cash basis, while the results reported in financial statements are prepared on an accrual basis, the Comparison of Budget and Actual Amounts Statement is separate. If they are prepared on the same basis, the budgeted amounts can be fully integrated into the financial statements through the use of additional columns, and a separate statement is not necessary.

Classification structures

A6.39 The GFS reporting guidelines classify and group items in its statements differently from IPSASs. At the highest level, the terminology used for classifications is the same—for example, assets, liabilities, revenue, and expense. However, within these items there are conceptual differences and differences in the structure of subclassifications. The differences reflect the different objectives of the two information sets. For example, IPSASs require that assets and liabilities be presented as current or noncurrent, or that a liquidity structure be followed. This is important for assessing an entity's liquidity and solvency. GFS does not make this distinction in its core statements, but allows a supplementary table on the maturity structure of government's financial assets and liabilities to be compiled. However, GFS requires that assets be presented as financial or nonfinancial, which IPSASs do not require.

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A6.40 For GFS, standardized economic and functional classifications serve the specific objectives of: (i) comparability of the accounts of various government entities and subsectors, and (ii) international comparability. These classifications are devised to evaluate the impact of the general government and public sector on the economy as a whole, and to identify government's involvement with other sectors. For example, financial assets and liabilities are classified and presented according to whether they are domestic or foreign instruments, to allow an assessment of the government's interaction with the rest of the world. Such a classification is important because fiscal policy decisions on domestic versus foreign instruments are based on different criteria, and also because this classification allows the derivation of a government's impact on the balance of payments of the country. IPSASs do not require this distinction. The standardized GFS presentation also allows the calculation and comparison of analytical measures of fiscal policy, such as the primary balance, tax incidence ratio, expenditure by function, etc.

A6.41 Counterparty information is collected for both GFS and IPSAS reporting. The GFS economic classification requires counterparty information for flows and stocks (balance sheet) to be reported as standard line items. These identify items for consolidation, and establish the linkages with other sectors of the economy. IPSASs generally do not require counterparty information to be reported on the face of the financial statements or their related notes. However, IPSASs do require counterparty information to be collected: (i) by a parent entity to identify intra-group transactions, so that the entity can eliminate those in preparing the consolidated financial statements, and (ii) by a subsidiary to identify transactions with the parent entity and other entities that are under common control, so that information about those transactions can be disclosed in the notes. Counterparty information can also be important for risk-related note disclosures and related party disclosures.

Minimum level of detail

A6.42 GFS requires a minimum level of detail to be reported according to a comprehensive list of standard items. The level of detail is presented in standardized items to facilitate consistency over time, comparability, and consolidation of data across units and sectors. However, preparers may choose to provide additional detail.

A6.43 IPSASs also require some minimum items to be reported. However, presentation is less prescriptive compared to GFS reporting, with preparers required to make decisions about what items are shown, with reference to the purposes and understandability of statements, information relevance, and the principle that material items should be presented separately in the financial statements (see IPSAS 1). For example, preparers may choose between a presentation based on nature or function.

Disclosure of additional information

A6.44 To facilitate the correct interpretation of their GFS reports, compilers are encouraged to present information on the sources, methods, and procedures of the statistics as metadata or footnotes to statistical reports. In particular, information that may have an impact on assessing the statistics should be disclosed in the statistical reports. GFS also uses standard categories of memorandum items to report on items that are not reported in the body of the statements.

A6.45 IPSASs require that information that may have a significant impact for users be disclosed in notes to the financial statements. Notes include a summary of significant accounting policies. They also include further detailed information about individual items reported on the face of a statement—for example, (i) a breakdown of property, plant, and equipment into classes, (ii) information about items that are not recognized but nonetheless important (e.g., contingencies), and (iii) risk information related to financial instruments.

A6.46 GFS information is usually presented as a time series of data, so that comparative data for multiple years are presented at the same time. The periodicity of these data could be monthly, quarterly, or annually. IPSASs require only annual reporting, but allow more frequent reporting. Consistent GFS time series may be very long, decades for some countries. Following from this, corrections to data will be required to be made in the period in which errors occurred, irrespective of when the need for such corrections is determined. Financial statements presented according to IPSASs require comparative information for only one previous year, though the number of years involved in calculating adjustments

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of prior year figures for policy changes and errors is not specified.

Mapping from IPSAS financial statement aggregates to GFS aggregates

Total assets and total liabilities

A6.47 Some broad classification differences exist between the classification of assets and liabilities in GFS and IPSASs.

- GFS classify assets and liabilities in terms of whether they are financial or nonfinancial. IPSASs do not require assets and liabilities to be grouped in these terms, nor do they require summary totals for financial and nonfinancial assets. However, they do require financial and nonfinancial assets and liabilities to be separately disclosed, which means that there is sufficient information in an IPSAS statement of financial position (balance sheet) to determine totals for financial and nonfinancial assets and liabilities.
- GFS classify financial assets and liabilities into domestic and foreign. IPSASs do not use this classification, although some of these disclosures may be included in an entity's risk management disclosures related to financial instruments.
- GFS classify assets and liabilities according to standardized GFS characteristics and purposes, which can differ from the classifications required by IPSASs. For example, in IPSASs, the classification of property is determined by whether it is an investment property, while GFS distinguishes property according to whether it is a produced/nonproduced asset and whether it is a dwelling, other building, other structure, or land improvement. IPSASs classify financial instruments into whether they are for trade or to be held until maturity, whether liabilities are employee liabilities, and whether provisions relating to environmental restoration all differ from the GFS classification.

Net worth

A6.48 The GFS concept of net worth plus equity (also referred to as own funds) is equal to IPSASs' net assets/equity:

- In GFS, net worth for a specific period is defined as total assets minus total liabilities. The balance sheet opening net worth + operating balance + changes in all assets and liabilities due to other economic flows = balance sheet closing net worth.
- According to IPSASs, net assets/equity is calculated as the opening net assets/equity + surplus/deficit + items shown directly on changes in equity statement = closing net assets/equity. Net assets/equity is also equal to the net of all assets minus liabilities, excluding equity.

A6.49 These differences in the calculation of the net balancing item primarily result from the differences between how GFS and IPSASs allocate items to their respective statements (GFS showing other economic flows separately). In addition, it should be noted that, in the GFS net worth concept, equity is treated symmetrically as part of financial assets and liabilities—that is, equity investments within assets, and any equity of the government entity held by nongovernment units—usually rare for government entities—within liabilities. In contrast, the IPSAS net assets/equity concept includes equity that GFS treats as a liability, whereas investments in another entity's equity are recognized as financial assets.

A6.50 In addition to these presentational differences, the values of these items can also differ due to valuation and recognition differences.

Revenue and expense

A6.51 Although the GFS and IPSAS accrual concepts of revenue and expense are different, they can be reconciled as follows:

- GFS revenue + other economic inflows = IPSAS revenue + economic inflows recognized directly in Statement of Changes in Net Assets/Equity
- GFS expense + other economic outflows = IPSAS expense + outflows recognized directly in Statement of Changes in Net Assets/Equity.

A6.52 IPSASs refer to materiality as a classification criterion for revenue and expense. In this context, GFS requires reporting on standard items. In addition to the economic classification (as shown), the *GFSM 2014* and the SNA/ESA also have a Classification of Functions of Government (COFOG).

A6.53 Under IPSASs and GFS, cash flows resulting from acquisitions or disposals of assets are recognized in the Cash Flow Statements. However, in the accrual-based accounts, the time of recording asset

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revaluations and the statement in which changes in valuations are recorded may differ. Under IPSASs, assets may be recorded at historical cost or fair value, depending on their nature. Any gain or loss on disposal is a realized holding gain or loss recorded in revenue and expense at the time of disposal. As such, these gains/losses are shown as part of the surplus/deficit that is recognized in the Statement of Financial Performance. Under GFS, assets are valued at current market prices and any holding gains or losses are recognized as they occur. These valuation changes are reflected in the *Statement of Other Economic Flows*. For assets disposed of at prices different from the valuation of the asset, it is deemed that such an other economic flow occurred right before disposal, so that at disposal there is no gain or loss reflected in the *Statement of Operations*. Therefore, the amounts of revenue/expense recognized will differ from that recorded under IPSASs.

Consumption of fixed capital (assets)

A6.54 In theory, the GFS concept of consumption of fixed capital differs from the IPSAS concept of "depreciation." The IPSAS concept of "depreciation" involves allocating changes in an asset's historic cost or current value to the reporting period in which the asset is used, as a measure of the asset's consumption. The GFS concept of consumption of fixed capital is based on a current value concept—described in the *2008 SNA* (paragraph 6.240) as the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence, or normal accidental damage. Consumption of fixed capital is a forward-looking measure that is determined by the benefits that institutional units expect to derive in the future from using the asset in production over the remainder of its service life. In practice, consumption of fixed capital is usually calculated according to aggregated asset groups using a model approach.

A6.55 In practice, depreciation would approximate GFS consumption of fixed capital, if similar valuation methods and service lives are assumed for assets, and IPSAS-based asset values are close to replacement values through revaluations. Where IPSAS asset values are based on historic cost values, depreciation would usually represent an underestimate of consumption of fixed capital. The difference will be large for governments that have a large stock of fixed assets, as many governments do.

Operating balance

A6.56 The GFS net operating balance is calculated in the same way as the IPSAS "surplus/deficit." Both are calculated as revenue minus expense. However, the value of these two balancing items is likely to differ, because there may be differences between items included in the GFS revenue and expense and those included in IPSAS revenue and expense. This difference can be mainly attributed to the conceptual difference in the treatment of other economic flows.

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APPENDIX

7 GFS and Other Macroeconomic Statistics

This appendix describes the relationships between government finance statistics and national accounts, balance of payments and international investment position, monetary and financial statistics, and the System of Environmental-Economic Accounting (SEEA) Central Framework. This appendix is intended to provide an overview of the major similarities and differences between government finance statistics and other major datasets, as well as an indication of how to reconcile the data in cases where there are differences in presentation. The text of this appendix is not intended to take preference over the methodological guidance provided elsewhere in this Manual.

Introduction

A7.1 It is important for compilers and users of GFS data to understand how GFS relate to the other macroeconomic datasets. More specifically, an understanding of the linkages fosters consistency in the respective datasets and supports whole-of-economy analysis.

A7.2 The institutional arrangements for compiling and producing macroeconomic statistics differ from country to country. These could range from a single entity being responsible for the compilation of source data and the final GFS to several national agencies being involved in the compilation of various components of the data. Agencies such as ministries of finance (MOFs), national statistics offices (NSOs), central banks (CBs), and other government agencies may be involved. The MOFs are often involved in compiling budget data from accounting and other administrative records to monitor implementation of the government budget. NSOs are often responsible for compiling, producing, and disseminating macroeconomic statistics in line with the *2008 SNA*[1] principles. They may use source data from MOFs that are based on national classifications and make necessary adjustments according to the requirement of the statistical guidelines. CBs are primarily involved in compiling monetary and financial data to allow them to monitor financial conditions and the implementation of monetary policies. All these data should be based on consistent methodological guidance, and where multiple agencies are involved in compiling macroeconomic data compilation, it is essential that these national agencies coordinate efforts to best ensure consistency in data outputs.[2]

A7.3 A clear understanding of the linkages between datasets will assist countries in producing comparable and consistent statistics needed for economic analysis and policy decisions. The primary purpose of GFS is to provide a comprehensive conceptual and statistical reporting framework for analyzing and evaluating fiscal policy. In addition, detailed GFS also provide a measurement of the impact of government on other sectors of the economy. Therefore, these fiscal data serve as input for other datasets, while other datasets may be used to derive and/or verify GFS data. Harmonization in practice allows compilers to share source data, where appropriate, and also fosters coherent developments in the source data systems.

A7.4 The remainder of this appendix provides an overview of the important similarities and differences between the GFS and other major datasets. It describes the similarities related to coverage and accounting rules and then provides a comparison of the analytical framework of GFS with that of the national accounts, balance of payments and international investment position, and the monetary and financial statistics. Last, the appendix describes how the GFS

[1] In this appendix, most references to the *SNA* concern the general content of the volume rather than the citation of a specific portion of the text. The expression "in the SNA" is used to refer to the national accounts compiled in accordance with the *2008 SNA* as a body of thought.

[2] See Dziobek and Tanase, *Institutional Cooperation between Central Banks and the Statistical Offices for Producing Macroeconomic Statistics*, IFC Bulletin No 28, August 2008.

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framework relates to the *System of Environmental-Economic Accounting* (*SEEA*) *Central Framework*. Where there are differences in presentation, the appendix provides an indication of how to reconcile the data.

Overview of Similarities and Differences

A7.5 This *Manual* is harmonized with the *2008 SNA*, which provides the conceptual basis for national accounts. The *BPM6* serves as the standard framework for statistics on the transactions and positions between an economy and the rest of the world. The *Monetary and Financial Statistics Manual (MFSM)* provides guidelines on compiling statistics for the financial corporations sector. These manuals are also harmonized with the *2008 SNA*.[3]

A7.6 Broadly, the principles and concepts are defined in a consistent manner in all these statistical manuals. The delineation between resident and nonresident entities, sectorization of the domestic economy, and definitions and classifications of financial instruments are the same. The accounting rules used are the same with respect to basis of recording and valuation. While the accrual basis of recording flows and stock positions is used consistently in all data-sets, GFS also include the compilation of a *Statement of Sources and Uses of Cash*. With a few exceptions, as described in the detailed comparisons, the flows and stock positions of GFS are defined and valued in the same way.

A7.7 For analytical reasons, the structure and presentation of the GFS framework in Chapter 4 and the GFS treatment of a few activities differ from the framework and presentation of the data of the general government sector in the *2008 SNA* and other datasets. While all the datasets have balancing items, the aggregation and consolidation rules are not exactly the same.

A7.8 GFS focus on measuring the impact of economic events on the finances of government, and the impact of government activities on the economy through taxing, spending, borrowing, and lending. The SNA focuses on the linkages between sectors of the economy, and the economic processes of production, income generation and distribution, consumption of goods and services, and accumulation. The balance of payments summarizes economic transactions between residents and nonresidents during a specific period, while the international investment position shows the value of the financial assets and liabilities stock positions between the residents of an economy and nonresidents at a reporting date. Monetary statistics focus on assessing monetary conditions and the impact of monetary policy decision on the money and capital markets. These differences in focus require that the recording of government activities in GFS occasionally differ from the recording of those activities in the other macroeconomic datasets. However, such differences are the exception to the general principle, as consistent application of conceptual standards applies across related datasets. Where there are differences in presentation, reconciliation of the differences should routinely be made to ensure consistency in the macroeconomic data.

Coverage and Accounting Rules

A7.9 The identification of institutional units and their sectorization are conceptually the same in all macroeconomic datasets. Where analytically useful, certain datasets may require that the primary sectors be further divided into subsectors according to need. For example, GFS present data for the subsectors of the general government as separate datasets, while monetary statistics present data for subsectors of the financial corporations. As described in paragraph 2.58, the general government sector in GFS is defined identically to the general government sector in the national accounts, balance of payments, and monetary statistics. Although the public sector is not one of the five primary sectors in the SNA, it is recognized as an additional grouping.[4] The residence concept used to delineate resident and nonresident entities and the sectors used in identifying counterpart transactions are the same across all datasets. Compilers of macroeconomic data should therefore ensure that the actual coverage used in their statistics is identical.

A7.10 Most of the accounting rules employed in these macroeconomic frameworks are identical. In

[3] Revision of the *MFSM*, 2000 edition, to align with the *2008 SNA*, is pending at the time of publication of this *Manual.*

[4] The definition of public sector as defined in the *2008 SNA*, Chapter 22, Section B, is identical to the definition in paragraph 2.63 of this *Manual*.

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particular, the rules for time of recording, the valuation of flows and stock positions, and the rules governing the gross or net recording of flows and stock positions are identical.

A7.11 The principal difference between GFS and the SNA regarding accounting rules concerns consolidation (see paragraph 3.167 of this *Manual*). In principle, GFS requires the elimination of all intra- and intersector flows and stock positions between units of the same sector and subsectors. Consolidation can be applied to the statistics of any group of units, including subsectors of the general government sector, the entire public sector, or any other grouping depending on analytical interest.

A7.12 As a matter of principle, consolidation is not used in the SNA, although it is acknowledged that consolidation may be useful for the general government sector (see the *2008 SNA*, paragraphs 2.69, 3.197, and 22.79). Even when used in the national accounts, transactions appearing in different accounts are never consolidated so that balancing items are not affected. For example, in national accounts, interest receivable by one government unit that is payable by another government unit is shown as both revenue and expense in the accounts of the general government sector. In contrast, full consolidation is used in GFS. Such interest is recorded neither as an expense nor as revenue in the data for the consolidated general government sector as a whole, although such interest could appear in the subsector accounts of general government if the two parties involved are in different subsectors of the general government. Because SNA statistics are not consolidated, the GFS compiler should preserve the unconsolidated statistics for use by the national accounts compiler.

Comparison of the Analytical Frameworks of GFS and the SNA

A7.13 Both GFS and the SNA can be described as the systematic recording and presentation of flows and stock positions, with the flows comprising transactions and other economic flows. While the recording of flows and stock positions are generally the same in the two datasets, the accounts in which these are recorded differ because of the unique objectives of the two datasets. In general, both datasets have the same interest in the activities of general government and public sectors, although the arrangement of the data differs and the actual flows recorded differ in some instances. These differences could be summarized as follows (see Table A7.1):

- The GFS framework primarily records the operations of the general government or public sector according to revenue, expense, and transactions in nonfinancial and financial assets, and liabilities. These transactions and other economic flows are integrated with balance sheets. The SNA records general governments' transactions according to their involvement in the measurement of production, generation, distribution and use of income, and capital and financial account transactions. These transactions and other economic flows are also integrated with balance sheets.
- The SNA reconciles the current accounts, accumulation accounts, and balance sheet positions across all institutional sectors, whereas GFS undertake such reconciliations only for the general government and public sectors.
- The two datasets differ in recording practices. GFS are based on the principle of double-entry recording, similar to business accounting, but the SNA is based on the principle of quadruple-entry accounting, because most transactions involve two institutional units. Each institutional unit involved in a transaction must record the transactions according to the double-entry system for the accounts to be in balance.
- The focus of the SNA is on various kinds of economic processes. Therefore, where the recording of a single transaction is sufficient in GFS, multiple entries may be required in the SNA to correctly reflect all the relevant economic processes.

Comparison of the Accounts in GFS and the SNA

A7.14 The GFS analytic framework consists of four statements (see Chapter 4). The *Statement of Operations* is a presentation of all transactions recorded in the GFS framework. Other economic flows are presented in the *Statement of Other Economic Flows*,[5] and the stock positions are presented in the *Balance Sheet*.

[5] For analytical reasons, the *Statement of Other Economic Flows* could also be presented as separate statements to record *Holding Gains and Losses* and *Other Changes in Volume of Assets and Liabilities*.

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Table A7.1 Main Differences between GFS and the SNA

Indicator	Differences identified
Analytical framework	GFS are mainly presented in four statements, including a cash-flow statement. In the SNA, transactions are presented in a sequence of seven accounts (see Figure A7.1), other economic flows are presented in two accounts, and stock positions are presented in the Balance Sheet. There is no equivalent to the GFS cash-flow statement.
Focus	GFS focus on measuring the impact of economic events on the finances of government. The SNA focuses on measuring economic processes and their impact on the various sectors of the economy.
Consolidation	In principle, GFS eliminate all intra- and intersector flows and stock positions between units of the same sector and subsectors. In the SNA, consolidation is not used as a matter of principle, although it is acknowledged that consolidation may be useful for the general government sector.
Unfunded employment-related pension funds	GFS require that a liability be recognized for all unfunded employment-related pension obligations. SNA allows some pension obligations to be excluded from the core accounts and reported in supplementary tables. The SNA recognizes all social contribution revenue and expense, and records an adjustment item for the change in liabilities, while GFS recognize social contributions and benefits as either revenue and expense or transactions in liabilities.
FISIM, insurance services, and fees related to standardized guarantees	In GFS, the services fees related to interest, nonlife insurance premiums, and fees for standardized guarantees are not separately identified because they can be estimated only indirectly by considering data for all sectors of the economy, such as in the national accounts. In the SNA, the values for FISIM, insurance services, and standardized guarantees are derived by partitioning interest, nonlife insurance premiums, and fees for standardized guarantees.
Transfers in kind—goods and services produced by government	In GFS, goods and services produced by government and transferred in kind are recorded as imputed sales only when provided to employees as wages in kind. In all other cases, only the cost of producing these goods and services is recognized in the respective expense categories. In the SNA, all goods and services produced by government and transferred in kind are recorded as a transfer and an imputed sale of goods and services.
Internal transactions in respect of own-account capital formation	In GFS, compensation of employees, use of goods and services, and consumption of fixed capital incurred in own-account capital formation are excluded from expense and are recorded as a component of the cost of the acquisition of the nonfinancial asset. In the SNA, the full costs of compensation of employees, use of goods and services, and consumption of fixed capital are recorded as well as the acquisition of the nonfinancial asset.

Finally, the *Statement of Sources and Uses of Cash* provides information on liquidity.

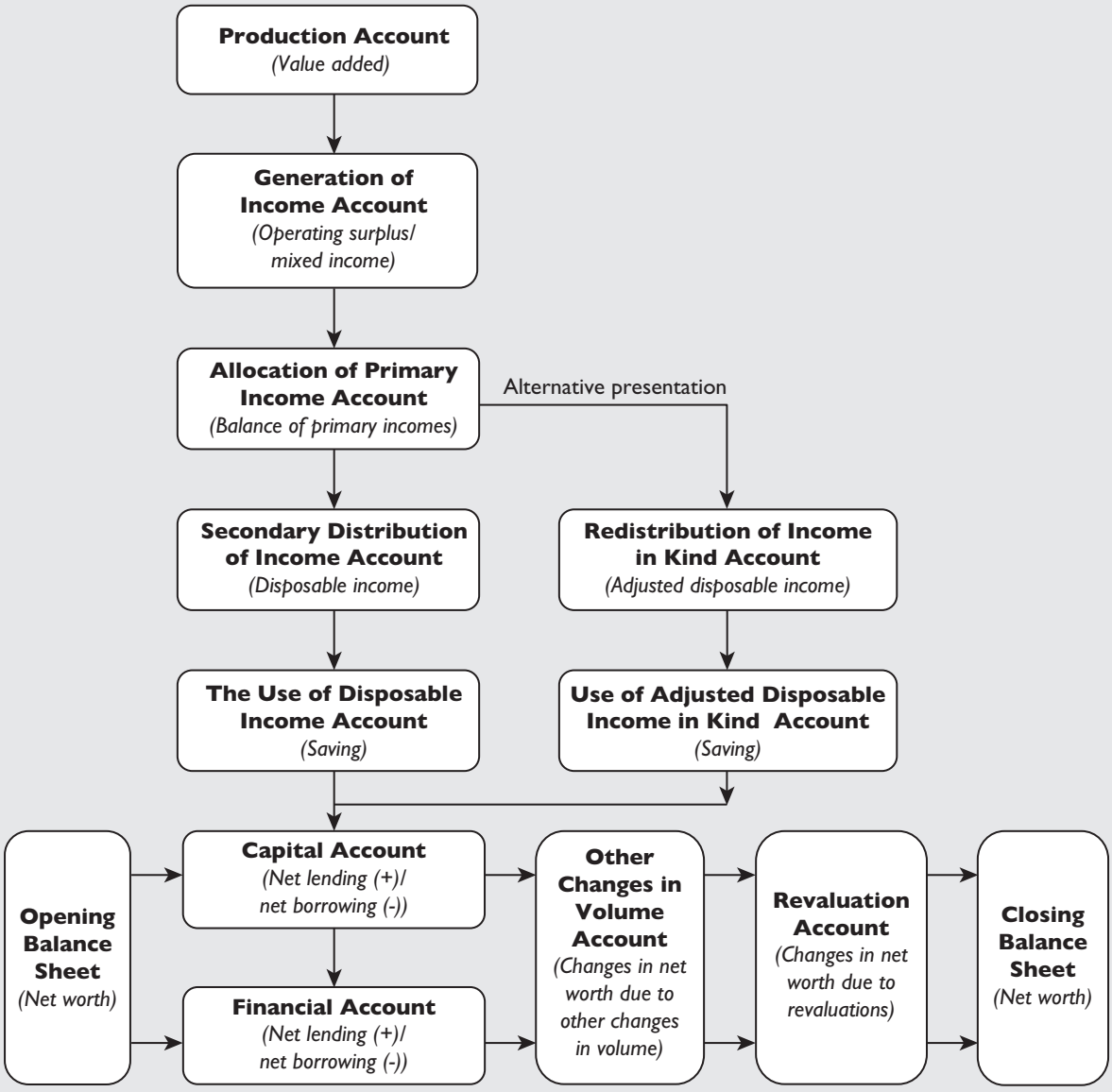
A7.15 In the SNA, transactions are presented in a sequence of seven accounts (see Figure A7.1), other economic flows are presented in two accounts, and stock positions are presented in the *Balance Sheet*. There is no SNA equivalent to the GFS *Statement of Sources and Uses of Cash*.

A7.16 Each flow in the SNA relates to a particular kind of economic process or activity, such as production, or the generation, distribution, redistribution or use of income, and accumulation. Each of the current accounts shows the resources available to the institutional units and the uses of these resources. These accounts are balanced by introducing a balancing item defined residually as the difference between the total resources recorded on one side of the account and the total uses recorded on the other side. The balancing item from one account is carried forward as the first item in the following account, on the opposite side, thereby making the set of accounts an articulated whole.

A7.17 In the SNA, the sequence of transaction accounts is grouped into current and accumulation accounts. The current accounts record the production of goods and services, and the generation, distribution, redistribution, and use of income. The accumulation

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Figure A7.1 Diagram of the Sequence of SNA Accounts



Note: Balancing items are shown in italics.

accounts record capital transfers, the acquisition and disposal of assets and liabilities, and other economic flows related to assets and liabilities. Despite the large number of accounts in the SNA, there is broad correspondence between the structures of the GFS and SNA datasets.[6]

[6] Explicit provision is made in the SNA for flexibility in the presentation of stock positions and flows. The accounts described here comprise the basic presentation described in Chapters 6 through 13 of the *2008 SNA*.

A7.18 As illustrated in Table A7.2, the GFS *Statement of Operations* can be divided into three sections—namely:

- Transactions affecting net worth
- Transactions in nonfinancial assets
- Transactions in financial assets and liabilities.

The GFS transactions affecting net worth (revenue and expense) are shown as transactions in the current

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Table A7.2 Linkages of the Statement of Operations in GFS with Sequence of SNA Transaction Accounts

GFS Statement of Operations		SNA Sequence of Accounts	
Main aggregates	**Balances**	**SNA current accounts**	**Balances and main aggregates**
Revenue, Expense[2]	Net operating balance (or change in net worth due to transactions)	Production account	Value added / GDP
		Generation of income account	Operating surplus and mixed income
		Allocation of primary income account	Balance of primary income / GNI
		Secondary distribution of income account	Disposable income / NDI
		Use of disposable income account[1]	Saving / National saving
Conceptually, net operating balance differs from saving with the value of capital transfers and taxes on capital transactions, and capitalized expense. Additional differences in calculated values may arise due to differences in treatment of some employment-related pension schemes.			
		SNA accumulation accounts	**Balances and main aggregates**
Operating balance[2] minus net acquisition of nonfinancial assets	Net lending (+)/net borrowing (–)	Capital account[2]	Net lending (+)/net borrowing (–)
Conceptually, net lending (+)/net borrowing (–) in GFS is the same as in the SNA. In practice calculated values may differ due to difference in treatment of some employment-related pension schemes.			
Net acquisition of financial assets minus net incurrence of liabilities	Change in financial worth due to transactions = net lending(+)/net borrowing (–)	Financial account	Net lending (+) / net borrowing (–)
Conceptually, transactions in financial assets and liabilities in GFS are the same as in the SNA. In practice, calculated values may differ due to differences in treatment of some employment-related pension schemes.			

[1]The use of the disposable income account is replaced by the use of the adjusted disposable income account by an alternative sequence of accounts in which the secondary distribution of income account is augmented with the redistribution of income in kind account (see Chapters 8 and 9 of the *2008 SNA* for additional details on these accounts).

[2]Capital transfers as recorded in the SNA capital account are included in GFS as revenue and expense.

accounts of the SNA with one exception: capital transfers are shown in the capital account of the SNA, one of the accumulation accounts. All of the GFS transactions in nonfinancial assets presented in the second section of the *Statement of Operations* are shown in the capital account of the SNA, while the GFS transactions in financial assets and liabilities correspond to the transactions shown in the financial account of the SNA.

A7.19 Because each of the SNA accounts has its own balancing item, there are more balancing items in the SNA than in GFS. However, some of the SNA balancing items can be derived from GFS. The different placement of capital transfers means that the GFS balancing item for the first section of the *Statement of Operations*, the net operating balance, differs from saving, the final balancing item in the sequence of current accounts in the SNA. The net operating balance of GFS minus capital transfers is comparable to saving as calculated in the SNA. Net capital transfers are recorded as an aggregate in the capital account of the SNA. Conceptually, net lending/net borrowing, the balancing item in GFS, is equivalent to the net lending/net borrowing calculated in the capital and financial accounts of the SNA. However, the difference in the treatment of certain activities, such as some employment-related pension arrangements (see paragraph A7.46–A7.47), means that the value of net lending/net borrowing in GFS may differ from the SNA. These differences are reconcilable.

A7.20 The GFS *Statement of Other Economic Flows* covers all other economic flows, classified by type of asset or liability affected and according to whether the flow is a holding gain or an other change in the

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volume of assets. In the SNA, the same distinction between holding gains and other changes in the volume of assets is made. In the SNA, these accounts are the revaluation account, in which effects of price changes in values of assets and liabilities are recorded, and the other changes in volume of assets account, in which changes in the amounts of the assets and liabilities as a result of factors other than transactions and revaluations are recorded.[7]

A7.21 The coverage of the GFS *Balance Sheet* is identical to the coverage of the Balance Sheet in the SNA, except for some employment-related pension entitlements. Due to different institutional arrangements in countries, some flexibility is given in the SNA, but not in GFS, regarding the recording of pension entitlements for unfunded pension schemes sponsored by government. Some of these pension entitlements may be recorded within the main sequence of the SNA accounts (also referred to as the core accounts) and others may be reported in supplementary tables.

Linkages between GFS and the SNA

A7.22 Despite the structural consistencies, the different objectives of GFS and the SNA require that a few transactions and other economic flows recorded in the various statements and accounts be recorded and presented differently. This section reviews and summarizes the relevant linkages between the two datasets. In order to facilitate references to the respective datasets, the items are referred to by their names and the relevant SNA and GFS classification codes.[8] Tables A7.3 and A7.4 indicate how the GFS revenue and expense categories link with the SNA classifications, and Table A7.5 identifies the correspondence of GFS and SNA transactions in nonfinancial assets, with corresponding classification codes. The SNA also provides volume measures (including of government components), an important type of measure for fiscal analysis that makes the SNA complementary to GFS.

Current accounts

A7.23 The current accounts of the SNA record the production of goods and services, the generation of income by production, the subsequent distribution and redistribution of income among institutional units, and the use of income for purposes of consumption or saving. This section describes the GFS linkages with each of these current accounts.

The production account

A7.24 The production account records the transactions relating to the activity of producing goods and services as defined in the SNA. The balancing item, **gross value added**, is defined as the value of output minus the value of intermediate consumption. The production measure of **gross domestic product** is defined as gross value added plus any taxes minus subsidies on products not already included in the value of output. **Output** is the value of goods and services produced during an accounting period. Intermediate consumption comprises the cost of goods and services used in production. Value added is a measure of the contribution to gross domestic product made by an individual producer, industry, or sector. For general government, the production account represents the general government's contribution to the domestic production.

A7.25 Value added can be presented gross or net of consumption of fixed capital. **Net value added** is the value of output minus the values of both intermediate consumption and consumption of fixed capital. Intermediate consumption of goods and services (P2) and consumption of fixed capital (P51c) are included as uses, while the output (P1) of all goods and services produced by a general government unit is a resource. Total output is divided into market output (P11), output for own final use (P12),[9] and other nonmarket output (P13).

A7.26 Output is not recorded as such in GFS. Nevertheless, the total output of the general government sector can be determined as the sum of the output of

[7] "Revaluations" and "holding gains" are used interchangeably in the *2008 SNA*.

[8] The SNA classification codes for transactions and other flows have the form of a letter: D for distributive transactions, F for financial assets and liabilities, K for other changes in assets accounts, or P for transactions in products, each followed by a number. The SNA codes for the balance sheet are AN for nonfinancial assets and AF for financial assets and liabilities. The SNA coding system uses the letter B for balancing items. The GFS coding system is presented in Appendix 8.

[9] Output for own final use in the SNA consists of products retained by the producer for its own use as final consumption or capital formation. Therefore, *own-account capital formation*, as referred to in GFS, is a narrower definition than the SNA concept of output for own final use.

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Table A7.3 Correspondence of GFS and SNA Revenue Transaction Categories

GFS codes	SNA codes	GFS revenue categories
1		**REVENUE**
11		**Taxes**
111	= **D51**	**Taxes on income, profits, and capital gains**
1111	> D51	Payable by individuals
1112	> D51	Payable by corporations and other enterprises
1113	> D51	Other taxes on income, profits, and capital gains
112	> **D29**	**Taxes on payroll and workforce**
113		**Taxes on property**
1131		Recurrent taxes on immovable property
1131.1	> *D29*	*Payable by producers*
1131.2	> *D59*	*Payable by consumers*
1132		Recurrent taxes on net wealth
1132.1	> *D29*	*Payable by producers*
1132.2	> *D59*	*Payable by consumers*
1133	> D91	Estate, inheritance, and gift taxes
1135	> D91	Capital levies
1136		Other recurrent taxes on property
1136.1	> *D29*	*Payable by producers*
1136.2	> *D59*	*Payable by consumers*
114		**Taxes on goods and services**
1141		General taxes on goods and services
11411	> *D29*	Value-added taxes
11412		Sales taxes
11412.1	> *D2122*	*On imported goods and services*
11412.2	> *D214*	*On domestically produced goods and services*
11413		Turnover and other general taxes on G&S
11413.1	> *D214*	*Turnover taxes*
11413.2	> *D59*	*Expenditure taxes*
11414	> *D214*	Taxes on financial and capital transactions
1142		Excises
1142.1	> *D2122*	*On imported goods*
1142.2	> *D214*	*On domestically produced goods*
1143	> D214	Profits of fiscal monopolies
1144		Taxes on specific services
1144.1	> *D2122*	*On imported services*
1144.2	> *D214*	*On domestically produced services*
1145		Taxes on use of goods and on permission to use goods and perform activities
11451		Motor vehicles taxes
11451.1	> *D29*	*Payable by producers*
12		**Social contributions**
121		**Social security contributions**
1211		Households' contributions
1211.1	> *D613*	*Of which: Insurance scheme service charge (–)*
1211.2	~ *D6131*	*Actual pension contributions*
1211.3	~ *D6132*	*Actual nonpension contributions*
1212		Employers' contributions
1212.1	~ D611	Actual social contributions
1212.11	~ *D6111*	*Actual pension contributions*
1212.12	~ *D6112*	*Actual nonpension contributions*
1212.2	~ D612	Imputed social contributions
1212.21	~ *D6121*	*Imputed pension contributions*
1212.22	~ *D6122*	*Imputed nonpension contributions*
1213	> *D613*	Self-employed or unemployed contributions
1214	> *D613*	Unallocable contributions
122		**Other social contributions**
1221	~ D6132	Households' contributions
1222	~ D6112	Employers' contributions
1223	~ D6122	Employers' imputed contributions
13		**Grants**
131		**From foreign governments**
1311	> D74	Current
1312		Capital
1312.1	> *D92*	*Investment grants*
1312.2	> *D99*	*Other capital transfers*
132		**From international organizations**
1321	> D74	Current
1322		Capital
1322.1	> *D92*	*Investment grants*
1322.2	> *D99*	*Other capital grants*
133		**From general government units**
1331	> D73	Current
1332		Capital
1332.1	> *D92*	*Investment grants*
1332.2	> *D99*	*Other capital grants*
14		**Other revenue**
141		**Property income**
1411	~ D41	Interest
1412	~ D421	Dividends
1413	~ D422	Withdrawals of income from quasi-corporations
1414		Property income from investment income disbursements
1414.1	~ *D441*	*Insurance policy holders*
1414.2	~ *D443*	*Collective investment funds*
1415	= D45	Rent
1416	= D43	Reinvested earnings on foreign direct investment

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Table A7.3 Correspondence of GFS and SNA Revenue Transaction Categories *(concluded)*

GFS codes	SNA codes	GFS revenue categories
11451.2	> *D59*	*Payable by consumers*
11452		Other taxes on use of goods and on permission to use goods or perform activities
11452.1	> *D29*	*Payable by producers*
11452.2	> *D59*	*Payable by consumers*
1146		Other taxes on goods and services
1146.1	> *D214*	*On products n.e.c.*
1146.2	> *D29*	*On production n.e.c.*
1146.3	> *D59*	*Payable by consumers*
115		**Taxes on international trade and transactions**
1151		Customs and other import duties
1151.1	= *D2121*	*Import duties*
1151.2	> *D2122*	*Taxes on imports, excl. VAT and import duties*
1152	> D213	Taxes on exports
1153		Profits of export or import monopolies
1153.1	> *D2122*	*Profits of import monopolies*
1153.2	> *D213*	*Profits of export monopolies*
1154		Exchange profits
1154.1	> *D2122*	*Exchange profits as taxes on import, excl. VAT and import duties*
1154.2	> *D213*	*Exchange profits as export taxes*
1154.3	> *D214*	*Exchange profits as taxes on products excl. VAT, import & export taxes*
1155		Exchange taxes
1155.1	> *D2122*	*Exchange taxes as taxes on import, excl. VAT and import duties*
1155.2	> *D213*	*Exchange taxes as export taxes*
1155.3	> *D214*	*Exchange taxes as taxes on products excl. VAT, import & export taxes*
1156		Other taxes on international trade and transactions
1156.1	> *D29*	*Payable by producers*
1156.2	> *D59*	*Payable by consumers*
116		**Other taxes**
1161		Payable solely by business
1161.1	> *D214*	*Stamp taxes*
1161.2	> *D29*	*Other taxes on production*
1162	> D59	Payable by other than business or unidentifiable
142		**Sales of goods and services**
142.1	> P11	*Of which: sold at market prices*
1421		Sales by market establishments
1422		Administrative fees
1423		Incidental sales by nonmarket establishments
1424		Imputed sales of goods and services
143	> **D759**	**Fines, penalties, and forfeits**
144		**Transfers not elsewhere classified**
1441		Current transfers n.e.c.
14411		*Subsidies*
14411.1	> *D31*	*Subsidies on products*
14411.2	> D39	Subsidies on production
144111		From other general government units
144112		From international organizations
144113		From foreign governments
14412	> D759	Other current transfers n.e.c.
1442	> D99	Capital transfers n.e.c.
145		**Premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes**
1451		Premiums, fees, and current claims
14511	> D71	Premiums
14512	> D71	Fees for standardized guarantees
14513	> D72	Current claims
1452	> D99	Capital claims

Legend:

= ***GFS item is the same as the SNA item***

> **GFS item is a component of the relevant SNA item**

~ ***GFS item is conceptually the same but differs in practice due to treatment of specific transactions***

Note: Nonstandard GFS items required for the SNA indicated in darker shaded rows.
n.e.c. = not elsewhere classified; VAT = value-added taxes.

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nonmarket establishments and the output of market establishments. The output of the two types of establishments is derived quite differently:

- The output of market establishments is equal to the sales of those establishments (GFS revenue item *sales by market establishments* (1421)) plus changes in their inventories of *work in progress* (31222) and *finished goods* (31223). Thus, to establish a direct link with the SNA, GFS data on the changes in inventories need to be divided into separate data for market and nonmarket establishments.
- The output of nonmarket establishments cannot be determined from sales statistics because most of it is distributed without charge or sold at prices that are not economically significant. Instead, the output of nonmarket establishments is defined to be equal to the sum of their production costs: *compensation of employees* (21), *use of goods and services* (22), *consumption of fixed capital* (23), other taxes on production paid, and other subsidies on production received (as a negative value).

Therefore, in order to calculate the output of nonmarket establishments from GFS data, it is necessary to divide the total values of each of the relevant expense categories into expenses incurred by market establishments and expenses incurred by nonmarket establishments.[10]

A7.27 In the national accounts, the total output of the general government sector is allocated among three components: market output, output for own final use, and other nonmarket output.

- Output for own final use is the value of goods and services produced for own final use or nonfinancial assets constructed for own use by general government units. The latter data are available directly from the details of GFS expenditure as memorandum item 3M1 in Table 8.1. In the SNA, provision is made to value this output at market prices if the assets constructed on own account are also offered for sale on the market. In the GFS framework, it is assumed that assets constructed on own account by the general government sector are not offered for sale on the market so that valuation should be based on the cost of production.
- Market output and other nonmarket output are not directly available from GFS, and do not necessarily correspond to the output of market and nonmarket establishments because nonmarket establishments can produce market output, and vice versa.
  - The value of market output is calculated as the sum of the entire output of market establishments, actual sales of nonmarket establishments at market prices[11] (part of GFS revenue item *incidental sales by nonmarket establishments* (1423)), and other output that is imputed to have been sold (part of GFS revenue item *imputed sales by nonmarket establishments* (1424)). Imputed sales are in-kind transactions that are valued at market prices (see Box A7.1).
  - The value of other nonmarket output can be calculated residually as the total output of the general government sector minus output for own final use and market output.

A7.28 Intermediate consumption consists of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital. For general government or public sector units, intermediate consumption includes the following GFS items:

- Use of goods and services (GFS expense item 22) minus the portion of goods purchased for resale that was actually sold during the reporting period (reduction in GFS item 31224 due to sales)
- Goods and services used in own-account capital formation (GFS memorandum item 3M12)
- Consumption of financial intermediation services indirectly measured (FISIM), which is already taken into account in *interest* revenue and expense of GFS (GFS items 1411 and 24, respectively)

[10] Market establishments included in the general government sector are usually a small fraction of the general government total output.

[11] Sales of nonmarket goods or services at prices that are not economically significant remain a part of the value of nonmarket output (see the *2008 SNA*, paragraph 6.132).

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Table A7.4 Correspondence of GFS and SNA Expense Transaction Categories

GFS codes	SNA codes	GFS Expense categories
2		**EXPENSE**
21		**Compensation of employees [GFS]**
21.1	> *me*	*By market establishments*
21.2	> *nme; P1*	*By nonmarket establishments*
211	~ D11	Wages and salaries
2111	~ D111	Wages and salaries in cash
2112	~ D112	Wages and salaries in kind
212	~ D12	Employers' social contributions
2121	~ D121	Actual employer's social contributions
2121.1	~ *D1211*	*Actual pension contributions*
2121.2	~ *D1212*	*Actual nonpension contributions*
2122	~ D122	Imputed employers' social contributions
2122.1	~ *D1221*	*Imputed pension contributions*
2122.2	~ *D1222*	*Imputed nonpension contributions*
22	~ **P2**	**Use of goods and services [GFS]**
22.1	~ *me*	*By market establishments*
22.2	~ *nme; P1*	*By nonmarket establishments*
23	~ **P51c**	**Consumption of fixed capital [GFS]**
23.1	~ *me*	*By market establishments*
23.2	~ *nme; P1*	*By nonmarket establishments*
24	~ **D41**	**Interest [GFS]**
241	~ D412	To nonresidents
242	~ D412	To residents other than general government units
243	~ D411	To general government units
25	=	**Subsidies**
25.1	*D31*	*Subsidies on products*
25.11	*D311*	*Import subsidies*
25.12	*D312*	*Export subsidies*
25.13	*D319*	*Other subsidies on products*
25.2	*D39*	*Subsidies on production*
251		To public corporations
2511		To nonfinancial corporations
2512		To financial corporations
252		To private enterprises
2521		To nonfinancial enterprises
2522		To financial enterprises
253		To other sectors
2531		To nonprofit institutions
2532		To general government units
2533		To households as producers
27		**Social benefits [GFS]**
271		Social security benefits
2711	~ D621	Social security benefits in cash
2711.1	~ *D6211*	*Social security pension benefits*
2711.2	~ *D6212*	*Social security nonpension benefits*
2712	~ D632	Social security benefits in kind
272		Social assistance benefits
2721	~ *D623*	*Social assistance benefits in cash*
2722	~ *D632*	*Social assistance benefits in kind*
273		Employer social benefits
2731	~ *D6222*	*Employer social benefits in cash*
2732	~ *D632*	*Employer social benefits in kind*
28		**Other expense**
281		**Property expense other than interest**
2811		Dividends
2811.1	~ *D421*	*Dividends other than reinvested earnings*
2811.2	~ *D43*	*Reinvested earnings*
2812	~ D422	Withdrawals of income from quasi-corporations
2812.1	~ *D422*	*Dividends other than reinvested earnings*
2812.2	~ *D43*	*Reinvested earnings*
2813		Property expense for investment income disbursements
2813.1	~ *D441*	*Insurance policy holders*
2813.2	~ *D442*	*Pension entitlements*
2813.3	~ *D443*	*Collective investment funds*
2814	= D45	Rent
2815	> *D43*	Reinvested earnings on foreign direct investment
282		**Transfers not elsewhere classified**
2821		Current transfers n.e.c.
2821.1	> *D29*	*Other taxes on production*
2821.2	> *D75*	*Miscellaneous current transfers*
2821.3	> *D751*	*Current transfers to NPISHs*
2821.31	> *D751nik*	*Transfers other than in kind transfers*
2821.32	> *D751ik*	*Transfers in kind*
2821.4	> *D759*	*Other miscellaneous current transfers*
2821.41	> *D759nik*	*Transfers other than in kind transfers*
2821.42	> *D759ik*	*Transfers in kind*
2822		Capital
2822.1	> *D91*	*Capital taxes*
2822.3	> *D99*	*Other capital transfers n.e.c.*

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Table A7.4 Correspondence of GFS and SNA Expense Transaction Categories *(concluded)*

GFS codes	SNA codes	GFS Expense categories
26		**Grants**
261		To foreign governments
2611	> D74	Current
2612		Capital
2612.1	> *D92*	*Investment grants*
2612.2	> *D99*	*Other capital grants*
262		To international organizations
2621	> D74	Current
2622		Capital
2622.1	> *D92*	*Investment grants*
2622.2	> *D99*	*Other capital grants*
263		To general government units
2631	> D73	Current
2632		Capital
2632.1	> *D92*	*Investment grants*
2632.2	> *D99*	*Other capital grants*
283		**Premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes**
2831		Premiums, fees, and current claims
28311	> D71	Premiums
28312	> D71	Fees for standardized guarantees
28313	> D72	Current claims
2832	> D99	Capital claims
2832	> D99	Capital claims

Legend:	=	***GFS item is the same as the SNA item***
	>	**GFS item is a component of the relevant SNA item**
	<	***Portion of GFS item is a component of the relevant SNA item***
	~	***GFS item is conceptually the same but differs in practice* due to treatment of specific transactions**

Note: Nonstandard GFS items required for SNA, indicated in darker shaded rows.
n.e.c. = not elsewhere classified.

- Consumption of insurance services and service charge/fee related to standardized guarantees that are components of *premiums, fees, and current claims related to nonlife insurance and standardized guarantee schemes* (GFS items 1451 and 2831).

A7.29 For SNA purposes, the values for FISIM, insurance services, and standardized guarantees schemes are derived by partitioning interest, nonlife insurance premiums, and fees for standardized guarantees (see paragraphs 6.81 and 6.125). In concept, the value of these services should be treated as a use of goods and services expense for the consumer and revenue from the sale of a service for the financial intermediary providing the service. However, in GFS, these partitions are not made because they can be estimated from data for the entire economy. Instead, in GFS, the entire values of the transactions are recorded as interest, nonlife insurance premiums, or fees for standardized guarantees, respectively.[12]

A7.30 Consumption of fixed capital (P51) in the SNA is identical to the concept in GFS. However, the amounts of consumption of fixed capital may differ because of the differing treatment of own-account capital formation. Consumption of fixed capital as recorded in the national accounts should be equal to the *consumption of fixed capital [GFS]* (23) plus the consumption of fixed capital recorded as a component of own-account capital formation in GFS (GFS memorandum item 3M13).

[12] See the *2008 SNA*, paragraphs A3.24–A3.27, for additional details on the estimation of these services.

The distribution of income accounts

A7.31 The distribution of income accounts are decomposed into three main accounts. These separated accounts each have different balancing items that have meaningful interpretations of income and comprise:

- Primary distribution of income account, comprising the generation of income account and the allocation of primary income account
- Secondary distribution of income account
- Redistribution of income in kind account.

The primary distribution of income account

A7.32 The primary distribution of income account shows how GDP is distributed to labor, capital, government, and, where necessary, flows to and from the rest of the world. The primary distribution of income is always presented in two subaccounts—namely, the generation of income account and the allocation of primary income account.

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Box A7.1 In-Kind Transactions

Although GFS and the SNA recognize in-kind transactions, recording these may differ in the two datasets, specifically in the case of goods and services produced by general government. Due to the SNA's focus on economic processes, such transactions may be recorded at various stages in the SNA, while in general they are recorded only once in GFS. Imputed sales, as recorded in GFS, are called nonmonetary transactions in the SNA.

GFS and the SNA record such an imputed sale in the case of:

- Goods and services *produced* by the general government sector and provided to *employees as wages in kind*—Treated as compensation of employees paid in cash followed by a sale to the employees (GFS item 1424). The compensation is recorded in the generation of income account as compensation of employees, as wages and salaries (D11), and the output is recorded as household final consumption expenditure. In GFS, goods and services *produced* by the general government sector and provided to employees as wages in kind are treated similarly to the SNA treatment. The government is deemed to be acting in two capacities: as an employer and as a general producer of goods and services. In order to indicate the total amount paid as compensation of employees, it is necessary to treat the amount payable in kind as if it had been paid in cash as wages and salaries and then the employees had used the cash to purchase the goods and services.

The SNA records transactions in imputed sales that are not recorded in GFS in the following cases:

- Goods and services *produced* by the general government sector and provided as social benefits in kind in accordance with *employment-related social benefits*—Treated in the SNA as if there had been a transfer to the beneficiaries in cash followed by a sale of the output to the beneficiaries. Thus, the goods and services are recorded in the SNA as final consumption expenditure of the households while the transfer is recorded as a social benefit (recorded in the secondary distribution of income account as social benefits other than social transfers in kind (D62 in SNA), social insurance benefits (D622 in SNA). This item is divided further into pension benefits (D6221 in SNA) and nonpension benefits (D6222 in SNA). In GFS, goods and services produced by general government units and provided as social benefits are recorded in GFS as costs of production in the various GFS expense categories, such as compensation of employees and use of goods and services, and consumption of fixed capital, and not as social benefits.
- Goods and services *produced* by the general government sector and provided as grants in kind to *other governments and international organizations*—Treated in the SNA as if there had been a transfer in cash followed by a sale of the output to the recipients of the goods and services. The output is shown as exports (P6 in SNA) in the case of grants to foreign governments and international organizations and either government final consumption expenditure or gross fixed capital formation (P51 in SNA) in the case of grants to other domestic general government units. The transfer is shown in the secondary distribution of income account as other current transfers (D9), either as current transfers within general government (D73 in SNA) or current international cooperation (D74 in SNA), or in the capital account as capital transfers, as investment grants (D92 in SNA) or other capital transfers (D99 in SNA). In GFS, such grants in kind are recorded as grants to foreign governments (GFS expense item 261) or grants to international organizations (GFS expense item 262).
- Goods and services *produced* by the general government sector and provided as transfers in kind to nonprofit institutions serving households or to individuals or households as compensation for *damage to property or personal injury or as the settlement of an insurance claim*—Treated as a transfer in cash and a sale of market output. The transfer is recorded in the secondary distribution of income account of the SNA as other current transfers, as nonlife insurance claims (D72) or miscellaneous current transfers (D75), and the output is recorded as final consumption expenditure of the households sector or the nonprofit institutions serving households sector. In GFS, these goods and services provided in kind are recorded as other transfers (GFS expense item 282).

The generation of income account

A7.33 The generation of income account shows from the point of view of resident institutional units or sectors, in their capacity as producers, how the value added generates income for labor, capital, and government. The account starts with value added as a resource and then includes as uses:

- Compensation of employees (D1)
- Other taxes on production[13] (D29) payable

[13] Other taxes on production consist of all taxes except taxes on products that enterprises incur as a result of engaging in production. A tax on products is a tax that is payable per unit of some good or service. (See the *2008 SNA*, paragraphs 7.88–7.97.)

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- Other subsidies on production (D39) receivable as a negative use.

A7.34 The balancing item of the generation of income account is the operating surplus (B2), which can be presented gross or net of consumption of fixed capital. It measures the surplus accruing from production before deducting any explicit or implicit income: interest charges, rent, or other property incomes payable on financial assets, land, or other natural resources held to carry on the production process.

A7.35 Compensation of employees in the SNA corresponds to the sum of the GFS expense item *compensation of employees* [GFS] (21) and the amount of compensation of employees recorded as a component of own-account capital formation (GFS memorandum item 3M11).

A7.36 The taxes and subsidies that are included in the valuation of the output of nonmarket establishments consist of other taxes on production payable by general government units to other government units and other subsidies on production receivable by general government units from other government units, both national and foreign. These amounts are likely to be rare and/or small in magnitude. Taxes payable by one level of government to another level of government are classified in GFS as *transfers not elsewhere classified* (282) in the subcategory *current* (2821). Subsidies on production (D39) receivable are a portion of the *subsidies* (14411) classified under *transfers not elsewhere classified* (144).[14] In GFS, these items, involving general government units, would be eliminated in consolidation when statistics for the general government or public sector are compiled.

The allocation of primary income account

A7.37 The allocation of primary income account focuses on resident institutional units or sectors in their capacity as recipients of primary incomes. It shows where the items payable in the generation of income account are receivable, and also includes the amounts of property income receivable and payable by institutional unit or sectors. It contains the operating surplus or mixed income as a resource and records for each sector, property income receivable and payable, compensation of employees receivable, and taxes *minus* subsidies on production and imports receivable. The balancing item is the balance of primary income (B5), which represents the sector's contribution to the national income. The balance of primary income or national income can be presented gross or net of consumption of fixed capital.

A7.38 For the general government sector, the account records the following resources:

- Taxes on production and imports (D2), which are divided into taxes on products (D21) and other taxes on production (D29)
- Subsidies as a negative resource (D3)
- Property income as both a resource and a use (D4).

A7.39 In the SNA, taxes are classified according to their role in economic activities as:

- Taxes on production and imports (D2) in the production account, generation of income account, and allocation of primary income account
- Current taxes on income, wealth, etc. (D5) in the secondary distribution of income account
- Capital taxes (D91) in the capital account.

A7.40 GFS include a detailed classification of taxes based on common practices in tax administration. The result is that some tax categories in GFS, such as motor vehicle taxes, need to be allocated between two of the SNA tax categories according to whether they are payable by producers or final consumers. This allocation is required in the SNA and, in the absence of a split in GFS or source data, national accounts compilers will need to employ various methods to identify the payer (i.e., a producer or final consumer).

A7.41 A breakdown of these taxes is shown in Table A7.3, which indicates, among other things, the linkages between the GFS and the SNA tax categories. The table shows which GFS tax categories directly correspond to the SNA tax category, which SNA tax category consists of two or more GFS subcategories, and which GFS tax item requires further breakdowns to allow linkage to the SNA categories.

A7.42 Subsidies (D3) in the SNA are the equivalent of subsidies in GFS (GFS revenue item 14411 and GFS expense item 25), but the classification of the type of subsidies is quite different in the two datasets. In the SNA, the subsidies are divided into subsidies on products (D31) and other subsidies on production (D39). The subsidies on products are divided further into

[14] While a general government unit, public and private corporations, NPISH, or households may be recipients of subsidies, these are payable by government units only.

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subsidies on imports (D311), exports (D312), and other subsidies on products (D319). In GFS, to allow consolidation of the public sector, subsidies are classified by recipients. To allow correspondence between the SNA and GFS, a building block approach can be used to identify all subsidies according to whether they are on production or products, as well as identification of the recipients.

A7.43 There are several types of property income included as resources in the allocation of primary income account:

- Dividends (D421) in the SNA are the equivalent of dividends recorded in GFS (GFS revenue item 1412 and GFS expense item 2811, respectively).
- Withdrawals of income from quasi-corporations (D422) in the SNA are the equivalent of these withdrawals recorded in GFS (GFS revenue item 1413 and GFS expense item 2812).
- Rent (D45) in the SNA is the equivalent of rent recorded in GFS (GFS revenue item 1415 and GFS expense item 2814).
- Interest (D41) in the SNA is the equivalent of interest in GFS (GFS revenue item 1411 and GFS expense item 24), adjusted for FISIM (see paragraph A7.29).
- Reinvested earnings on direct foreign investment (D43) in the SNA are the equivalent of reinvested earnings recorded in GFS (GFS revenue item 1416 and GFS expense item 2815).
- Imputed property income on investment income disbursements (D44), such as income attributable to insurance policy holders, etc., in the SNA is conceptually the equivalent of property income/expense related to investment income disbursements (GFS revenue item 1414 and GFS expense item 2813). However, for government sector units as holders of insurance policies, the revenue related to this item is likely to be unknown, and would probably be calculated only in the context of the whole of the economy. It therefore remains an adjustment item between GFS and national accounts. This imputed property income is also recorded as payable by the beneficiaries to the operator of the scheme as a household contribution supplement (D6141) in the secondary distribution of income account. In the case of pension schemes for general government, this imputed transaction primarily relates to employment-related nonautonomous pension schemes. If these pension schemes are autonomous, the transactions affect only households and the financial corporations sector. In GFS, an imputed property expense on existing pension entitlements, recorded under GFS expense item 2813, is equal to the increase in the liability of a defined-benefit pension scheme resulting from the passage of time. Thus, the imputed household pension contribution supplements, recorded in the secondary distribution of income account in the SNA, should be recorded in GFS as incurrence of pension liabilities (GFS transactions in liabilities item 33063) and not as revenue from social contributions (GFS revenue item 12). The SNA values can be derived from the detailed records of the pension schemes.

The secondary distribution of income account

A7.44 The secondary distribution of income account covers redistribution of income through current transfers (other than social transfers in kind made by government and NPISHs to households).[15] In addition to carrying forward the balance of primary income, this account records:

- Current taxes on income, wealth, etc. (D5 in SNA) as a resource for government, divided further into taxes on income (D51 in SNA) and other current taxes (D59 in SNA)
- Net social contributions (D61 in SNA) as a resource for government
- Social benefits other than transfers in kind (D62 in SNA) as a use for government
- Other current transfers (D7 in SNA), both as a resource and a use.

A7.45 The net social contributions (D61) are the actual and imputed contributions made by households to social insurance schemes. The net contributions exclude fees charged by the administrators of the schemes, which should be recorded as an expense for households for services rendered. The net social contributions are divided into four subcategories in the SNA, with each of the net social contribution subcategories further divided into pension and nonpension contributions. The subcategories for net social contributions are:

- Employers' actual social contributions (D611)
- Employers' imputed social contributions (D612)

[15] Social transfers in kind are recorded in the redistribution of income in kind account.

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- Households' actual social contributions (D613)
- Households' social contributions supplements (D614).

A7.46 The amount recorded for net social contributions receivable by units operating social insurance schemes can be different in the GFS and SNA datasets due to differences in the treatment of contributions to employment-related pension schemes. In the SNA, amounts payable to the operator of the scheme as social contributions (D6111, D6121, and D6131) are included in the secondary distribution of income, with a subsequent adjustment for the change in pension entitlements to record the incurrence of pension liabilities (F63 in SNA). GFS record social contributions payable to employment-related schemes providing pensions and other retirement benefits directly as transactions increasing the scheme's liabilities for pension entitlements (GFS item 33063) by the operator of the scheme.[16] In the SNA, all social benefits payable, including pensions and other retirement benefits, are recorded either in the secondary distribution of income account as social benefits other than social transfers in kind (D62), or in the redistribution of income account as social transfers in kind (D63). In addition, all pensions and other retirement social benefits payable are recorded as a reduction in pension entitlements (F63).

A7.47 Unlike the SNA, transfer expense in GFS excludes government employee pension and retirement benefits payable. These benefits are reported only as a transaction reducing liabilities for *pension entitlements* (GFS liability item 33063). As a result, GFS does not need the item for adjustment for change in pension entitlements. Also, unlike in the SNA, benefits in the form of goods and services produced by general government units are not recorded as social benefits in GFS, but in the various GFS expense categories corresponding to the costs of producing these goods and services, such as compensation of employees, and use of goods and services, etc.

A7.48 As stated in Box A7.1, goods and services produced by the general government sector and provided as social benefits in kind, grants in kind, or transfers in kind are recorded in the SNA as the production of output and a transfer to the beneficiaries. These transfers are recorded in the secondary distribution of income account, as if received in cash by the beneficiaries, accompanied by a sale of the output to the beneficiaries.

A7.49 Other current transfers (D7) in the SNA are a disparate collection of entries that are found in various categories in GFS:

- Net nonlife insurance premiums (D71) is the equivalent of net nonlife insurance *premiums* (GFS revenue item 14511 and GFS expense item 28311), adjusted for the imputation of the sale or purchase of insurance services, as described in paragraph A7.29.
- Nonlife insurance claims (D72) are the equivalent of the current nonlife insurance claims in GFS (GFS revenue item 14513and GFS expense items 28313).
- Current transfers within general government (D73) and current international cooperation (D74) in the SNA are recorded in GFS as *current grants* receivable (GFS revenue categories 1311, 1321, or 1331) or payable (GFS expense categories 2611, 2621, or 2631) except for goods and services produced by general government units and distributed in kind (see Box A7.1).
- Miscellaneous current transfers (D75) in the SNA are recorded in GFS as *fines, penalties, and forfeits* (GFS revenue item 143), *other current transfers not elsewhere classified* (GFS revenue item 14412), *current transfers not elsewhere classified* (GFS expense item 2821), adjusted with transfers of goods and services produced by general government units and distributed in kind (see Box A7.1).

A7.50 The balancing item of the secondary distribution of income account is disposable income. For households, this income can be used for final consumption expenditure and saving. For nonfinancial and financial corporations, disposable income is income not distributed to owners of equity minus taxes payable on income. The disposable income can be presented gross or net of consumption of fixed capital.

The redistribution of income in kind account

A7.51 The redistribution of income in kind account records social benefits in kind and transfers of individual nonmarket goods and services from the government sector to the household sector using the goods or services. Because of the nature of the transactions

[16] Actual and imputed contributions to pension and other retirement benefit schemes are therefore excluded from GFS revenue from *social contributions* (GFS revenue category 12).

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concerned, this account is significant only for government, households, and NPISHs. The account records two elements of the redistribution process. The first is nonmarket production by government and NPISHs of individual services, and the second is the purchase by government and NPISHs of goods and services for transfer to households free of charge or at prices that are not economically significant. The redistribution of income in kind account records social transfers in kind as resources for households and as uses of government and NPISHs. The balancing item of the redistribution of income in kind account is adjusted disposable income.

A7.52 The Classification of Functions of Government (COFOG) can be used to assist in deriving the government individual consumption expenditure (P31 in SNA). Government's social benefits in kind should be equal to the nonmarket produced social transfers in kind (D631 in SNA). See Table A7.4 for a presentation of the corresponding GFS expense items. Government collective consumption (P32 in SNA) is equal to its actual final consumption (P4 in SNA).

The use of disposable income account

A7.53 The use of income accounts exists in two variants, the use of disposable income account and the use of adjusted disposable income account. Both accounts show for the three sectors that undertake final consumption—namely, the household sector, the NPISH sector, and the general government sector—how disposable income or adjusted disposable income is allocated between final consumption and saving. It measures that part of income, domestically or abroad, that is not used for final consumption. Savings can be shown on a gross or a net basis (depending on whether consumption of fixed capital is included).

A7.54 In the SNA, gross saving is the balancing item before capital transactions and can be derived by excluding from the net lending/net borrowing the capital transfers receivable/payable, gross capital formation and acquisitions minus disposals of nonfinancial nonproduced assets. Gross saving can also be derived as disposable income minus final consumption. Since net lending/net borrowing in the SNA and GFS is conceptually the same, for the general government or public sector, gross saving can be derived from GFS, as follows:

Net lending/net borrowing

Minus: Capital grants/transfers receivable

Plus: Capital grants/transfers payable

Plus: Net acquisition of nonfinancial assets.

To get from net saving to gross saving, consumption of fixed capital needs to be added.

A7.55 The use of disposable income account and the use of adjusted disposable income account calculate saving as a balancing item. The two measures of saving are the same, but calculated differently.

- The use of disposable income account calculates saving using:
  - Disposable income as a resource
  - Final consumption expenditure as a use
  - An adjustment item showing the adjustment for the change in pension entitlements.
- The use of adjusted disposable income account calculates saving as a balancing item using:
  - Adjusted disposable income as a resource
  - Actual final consumption as a use
  - An adjustment item showing the adjustment for the change in pension entitlements.

A7.56 Final consumption is a key component of the use of disposable income account and gross domestic product. The concept is implemented in the SNA in two ways: final consumption expenditure (P3) and actual final consumption (P4). The difference between them is social transfers in kind (D63), which represents the final consumption of goods and services purchased by general government units but actually consumed by households.

A7.57 Final consumption expenditure is not an element of GFS. Final consumption expenditure can be calculated using linkages with GFS data established earlier. It can be calculated as:

Total output minus output related to own-account capital formation;[17]

Plus: Purchases of goods and services that are transferred to households without further transformation;[18]

[17] As illustrated in Tables A7.3 and A7.4, this corresponds to the sum of the following GFS categories: 1421+21.2+22.2+23.2+FISIM.

[18] As illustrated in Tables A7.3 and A7.4, this corresponds to the sum of the following GFS categories: 2712+2722+2732+2821.32+2821.42.

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Minus: Actual and imputed sales of goods and services (GFS revenue item 142);[19]

Minus: Changes in inventories of work in progress and finished goods (GFS items 31222 and 31223).

A7.58 In GFS, purchases of goods and services that are transferred to final consumers without further transformation are classified as *social security benefits in kind* (GFS expense item 2712), *social assistance benefits in kind* (GFS expense item 2722), *employment-related social benefits in kind* (GFS expense item 2732), or the in-kind portion of *current transfers not elsewhere classified* (GFS expense item 2821), depending on the nature and the organization of the distribution.

A7.59 The GFS expense categories for social benefits in kind include reimbursements to households for purchases of goods and services receivable as social benefits in kind, and direct purchases by general government units of goods and services from market producers and provided as social benefits in kind. In addition, the GFS item for *transfers not elsewhere classified* (2821) may include purchases of goods and services from market producers that are distributed directly to households for final consumption other than social benefits. Goods and services produced by government themselves and subsequently used as transfers in kind are not reported as in-kind transactions in GFS, but are included in the SNA concept for social transfers in kind (D63).

A7.60 Because the SNA separately measures production and distribution of goods and services, transactions in kind are normally recorded in the accounts as if they are monetary transfers followed by the beneficiary spending the transfer to obtain the goods and services concerned. Therefore, social transfers in kind (D63) consist of final consumption expenditure undertaken by government and NPISHs on behalf of households. For this reason they are described as individual goods and services. Information on these individual goods and services may be obtainable from the cross-classification of the COFOG and economic type of expense in Table 6A.2. The annex to Chapter 6 lists the services that are considered individual.

[19] When an existing good is sold, the amount receivable from its sale is recorded as negative final consumption expenditure if the initial outlay on the good was classified as final consumption expenditure.

A7.61 In the SNA, an adjustment is made in the use of disposable income account, as well as in the use of adjustment disposable income account for the change in pension entitlements (D.8). This adjustment for the change in pension entitlements is equal to:

The total value of the actual social contributions payable to funded pension schemes,

Plus: The total value of the imputed social contributions payable to employment-related pension schemes,

Plus: The total value of social contribution supplements,

Minus: The value of the associated service charges;

Minus: The total value of the pensions paid out as pension benefits by the pension schemes.

The different treatment of pension schemes eliminates the need for this adjustment item in the GFS framework (see paragraph 5.95).

The accumulation accounts

A7.62 Saving is the balancing item of the last of the current account in the SNA and the starting point for the accumulation accounts. The first group of accumulation accounts, comprising the capital and financial accounts, covers transactions in assets or liabilities and changes in net worth due to capital transfers. A second group of accumulation accounts, comprising the other changes in volume of assets account and revaluation account, relates to changes in assets and liabilities caused by factors other than transactions.

The capital account

A7.63 The capital account records transactions linked to the acquisition of nonfinancial assets and capital transfers. The account starts with net saving, the final balancing item of the current accounts, and records transactions in nonfinancial assets and capital transfers. The balancing item is either *net lending (+)*, which measures the net amount available to finance other sectors, or *net borrowing (–)* which corresponds to the net financing from other sectors.

A7.64 Most of the entries in the capital account of the SNA can be derived from the corresponding entries in GFS. For example, the gross fixed capital

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formation (P51g) minus the consumption of fixed capital (P51c) is the net investment in fixed assets in GFS (GFS item 311). As indicated in Table A7.5, the *2008 SNA* classification of categories of nonfinancial assets has been fully incorporated in GFS. However, in the SNA, fixed assets are also classified into:

- Acquisition of new fixed assets (item 311.P5111 in Table A7.5)
- Acquisition of existing fixed assets (item 311. P5112 in Table A7.5)
- Disposal of existing fixed assets (item 311.P5113 in Table A7.5).

This distinction between new and existing assets is not available from GFS, and would require supplementary information from source data systems.

A7.65 Consumption of fixed capital in the SNA (P51c) equals the sum of the expense item of the same name in GFS (GFS expense item 23) and the consumption of fixed capital that was capitalized as part of own-account capital formation (GFS item 3M13).

A7.66 Changes in inventories (P52), acquisitions minus disposals of valuables (P53), and acquisitions minus disposals of nonproduced assets (NP) are the same as the net investment in the corresponding items in GFS (GFS items 312, 313, and 314, respectively).

A7.67 In the SNA, capital transfers receivable and payable (D9r) are recorded as capital taxes (D91r), investment grants (D92r), and other capital transfers (D99r). These transfers are included in GFS as follows:

- Capital taxes (D91r) receivable by the general government sector can directly be related to GFS revenue recorded in *estate, inheritance, and gift taxes* (GFS revenue item 1133) and *other nonrecurrent taxes on property* (GFS revenue item 1135). Where these taxes are payable by one level of government to another, they are included in the expense item *capital transfers not elsewhere classified* (2822) of the payee.
- Investment grants (D92r) consist of all capital transfers made by governments to other resident or nonresident institutional units to finance all or part of the costs of their acquiring fixed assets. These investment grants receivable/payable are a component of *capital grants receivable* (GFS revenue items 1312, 1322, or 1332), and a component of *capital grants payable* (GFS expense items 2612, 2622, and 2632).
- Other capital transfers (D99r) consist of all capital transfers except capital taxes and investment grants. One notable category included here is capital transfers related to debt cancellation by mutual agreement. In GFS, these are a component of *capital grants* (GFS revenue items 1312, 1322, or 1332 or GFS expense items 2612, 2622, and 2632), *capital transfers not elsewhere classified* (GFS revenue item 1442 and GFS expense item 2822), and *capital claims* related to nonlife insurance (GFS revenue item 1452 and GFS expense item 2832).

The financial account

A7.68 The financial account in the SNA records transactions in financial assets and liabilities, classified by instruments. It therefore records the net acquisition of financial assets, and the net incurrence of liabilities. The balancing item, *net lending (+)/ net borrowing (–)*, is in principle equal to the *net lending (+)/ net borrowing (–)* in the capital account, although measured differently.

A7.69 Conceptually, the transactions recorded in the financial account of the SNA are identical to the transactions in financial assets and liabilities recorded in GFS (see Table A7.6). At the general government or public sector level the value of transactions in financial assets and liabilities could differ due to the different approach to consolidation (see paragraph A7.11). Some investment income disbursements (see paragraph A7.43) would likely be unknown to government, and would be calculated only in the context of the whole of the economy and therefore remain an adjustment item between GFS and national accounts. Amounts recorded as transactions in insurance, pension, and standardized guarantee schemes may also differ due to the option in the SNA to treat some employment-related liabilities in supplementary rather than the main tables (see paragraph 5.95).

The other changes in the volume of assets accounts

A7.70 The other changes in the volume of assets account in the SNA records the same economic events as those recorded in GFS (GFS items 5***); the total value of changes should therefore be consistent in

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the two datasets. In both datasets, the other changes in volume of assets are recorded for each type of assets and liabilities. In addition, the SNA also classifies these changes according to specific events that give rise to the change in the volume of the assets or liabilities. Data are separately recorded for economic appearance of assets (K1), economic disappearance of nonproduced nonfinancial assets (K2), catastrophic losses (K3), uncompensated seizures (K4), other changes in volume not elsewhere classified (K5), and changes in classification (K6). Source data for recording these events should therefore provide for identification of the relevant assets and liabilities, but also identify the underlying event that caused the change in the volume.

The revaluation account

A7.71 The revaluation account in the SNA records the same holding gains or losses as those recorded in GFS (GFS items 4***). The total value of nominal holding gains for the general government or public sector should therefore be the same in the two datasets. In addition, the SNA recommends that nominal holding gains and losses be further subdivided between neutral and real holding gains and losses. GFS do not make this distinction:

- *Neutral holding gains and losses* (B1031) over a period are the increase (decrease) in the value of an asset that would be required, in the absence of transactions and other changes in the volume of assets, to maintain command over the same amount of goods and services as at the beginning of the period. The value is obtained by applying, during the same periods of time, an index of the change in the general price level to the initial value of all assets or liabilities. The result of this operation is called neutral holding gains and losses because all assets and liabilities are revalued so as to preserve exactly their purchasing power.
- *Real holding gains and losses* (B1032) record the difference between nominal holding gains and losses and neutral holding gains and losses.

The balance sheet

A7.72 The opening and closing balance sheets for the general government or public sector are conceptually the same in the SNA and GFS. Both datasets display assets on the left-hand side, and liabilities and net worth on the right-hand side. The changes in the *Balance Sheet* in the SNA are the sum of the entries in the four accumulation accounts corresponding to the respective asset or liability. Similarly, in GFS the changes in the *Balance Sheet* for each category of assets and liabilities are equal to the sum of transactions, holding gains and losses, and other changes in volume. The classification of assets and liabilities in the two frameworks are fully consistent. However, at the general government or public sector level the value of stock positions in financial assets and liabilities could differ due to the different approach to consolidation (see paragraph A7.11). In practice amounts recorded as stock positions may also differ in two cases:

- Liabilities in respect of employment-related pension schemes may differ, due to the option in the SNA to treat some employment-related liabilities in supplementary tables (see paragraph 5.95).
- Assets and liabilities subject to investment income disbursements may differ in cases where these amounts are unknown to government, and therefore excluded from GFS, and would be calculated only in the context of the whole of the economy (see paragraph A7.43).[20]

Comparison of the Analytical Frameworks of GFS and the Balance of Payments and the International Investment Position

A7.73 The *BPM6* serves as the standard framework for statistics on the flows and stock positions between an economy and the rest of the world. Since the *BPM6* is harmonized with the *2008 SNA*, it is also harmonized with the other macroeconomic datasets, including GFS. Because of conceptual linkages, compilers of the international accounts and GFS should consult to ensure the consistent application of definitions of coverage and concepts, and accounting rules.

Comparison of the Accounts in GFS and Balance of Payments and the International Investment Position

A7.74 The structure of the international statistical framework is similar to the structure used in the GFS framework, and comprises (i) *the balance*

[20] The SNA also provides volume measures (including of government components)—an important type of information for fiscal analysis that makes the SNA complementary to GFS.

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Table A7.5 Correspondence of GFS and SNA Transactions in Nonfinancial Asset Categories

GFS codes		SNA codes	Nonfinancial asset categories
31			**Nonfinancial assets**
311	=	**P511**	**Fixed assets**
3M1	>	*P1*	*Of which: Own-account capital formation*
3M11	>	*D1*	*Own-account capital formation, compensation of employees*
3M111	>	*D11*	*Wages and salaries*
3M112	>	*D12*	*Employers' social contributions*
3M1121	>	*D121*	*Employers' actual social contributions*
3M11211	>	*D1211*	*Employers' actual pension contributions*
3M11211	>	*D1212*	*Employers' actual nonpension contributions*
3M1122	>	*D122*	*Employers' imputed social contributions*
3M11221	>	*D1221*	*Employers' imputed pension contributions*
3M11222	>	*D1222*	*Employers' imputed non-pension contributions*
3M12	>	*P2*	*Own-account capital formation, intermediate consumption*
3M13	>	*P51c*	*Own-account capital formation, consumption of fixed capital*
311.1	<	***P5111***	***Acquisition of new fixed assets***
311.2	<	***P5112***	***Acquisition of existing fixed assets***
311.3	<	***P5113***	***Disposals of existing fixed assets***
3111			Buildings and structures
31111			Dwellings
31112			Buildings other than dwellings
31113			Other structures
31114			Land improvements
3112			Machinery and equipment
31121			Transport equipment
31122			Machinery and equipment other than transport equipment
311221			ICT equipment
311222			Machinery and equipment not elsewhere classified
3113			Other fixed assets
31131			Cultivated biological resources
31132			Intellectual property products
31133	=	P512	Costs of ownership transfer of nonproduced assets (other than land)
31134			Weapons systems
312	=	**P52**	**Inventories**
31221			Materials and supplies
31222			Work-in-process
31222.1		*me*	*Of which: Market establishments*
312221			Work-in-process on cultivated biological assets
312222			Other work-in-process
31223			Finished goods
31223.1		*me*	*Of which: Market establishments*
31224			Goods for resale
31225			Military inventories
313	=	**P53**	**Valuables**
314		**NP**	**Nonproduced assets**
3141	>	NP1	Land
3142	>	NP1	Mineral and energy resources
3143	>	NP1	Other naturally occurring assets
3144			Intangible nonproduced assets
31441	=	NP2	Contracts, leases, and licenses
31442	=	NP3	Goodwill and marketing assets
Legend:	=	***GFS item is the same as the SNA item***	
	>	**GFS item is a component of the relevant SNA item**	
	<	***Portion of GFS item is a component of the relevant SNA item***	
	~	***GFS item is conceptually the same but differs in practice due to treatment of specific transactions***	

Note: Nonstandard GFS items required for the SNA indicated in darker shaded rows.

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of payments, which summarizes economic transactions between residents and nonresidents during a specific time period; (ii) *the other changes in financial assets and liabilities*, which show flows due to economic events other than transactions between residents and nonresidents, and include valuation changes; and (iii) *the international investment position* (IIP), which shows the value of the financial asset and liability stock positions between the residents of an economy and nonresidents at a reporting date. The difference between the opening and closing stock positions of the IIP is explained by the sum of transactions and other changes in financial assets and liabilities.

Linkages between GFS and Balance of Payments and the International Investment Position

A7.75 The *BPM6* framework provides a sequence of accounts, each encompassing a separate economic process or phenomenon and a balancing item. The remainder of this section describes how the various international accounts correspond to GFS.

The balance of payments

A7.76 The **balance of payments** summarizes economic transactions between residents and nonresidents during a specific time period. The different accounts within the balance of payments are distinguished according to the nature of the economic resources provided and received, and comprise the following:

- *The current account* shows flows of goods and services, primary income, and secondary income between residents and nonresidents.
- *The capital account* shows flows for transactions in nonproduced nonfinancial assets, and capital transfers between residents and nonresidents.
- *The financial account* shows net acquisition and disposal of financial assets and liabilities.
- The sum of the balances on the current and capital accounts represents the net lending (surplus) or net borrowing (deficit) by the resident economy with the rest of the world. This is conceptually equal to the net balance of the financial account. It is also conceptually equal to the sum of net lending/borrowing for all the resident sectors.

The current account

A7.77 The *current account* shows flows of goods and services, primary income, and secondary income between residents and nonresidents. The balance on this account, known as the current account balance, shows the difference between the sum of exports and income receivable and the sum of imports and income payable. The current account balance represents the saving-investment gap for the economy.

The goods and services account

A7.78 The goods and services account shows transactions in items that are outcomes of production activities. The focus of the account is the point at which goods and services[21] are exchanged between a resident and a nonresident. Production is an activity in which an enterprise uses inputs (intermediate inputs, labor, produced and nonproduced assets) in order to transform them to an output that can be supplied to other units.

A7.79 The GFS *Statement of Operations* has a linkage to the goods and services account to the extent that general government/public sector units enter into transactions with nonresidents, involving goods and services, either as a producer/seller or user of these goods or services. GFS will usually not separately identify these transactions, which limits opportunities for reconciliation between the goods and service account and GFS. However, in some cases, supplementary information in the underlying source data may identify such transactions—either because of their nature, large volumes, or large values of the transactions. Specifically, where produced assets are exchanged, contractual arrangements may be publicly available and should be consistently treated in the goods and services account of the balance of payments and GFS.

A7.80 The goods and services account requires that goods and services be classified according to the nature of the good or service. One of these specifically requires the separate disclosure of *government goods and services not included elsewhere*, which cover:

- Goods and services supplied by and to enclaves, such as embassies, military bases, and international organizations

[21] Goods as used in this context include both consumer goods and produced nonfinancial assets.

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Table A7.6 Correspondence of GFS and SNA Financial Assets and Liabilities

GFSM harmonized with other datasets	GFS codes		*2008 SNA* codes	
	Transaction	Stock position	Transaction	Stock position
Financial assets[1]	**32**	**62**		
Total by instrument:				
Monetary gold and SDRs	**3201**	**6201**	**F1**	**AF1**
Monetary gold	32011	62011	F11	AF11
SDRs	32012	62012	F12	AF12
Currency and deposits	**3202**	**6202**	**F2**	**AF2**
Currency	32021	62021	F21	AF21
Transferable deposits	32022	62022	F22	AF22
Other deposits	32023	62023	F29	AF29
Debt securities	**3203**	**6203**	**F3**	**AF3**
Loans	**3204**	**6204**	**F4**	**AF4**
Equity and investment fund shares	**3205**	**6205**	**F5**	**AF5**
Equity	32051	62051	F51	AF51
Investment fund shares	32052	62052	F52	AF52
Insurance, pension, and standardized guarantee schemes	**3206**	**6206**	**F6**	**AF6**
Nonlife insurance technical reserves	32061	62061	F61	AF61
Life insurance and annuities entitlements	32062	62062	F62	AF62
Pension entitlements[2]	32063	62063	F63 & F65	AF63 & AF65
Claims of pension fund on pension manager	32064	62064	F64	AF64
Provisions for calls under standardized guarantees	32065	62065	F66	AF66
Financial derivatives and employee stock options	**3207**	**6207**	**F7**	**AF7**
Financial derivatives	32071	62071	F71	AF71
Employee stock options	32072	62072	F72	AF72
Other accounts receivable	**3208**	**6208**	**F8**	**AF8**
Trade credits and advances	32081	62081	F81	AF81
Other accounts receivable	32082	62082	F82	AF82
Liabilities[1]	**33**	**63**		
Total by instrument: **				
Special Drawing Rights (SDRs)	3301	6301	F12	AF12
Currency and deposits	3302	6302	F2	AF2
Debt securities	3303	6303	F3	AF3
Loans	3304	6304	F4	AF4
Equity and investment fund shares	3305	6305	F5	AF5
Insurance, pension, and standardized guarantee schemes[2]	3306	6306	F6	AF6
Financial derivatives and employee stock options	3307	6307	F7	AF7
Other accounts payable	3308	6308	F8	AF8

[1]Both financial assets and liabilities are classified further into domestic and external in the same subcategories except that liabilities and domestic assets exclude monetary gold.

[2]To the extent that nonpension entitlement reserves exist, such liabilities are included with those for pension entitlements for pragmatic reasons (see paragraph 7.195).

- Goods and services acquired from the host economy by diplomats, consular staff, and military personnel located abroad and their dependents
- Services supplied by and to governments and not included in other categories of services.

A7.81 Government and international organization enclaves are not residents of the territory in which they are physically located. Therefore, their transactions with residents of that territory or location are international transactions. However, all expenditure on goods and services by locally engaged staff of the enclave is excluded from international transactions. In addition, government supply of licenses and permits to nonresidents that are classified as fees and some activities related to technical assistance provided by one country to another are included in goods and

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services.[22] The GFS classifications do not specifically require the identification of transactions in goods and services with nonresidents. However, where these transactions can be identified and classifications are built into the underlying general government sector accounting system, the information should be provided to balance of payments compilers. The value of transactions in goods and services entered into with nonresidents in GFS may differ from the international statistics that follow the SNA treatment of insurance services and standardized guarantee fees (see paragraph A7.29).

The primary income account

A7.82 The *primary income account* shows primary income flows between resident and nonresident institutional units. Primary income represents the return that accrues to an institutional unit for its contribution to the production process or for the provision of financial assets and renting natural resources to other institutional units.

A7.83 The international accounts distinguish the following types of primary income:

- Compensation of employees
- Investment income
  - Dividends
  - Reinvested earnings
  - Interest
  - Investment income attributable to policyholders in insurance, standardized guarantees, and pension funds
- Other primary income
  - Rent
  - Taxes on production and imports
  - Subsidies.

A7.84 The consistency in data between the GFS and primary income account can be established only to the extent that sufficient supplementary details are separately identified in GFS, or the underlying source data. The following linkages exist between the primary income account and GFS:

- *Compensation of employees*: To the extent that the resident government employs nonresident individuals, compensation of employees of government would include amounts payable to nonresidents that should be recorded in the primary income account of the balance of payments. Because government employment usually has some residence criteria as a precondition, these amounts are often not very large. However, in the case of territorial enclaves, all compensation of employees payable by government to residents of the host country should be included in the primary income account. The GFS classifications do not specifically require the identification of compensation of employees to nonresidents. However, when such payments are identified in the underlying source data system, the information should be reported consistently in the GFS and primary income account.
- *Investment income*: The contribution of the general government sector to investment income is mainly derived from the nonresident portion of the GFS items *interest* (GFS revenue item 1411 and GFS expense item 24) and *dividends* (GFS revenue item 1412 and GFS expense item 2811). It can therefore be linked with the GFS accounts, if underlying source data distinguish between receivables and payables from/to residents and nonresidents. While the categories of investment income are conceptually the same for GFS and the international accounts, the value of transactions with nonresidents in GFS may differ from the international statistics due to the treatment of FISIM (see paragraph A7.29). Where general government sector units control insurance, standardized guarantees or pension schemes, they attribute investment income to policyholders in these schemes. These policyholders may include nonresidents, in which case the relevant portion of the *property expense for investment income disbursement* (GFS expense item 2813) should be consistent with the corresponding item recorded in the primary income account. Where a general government unit or public corporation has foreign direct investments in nonresident special purpose entities (SPEs), or foreign branches of public corporations, reinvested earnings, as reported in the primary income account, should be recorded separately in GFS (GFS revenue item 1416). Similarly, where public corporations have foreign direct investors or investment fund shares/units, reinvested earnings should be

[22] See the *BPM6*, paragraphs 10.173–10.181. The criteria for the identification of these fees are the same as in the SNA and GFS.

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included in the primary income accounts, and should be consistent with amounts reported in GFS (GFS expense item 2815).

- *Other primary income*: In calculating other primary income, linkages with the GFS data arise from the transactions with nonresidents related to *subsidies* (GFS revenue item 144111 and GFS expense item 25) and *rent* (GFS revenue item 1415 and GFS expense item 2814). Where information on such payments or receipts is provided in the underlying source data, these data should be consistent with the primary income account. The taxes on production and on imports reported in the balance of payments primary income account constitute the portion of these taxes collected from nonresidents and are the same tax categories as the corresponding item in the SNA (D2 in SNA). Taxes on production and on imports are the sum of several detailed GFS tax categories:
  - *Recurrent taxes on immovable property* (GFS item 1131)
  - *Recurrent taxes on net wealth* (GFS item 1132)
  - *Other recurrent taxes on property* (GFS item 1136)
  - *General taxes on goods and services* (GFS item 1141)
  - *Excises* (GFS item 1142)
  - *Profits of fiscal monopolies* (GFS item 1143)
  - *Taxes on specific services* (GFS item 1144)
  - *Taxes on use of goods and on permission to use goods or perform activities*—Payable by producers (GFS item 1145)
  - *Other taxes*—Payable by business (GFS item 1161).

A7.85 To allow consistency checks with the primary income account in the balance of payments, these GFS tax categories need to be divided between amounts receivable from residents and nonresidents. These subcategories are normally not available from GFS, and would be useful only for deriving credits in the primary income account. While certain taxes on production and imports are easier to divide between residents and nonresidents, others are more difficult. Also, the portion attributable to nonresidents may vary from one tax category to the next and from one year to the next.

The secondary income account

A7.86 The secondary income account in the balance of payments shows current transfers between residents and nonresidents. This account shows redistribution of income; that is, when resources for current purposes are provided by one party without anything of economic value being supplied as a direct return to that party. Various types of current transfers are recorded in this account to show their role in the process of income distribution between economies. The extent to which governments are involved in these transfers will determine the linkages between the GFS *Statement of Operations* and this account.

A7.87 The standard components of the secondary income account make a distinction at the first level between current transfers receivable/payable by general government and by other sectors, comprising the financial corporations, nonfinancial corporations, households, and NPISHs. For the general government, these transfers include the transfers in respect of:

- Current taxes on income, wealth, etc.
- Social contributions
- Social benefits
- Net nonlife insurance premiums
- Nonlife insurance claims
- Current international cooperation
- Miscellaneous current transfers.

A7.88 To the extent that the current transfers of general government are identifiable and reported in GFS as being from or to nonresidents, these data should be consistently reported in the secondary income account of the balance of payments.

- Current taxes on income, wealth, etc. reported in the secondary income account make up the nonresident portion of the same tax categories as in the *2008 SNA* (D5 in SNA). Current taxes on income, wealth, etc. are the sum of several detailed tax categories as reported in GFS, and comprise *taxes on income, profits and capital gains* (GFS item 111) and several other tax categories mainly payable by final consumers (see paragraph A7.40).
- Social contributions (D61 in SNA) receivable from nonresidents by general government sector units or social benefits payable to nonresidents

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(D62 and D63 in SNA) may be different from the corresponding GFS items (see paragraphs A7.45–A7.47).

- Current international cooperation is separately reported in the GFS *Statement of Operations* and should be reported consistently in the secondary income account. *Grants payable to foreign government* and *international organizations* (GFS item 2611 and 2621 respectively) and *grants receivable from foreign governments* and *international organizations* (GFS item 1311 and 1321 respectively) are usually the most important linkage between the GFS and the secondary income account.
- Other miscellaneous current transfers (D75 in SNA)[23] comprise various items of current transfers receivable and payable (see paragraph A7.49).
- Current transfers of government sector units related to nonlife insurance premiums and claims and miscellaneous current transfers would require a distinction of those receivable or payable to resident and nonresidents.

The capital account

A7.89 The capital account in the international accounts shows transactions between residents and nonresidents related to capital transfers receivable and payable and the acquisition and disposal of nonproduced nonfinancial assets. It records acquisitions and disposal of nonproduced nonfinancial assets, such as land sold to embassies and sales of leases and licenses, as well as capital transfers—that is, the provision of resources for capital purposes by one party without anything of economic value being supplied in direct return to that party.

A7.90 Nonproduced nonfinancial assets consist of five items: *land*, *mineral and energy resources*, and *other naturally occurring assets*, *contracts, leases, and licenses*, and *marketing assets and goodwill* (GFS items 3141, 3142, 3143, 31441, and 31442, respectively). There is full consistency in the macroeconomic statistical framework with regards to the items of nonproduced nonfinancial assets that exist. Where general government sector units acquire or dispose of these assets in transactions with nonresidents, supplementary information would be required from the GFS transactions to allow compilation or consistency checks with the international accounts.

A7.91 It should be noted that the capital account in the balance of payments does not show produced nonfinancial assets, as is the case in the SNA and GFS. It shows only transactions in nonproduced nonfinancial assets. Transactions in produced nonfinancial assets are included in the goods and services account, which does not distinguish whether those goods or services are destined for capital or current purposes.

A7.92 Conceptually capital transfers are the same as the capital transfers recorded in the SNA and GFS. Governments are often involved in these transfers, which should be reported in a consistent way in GFS and the capital account of the balance of payments. These capital transfers consist of compulsory transfers to governments, transfers under court orders, and voluntary transfers. There may also be imputed capital transfers as a result of governments' use of special purpose entities resident in other economies, for fiscal purposes (see paragraph 2.138 and paragraphs 8.24–8.26 of the *BPM6*). The capital account of the balance of payments includes the following main types of capital transfers:

- *Debt forgiveness*: When government/public sector entities are involved in debt forgiveness (see paragraphs A3.7–A3.9), either as a recipient or grantor, the event is usually well known and it should be identifiable in the GFS accounts. In the balance of payments capital account, debt forgiveness received from nonresidents is reflected as revenue in *capital grants* received from either foreign governments, international organizations, or included in *capital transfers not elsewhere classified*, when received from other nonresident entities. The corresponding entries in GFS are recorded in GFS items 1312, 1322, or 1442 respectively. A corresponding reduction in the appropriate foreign debt instrument will be recorded. When the government sector unit is the provider of debt relief to a nonresident, an expense is reflected as *capital grants* to foreign governments or international organizations, or is included in *capital transfers not elsewhere classified*, when provided to other nonresident entities. The GFS expense is recorded in GFS items 2612, 2622, or 2822, respectively. A corresponding

[23] The detailed corresponding GFS categories are shown in Tables A7.3 and A7.4.

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reduction in the appropriate foreign financial asset is recorded.

- *Exceptionally large nonlife insurance claims*: Where these claims are receivable/payable by government sector units, they are recorded as capital claims (GFS revenue item 1452 or GFS expense item 2832, respectively). Due to the extraordinary nature of this item, it is usually well known and visible in the GFS data, and will allow inclusion in the international accounts.
- *Investment grants in the balance of payments*: These are capital transfers in cash or in kind made by governments or international organizations to other institutional units to finance all or part of the cost of their acquiring fixed assets. Government/public sector units can be the grantor or recipient of these investment grants. These transfers are recorded in GFS *capital grants*, as described earlier.
- *One-off guarantees and other debt assumption*: When government/public sector units and nonresidents are involved in these transactions (see paragraph 7.256–7.260), it should be consistently treated in the capital account and GFS.
- *Capital taxes* (defined in paragraph 5.51): Those capital taxes recorded in the capital account of the balance of payment comprise the same tax categories as the corresponding item in the SNA (D91 in SNA), but represent only the portion of these taxes collected from nonresidents (see paragraph A7.67). Consistency for this item in the capital account and GFS requires a breakdown of these taxes in supplementary GFS data between amounts receivable from residents and nonresidents.
- *Other capital transfers*: These consist of major nonrecurrent payments in compensation for extensive damage or serious injuries not covered by insurance policies. Where government/public sector units are the recipient of this type of transfer from nonresidents, it is recorded as part of *capital grants* receivable from either foreign governments, international organizations, or included as *capital transfers not elsewhere classified*, when received from other nonresident entities (GFS revenue items 1312, 1322, or 1442, respectively). When the government/public sector unit is the grantor of this type of transfer to a nonresident, an expense is reflected as *capital grants* to foreign governments, international organizations, or as *capital transfers not elsewhere classified*, when provided to other entities (GFS expense items 2612, 2622, or 2822, respectively). Consistency for this item in the capital account and GFS also requires a further breakdown of the transfers to identify amounts receivable or payable to nonresidents.

The financial account

A7.93 The financial account of the balance of payments records transactions that involve financial assets and liabilities that take place between residents and nonresidents. Financial account transactions appear in the balance of payments and, because of their effect on the stock of assets and liabilities, also in the integrated IIP statement. The net balance on the financial account is conceptually equal to the sum of the balances on the current and capital accounts (*net lending (+)/net borrowing (–)*). The financial account therefore measures how the net lending to or net borrowing from nonresidents is financed.

A7.94 The international accounts use functional categories as the primary classification for each of the financial transactions, other changes in assets and liabilities, and stock positions.[24] Five functional categories of investment are distinguished in the international accounts:

- Direct investment
- Portfolio investment
- Financial derivatives (other than reserves) and employee stock options
- Other investment
- Reserve assets.

This functional classification takes into consideration some aspects of the relationship between the parties and the motivation for investment (see the *BPM6*, Chapter 6). In addition, data in the financial account are also presented according to the financial asset or liability instrument employed, the sector or the resident counterpart to the transaction, and maturity. Although the classification of financial assets and liabilities as presented in GFS does not follow

[24] The term functional classification is used in a different context in the classification of the functions of government.

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a functional classification, it is fully consistent with the instrument breakdown and sector classification as used in the international accounts. As regards financial assets and liabilities the GFS framework distinguishes between transactions with residents and nonresidents. GFS follow the same criteria for determining residence as the international accounts. Conceptually, therefore, the GFS data are consistent with the data for general government as presented in the financial account of the balance of payments.[25]

The other changes in financial assets and liabilities account

A7.95 In the international accounts, the other changes in financial assets and liabilities account shows changes in financial positions that arise for reasons other than transactions between residents and nonresidents. These changes are also called other flows, and, similar to GFS, they include holding gains and losses, and other volume change in financial assets and liabilities (including reclassifications). Because of the importance of different currencies in the IIP, revaluations (holding gains and losses) are broken down between changes due to exchange rates and other price changes. As described in earlier paragraphs, the classification of assets and liabilities by financial instruments is conceptually fully consistent in the GFS and international accounts. It should result in consistency in the data reported for these other flows in the two datasets, except in the case of liabilities for pension entitlements that may differ.

The international investment position

A7.96 The international investment position (IIP) is a statistical statement that shows at a point in time the value of: financial assets of residents of an economy that are claims on nonresidents and gold bullion held as reserve assets, and the liabilities of residents of an economy to nonresidents. The difference between the assets and liabilities is the net position in the IIP and represents either a net claim on or a net liability to the rest of the world. The IIP represents a subset of the assets and liabilities included in a country's balance sheet. In addition to the IIP, this balance sheet incorporates nonfinancial assets as well as financial assets and liability positions between residents.

A7.97 As is the case for the financial account, the highest level of classification used in the IIP is the functional classification (see paragraph A7.94). Because of the growing importance of the balance sheet approach to analyze sustainability and vulnerability, the recording in the IIP of information by currency composition is part of the standard presentation, while remaining maturity is encouraged.

A7.98 General government's financial asset/liability positions with nonresidents, as reported in the GFS balance sheet, follow the same accounting rules and classification by instruments as the IIP. Additional reporting requirements on remaining maturity breakdowns and currency breakdowns, as recommended in the *PSDS Guide* and GFS, are also fully consistent.

Comparison of the Analytical Frameworks of GFS and the Monetary and Financial Statistics

A7.99 The *MFSM* is part of international macroeconomic statistical guidelines and can therefore be seen as extending and elaborating on the *2008 SNA*. The *MFSM* framework is consistent with the *1993 SNA* with respect to principles and concepts, like the delineation of resident and nonresident entities, sectorization of the economy, classification of the various categories of financial assets and liabilities, time of recording, valuation, and data aggregation. On consolidation, the *MFSM* follows GFS in consolidating sectoral balance sheets. The main principles and concepts of the *MFSM* also accord with those in the *BPM6* and this *Manual.*

Comparing the Accounts in GFS and Monetary and Financial Statistics

A7.100 The purpose of the *MFSM* is to provide guidelines for the compilation and the presentation of monetary and financial statistics. *Monetary statistics* consist of a comprehensive set of stock and flow data on the financial and nonfinancial assets and liabilities of an economy's financial corporations sector. The organization and presentation of monetary statistics follow a hierarchical approach based on two general data frameworks—sectoral balance sheets and surveys. Stock position data reported by individual

[25] The international accounts identify general government, but do not present data for the subsectors of the general government, as is the case in GFS.

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institutional units are aggregated into sectoral balance sheets, which contain the comprehensive data for the financial corporations subsectors. At a second level, the data in the sectoral balance sheets are consolidated into surveys.

A7.101 *Financial statistics*, on the other hand, consist of a comprehensive set of flows and stock position data on financial assets and liabilities of all sectors of an economy. These data are organized and presented in formats designed to show financial flows among the sectors of an economy and corresponding financial asset and liability positions. Also included in monetary and financial statistics are the *flow of funds* data, presented in a matrix format. A detailed flow of funds accounting cross-classifies financial assets acquired by each sector, by instrument with the counterpart debtor sector. It also cross-classifies liabilities incurred by each sector by instrument and counterpart creditor sector. Therefore, this matrix shows the financial transactions among all subsectors of an economy and the rest of the world. Such a presentation is particularly useful to analyze the allocation of financial resources and users in an economy.

Linkages between GFS and Monetary and Financial Statistics

A7.102 Linkages between GFS and the monetary and financial statistics (MFS) result from the financial relations between government and financial corporations. As clients (and in addition to holding currency), governments hold deposit assets with financial corporations and contract liabilities by borrowing from and selling debt securities to the corporations. As investors, governments generally are often the sole owner of public financial corporations or hold equity in other financial corporations. These financial relationships result in either a net claim of government on the financial corporations or a net claim of these corporations on government. The net asset/liability position between the general/central government sector and the financial corporations sector should be consistent, and reconcilable in the two datasets. The extent to which these data are similar is often a good indicator of the consistency in macroeconomic statistics in a country.

A7.103 Differences in the amounts reported as net claims between the government sector and the financial corporations sector could be used to check the accuracy and consistency of the respective datasets. Where the two sets of data are materially different, the reasons for the differences must be ascertained, and documentation on the size and reasons for the discrepancy should be provided to users of the data. Good statistical practice is for the compilers to investigate and try to resolve differences. Reasons for differences can often be found in:

- *Coverage*—In many cases, governments have numerous accounts held in several financial institutions. The institutional coverage of general/central government should be the same in both datasets. A common case exists where certain government institutions have accounts with financial institutions and MFS cover these accounts, but the accounts of these institutions are not covered in GFS because these GFS data are confined to budgetary accounts, thereby not covering the data of the extrabudgetary units. Differences may also arise if government has accounts with a financial institution, but this financial institution is not covered in the monetary and financial statistics.
- *Sectorization*—Some of the statistical institutional units may not be appropriately and consistently identified and classified as general government or public sector units or the sector classification of the subsectors may be different in the two datasets. For example, an institutional unit that manages and organizes externally financed projects and foreign grants may not be appropriately designated as a government account in financial corporations' records.
- *Classification and coverage of financial instruments*—The classification of financial instruments included in financial assets and liabilities may differ, or an instrument may not be consistently classified in the two datasets. For example, differences may arise when an instrument such as accounts receivable/payable is not treated the same way in the data, or when a loan is incorrectly reported as equity investment in one of the datasets.
- *Time of recording*—Complementary periods used in government accounting may result in transactions being recorded at a time other than when economic ownership changed hands.
- *Accrual versus cash recording*—Although conceptually both datasets should be recorded on an accrual basis, GFS compilers often use cash-based

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data as a proxy for data compiled on an accrual basis, or make adjustments to cash data to approximate accrual data. The financial corporations sector is often more advanced in implementing accrual accounting. Often, certain items may not be correctly accrued to the time when the economic event occurred—for example, they may be using different methods to accrue discount or premiums on bonds.

- *Valuation*—While conceptually both datasets should follow the same valuation principles for assets and liabilities, national practices may differ. Where valuation differences in source data exist, differences may occur between GFS and monetary and financial statistics, unless valuation adjustments are made when the respective datasets are prepared.
- *Dematerializing of debt instruments*—Where governments issue tradable securities, they often have no knowledge or record of transactions in the secondary market, so the sector holding such securities can usually be determined either by surveying the ultimate purchaser of such securities or by using data from a centralized securities depository. However, quite often these instruments are held by nominees of the financial corporations sector, which may complicate the identification of the owners of claims of the government. The complexity of determining ownership of tradable instruments may further introduce inconsistency in the data.

A7.104 Due to the financial asset/liability positions held between general/central government and the financial corporations sector, some additional revenue and expense flows occur between these sectors. Further consistency checks can be performed on these revenue and expense transactions where the level of detail in the source data permits them. These relate specifically to receivables/payables in respect of interest, dividends, other property income, subsidies, and capital transfers between the general/central government sector and the financial corporations sector.

Comparison of the Analytical Framework of GFS and the System of Environmental-Economic Accounting Central Framework

A7.105 The *System of Environmental-Economic Accounting* (*SEEA*) *Central Framework* is the international statistical standard for environmental-economic accounting. The *SEEA Central Framework* contains the internationally agreed standard concepts, definitions, classifications, and accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. The *SEEA Central Framework* is a multipurpose conceptual framework that presents the stock positions and changes in these stock positions (flows) of environmental assets.

Comparing the Accounts in GFS and SEEA Central Framework

A7.106 The *SEEA Central Framework* follows a similar accounting structure to the *2008 SNA* and this *Manual*, and uses consistent concepts, definitions, and classifications to facilitate the integration of environmental and other macroeconomic statistics. Consequently, the *SEEA Central Framework* allows for the integration of environmental information (often measured in physical terms) with economic information (often measured in monetary terms) in a single framework. However, given the specific analytical focus of the *SEEA Central Framework* on the environment and its linkages with the economy, as well as its focus on the measurement of flows and stock positions in physical and monetary terms, there are some limited differences between the *SEEA Central Framework* and the *2008 SNA*.[26] To the extent that *SEEA Central Framework* is consistent with the *2008 SNA*, it is also consistent with this *Manual.*

The Nature of Environmental Protection Activities and Accounting

A7.107 Environmental protection activities are those activities whose primary purpose is the prevention, reduction, and elimination of pollution and other forms of degradation of the environment. These activities include, but are not limited to, the prevention, reduction, or treatment of waste and wastewater; the prevention, reduction, or elimination of air emissions; the treatment and disposal of contaminated soil and groundwater; the prevention or reduction of noise and vibration levels; the protection of biodiversity and landscapes, including their ecological functions; monitoring of the quality of the natural environment (air, water, soil, groundwater); research

[26] See *SEEA Central Framework*, paragraphs 1.39–1.52.

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and development on environmental protection; and the general administration, training, and teaching activities oriented toward environmental protection.

A7.108 Resource management activities are those activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion. These activities include, but are not limited to, reducing the withdrawals of natural resources (including through the recovery, reuse, recycling, and substitution of natural resources); restoring natural resource stocks (increases or recharges of natural resource stocks); the general management of natural resources (including monitoring, control, surveillance, and data collection); and the production of goods and services used to manage or conserve natural resources.

A7.109 To account for environmental protection and resource management activities the *SEEA Central Framework* comprises the following types of tables and accounts:

- Supply and use tables in physical and monetary terms showing flows of natural inputs, products, and residuals
- Asset accounts for individual environmental assets in physical and monetary terms showing the stock of environmental assets at the beginning and end of each accounting period and the changes in the stock
- A sequence of economic accounts that highlights depletion-adjusted economic aggregates
- Functional accounts that record transactions and other information about economic activities undertaken for environmental purposes.

The analysis of these data can also be extended by linking the tables and accounts to relevant employment, demographic, and social information.

A7.110 The *SEEA Central Framework* relies on basic environment statistics, such as statistics on natural resources—for example water, energy, forest, flows of materials and pollutants—which are usually collected for specific purposes. The *SEEA Central Framework* adds value to individual information components by bringing them together to inform integrated policies, evaluate trade-offs between different policies, and evaluate their impacts across domains of the economy, the environment, and society.

Linkages between GFS and SEEA Central Framework

A7.111 There is a wide range of transactions and stocks positions related to the environment that are recorded in the GFS framework. The type of transaction often flows from governments' role of owner of natural resources, such as land and subsoil assets, user of these resources, or other ways in which governments influence the use of these resources by other sectors, such as governments' control over the use of the atmosphere as a sink for pollution. Of particular interest in this regard are flows of taxes and subsidies related to the environment.

A7.112 Many of the mechanisms by which economic behavior is influenced toward meeting environmental policy objectives involve payments to government, most commonly in the form of taxes, permits, and rent; and payments by government in the form of subsidies and other transfers. These transactions are recorded in the GFS framework but are generally not separately identifiable as relating to the environment. In order to allow comparisons of GFS and the *SEEA Central Framework*, such data would need to be provided separately in the underlying source data of GFS.

A7.113 Similar to GFS, the *SEEA Central Framework* records only taxes and subsidies for which an actual transaction takes place between institutional units. In some cases there is interest in the value of so-called implicit subsidies—for example, via tax exemptions or preferential tax rates. However, as there are no transactions recorded in relation to these amounts they are not recorded in either dataset.

A7.114 The remainder of this section discusses payments to government related to the environment, and payments by government related to the environment.[27]

Environmental payments to government

Environmental taxes

A7.115 The decision as to whether a payment regarded as a tax is environmental is based on consideration of the tax base. An **environmental tax** is a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific, negative impact on the environment. In practice, this definition is applied by looking at all of the various taxes levied in a

[27] See *SEEA Central Framework*, section 4.4, for a detailed description on accounting for transactions related to the environment.

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country and making an assessment as to whether the tax base in each circumstance is something that has a negative environmental impact.

A7.116 Since the application of this definition may vary across countries, for the purposes of international comparison of environmental taxes, lists of relevant taxes bases that satisfy this definition have been developed by the Organisation for Economic Co-operation and Development and Eurostat.

A7.117 The consideration of the tax base in the determination of the environmental status of a tax is an exception to the general approach to defining the environmental status on the basis of the purpose of the transaction. However, in the case of taxes, generally the taxpayer does not know in advance as to what the tax payment might be used for by the government. Nor are the reasons for levying a tax as stated by the legislator a reliable basis for international comparisons. The primary purpose of taxation may sometimes be to create incentives to reduce environmental pressures, or to raise revenue for the purpose of financing environmental protection. However, in many cases, the specific reason may not be stated and often the primary purpose of taxation is the raising of funds to pay for general social services, such as health and education.

A7.118 In cases where the use of the tax revenue is known, these taxes are considered "earmarked taxes." Those taxes that are earmarked for environmental protection are relevant in the calculation of environmental protection expenditure.

A7.119 There are four broad categories into which environmental taxes are generally grouped. These are:

- *Energy taxes*—This category includes taxes on energy products used for both transport and stationary purposes. Taxes on fuel used for transport purposes should be shown as a separate subcategory of energy taxes. Energy products for stationary use include fuel oils, natural gas, coal, and electricity. Taxes on carbon are included under energy taxes rather than under pollution taxes. If they are identifiable, carbon taxes should be reported as a separate subcategory within energy taxes. A special type of carbon taxes is payments for tradable emission permits. The treatment of payments for these permits is discussed later in this section.
- *Transport taxes*—This category mainly includes taxes related to the ownership and use of motor vehicles. Taxes on other transport equipment (e.g., planes) and related transport services (e.g., duty on charter or scheduled flights) are also included here as are taxes related to the use of roads. The transport taxes may be "one-off" taxes related to imports or sales of the equipment or recurrent taxes, such as an annual road tax. Taxes on petrol, diesel, and other transport fuels are included under energy taxes.
- *Pollution taxes*—This category includes taxes on measured or estimated emissions to air and water, and the generation of solid waste. An exception is taxes on carbon, which are included under energy taxes, as discussed earlier. Taxes on sulphur are included here.
- *Resource taxes*—This category typically includes taxes on water abstraction, extraction of raw materials, and other resources (e.g., sand and gravel). Consistent with the general scope of environmental taxes, payments to government for the use of land or natural resources are treated as rent and therefore are excluded from resource taxes.

Treatment of value-added taxes

A7.120 Generally, value-added taxes (VAT) are excluded from the definition of environmental taxes because they are considered to have no influence on relative prices in the same way that other taxes on environmental tax bases do (i.e., VAT is levied on a broad range of goods and services regardless of their impact on the environment). This lack of direct influence is also reflected in the deductible nature of VAT for many taxpayers. There is one relatively specific exception to this general treatment. In principle, where VAT is calculated on a price that includes a duty or tax already determined to be an environmental tax, the relevant amount of nondeductible VAT (equal to the VAT rate multiplied by the amount of the environmental tax excluding the part that is deductible by the taxpayer) can also be considered to be part of environmental taxes and classified based on the nature of the underlying tax base. Such a situation may occur when VAT on petrol/gasoline is calculated, including the fuel duty paid on hydrocarbon oils. In practice, the ability to separately identify this amount of VAT may require additional information.

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Other payments to government

A7.121 Only those payments that are considered to be taxes according to the definitions of GFS and the SNA are within the scope of environmental taxes in the SEEA. At the same time, there may also be particular interest in identifying and recording other payments to government that are also related to the environment, such as payments of rent, some sales of goods and services, and some fines and penalties. In determining the environmental status of these payments, focus should remain on the basis for the payment rather than on either the name used to describe the payment or the purpose for which the revenue raised may be used. The following paragraphs describe these other environment-related types of payments to government. To allow comparisons of GFS and *SEEA Central Framework*, data on these environment-related payments to government would need to be provided separately in the underlying source data of GFS, or added as subitems of the GFS categories.

Rent

A7.122 There are certain environmental assets, particularly mineral and energy resources, that are owned by government, and payments to government by extractors are often required. These payments are treated as rent. Payments of rent in respect of mineral and energy resources are commonly referred to as royalties, and in resource-endowed countries these payments may represent an important component of total government revenue. These are often also referred to as resource leases (see paragraph A4.16).

Sales of goods and services

A7.123 In a number of situations the government could undertake a range of activities that provide goods and services to households and businesses that are environmental in nature. Such provision of goods and services constitutes production by government units, and payments made by users are often referred to as "fees." A common situation is the payments made to general government units that operate waste collection schemes for the disposal of waste. Whether these payments are purchases of goods and services or taxes can be difficult to assess, since it must be determined as to whether the purchaser has received a commensurate service from the government in return for the payment. The general guidance in the paragraphs 5.73–5.75 should be followed to make the distinction.

Fines and penalties

A7.124 Fines and penalties are distinguished from taxes as being compulsory payments imposed on institutional units by courts of law or quasi-judicial bodies. These payments to governments are treated as *fines, penalties and forfeits* (GFS item 143). It may well be that some fines and penalties are related to illegal environmental activities—for example, fines for polluting water bodies. The recording of environment-related fines and penalties also arises in the case of the use of environmental assets as sinks.

Environmental transfers by nongovernment institutional units

A7.125 Where information on these flows is of interest, the amounts to be recorded as environmental should follow the same principles as applied in the case of government flows—that is, transfers paid to other institutional units should be based on whether the primary purpose of the payer is environmental protection or resource management. Within GFS further breakdown or "of which" lines may be added to the classification structure to specifically identify these flows.

A7.126 A particular instance of transfers between institutional units concerns flows between international organizations and national governments and other resident institutional units. In certain countries these flows may be significant. In line with the general principles outlined here, transfers paid by international organizations to institutional units within a country should be considered to be environmental if the primary intent of the international organization is that the money is spent for environmental protection or resource management purposes. Supplementary breakdowns in *grants from foreign governments or international organizations* (GFS item 131 and 132) could provide for this data need.

Permits to use environmental assets

A7.127 A common and important mechanism for managing the interaction between the economy and the environment is the use of permits and licenses to access, extract, or use environmental assets. In some cases, the permits and licenses may relate to the physical removal of environmental assets, such as in the

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case of fishing licenses, and in other cases they may relate to the use of the environment as a sink for emissions. For a discussion of licenses and permits to use natural resources, see A4.18–A4.50.

Environmental payments by governments

A7.128 Payments by government related to environmental issues are recorded in a number of places in GFS and the SNA. The treatment largely depends on how the payments relate to production and consumption and whether they are considered to be current or capital in nature.

A7.129 All of the payments considered in this section are transfers (see paragraph 3.10). Consequently, this section does not include payments by government for the purchase of goods and services related to the environment.

Environmental subsidies and similar transfers

A7.130 An environmental subsidy or similar transfer is a transfer that is intended to support activities that protect the environment or reduce the use and extraction of natural resources. It includes those transfers defined in GFS as *subsidies* (25), *social benefits to households* (27), *grants* (26), and *transfers not elsewhere classified* (282).

A7.131 Subsidies or other transfers should be treated as environmental when the primary intent or purpose of the government is that resources be used for either environmental protection or resource management purposes. The determination of primary purpose should not be based on whether the use of the resources by the recipient of the transfer results in positive outcomes for the environment. While it is reasonable to consider that the purpose of the government in making the transfer and the purpose of the recipient are the same, it may not be the case that the expenditure of the transferred resources results in beneficial environmental outcomes even if this was the intent. For detailed descriptions of the classification of these transfers, refer to Chapter 6.

A7.132 In principle, a decision as to whether the primary purpose of a transfer is environmental should be made for each individual transfer. Then, once a decision on the primary purpose has been made, the total value of the transfer is treated as being for that primary purpose.

A7.133 In practice, information on transfers by government is usually contained in budget and other government expenditure data. Generally, these data do not show individual transactions and more commonly show information by type of government program, thus including a large number of individual transfers. It is usually the case that such programs have multiple purposes, and hence determining the number and value of individual transfers that have a primary purpose of environmental protection or resource management may require additional information.

A7.134 In these situations, it may be necessary to estimate the share of the value of transfers for a given government program that reflects the value of individual transfers within the program that have environmental protection or resource management as their primary purpose.

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APPENDIX

8 GFS Classifications

This appendix provides all of the classification codes used in the GFS framework.

A8.1 Classification codes are used in the GFS system to identify types of transactions, other economic flows, and stock positions of assets and liabilities. This appendix presents in one place all of the codes that were presented in Chapters 5 through 10. The overall organization of the codes is shown in Figure A8.1.

A8.2 Codes beginning with 1 refer to revenue; codes beginning with 2 refer to expense; and codes beginning with 3 refer to transactions in nonfinancial assets, financial assets, and liabilities. For financial assets and liabilities, the code 3 signifies transactions that have been classified by financial instrument.

A8.3 The first digit of the classification code for a specific type of other economic flow is 4 or 5: codes beginning with 4 refer to holding gains and losses, while codes beginning with 5 refer to other changes in the volume of assets and liabilities. The first digit for total other economic flows is 9. For a stock position in a type of asset or liability, the first digit of the classification code is 6.

A8.4 Codes for transactions, other economic flows, and stock positions in assets and liabilities also identify types of assets and liabilities. Hence, the second and subsequent digits of each code are identical for each type of asset or liability. That is, 311 refers to transactions in fixed assets, 411 to holding gains in fixed assets, 511 to other changes in the volume of fixed assets, 911 to total other economic flows in fixed assets, and 611 to the stock position of fixed assets.

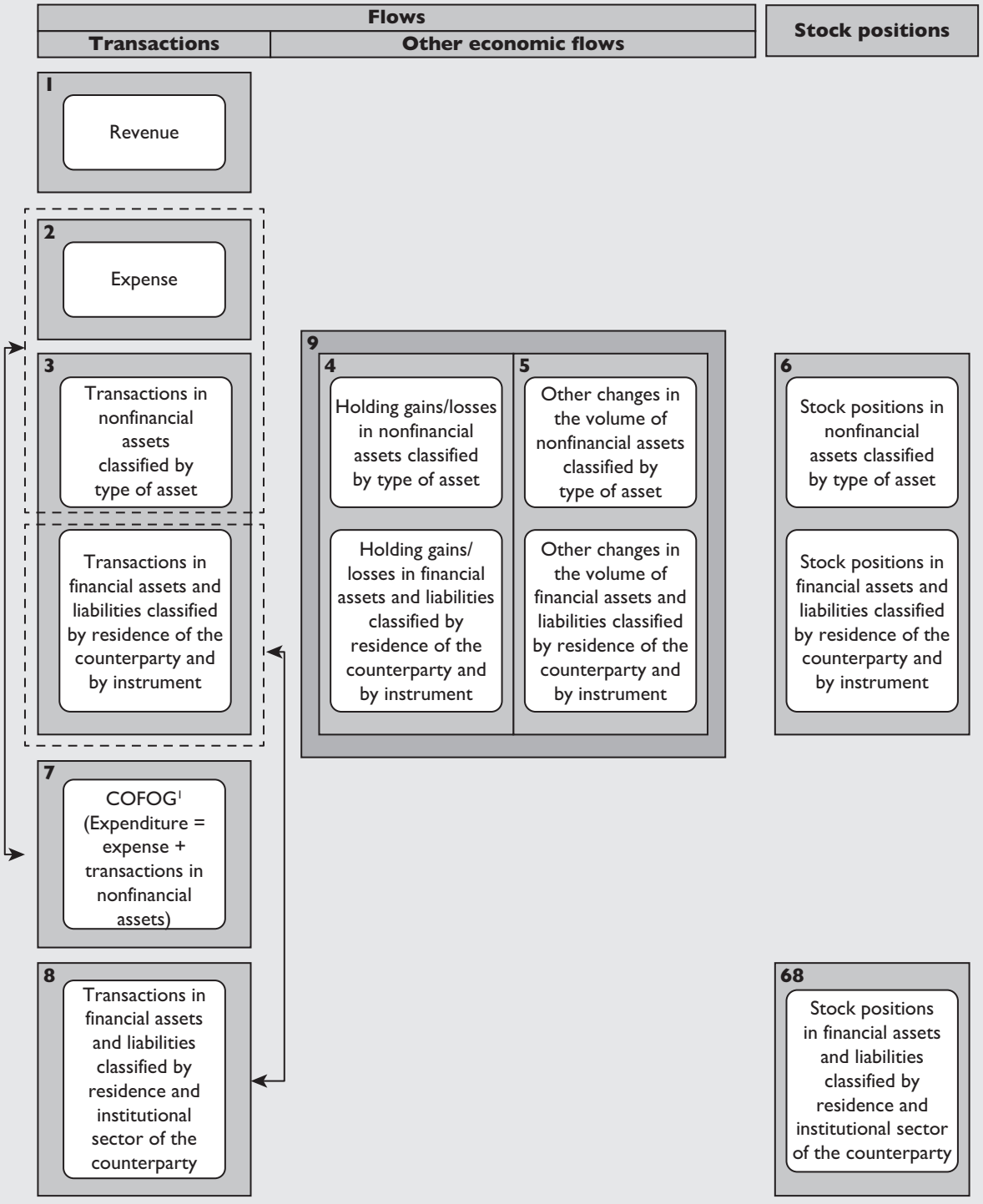
A8.5 Expense transactions and transactions in nonfinancial assets (i.e., expenditure) can also be classified using the Classification of Functions of Government (COFOG), as described in the annex to Chapter 6. All COFOG classification codes begin with 7.

A8.6 Transactions and stock positions in financial assets and liabilities can be classified according to the residence and institutional sector of the other party to the financial instrument, as well as according to the type of financial instrument. When classified by residence and institutional sector of the counterparty, the classification codes for transactions begin with 8 and the classification codes for stock positions begin with 68. The counterparty to the transactions is not necessarily the same as the counterparty to the stock positions. While the parties are the same at the inception of the instrument, they may differ for transactions in that instrument. As explained in paragraph 9.25, in principle, the classification of general government units' transactions in financial assets and liabilities by residence is based on the residence of the units that were a party to the transaction being recorded, whereas the classification of stock positions in financial assets and liabilities in a government unit's balance sheet is based on the residence of the issuer of financial instruments (assets), and the residence of the holder of the financial instruments (liabilities). If a transaction in financial assets or liabilities is between a resident and a nonresident unit that involves an instrument originally issued by a resident, an entry in other changes in the volume of assets (reclassification) is recorded to maintain the integrated GFS framework of flows and stock positions.

A8.7 In this appendix, the classification codes are presented in Tables A8.1–A8.6, which illustrate the standard presentation of these items in GFS. In practical applications, this standard presentation could be used to select subsets of data for various presentational formats. It may also be possible and desirable to use more detailed classifications. Such an expansion can be accomplished by adding another digit to any given classification code. For example, the classification code for the stock of transport equipment is 61121. If types of transport equipment were to be classified separately, the codes 611211, 611212, and so forth could be used.

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Figure A8.1 The Classification Coding System for GFS



[1]Classification of the Functions of Government

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Table A8.1 Classification of Revenue

1	**Revenue**
11	**Taxes**
111	Taxes on income, profits, and capital gains
1111	Payable by individuals
1112	Payable by corporations and other enterprises
1113	Other taxes on income, profits, and capital gains
11131	Payable by general government
11132	Unallocable taxes on income, profits, and capital gains
112	Taxes on payroll and workforce
113	Taxes on property
1131	Recurrent taxes on immovable property
1132	Recurrent taxes on net wealth
1133	Estate, inheritance, and gift taxes
1135	Capital levies
1136	Other recurrent taxes on property
114	Taxes on goods and services
1141	General taxes on goods and services
11411	Value-added taxes
11412	Sales taxes
11413	Turnover and other general taxes on goods and services
11414	Taxes on financial and capital transactions
1142	Excise
1143	Profits of fiscal monopolies
1144	Taxes on specific services
1145	Taxes on use of goods and on permission to use goods or perform activities
11451	Motor vehicle taxes
11452	Other taxes on use of goods and on permission to use goods or perform activities
114521	Business and professional licenses
114522	Pollution taxes
114523	Radio and television licenses
114524	Licenses and permits for households
114525	Other taxes on use of goods and on permission to use goods or perform activities not elsewhere classified
1146	Other taxes on goods and services
115	Taxes on international trade and transactions
1151	Customs and other import duties
1152	Taxes on exports
1153	Profits of export or import monopolies
1154	Exchange profits
1155	Exchange taxes
1156	Other taxes on international trade and transactions
116	Other taxes
1161	Payable solely by business
1162	Payable by other than business or unidentifiable
12	**Social contributions [GFS]**
121	Social security contributions [GFS]
1211	Employee contributions [GFS]
1212	Employer contributions [GFS]
1213	Self-employed or nonemployed contributions [GFS]
1214	Unallocable contributions [GFS]
122	Other social contributions [GFS]
1221	Employee contributions [GFS]
1222	Employer contributions [GFS]
1223	Imputed contributions [GFS]
13	**Grants**
131	From foreign governments
1311	Current
1312	Capital
132	From international organizations
1321	Current
1322	Capital
133	From other general government units
1331	Current
1332	Capital
14	**Other revenue**
141	Property income [GFS]
1411	Interest [GFS]
14111	From nonresidents
14112	From residents other than general government
14113	From other general government units
1412	Dividends
14121	From nonresidents
14122	From residents
1413	Withdrawals of income from quasi-corporations
1414	Property income from investment income disbursements
1415	Rent
1416	Reinvested earnings on foreign direct investment
142	Sales of goods and services
1421	Sales by market establishments
1422	Administrative fees
1423	Incidental sales by nonmarket establishments
1424	Imputed sales of goods and services
143	Fines, penalties, and forfeits
144	Transfers not elsewhere classified
1441	Current transfers not elsewhere classified
14411	Subsidies
14412	Other current transfers not elsewhere classified
1442	Capital transfers not elsewhere classified
145	Premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes
1451	Premiums, fees, and current claims
14511	Premiums
14512	Fees for standardized guarantee schemes
14513	Current claims
1452	Capital claims

Note: Further breakdown/"of which" lines may be analytically useful and could be presented as indicated in the detailed tables in Chapter 5.

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Table A8.2 Classification of Expense

2	**Expense**
21	**Compensation of employees [GFS]**
211	Wages and salaries [GFS]
2111	Wages and salaries in cash [GFS]
2112	Wages and salaries in kind [GFS]
212	Employers' social contributions [GFS]
2121	Actual employers' social contributions [GFS]
2122	Imputed employers' social contributions [GFS]
22	**Use of goods and services**
23	**Consumption of fixed capital [GFS]**
24	**Interest [GFS]**
241	To nonresidents [GFS]
242	To residents other than general government [GFS]
243	To other general government units [GFS]
25	**Subsidies**
251	To public corporations
2511	Public nonfinancial corporations
2512	Public financial corporations
252	To private enterprises
2521	Private nonfinancial enterprises
2522	Private financial enterprises
253	To other sectors
26	**Grants**
261	To foreign governments
2611	Current
2612	Capital
262	To international organizations
2621	Current
2622	Capital
263	To other general government units
2631	Current
2632	Capital
27	**Social benefits [GFS]**
271	Social security benefits [GFS]
2711	Social security benefits in cash [GFS]
2712	Social security benefits in kind [GFS]
272	Social assistance benefits
2721	Social assistance benefits in cash [GFS]
2722	Social assistance benefits in kind [GFS]
273	Employment-related social benefits [GFS]
2731	Employment-related social benefits in cash [GFS]
2732	Employment-related social benefits in kind [GFS]
28	**Other expense**
281	Property expense other than interest
2811	Dividends
28111	To nonresidents
28112	To residents
2812	Withdrawals of income from quasi-corporations
2813	Property expense for investment income disbursements
2814	Rent
2815	Reinvested earnings on foreign direct investment
282	Transfers not elsewhere classified
2821	Current transfers not elsewhere classified
2822	Capital transfers not elsewhere classified
283	Premiums, fees, and claims related to nonlife insurance and standardized guarantee schemes
2831	Premiums, fees, and current claims
28311	Premiums
28312	Fees for standardized guarantee schemes
28313	Current claims
2832	Capital claims

Note: Further breakdown/"of which lines" may be analytically useful and could be presented as indicated in the detailed tables in Chapter 6.

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Table A8.3 Classifications of Flows and Stock Positions in Assets and Liabilities

	Classification of transactions in assets and liabilities[1]	Classification of holding gains and losses in assets and liabilities	Classification of other changes in the volume of assets and liabilities	Classification of total other economic flows in assets and liabilities	Classification of stock positions in assets and liabilities
Net worth and its changes	**3**	**4**	**5**	**9**	**6**
Nonfinancial assets	**31**	**41**	**51**	**91**	**61**
Fixed assets	**311**	**411**	**511**	**911**	**611**
Buildings and structures	3111	4111	5111	9111	6111
Dwellings	31111	41111	51111	91111	61111
Buildings other than dwellings	31112	41112	51112	91112	61112
Other structures	31113	41113	51113	91113	61113
Land improvements	31114	41114	51114	91114	61114
Machinery and equipment	3112	4112	5112	9112	6112
Transport equipment	31121	41121	51121	91121	61121
Machinery and equipment other than transport equipment	31122	41122	51122	91122	61122
Information, computer, and telecommunications (ICT) equipment	311221	411221	511221	911221	611221
Machinery and equipment not elsewhere classified	311222	411222	511222	911222	611222
Other fixed assets	3113	4113	5113	9113	6113
Cultivated biological resources	31131	41131	51131	91131	61131
Animal resources yielding repeat products	311311	411311	511311	911311	611311
Tree, crop, and plant resources yielding repeat products	311312	411312	511312	911312	611312
Intellectual property products	31132	41132	51132	91132	61132
Research and development	311321	411321	511321	911321	611321
Mineral exploration and evaluation	311322	411322	511322	911322	611322
Computer software and databases	311323	411323	511323	911323	611323
Computer software	3113231	4113231	5113231	9113231	6113231
Databases	3113232	4113232	5113232	9113232	6113232
Entertainment, literary, and artistic originals	311324	411324	511324	911324	611324
Other intellectual property products	311325	411325	511325	911325	611325
Cost of ownership transfer on nonproduced assets other than land	31133		51133	91133	
Weapons systems	3114	4114	5114	9114	6114
Inventories	**312**	**412**	**512**	**912**	**612**
Materials and supplies	31221	41221	51221	91221	61221
Work in progress	31222	41222	51222	91222	61222
Finished goods	31223	41223	51223	91223	61223
Goods for resale	31224	41224	51224	91224	61224
Military inventories	31225	41225	51225	91225	61225
Valuables	**313**	**413**	**513**	**913**	**613**

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Table A8.3 Classifications of Flows and Stock Positions in Assets and Liabilities *(continued)*

	Classification of transactions in assets and liabilities[1]	Classification of holding gains and losses in assets and liabilities	Classification of other changes in the volume of assets and liabilities	Classification of total other economic flows in assets and liabilities	Classification of stock positions in assets and liabilities
Nonproduced assets	**314**	**414**	**514**	**914**	**614**
Land	3141	4141	5141	9141	6141
Mineral and energy resources	3142	4142	5142	9142	6142
Other naturally occurring assets	3143	4143	5143	9143	6143
Noncultivated biological resources	31431	41431	51431	91431	61431
Water resources	31432	41432	51432	91432	61432
Other natural resources	31433	41433	51433	91433	61433
Radio spectrum	314331	414331	514331	914331	614331
Natural resources not elsewhere classified	314332	414332	514332	914332	614332
Intangible nonproduced assets	3144	4144	5144	9144	6144
Contracts, leases, and licenses	31441	41441	51441	91441	61441
Marketable operating leases	314411	414411	514411	914411	614411
Permits to use natural resources	314412	414412	514412	914412	614412
Permits to undertake specific activities	314413	414413	514413	914413	614413
Entitlement to future goods and services on an exclusive basis	314414	414414	514414	914414	614414
Goodwill and marketing assets	31442	41442	51442	91442	61442
Financial assets	**32**	**42**	**52**	**92**	**62**
Monetary gold and Special Drawing Rights (SDRs)	3201	4201	5201	9201	6201
Monetary gold	32011	42011	52011	92011	62011
Special Drawing Rights	32012	42012	52012	92012	62012
Currency and deposits	3202	4202	5202	9202	6202
Debt securities	3203	4203	5203	9203	6203
Loans	3204	4204	5204	9204	6204
Equity and investment fund shares	3205	4205	5205	9205	6205
Equity	32051	42051	52051	92051	62051
Investment fund shares or units	32052	42052	52052	92052	62052
Insurance, pension, and standardized guarantee schemes [GFS]	3206	4206	5206	9206	6206
Nonlife insurance technical reserves	32061	42061	52061	92061	62061
Life insurance and annuities entitlements	32062	42062	52062	92062	62062
Pension entitlements [GFS]	32063	42063	52063	92063	62063
Claims of pension funds on pension manager	32064	42064	52064	92064	62064
Provisions for calls under standardized guarantee schemes	32065	42065	52065	92065	62065
Financial derivatives and employee stock options	3207	4207	5207	9207	6207
Financial derivatives	32071	42071	52071	92071	62071
Employee stock options	32072	42072	52072	92072	62072
Other accounts receivable	3208	4208	5208	9208	6208
Trade credit and advances	32081	42081	52081	92081	62081
Miscellaneous other accounts receivable	32082	42082	52082	92082	62082

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Table A8.3 Classifications of Flows and Stock Positions in Assets and Liabilities *(continued)*

	Classification of transactions in assets and liabilities[1]	Classification of holding gains and losses in assets and liabilities	Classification of other changes in the volume of assets and liabilities	Classification of total other economic flows in assets and liabilities	Classification of stock positions in assets and liabilities
Domestic	**321**	**421**	**521**	**921**	**621**
Same instrument breakdown as above, but excluding monetary gold for all flows and stock positions and SDRs for stock positions	3211–3218	4211–4218	5211–5218	9211–9218	6212–6218
External	**322**	**422**	**522**	**922**	**622**
Same instrument breakdown as above	3221–3228	4221–4228	5221–5228	9221–9228	6221–6228
Liabilities	**33**	**43**	**53**	**93**	**63**
Special Drawing Rights (SDRs)	3301	4301	5301	9301	6301
Currency and deposits	3302	4302	5302	9302	6302
Debt securities	3303	4303	5303	9303	6303
Loans	3304	4304	5304	9304	6304
Equity and investment fund shares	3305	4305	5305	9305	6305
Equity	33051	43051	53051	93051	63051
Investment fund shares or units	33052	43052	53052	93052	63052
Insurance, pension, and standardized guarantee schemes [GFS]	3306	4306	5306	9306	6306
Nonlife insurance technical reserves	33061	43061	53061	93061	63061
Life insurance and annuities entitlements	33062	43062	53062	93062	63062
Pension entitlements [GFS]	33063	43063	53063	93063	63063
Claims of pension funds on pension manager	33064	43064	53064	93064	63064
Provisions for calls under standardized guarantee schemes	33065	43065	53065	93065	63065
Financial derivatives and employee stock options	3307	4307	5307	9307	6307
Financial derivatives	33071	43071	53071	93071	63071
Employee stock options	33072	43072	53072	93072	63072
Other accounts payable	3308	4308	5308	9308	6308
Trade credit and advances	33081	43081	53081	93081	63081
Miscellaneous other accounts payable	33082	43082	53082	93082	63082
Domestic	**331**	**431**	**531**	**931**	**631**
Same instrument breakdown as above, but excluding SDRs	3312–3318	4312–4318	5312–5318	9312–9318	6312–6318
External	**332**	**432**	**532**	**932**	**632**
Same instrument breakdown as above	3321–3328	4321–4328	5321–5328	9321–9328	6321–6328
Memorandum items					
Own-account capital formation	3M1				
Compensation of employees	3M11				
Use of goods and services	3M12				
Consumption of fixed capital	3M13				
Other taxes on production minus other subsidies on production	3M14				

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Table A8.3 Classifications of Flows and Stock Positions in Assets and Liabilities *(concluded)*

	Classification of transactions in assets and liabilities[1]	Classification of holding gains and losses in asset and liabilities	Classification of other changes in the volume of assets and liabilities	Classification of total other economic flows in assets and liabilities	Classification of stock positions in assets and liabilities
Net financial worth	3M2	4M2	5M2	9M2	6M2
Gross debt:					
Gross debt at market value	3M3	4M3	5M3	9M3	6M3
Gross debt at nominal value	3M4	4M4	5M4	9M4	6M4
Gross debt at face value	3M35				6M35
Net debt:					
Net debt at market value	3M36	4M36	5M36	9M36	6M36
Net debt at nominal value	3M37	4M37	5M37	9M37	6M37
Net debt at face value	3M38				6M38
Concessional loans:					
Concessional loans at nominal value					6M391
Implicit transfers resulting from loans at concessional interest rates					6M392
Arrears					6M5
Explicit contingent liabilities:					6M6
Publicly guaranteed debt					6M61
Other types of one-off guarantees					6M62
Net implicit obligations for social security benefits					6M7
Nonperforming loan assets					
Nonperforming loan assets at fair value					6M8
Nonperforming loan assets at nominal value					6M81

[1]Transactions in each category of nonfinancial assets may be further distinguished as acquisitions, disposals, and consumption of fixed capital (see Table 8.1).

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Table A8.4 Classifications of the Counterparty of Transactions and Stock Positions in Financial Assets and Liabilities by Institutional Sector

	Classification of transactions in financial assets and liabilities[1]	Classification of stock positions in financial assets and liabilities[1]
Change in net financial worth due to transactions / net financial worth	**8**	**68 (=6)**
Financial assets	**82 (=32)**	**682 (=62)**
Domestic debtors	821 (=321)	6821 (=621)
General government	8211	68211
Central bank	8212	68212
Deposit-taking corporations except the central bank	8213	68213
Public deposit-taking corporations except the central bank	82131	682131
Private deposit-taking corporations	82132	682132
Other financial corporations	8214	68214
Other public financial corporations	82141	682141
Other private financial corporations	82142	682142
Nonfinancial corporations	8215	68215
Public nonfinancial corporations	82151	682151
Private nonfinancial corporations	82152	682152
Households and nonprofit institutions serving households	8216	68216
External debtors	822 (=322)	6822 (=622)
General government	8221	68221
International organizations	8227	68227
Financial corporations other than international organizations	8228	68228
Central banks	82281	682281
Financial corporations not elsewhere classified	82282	682282
Other nonresidents	8229	68229
Liabilities	**83 (=33)**	**683 (=63)**
Domestic creditors	831 (=331)	6831 (=631)
General government	8311	68311
Central bank	8312	68312
Deposit-taking corporations except the central bank	8313	68313
Public deposit-taking corporations except the central bank	83131	683131
Private deposit-taking corporations	83132	683132
Other financial corporations	8314	68314
Other public financial corporations	83141	683141
Other private financial corporations	83142	683142
Nonfinancial corporations	8315	68315
Public nonfinancial corporations	83151	683151
Private nonfinancial corporations	83152	683152
Households and nonprofit institutions serving households	8316	68316
External creditors	832 (=332)	6832 (=632)
General government	8321	68321
International organizations	8327	68327
Financial corporations other than international organizations	8328	68328
Central banks	83281	683281
Financial corporations not elsewhere classified	83282	683282
Other nonresidents	8329	68329

Note: Transactions in monetary gold are classified according to the counterparty involved. Although gold bullion has no counterparty, by convention, the counterparty to the stock position in gold bullion is shown as "other nonresidents" in this table.

[1]The counterparty to the transactions is not necessarily the same as the counterparty to the stock positions. While the parties are the same at the inception of the instrument, they may differ for transactions in that instrument. As explained in paragraph 9.25, in principle, the classification of general government units' transactions in financial assets and liabilities by residence is based on the residence of the units that were a party to the transaction being recorded, whereas the classification of stock positions in financial assets and liabilities in a government unit's balance sheet is based on the residence of the issuer of financial instruments (assets), and the residence of the holder of the financial instruments (liabilities). If a transaction in financial assets or liabilities is between a resident and a nonresident unit that involves an instrument originally issued by a resident, an entry in other changes in the volume of assets (reclassification) is recorded to maintain the integrated GFS framework of stock positions and flows.

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Table A8.5 Classification of Debt Liabilities and Financial Assets Corresponding to Debt Instruments by Maturity and by Type of Debt Instrument

		Long-term by original maturity			
	Short-term, by original maturity[1] (a)	With payment due in one year or less (b)	With payment due in more than one year = Long-term by remaining maturity (c)	Total (b) + (c)	Short-term by remaining maturity (a) + (b)
Financial assets corresponding to debt instruments	**62.1**	**62.2**	**62.3**	**62.4**	**62.5**
Monetary gold and Special Drawing Rights (SDRs)	6201.1	6201.2	6201.3	6201.4	6201.5
Monetary gold	62011.1	62011.2	62011.3	62011.4	62011.5
Special Drawing Rights	62012.1	62012.2	62012.3	62012.4	62012.5
Currency and deposits	6202.1	6202.2	6202.3	6202.4	6202.5
Debt securities	6203.1	6203.2	6203.3	6203.4	6203.5
Loans	6204.1	6204.2	6204.3	6204.4	6204.5
Insurance, pension, and standardized guarantee schemes [GFS]	6206.1	6206.2	6206.3	6206.4	6206.5
Nonlife insurance technical reserves	62061.1	62061.2	62061.3	62061.4	62061.5
Life insurance and annuities entitlements	62062.1	62062.2	62062.3	62062.4	62062.5
Pension entitlements [GFS]	62063.1	62063.2	62063.3	62063.4	62063.5
Claims of pension funds on pension manager	62064.1	62064.2	62064.3	62064.4	62064.5
Provisions for calls under standardized guarantee schemes	62065.1	62065.2	62065.3	62065.4	62065.5
Other accounts receivable	6208.1	6208.2	6208.3	6208.4	6208.5
Trade credit and advances	62081.1	62081.2	62081.3	62081.4	62081.5
Miscellaneous other accounts receivable	62082.1	62082.2	62082.3	62082.4	62082.5
Domestic	**621.1**	**621.2**	**621.3**	**621.4**	**621.5**
Same instrument breakdown as above, but excluding monetary gold and SDRs	6212.1–6218.1	6212.2–6218.2	6212.3–6218.3	6212.4–6218.4	6212.5–6218.5
External	**622.1**	**622.2**	**622.3**	**622.4**	**622.5**
Same instrument breakdown as above	6221.1–6228.1	6221.2–6228.2	6221.3–6228.3	6221.4–6228.4	6221.5–6228.5
Debt instruments (= gross debt)	**63.1**	**63.2**	**63.3**	**63.4**	**63.5**
Special Drawing Rights (SDRs)	6301.1	6301.2	6301.3	6301.4	6301.5
Currency and deposits	6302.1	6302.2	6302.3	6302.4	6302.5
Debt securities	6303.1	6303.2	6303.3	6303.4	6303.5
Loans	6304.1	6304.2	6304.3	6304.4	6304.5
Insurance, pension, and standardized guarantee schemes [GFS]	6306.1	6306.2	6306.3	6306.4	6306.5
Nonlife insurance technical reserves	63061.1	63061.2	63061.3	63061.4	63061.5
Life insurance and annuities entitlements	63062.1	63062.2	63062.3	63062.4	63062.5
Pension entitlements [GFS]	63063.1	63063.2	63063.3	63063.4	63063.5
Claims of pension funds on pension manager	63064.1	63064.2	63064.3	63064.4	63064.5
Provisions for calls under standardized guarantee schemes	63065.1	63065.2	63065.3	63065.4	63065.5
Other accounts payable	6308.1	6308.2	6308.3	6308.4	6308.5
Trade credit and advances	63081.1	63081.2	63081.3	63081.4	63081.5
Miscellaneous other accounts payable	63082.1	63082.2	63082.3	63082.4	63082.5
Domestic	**631.1**	**631.2**	**631.3**	**631.4**	**631.5**
Same instrument breakdown as above, but excluding SDRs	6312.1–6318.1	6312.2–6318.2	6312.3–6318.3	6312.4–6318.4	6312.5–6318.5
External	**632.1**	**632.2**	**632.3**	**632.4**	**632.5**
Same instrument breakdown as above	6321.1–6328.1	6321.2–6328.2	6321.3–6328.3	6321.4–6328.4	6321.5–6328.5

[1]This category includes arrears and interest on arrears.

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Table A8.6 Classification of Expenditure by Functions of Government According to Divisions and Groups

7	**Total expenditure**
701	**General public services**
7011	Executive and legislative organs, financial and fiscal affairs, external affairs
7012	Foreign economic aid
7013	General services
7014	Basic research
7015	R&D General public services
7016	General public services n.e.c.
7017	Public debt transactions
7018	Transfers of a general character between different levels of government
702	**Defense**
7021	Military defense
7022	Civil defense
7023	Foreign military aid
7024	R&D Defense
7025	Defense n.e.c.
703	**Public order and safety**
7031	Police services
7032	Fire protection services
7033	Law courts
7034	Prisons
7035	R&D Public order and safety
7036	Public order and safety n.e.c.
704	**Economic affairs**
7041	General economic, commercial, and labor affairs
7042	Agriculture, forestry, fishing, and hunting
7043	Fuel and energy
7044	Mining, manufacturing, and construction
7045	Transport
7046	Communication
7047	Other industries
7048	R&D Economic affairs
7049	Economic affairs n.e.c.
705	**Environmental protection**
7051	Waste management
7052	Waste water management
7053	Pollution abatement
7054	Protection of biodiversity and landscape
7055	R&D Environmental protection
7056	Environmental protection n.e.c.
706	**Housing and community amenities**
7061	Housing development
7062	Community development
7063	Water supply
7064	Street lighting
7065	R&D Housing and community amenities
7066	Housing and community amenities n.e.c.
707	**Health**
7071	Medical products, appliances, and equipment
7072	Outpatient services
7073	Hospital services
7074	Public health services
7075	R&D Health
7076	Health n.e.c.
708	**Recreation, culture, and religion**
7081	Recreational and sporting services
7082	Cultural services
7083	Broadcasting and publishing services
7084	Religious and other community services
7085	R&D Recreation, culture, and religion
7086	Recreation, culture, and religion n.e.c.
709	**Education**
7091	Pre-primary and primary education
7092	Secondary education
7093	Postsecondary nontertiary education
7094	Tertiary education
7095	Education not definable by level
7096	Subsidiary services to education
7097	R&D Education
7098	Education n.e.c.
710	**Social protection**
7101	Sickness and disability
7102	Old age
7103	Survivors
7104	Family and children
7105	Unemployment
7106	Housing
7107	Social exclusion n.e.c.
7108	R&D Social protection
7109	Social protection n.e.c.

Note: R&D = research and development; n.e.c. = not elsewhere classified.

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APPENDIX

9 Glossary

Accrual basis of recording
In the accrual basis of recording, flows are recorded at the time economic value is created, transformed, exchanged, transferred, or extinguished 3.62

Actual employers' social contributions
Actual employers' social contributions consist of actual contributions payable to social security funds, employment-related pension funds, and other employment-related social insurance schemes to obtain entitlement to social benefits for their employees 6.21

Actual premium (fee)
The actual premium (fee) is the amount payable to the insurer (guarantor) to secure insurance coverage for a specific event over a stated time period ..A4.74

Aggregates
Aggregates are summations of individual entries and elements in a class of flows or stock positions 3.141

Allocated gold accounts
Allocated gold accounts provide ownership of a specific piece of gold 7.127

Amortized value of a loan
Amortized value of a loan reflects the gradual elimination of the liability by regular payments over a specified period of time 3.115

Ancillary activity
An ancillary activity is a supporting activity providing services within an enterprise in order to create the conditions within which the principal or secondary activities can be carried out.....2.45

Arrears
Arrears are defined as amounts that are both unpaid and past the due date for payment 3.71, 7.247, 9.20

Asset
An asset is a store of value representing a benefit or series of benefits accruing to the economic owner by holding or using the resource over a period of time..... 3.42, 7.6

Asset-backed securities and collateralized debt obligations
Asset-backed securities and collateralized debt obligations are arrangements under which payments of interest and principal are backed by payments on specified assets or income streams..... 7.151

Balance of payments
The balance of payments summarizes economic transactions between residents and nonresidents during a specific time period.....A7.76

Balance sheet
A balance sheet is a statement of the values of the stock positions of assets owned and of the liabilities owed by an institutional unit or group of units, drawn up in respect of a particular point in time 3.56, 4.39, 7.1

Balancing items
Balancing items are economic constructs obtained by subtracting one aggregate from a second aggregate..... 3.142

Banker's acceptance
A banker's acceptance is created when a financial corporation endorses, in return for a fee, a draft or bill of exchange and the unconditional promise to pay a specific amount at a specified date 7.145

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Bills — Bills are defined as securities (usually short-term) that give holders the unconditional rights to receive stated fixed sums on a specified date 7.144

Bonds and debentures — Bonds and debentures are securities that give the holders the unconditional right to fixed payments or contractually determined variable payments on a specified date or dates 7.146

Book value — Book value generally refers to the value recorded in the entities' records... 3.115

Budgetary central government — The budgetary central government is often a single unit of the central government that encompasses the fundamental activities of the national executive, legislative, and judiciary powers.....2.81

Buildings other than dwellings — Buildings other than dwellings include whole buildings or parts of buildings not designated as dwellings. Fixtures, facilities, and equipment that are integral parts of the structures are included.....7.46

Capital account in the international accounts — The capital account in the international accounts shows transactions between residents and nonresidents related to capital transfers receivable and payable and the acquisition and disposal of nonproduced nonfinancial assets A7.89

Capital claims payable — Capital claims payable comprise exceptionally large insurance settlements payable in the wake of a catastrophic event or disaster 6.125

Capital claims receivable — Capital claims receivable comprise exceptionally large insurance settlements receivable in the wake of a catastrophic event or disaster 5.151

Capital grants — Capital grants are capital transfers receivable by government units, from other resident or nonresident government units or international organizations, that do not meet the definition of a tax, subsidy, or a social contribution.....5.103

Capital levies — Capital levies cover taxes on the values of the assets or net worth owned by institutional units levied at irregular and very infrequent intervals of time 5.52

Capital taxes — Capital taxes are taxes levied at irregular and very infrequent intervals on the values of the assets or net worth owned by institutional units or on the values of assets transferred between institutional units as a result of legacies, gifts, or other transfers 5.52

Capital transfers — Capital transfers are transfers in which the ownership of an asset (other than cash or inventories) changes from one party to another or that oblige one or both parties to acquire or dispose of an asset (other than cash or inventories) 3.16

Capital transfers not elsewhere classified — Capital transfers not elsewhere classified are gifts and transfers of a capital nature (other than grants) from individuals, private nonprofit institutions, nongovernmental foundations, or corporations.....5.148

Captive financial institutions and money lenders — Captive financial institutions and money lenders are institutional units providing financial services other than insurance, where most of their assets or liabilities are not available on open financial markets.....2.54

Cash basis of recording — In the cash basis of recording, flows are recorded when cash is received or disbursed.....3.67

Catastrophic loss — A catastrophic loss is the partial or complete destruction of a significantly large number of assets within any of the asset categories resulting from a large-scale, discrete, and recognizable event 10.60

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Center of predominant economic interest An institutional unit has a center of predominant economic interest in an economic territory when there exists, within the economic territory, some location, dwelling, place of production, or other premises on which, or from which, the unit engages and intends to continue engaging, either indefinitely or over a finite but long period of time, in economic activities and transactions on a significant scale 2.12

Central bank The central bank is the national financial institution that exercises control over key aspects of the financial system 2.118

Central government subsector The central government subsector consists of the institutional unit(s) of the central government plus those nonmarket NPIs that are controlled by the central government. The political authority of the central government extends over the entire territory of the country 2.85

Change in net worth due to holding gains or losses Change in net worth due to holding gains or losses is defined as the sum of the positive or negative holding gains and holding losses on all assets and liabilities 4.37

Change in net worth due to other changes in the volume of assets and liabilities Change in net worth due to other changes in the volume of assets and liabilities is defined as the sum of the positive and negative other changes in the volume of assets and liabilities 4.38

Change in net worth due to other economic flows Change in net worth due to other economic flows is defined as the sum of the change in net worth due to holding gains or losses and the change in net worth due to other changes in the volume of assets 4.36, 10.2

Claim (benefit or call) A claim (benefit or call) is the amount payable to the policyholder by the insurer in respect of an event covered by the policy occurring in the period for which the policy is valid A4.77

Collective service A collective service is a service provided simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region 6.134

Commitments basis of recording In the commitments basis of recording, flows are recorded when an institutional unit has committed itself to a transaction 3.65

Compensation of employees Compensation of employees is the total remuneration, in cash or in kind, payable to an individual in an employer-employee relationship in return for work performed by the latter during the reporting period 6.9

Computer software Computer software includes computer programs, program descriptions, and supporting materials for both systems and applications software that are expected to be used for more than one year 7.70

Consolidation Consolidation is a method of presenting statistics for a set of units (or entities) as if they constituted a single unit 3.153, 9.18

Consumption of fixed capital Consumption of fixed capital is the decline, during the course of the reporting period, in the current value of the stock of fixed assets owned and used by a government unit as a result of physical deterioration, normal obsolescence, or normal accidental damage 6.53

Contingent liabilities Contingent liabilities are obligations that do not arise unless a particular, discrete event(s) occurs in the future 4.47, 7.251

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Contracts, leases, and licenses
Contracts, leases, and licenses are treated as assets only when both the following conditions are satisfied: (i) the terms of the contract, lease, or license specify a price for the use of an asset or provision of a service that differs from the price that would prevail in the absence of the contract, lease, or license, and (ii) one party to the contract must be able legally and practically to realize this price difference 7.105

Control of a corporation
Control of a corporation is defined as the ability to determine general corporate policy of the corporation ..... 2.107, Box 2.2

Control of an NPI
Control of an NPI is defined as the ability to determine the general policy or program of the NPI ..... Box 2.1

Corporations
Corporations are defined as entities that are capable of generating a profit or other financial gain for their owners, are recognized by law as separate legal entities from their owners, and are set up for purposes of engaging in market production 2.31

Costs of ownership transfer
Costs of ownership transfer are the costs associated with acquiring and disposing of nonfinancial assets (other than inventories) 8.6

Credit derivatives
Credit derivatives are financial derivatives whose primary purpose is to trade credit risk 7.218

Credit entry
A credit entry is a decrease in an asset, an increase in a liability, or an increase in net worth 3.55

Cultivated biological resources
Cultivated biological resources cover animal resources yielding repeat products and tree, crop, and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility, and management of institutional units 7.59

Currency
Currency consists of notes and coins that are of fixed nominal values and are issued or authorized by the central bank or government 7.135

Currency union
A currency union is defined as a union to which two or more economies belong and that has a regional central decision-making body, commonly a currency union central bank, endowed with the legal authority to conduct a single monetary policy and issue the single currency of the union A5.34

Current account
The current account shows flows of goods and services, primary income, and secondary income between residents and nonresidents A7.78

Current grants
Current grants are current transfers receivable by government units, from other resident or nonresident government units or international organizations, and that do not meet the definition of a tax, subsidy, or a social contribution 5.103

Current transfers
Current transfers consist of all transfers that are not capital transfers 3.17

Custom union
A custom union is a form of regional arrangement whereby agreement exists on a common tariff (custom duties) vis-à-vis the other economies while the movement of goods within the arrangement tends to be duty-free A5.6

Databases
Databases consist of files of data organized in such a way as to permit resource-effective access and use of the data 7.70

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Debit entry A debit entry is an increase in an asset, a decrease in a liability, or a decrease in net worth....3.55

Debt assumption Debt assumption is a trilateral agreement between a creditor, a former debtor, and a new debtor (typically a government unit), under which the new debtor assumes the former debtor's outstanding liability to the creditor, and is liable for repayment of debt....A3.26

Debt conversion (swap) Debt conversion (swap) is an exchange of debt—typically at a discount—for a nondebt claim (such as equity), or for counterpart funds that can be used to finance a particular project or policy....A3.20

Debt forgiveness (or debt cancellation) Debt forgiveness (or debt cancellation) is defined as the voluntary cancellation of all or part of a debt obligation within a contractual arrangement between a creditor and a debtor....A3.7

Debt payments on behalf of others Rather than assuming a debt, a public sector unit may decide to repay that debt or make a specific payment on behalf of another institutional unit (original debtor), without a guarantee being called or the debt being taken over....A3.30

Debt prepayment Debt prepayment consists of a repurchase, or early payment, of debt at conditions that are agreed between the debtor and the creditor A3.24

Debt refinancing Debt refinancing involves the replacement of an existing debt instrument or instruments, including any arrears, with a new debt instrument or instruments....A3.14

Debt reorganization (also referred to as debt restructuring) Debt reorganization (also referred to as debt restructuring) is defined as an arrangement involving both the creditor and the debtor (and sometimes third parties) that alters the terms established for servicing an existing debt A3.2

Debt rescheduling Debt rescheduling is a bilateral arrangement between the debtor and the creditor that constitutes a formal postponement of debt service payments and the application of new and generally extended maturities....A3.11

Debt securities Debt securities are negotiable financial instruments serving as evidence of a debt.... 7.143

Debt write-offs or write-downs Debt write-offs or write-downs refer to unilateral reductions by a creditor, of the amount owed to it....A3.32

Deep-discount bonds Deep-discount bonds are long-term securities that require periodic coupon payments during the life of the instrument, but the amount is substantially below the market rate of interest at issuance 7.147

Defeasance With defeasance, a debtor unit removes liabilities from its balance sheet by pairing them with financial assets, the income and value of which are sufficient to ensure that all debt-service payments are met....A3.37

Defined-benefit pension scheme A defined-benefit pension scheme is one where the benefits payable to an employee on retirement are determined by the use of a formula, either alone or as a minimum amount payable....A2.54

Defined-contribution pension scheme A defined-contribution pension scheme is one where the benefits payable to an employee on retirement are defined exclusively in terms of the level of the funds built up from the contributions made over the employee's working life and the increases in value that result from the investment of these funds by the manager of the scheme....A2.55

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Depository receipts Depository receipts are securities that represent ownership of securities listed in other economies 7.167

Deposits Deposits are all claims, represented by evidence of deposit, on the deposit-taking corporations (including the central bank) and, in some cases, general government or other institutional units 7.137

Distributable income Distributable income of a corporation is equal to entrepreneurial income, plus all current transfers receivable, minus all current transfers payable and minus the adjustment for the change in pension entitlements relating to the pension scheme of that corporation 5.116

Dividends Dividends are the distributed earnings allocated to government or public sector units, as the owners of equity, for placing funds at the disposal of corporations 5.111, 6.109

Domestic currency Domestic currency is that which is legal tender in the economy and issued by the monetary authority for that economy—that is, either that of an individual economy or, in a currency union, that of the common currency area to which the economy belongs..... 3.134

Due-for-payment basis of recording In the due-for-payment basis of recording, flows that give rise to cash payments are recorded at the latest times they can be paid without incurring additional charges or penalties or, if sooner, when the cash payment is made.....3.66

Dwellings Dwellings are buildings, or designated parts of buildings, that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences 7.44

Economic assets Economic assets are resources over which ownership rights are enforced and from which economic benefits may flow to the owners..... 3.43, 4.43

Economic classification of expense The economic classification of expense identifies the types of expense incurred according to the economic process involved 6.2

Economic flows Economic flows reflect the creation, transformation, exchange, transfer, or extinction of economic value; they involve changes in the volume, composition, or value of a unit's assets, liabilities, and net worth 3.4

Economic owner The economic owner of resources such as goods and services, natural resources, financial assets, and liabilities is the institutional unit entitled to claim the benefits associated with the use of these resources by virtue of accepting the associated risks..... 3.39, 7.5

Economic territory Economic territory, in its broadest sense, can be any geographic area or jurisdiction for which statistics are required 2.8

Economic unions Economic unions are established by means of an intergovernmental legal agreement among sovereign countries or jurisdictions with the intention of fostering greater economic integration A5.19

Economically significant prices Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy 2.66

Economy An economy consists of a set of resident institutional units.....2.6

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Embedded derivative An embedded derivative arises when a derivative feature is inserted in a standard financial instrument and is inseparable from the instrument..... 7.148

Employee stock options Employee stock options are options to buy the equity of a company, offered to employees of the company as a form of remuneration 7.221

Employers' social contributions Employers' social contributions are social contributions payable by employers, to social security funds, employment-related pension funds, or other employment-related social insurance schemes to obtain entitlement to social benefits for their employees.....6.19

Employment-related social benefits Employment-related social benefits are social benefits payable in cash or in kind by government or public sector units to their employees or employees of other government or public sector units participating in the scheme (or to survivors and dependents of the employees who are eligible for such payments) 6.104

Enterprise An enterprise is the view of an institutional unit as a producer of goods and services.....2.25

Entertainment, literary, and artistic originals Entertainment, literary, and artistic originals are original films, sound recordings, manuscripts, tapes, and models in which drama performances, radio and television programming, musical performances, sporting events, and literary and artistic output are recorded or embodied. 7.72

Entitlement to future goods and services on an exclusive basis Entitlement to future goods and services on an exclusive basis relates to the case where one party that has contracted to purchase goods or services at a fixed price at a time in the future is able to transfer the obligation of the second party to the contract to a third party 7.112

Environmental protection activities Environmental protection activities are those activities whose primary purpose is the prevention, reduction, and elimination of pollution and other forms of degradation of the environment..... A7.107

Environmental tax An environmental tax is a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific, negative impact on the environment A7.115

Equity Equity consists of all instruments and records that acknowledge claims on the residual value of a corporation or quasi-corporation, after the claims of all creditors have been met..... 7.165

Establishment An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.....2.24

Estate, inheritance, and gift taxes Estate, inheritance, and gift taxes cover taxes on transfers of property at death and on gifts, including gifts made between living members of the same family to avoid, or minimize, the payment of inheritance taxes.....5.51

Exchange An exchange is a transaction in which one unit provides a good, service, asset, or labor to a second unit and receives a good, service, asset, or labor of the same value in return.....3.9

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Excises Excises are taxes levied as a product-specific unit tax on a predefined limited range of goods....5.62

Expenditure Expenditure is the sum of expense and the net investment in nonfinancial assets....4.21

Expense Expense is a decrease in net worth resulting from a transaction.... 4.24, 6.1

Explicit contingent liabilities Explicit contingent liabilities are defined as legal or contractual financial arrangements that give rise to conditional requirements to make payments of economic value 7.252

Extrabudgetary General government entities with individual budgets not fully covered by the main (or general) budget are considered extrabudgetary....2.82

Face value Face value of a debt instrument is the undiscounted amount of principal to be repaid at (or before) maturity 3.115, 7.242

Fair value Fair value is a market-equivalent value defined as the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's-length transaction 3.115

Financial account of the balance of payments The financial account of the balance of payments records transactions that involve financial assets and liabilities that take place between residents and nonresidents....A7.93

Financial assets Financial assets consist of financial claims and gold bullion held by monetary authorities as a reserve asset 3.48

Financial auxiliaries Financial auxiliaries consist of financial corporations that are principally engaged in activities associated with transactions in financial assets and liabilities or with providing the regulatory context for these transactions but in circumstances that do not involve the auxiliary taking ownership of the financial assets and liabilities being transacted....2.54

Financial claim A financial claim is an asset that typically entitles the owner of the asset (the creditor) to receive funds or other resources from another unit, under the terms of a liability 3.47, 7.15

Financial corporations Financial corporations are corporations that are principally engaged in providing financial services, including insurance and pension fund services, to other institutional units 2.115

Financial corporations sector The financial corporations sector consists of resident corporations that are principally engaged in providing financial services, including insurance and pension fund services, to other institutional units 2.53

Financial derivative contract A financial derivative contract is a financial instrument that is linked to another specific financial instrument or indicator or commodity and through which specific financial risks (e.g., interest rate risk, foreign exchange risk, equity and commodity price risks, and credit risk) can be traded in their own right in financial markets 7.204

Financial intermediaries Financial intermediaries are institutional units that incur liabilities on their own account for the purpose of acquiring financial assets by engaging in financial transactions on the market....2.54

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Financial lease A financial lease is a contract under which the lessor, as legal owner of an asset, conveys substantially all risks and rewards of ownership of the asset to the lessee..... 7.158, A4.10

Fines and penalties Fines and penalties are compulsory current transfers imposed on units by courts of law or quasi-judicial bodies for violations of laws or administrative rules..... 5.142

Finished goods Finished goods consist of goods that are the output of a production process, are still held by their producer, and are not expected to be processed further by the producer before being supplied to other units 7.83

Fiscal policy Fiscal policy is the use of the level and composition of the general government and public sectors' spending and revenue—and the related accumulation of government assets and liabilities—to achieve such goals as the stabilization of the economy, the reallocation of resources, and the redistribution of income 1.2

Fixed assets Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year 7.18, 7.35

Forfeits Forfeits are amounts that were deposited with a general government unit pending a legal or administrative proceeding and that have been transferred to the general government unit as part of the resolution of that proceeding..... 5.142

Forward-type contract A forward-type contract (forward) is an unconditional contract by which two counterparties agree to exchange a specified quantity of an underlying item (real or financial) at an agreed-on contract price (the strike price) on a specified date..... 7.212

Functional classification of expense The functional classification of expense provides information on the purpose for which an expense was incurred.....6.3

General government sector The general government sector consists of resident institutional units that fulfill the functions of government as their primary activity 1.2, 2.58, 2.76

General taxes on goods and services General taxes on goods and services are levied on the production, leasing, delivery, sale, purchase, or other change of ownership of a wide range of goods and the rendering of a wide range of services 5.57

Gold bullion Gold bullion takes the form of coins, ingots, or bars with a purity of at least 995 parts per 1,000, including such gold held in allocated gold accounts 7.128

Gold swap A gold swap involves an exchange of gold for foreign exchange deposits with an agreement that the transaction be reversed at an agreed future date at an agreed gold price 7.161

Goods and services account The goods and services account shows transactions in items that are outcomes of production activities.....A7.78

Goods for resale Goods for resale are goods acquired for the purpose of reselling or transferring to other units without being further processed.....7.84

Government units Government units are unique kinds of legal entities established by political processes that have legislative, judicial, or executive authority over other institutional units within a given area 2.38

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Grants
Grants are transfers receivable by government units, from other resident or nonresident government units or international organizations, and that do not meet the definition of a tax, subsidy, or social contribution..... 5.5, 5.101

Gross debt at market value
Gross debt at market value means that debt securities are valued at market prices; insurance, pension, and standardized guarantee schemes are valued according to principles that are equivalent to market valuation; and all other debt instruments are valued at nominal prices, which are considered to be the best generally available proxies of their market prices 7.240

Gross debt at nominal value
Gross debt at nominal value means that debt securities are valued at their nominal values. The nominal value of a debt instrument at any moment in time is the amount that the debtor owes to the creditor 7.241

Gross value added or gross domestic product (GDP)
Gross value added is defined as the value of output minus the value of intermediate consumption A7.24

Historic cost
Historic cost, in its strict sense, reflects the cost at the time of acquisition, but sometimes it may also reflect occasional revaluations 3.115

Holding gain or loss
A holding gain or loss is a change in the monetary value of an asset or liability resulting from changes in the level and structure of prices, excluding qualitative or quantitative changes in the asset or liability 3.33, 10.1

Household
A household is a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth, and who consume certain types of goods and services collectively, mainly housing and food 2.28

Households sector
The households sector consists of all resident households 2.60

Implicit contingent liabilities
Implicit contingent liabilities do not arise from a legal or contractual source but are recognized after a condition or event is realized 7.252

Imputed employers' social contributions
Imputed employers' social contributions are the amounts calculated and added to actual contributions, sufficient to exactly match the increases in employees' social benefit entitlements.....6.22

Index-linked securities
Index-linked securities are instruments for which either the coupon payments (interest) or the principal or both are linked to another item, such as a price index, an interest rate, or the price of a commodity 7.153

Individual consumption good or service
An individual consumption good or service is one that is acquired by a household and used to satisfy the needs or wants of members of that household..... 6.135

Information, computer, and telecommunications equipment
Information, computer, and telecommunications (ICT) equipment consists of devices using electronic controls and also the electronic components forming part of these devices 7.56

Institutional sector
An institutional sector groups together similar kinds of institutional units according to their economic objectives, functions, and behavior 2.50

Institutional unit
An institutional unit is an economic entity that is capable, in its own right, of owning assets, incurring liabilities, and engaging in economic activities and in transactions with other entities 2.22

Intangible nonproduced assets
Intangible nonproduced assets are constructs of society evidenced by legal or accounting actions..... 7.104

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Intellectual property products Intellectual property products are the result of research, development, investigation, or innovation leading to knowledge that the developers can market or use to their own benefit in production because use of the knowledge is restricted by means of legal or other protection 7.64

Interest Interest is a form of investment income that is receivable by the owners of certain kinds of financial assets (SDRs, deposits, debt securities, loans, and other accounts receivable) for putting these financial assets and other resources at the disposal of another institutional unit..... 5.108

Intermediate consumption Intermediate consumption consists of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital A7.28

International investment position The international investment position (IIP) is a statistical statement that shows at a point in time the value of: financial assets of residents of an economy that are claims on nonresidents and gold bullion held as reserve assets; and the liabilities of residents of an economy to nonresidents A7.96

Intersectoral consolidation Intersectoral consolidation is consolidation between subsectors of the public sector to produce consolidated statistics for a particular grouping of public sector units.....3.156

Intrasectoral consolidation Intrasectoral consolidation is consolidation within a particular subsector to produce consolidated statistics for that particular subsector 3.155

Inventories Inventories are produced assets consisting of goods and services, which came into existence in the current period or in an earlier period, and that are held for sale, use in production, or other use at a later date 7.18, 7.75

Investment funds Investment funds are collective investment undertakings through which investors pool funds for investment in financial or nonfinancial assets.....7.174

Joint operating arrangements Joint operating arrangements can be in the form of jointly controlled operations or jointly controlled assets.....2.143

Joint venture A joint venture involves the establishment of a corporation, partnership, or other institutional unit in which, legally, each party has joint control over the activities of the joint venture unit.....2.141

Land Land consists of the ground, including the soil covering and any associated surface waters, over which ownership rights are enforced and from which economic benefits can be derived by their owners by holding or using them 7.92

Land improvements Land improvements are the result of actions that lead to major improvements in the quantity, quality, or productivity of land, or prevent its deterioration 7.49

Legal or social entity A legal or social entity is one whose existence is recognized by law or society independently of the persons or other entities that may own or control it.....2.30

Legal owner The legal owner of resources such as goods and services, natural resources, financial assets, and liabilities is the institutional unit entitled by law and sustainable under the law to claim the benefits associated with the resource 3.38, 7.5

Liability A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide funds or other resources to another unit (the creditor)..... 3.45, 4.45, 7.15

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Life insurance Life insurance is an activity whereby a policyholder makes regular payments to an insurer in return for which the insurer guarantees to provide the policyholder (or in some cases another nominated person) with an agreed sum, or an annuity, at a given date or earlier if the policyholder dies beforehand....A4.69

Life insurance and annuities entitlements Life insurance and annuities entitlements are financial claims policyholders have against an enterprise offering life insurance or providing annuities....7.187

Listed shares Listed shares are equity securities listed on an exchange and may be referred to as quoted shares. (Unlisted shares are equity securities not listed on an exchange)....7.168

Loan A loan is a financial instrument that is created when a creditor lends funds directly to a debtor and receives a nonnegotiable document as evidence of the asset....7.157

Loans and other debt instrument guarantees Loans and other debt instrument guarantees are commitments by one party to bear the risk of nonpayment by another party....7.259

Local government units Local government units are institutional units whose fiscal, legislative, and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes....2.95

Machinery and equipment Machinery and equipment cover transport equipment, machinery for information, computer, and telecommunications (ICT) equipment, and machinery and equipment not elsewhere classified....7.52

Margins Margins are payments of cash or deposits of collateral that cover actual or potential obligations incurred....7.219, 9.75

Market establishment A market establishment is an establishment that charges economically significant prices....2.75

Market prices Market prices refer to current exchange value—that is, the value at which goods, services, labor, or assets are exchanged or else could be exchanged for cash (currency or transferable deposits)....3.107

Market prices for transactions Market prices for transactions are defined as amounts of money that willing buyers pay to acquire something from willing sellers; the exchanges are made between independent parties and on the basis of commercial considerations only, sometimes called "at arm's length"....3.108

Market producer A market producer is an institutional unit that provides all or most of its output to others at prices that are economically significant....2.65

Market regulatory agencies Market regulatory agencies act on behalf of a government (or a regional organization with governments as its members) and influence the market for specific goods or services directly and/or indirectly....2.156

Marketable operating leases Marketable operating leases are third-party property rights relating to fixed assets....7.108

Marketing assets Marketing assets consist of items such as brand names, mastheads, trademarks, logos, and domain names....7.115

Materials and supplies Materials and supplies consist of all goods held with the intention of using them as inputs to a production process....7.79

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Maturity of a debt instrument — The maturity of a debt instrument refers to the time until the debt is extinguished according to the contract between the debtor and the creditor....7.266

Military inventories — Military inventories consist of single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems....7.86

Mineral and energy resources — Mineral and energy resources consist of mineral and energy reserves located on or below the earth's surface that are economically exploitable, given current technology and relative prices....7.97

Mineral exploration and evaluation — Mineral exploration and evaluation consists of the value of expenditure on exploration for petroleum and natural gas and for nonpetroleum deposits and subsequent evaluation of the discoveries made....7.68

Monetary gold — Monetary gold is gold to which the monetary authorities (or others who are subject to the effective control of the monetary authorities) have title and is held as a reserve asset....7.126

Monetary transaction — A monetary transaction is one in which one institutional unit makes a payment (receives a payment) or incurs a liability (acquires an asset) to (from) another institutional unit stated in units of currency....3.8

Monetary union — A monetary union exists where there is the presence of a single monetary policy among economies, established by an intergovernmental legal agreement....A5.32

Motor vehicle taxes — Motor vehicle taxes include taxes on the use of motor vehicles or permission to use motor vehicles....5.80

Net debt — Net debt is calculated as gross debt minus financial assets corresponding to debt instruments....7.243

Net financial worth — The net financial worth of an institutional unit (or grouping of units) is the total value of its financial assets minus the total value of its liabilities....4.41, 7.235

Net investment in inventories (change in inventories) — Net investment in inventories (change in inventories) is measured by the value of the additions to inventories minus the value of withdrawals from inventories minus the value of any recurrent losses of goods held in inventories during the reporting period....8.44

Net premiums — Net premiums are defined as actual premiums plus premium supplements minus the insurance service charge payable by the policyholders....A4.76

Net value added — Net value added is the value of output minus the values of both intermediate consumption and consumption of fixed capital....A7.25

Net worth — The net worth of an institutional unit (or grouping of units) is the total value of its assets minus the total value of its liabilities....4.39, 7.1

Neutral holding gain — Neutral holding gains and losses over a period are the increase (decrease) in the value of an asset that would be required, in the absence of transactions and other changes in the volume of assets, to maintain command over the same amount of goods and services as at the beginning of the period....10.11, A7.71

Nominal value — Nominal value at any moment in time is the amount that the debtor owes to the creditor....3.115

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Noncultivated biological resources Noncultivated biological resources consist of animals, birds, fish, and plants that yield both once-only and repeat products over which ownership rights are enforced but for which natural growth or regeneration is not under the direct control, responsibility, and management of any institutional units 7.101

Nonfinancial assets Nonfinancial assets are economic assets other than financial assets 3.50

Nonfinancial corporations Nonfinancial corporations are corporations whose principal activity is the production of market goods or nonfinancial services 2.114

Nonfinancial corporations sector The nonfinancial corporations sector consists of resident institutional units that are principally engaged in the production of market goods or nonfinancial services 2.52

Nonlife insurance Nonlife insurance is an activity similar to life insurance except that it covers all other risks, accidents, sickness, fire, etc. A4.70

Nonlife insurance technical reserves Nonlife insurance technical reserves consist of (i) prepayments of net nonlife insurance premiums and (ii) reserves to meet outstanding nonlife insurance claims 7.183

Nonmarket producer A nonmarket producer provides all or most of its output to others for free or at prices that are not economically significant 2.65

Nonmonetary transactions Nonmonetary transactions are transactions that are not initially stated in units of currency 3.19

Nonparticipating preferred stocks or shares Nonparticipating preferred stocks or shares are those that pay a fixed income but do not provide for participation in the distribution of the residual value of an incorporated enterprise on dissolution 7.150

Nonpension social benefits Nonpension social benefits include payments made to individuals when they are temporarily unemployed, suffering from a medical condition, or suffering from an event that prevents them from working for a period A2.7

Nonperforming loans Nonperforming loans are those for which (i) payments of principal and/or interest are past due by three months (90 days) or more; or (ii) interest payments equal to three months (90 days) interest or more have been capitalized (reinvested to the principal amount) or payment has been delayed by agreement; or (iii) evidence exists to reclassify a loan as nonperforming even in the absence of a 90-day past due payment, such as when the debtor files for bankruptcy 7.262

Nonprofit institutions Nonprofit institutions (NPIs) are legal or social entities created for the purpose of producing or distributing goods and services, but they cannot be a source of income, profit, or other financial gain for the institutional units that establish, control, or finance them 2.36

Nonprofit institutions serving households The nonprofit institutions serving households (NPISHs) sector consists of resident nonmarket nonprofit institutions (NPIs) that are not controlled by government 2.61

Notional resident unit A notional resident unit is a unit identified for statistical purposes to be the resident owner of immovable assets legally owned by nonresidents 2.13

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Off-market swap An off-market swap is a swap contract that has a nonzero value at inception as a result of having reference rates priced differently from current market values—that is, "off-the-market" 7.162, A3.68

On-balance sheet securitization On-balance sheet securitization involves debt securities backed by a future revenue stream generated by the assets. The assets remain on the balance sheet of the debt securities issuer (the original asset owner), typically as a separate portfolio. There is no securitization unit involved A3.66

One-off guarantees One-off guarantees comprise those types of guarantees where the debt instrument is so particular that it is not possible to calculate the degree of risk associated with the debt with any degree of accuracy 7.256

On-lending On-lending of borrowed funds refers to a resident institutional unit, A (usually central government), borrowing from another institutional unit(s), B (usually a nonresident unit), and then on-lending the proceeds from this borrowing to a third institutional unit(s), C (usually state or local governments, or a public corporation(s)), where it is understood that unit A obtains an effective financial claim on unit C A3.72

Operating leasing Operating leasing is the activity of renting out produced assets under arrangements that provide use of a tangible asset to the lessee, but do not involve the transfer of the bulk of risks and rewards of ownership to the lessee A4.6

Option contract In an option contract (option), the purchaser acquires from the seller a right to buy or sell (depending on whether the option is a call (buy) or a put (sell)) a specified underlying item at a strike price on or before a specified date 7.209

Original maturity Original maturity is the period from the issue date until the final contractually scheduled payment date 7.267

Other accounts receivable/payable Other accounts receivable/payable consist of trade credit and advances and miscellaneous other items due to be paid or received 7.224

Other changes in the volume of assets Other changes in the volume of assets are any changes in the value of an asset or liability that do not result from a transaction or a holding gain/loss 3.35, 10.1

Other current transfers not elsewhere classified Other current transfers not elsewhere classified are gifts and transfers of a current nature (other than grants or subsidies) from individuals, private nonprofit institutions, nongovernmental foundations, or corporations 5.147

Other economic flows Other economic flows are changes in the volume or value of assets or liabilities that do not result from transactions 3.31

Other employment-related social insurance schemes Other employment-related social insurance schemes derive from an employer-employee relationship in the provision of pension entitlement and other social benefit to employees as part of the conditions of employment A2.40

Other equity Other equity is equity that is not in the form of securities 7.169

Other intellectual property products Other intellectual property products consist of new information and specialized knowledge not elsewhere classified 7.73

Other public financial corporations Other public financial corporations comprise all resident financial corporations, except public deposit-taking corporations, controlled by general government units or other public corporations 2.121

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Other recurrent taxes on property — Other recurrent taxes on property include all recurrent taxes on property other than immovable property or net wealth....5.53

Other revenue — Other revenue is all revenue receivable excluding taxes, social contributions, and grants....5.6, 5.106

Other social contributions — Other social contributions are actual and imputed contributions receivable by social insurance schemes operated by employers on behalf of their employees....5.98

Other structures — Other structures consist of all structures other than buildings....7.48

Other subsidies on production — Other subsidies on production are subsidies that enterprises receive as a consequence of engaging in production but that are not related to specific products....6.90

Other taxes — Other taxes cover revenue from taxes levied predominantly on a base or bases not elsewhere classified, and unidentified taxes....5.93

Other taxes on goods and services — Other taxes on goods and services includes taxes on the extraction of minerals, fossil fuels, and other exhaustible resources from deposits owned privately or by another government and any other taxes on goods or services not included in categories 1141 through 1145....5.82

Other taxes on use of goods and on permission to use goods or perform activities — Other taxes on use of goods and on permission to use goods or perform activities include business and professional licenses that consist of taxes paid by enterprises in order to obtain a license to carry on a particular kind of business or profession and taxes payable by individuals to perform certain activities....5.81

Own funds — Own funds are defined as the difference between total assets (at market values) and total liabilities excluding shares and other equity (at market value)....7.231

Partitioning — Partitioning records a transaction that is a single transaction from the perspective of the parties involved as two or more differently classified transactions....3.29

Pension entitlements — Pension entitlements are financial claims that existing and future pensioners hold against either their employer or a fund designated by the employer, to pay pensions earned as part of a compensation agreement between the employer and employee....7.190

Pensions and other retirement benefits — Pensions and other retirement benefits are payable when individuals cease employment upon retirement....A2.6

Permit to undertake a specific activity — A permit to undertake a specific activity is an asset for the holder when: (i) the permits are limited in number and so allow the holders to earn monopoly profits, (ii) the monopoly profits do not come from the use of an asset belonging to the permit-issuer, and (iii) a permit holder is able both legally and practically to sell the permit to a third party....7.110

Permits to use natural resources — Permits to use natural resources are third-party property rights relating to natural resources....7.109

Premium earned — The premium earned is the part of the actual premium that relates to coverage provided in the reporting period....A4.75

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Premiums, fees, and claims payable related to nonlife insurance and standardized guarantee schemes
Premiums, fees, and claims payable related to nonlife insurance and standardized guarantee schemes include nonlife insurance premiums payable to insurance schemes/corporations to secure entitlement to insurance against risks, claims payable by insurance schemes to beneficiaries, and fees payable to obtain standardized guarantees....6.125

Premiums, fees, and claims receivable related to nonlife insurance and standardized guarantee schemes
Premiums, fees, and claims receivable related to nonlife insurance and standardized guarantee schemes comprise nonlife insurance premiums receivable by insurance schemes to provide entitlement to insurance against risks; claims receivable from insurance schemes by beneficiaries; and fees receivable for the issuance of standardized guarantees....5.149

Premiums, fees, and current claims payable
Premiums, fees, and current claims payable comprise nonlife insurance premiums expense and fees payable for the issuance of standardized guarantees, as well as insurance settlement expense that is not exceptional....6.125

Premiums, fees, and current claims receivable
Premiums, fees, and current claims receivable comprise nonlife insurance premium revenue and fees receivable for the issuance of standardized guarantees, as well as insurance settlement revenue that is not exceptional....5.150

Present value
Present value is the value today of a future payment or stream of payments discounted at some appropriate compounded interest rate....7.33

Primary income account
The primary income account shows primary income flows between resident and nonresident institutional units....A7.82

Production measure of gross domestic product
The production measure of gross domestic product is defined as gross value added plus any taxes minus subsidies on products not already included in the value of output....A7.24

Profits of fiscal monopolies
Profits of fiscal monopolies cover that part of the profits of fiscal monopolies that is transferred to the government. Fiscal monopolies are public corporations, public quasi-corporations, or government-owned unincorporated enterprises that have been granted a legal monopoly over the production or distribution of a particular kind of good or service in order to raise revenue and not in order to further the interests of public economic or social policy....5.63

Property expense
Property expense is the expense payable to the owners of financial assets or natural resources when they put them at the disposal of another unit....6.108

Property expense for investment income disbursements
Property expense for investment income disbursements includes property income attributed to insurance policyholders, pension entitlements, and holders of investment fund shares....6.113

Property income
Property income is the revenue receivable in return for putting financial assets and natural resources at the disposal of another unit....5.107

Property income from investment income disbursements
Property income from investment income disbursements includes property income attributed to insurance policyholders and holders of investment fund shares....5.120

Provident funds
Provident funds are compulsory saving schemes that maintain the integrity of the contributions for individual participants....2.148

Public corporations subsector
The public corporations subsector consists of all resident corporations controlled by government units or by other public corporations....2.104

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Public deposit-taking corporations
Public deposit-taking corporations are financial corporations controlled by general government units or other public corporations whose principal activity is financial intermediation and who have liabilities in the form of deposits or financial instruments that are close substitutes for deposits 2.117

Public deposit-taking corporations except the central bank
Public deposit-taking corporations except the central bank consist of all resident depository corporations, except the central bank, that are controlled by general government units or other public corporations 2.120

Public financial corporations subsector
All resident financial corporations controlled by general government units or other public corporations are part of the public financial corporations subsector....2.115

Public monuments
Public monuments are identifiable because of particular historical, national, regional, local, religious, or symbolic significance 7.42

Public nonfinancial corporations subsector
All resident nonfinancial corporations controlled by general government units or other public corporations are part of the public nonfinancial corporations subsector 2.114

Public-private partnerships (PPPs)
Public-private partnerships (PPPs) are long-term contracts between two units, whereby one unit acquires or builds an asset or set of assets, operates it for a period, and then hands the asset over to a second unit....A4.58

Public sector
The public sector consists of all resident institutional units controlled directly, or indirectly, by resident government units—that is, all units of the general government sector and resident public corporations 1.2, 2.63

Quasi-corporation
A quasi-corporation is (i) either an unincorporated enterprise owned by a resident institutional unit that has sufficient information to compile a complete set of accounts and is operated as if it were a separate corporation and whose relationship to its owner is effectively that of a corporation to its shareholders, or (ii) an unincorporated enterprise owned by a nonresident institutional unit that is deemed to be a resident institutional unit because it engages in a significant amount of production in the economic territory over a long or indefinite period of time 2.33

Quasi-fiscal operations
Quasi-fiscal operations are government operations carried out by institutional units other than general government units....2.4

Real holding gain
A real holding gain is defined as the value accruing to an asset as a result of a change in its price relative to the prices of goods and services in general.....10.11

Realized holding gain
A holding gain is realized when an asset is sold, redeemed, used, or otherwise disposed of, or a liability incorporating a holding gain or loss is repaid 10.6

Reassignment
Reassignment records a transaction arranged by a third party on behalf of others as taking place directly by the two principal parties involved....3.30

Recurrent taxes on immovable property
Recurrent taxes on immovable property cover taxes levied regularly on the use or ownership of immovable property, which includes land, buildings, and other structures 5.49

Recurrent taxes on net wealth
Recurrent taxes on net wealth cover taxes levied regularly on net wealth 5.50

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Regional arrangements Regional arrangements involve coordination of institutional units in several countries for a particular monetary or economic purpose A5.1

Reinvested earnings Reinvested earnings are the direct investor's share of the retained earnings of the direct investment enterprise 5.134, 6.121

Remaining maturity or residual maturity Remaining maturity or residual maturity is the period from the reference date (balance sheet date) until the final contractually scheduled payment date 7.267

Rent (expense) Rent is the expense payable to the owners of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production 6.120

Rent (revenue) Rent is the revenue receivable by the owners of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production 5.122

Rerouting Rerouting records a transaction as taking place through channels that differ from the actual ones, or as taking place in an economic sense when no actual transactions take place..... 3.28

Research and development Research and development consists of the value of expenditure on creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture, and society, and use of this stock of knowledge to devise new applications..... 7.66

Residence The residence of each institutional unit is the economic territory with which it has the strongest connection (i.e., its center of predominant economic interest) 2.7

Resource lease A resource lease is an agreement whereby the legal owner of a natural resource that macroeconomic statistics treat as having an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent..... A4.16

Resource management activities Resource management activities are those activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion..... A7.108

Restructuring agencies Restructuring agencies are entities set up to sell corporations and other assets, and for the reorganization of companies 2.129

Revenue Revenue is an increase in net worth resulting from a transaction..... 5.1

Sales of goods and services Sales of goods and services consist of the sales by market establishments, administrative fees charged for services, incidental sales by nonmarket establishments, and imputed sales of goods and services..... 5.136

Sales taxes Sales taxes are all general taxes levied on sales at one stage only, whether at manufacturing or production stages or on wholesale or retail trade 5.59

Securities Securities are debt and equity instruments that have the characteristic feature of negotiability..... 7.119

Securities lending Securities lending is an arrangement whereby a security holder transfers securities to another party (security taker), subject to the stipulation that the same or similar securities be returned on a specified date or on demand..... 7.160

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Securities repurchase agreement (repo) A securities repurchase agreement (repo) is an arrangement involving the sale of securities for cash, at a specified price, with a commitment to repurchase the same or similar securities at a fixed price either on a specified future date (often one or a few days hence) or with an open maturity 7.159

Securitization Securitization occurs when a unit, named the originator, conveys the ownership rights over financial or nonfinancial assets, or the right to receive specific future flows, to another unit, named the securitization unit. In return, the securitization unit pays an amount to the originator from its own source of financing. The securitization unit obtains its own financing by issuing debt securities using the assets or rights to future flows transferred by the originator as collateral A3.59

Sinking fund A sinking fund is a separate account, which may be an institutional unit, made up of segregated contributions provided by the unit(s) that makes use of the fund (the "parent" unit) for the gradual redemption of the parent unit's debt. A sinking fund may also be established to provide for major repairs or replacements 2.144

Social assistance Social assistance provides social protection benefits to all persons who are in need without any formal requirement to participate as evidenced by the payment of contributions A2.25

Social assistance benefits Social assistance benefits are transfers payable in cash or in kind to households to meet the same needs as social insurance benefits but are not made under a social insurance scheme 6.101, A2.25

Social benefits Social benefits are current transfers receivable by households intended to provide for the needs that arise from social risks A2.4

Social contributions Social contributions are actual, or imputed, revenue receivable by social insurance schemes to make provision for social insurance benefits payable 5.4, 5.94, A2.4

Social insurance contribution A social insurance contribution is the amount payable to a social insurance scheme in order for a designated beneficiary to be entitled to receive the social benefits covered by the scheme A2.31

Social insurance schemes Social insurance schemes provide social protection and require formal participation by the beneficiaries, evidenced by the payment of contributions (actual or imputed) 2.101, A2.30

Social protection Social protection is the systematic intervention intended to relieve households and individuals of the burden of a defined set of social risks. A2.1

Social risks Social risks are events or circumstances that may adversely affect the welfare of the households concerned either by imposing additional demands on their resources or by reducing their income 2.46, 6.96, A2.1

Social security benefits Social security benefits are social benefits expense payable in cash or in kind to households by social security schemes 6.99

Social security contributions Social security contributions are actual revenue receivable by social security schemes organized and operated by government units, for the benefit of the contributors to the scheme 5.97

Social security fund A social security fund is a particular kind of government unit that is devoted to the operation of one or more social security schemes 2.100, A2.34

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Social security schemes Social security schemes are social insurance schemes covering the community as a whole, or large sections of the community, and are imposed and controlled by government units..... 2.101, A2.33

Sovereign wealth funds Created and owned by the general government for macroeconomic purposes, sovereign wealth funds hold, manage, or administer assets to achieve financial objectives, and employ a set of investment strategies that include investing in foreign financial assets 2.152

Special Drawing Rights Special Drawing Rights (SDRs) are international reserve assets created by the International Monetary Fund (IMF) and allocated to its members to supplement reserve assets 7.131

Standardized guarantees Standardized guarantees are those kinds of guarantees that are issued in large numbers, usually for fairly small amounts, along identical lines..... 7.201, A4.71

State governments State governments consist of institutional units exercising some of the functions of government at a level below that of central government and above that of the government institutional units existing at a local level 2.90

Stock position A stock position is the total holdings of assets and/or liabilities at a point in time.....3.36

Stripped securities Stripped securities are securities that have been transformed from a principal amount with coupon payments into a series of zero-coupon bonds, with a range of maturities matching the coupon payment date(s) and the redemption date of the principal amount(s) 7.152

Subsidies Subsidies are current unrequited transfers that government units make to enterprises on the basis of the level of their production activities or the quantities or values of the goods or services they produce, sell, export, or import 5.146, 6.84

Subsidy on products A subsidy on products is a subsidy payable per unit of a good or service.....6.89

Swap contract A swap contract involves the counterparties exchanging, in accordance with prearranged terms, cash flows based on the reference prices of the underlying items 7.162, 7.215

Synthetic securitization Synthetic securitization involves transfer of the credit risk related to a pool of assets without transfer of the assets themselves, either through a securitization unit or through the direct issuing of debt securities by the original asset owner.....A3.65

Tax credit A tax credit is an amount subtracted directly from the tax liability due by the beneficiary household or corporation after the liability has been computed 5.29

Tax expenditures Tax expenditures are concessions or exemptions from a "normal" tax structure that reduce government revenue collection.....5.28

Tax refunds Tax refunds are adjustments for overestimation of taxes payable or the return of amounts to taxpayers due to overpayments.....5.27

Tax relief measures Tax relief measures are incentives that reduce the amount of tax owed by an institutional unit.....5.28

Taxes Taxes are compulsory, unrequited amounts receivable by government units from institutional units 5.2, 5.23

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Taxes on capital gains Taxes on capital gains consist of taxes on the capital gains (including capital gain distributions of investment funds) of persons or corporations that become payable during the current reporting period, irrespective of the periods over which the gains have accrued 5.41

Taxes on financial and capital transactions Taxes on financial and capital transactions are taxes levied on the change in ownership of property, except those classified as gifts, inheritance, or estate transactions 5.61

Taxes on goods and services Taxes on goods and services are taxes that become payable as a result of the production, sale, transfer, leasing, or delivery of goods and rendering of services, or as a result of their use for own consumption, or own capital formation 5.55

Taxes on income, profits, and capital gains Taxes on income, profits, and capital gains consist of taxes assessed on the actual or presumed incomes of institutional units 5.41

Taxes on individual or household income Taxes on individual or household income consist of personal income taxes, including those deducted by employers (pay-as-you-earn taxes), and surtaxes 5.41

Taxes on international trade and transactions Taxes on international trade and transactions are taxes that become payable when goods cross the national or customs frontiers of the economic territory, or when transactions in services exchange between residents and nonresidents 5.83

Taxes on payroll or workforce Taxes on payroll or workforce are taxes payable by enterprises assessed either as a proportion of the wages and salaries paid or as a fixed amount per person employed 5.45

Taxes on property Taxes on property are taxes payable on the use, ownership, or transfer of wealth 5.46

Taxes on specific services Taxes on specific services are levied on payments for specific services 5.69

Taxes on the income of corporations Taxes on the income of corporations consist of corporate income taxes, corporate profits taxes, corporate surtaxes, etc. 5.41

Taxes on use of goods and on permission to use goods or perform activities Taxes on use of goods and on permission to use goods or perform activities are fees levied for the issuance of a license or permit that are not commensurate with the cost of the control function of government 5.72

Taxes on winnings from lotteries or gambling Taxes on winnings from lotteries or gambling are taxes payable on the amounts receivable by winners 5.41

Total gross debt Total gross debt—often referred to as "total debt" or "total debt liabilities"—consists of all liabilities that are debt instruments. A debt instrument is defined as a financial claim that requires payment(s) of interest and/or principal by the debtor to the creditor at a date, or dates, in the future 7.236

Transaction A transaction is an economic flow that is an interaction between institutional units by mutual agreement or through the operation of the law, or an action within an institutional unit that is analytically useful to treat like a transaction, often because the unit is operating in two different capacities 3.5

Transfer A transfer is a transaction in which one institutional unit provides a good, service, or asset to another unit without receiving from the latter any good, service, or asset in return as a direct counterpart 3.10

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Transfers not elsewhere classified (payable) Transfers not elsewhere classified payable include a number of gifts and transfers to individuals, private nonprofit institutions, nongovernmental foundations, corporations, or government units that are not included in other categories of transfers, and serving quite different purposes 6.122

Transfers not elsewhere classified (receivable) Transfers not elsewhere classified receivable include subsidies, as well as gifts and transfers from individuals, private nonprofit institutions, nongovernmental foundations, corporations, or sources other than governments and international organizations....5.145

Transport equipment Transport equipment consists of equipment for moving people and objects ...7.54

True-sale securitization True-sale securitization involves debt securities issued by a securitization unit where the underlying assets have been transferred from the original asset owner's (i.e., the originator's) balance sheet to that of the securitization unit A3.62

Turnover and other general taxes on goods and services Turnover and other general taxes on goods and services are multistage cumulative taxes and taxes where elements of consumption taxes are combined with multistage taxes 5.60

Unallocated gold accounts Unallocated gold accounts represent a claim against the account custodian to deliver gold 7.127

Unearned premium The unearned premium is the amount of the actual premium received that relates to the period past the reporting period A4.75

Unrealized holding gain An unrealized holding gain is one accruing on an asset that is still owned or a liability that is still outstanding at the end of the reporting period 10.6

Valuables Valuables are produced assets of considerable value that are not used primarily for purposes of production or consumption, but are held primarily as stores of value over time 7.18, 7.87

Valuation of stock positions Stock positions should be valued at market value—that is, as if they were acquired in market transactions on the balance sheet reporting date (reference date)....3.113

Value of goodwill and marketing assets The value of goodwill and marketing assets is the difference between the value paid for an enterprise as a going concern and the sum of its assets minus the sum of its liabilities, each item of which has been separately identified and valued....7.116

Value-added taxes Value-added taxes (VAT) are taxes on goods or services collected in stages by enterprises but ultimately charged in full to the final purchasers....5.58

Wages and salaries Wages and salaries are compensation of employees payable in cash and/or in kind, except for social contributions payable by employers 6.12

Wages and salaries in cash Wages and salaries in cash are the amounts payable in cash, or any other financial instruments used as means of payments, to employees in return for work performed....6.13

Wages and salaries in kind Wages and salaries in kind are amounts payable in the form of goods, services, interest forgone, and shares issued to employees in return for work performed..... 6.17

Water resources Water resources consist of surface and groundwater resources used for extraction to the extent that their scarcity leads to the enforcement of ownership or use rights, market valuation, and some measure of economic control....7.102

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Weapons systems Weapons systems include vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. 7.74

Withdrawals of income from quasi-corporations Withdrawals of income from quasi-corporations consist of that part of distributable income that the owner withdraws from the quasi-corporation 5.118

Work in progress Work in progress consists of goods and services that are not yet sufficiently processed to be in a state in which it is normally supplied to other institutional units 7.80

Written-down replacement cost Written-down replacement cost is the current acquisition price of an equivalent new asset minus the accumulated consumption of fixed capital, amortization, or depletion 3.115

Zero-coupon bonds Zero-coupon bonds are long-term securities that do not involve periodic payments during the life of the bond 7.147

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Foreword

The Technical Compilation Guide for Pension Data in National Accounts is a handbook for compilers and users of data on pension schemes in social insurance. It has been produced by Eurostat and the European Central Bank based on a mandate given by the Committee on Monetary, Financial and Balance of Payments Statistics to a Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government in 2006.

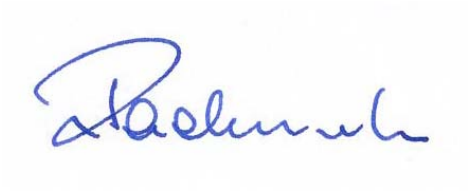
The Compilation Guide aims at supporting the work of National Statistical Institutes, Central Banks and other compilers within the European Union to derive estimates for position and flow data for pension entitlements. Such entitlements of households are reflected by corresponding obligations of various pension schemes in social insurance - either privately managed or managed by general government. Data on pension obligations need to be included in the supplementary table on pension schemes in social insurance. Such a table is described in chapter 17 of the System of National Accounts, 2008 (2008 SNA) and also in Annex A (chapter 17) of the European System of Accounts (ESA 2010). As table 29, it is also part of the Transmission Programme of ESA 2010, Annex B.

Most of the government-managed pension schemes in Europe are based on the pay-as-you-go principle whereby current contributions finance current benefits. To examine and especially improve the recording of such schemes, the various steps on how to derive actuarial estimates are described in the Compilation Guide. Moreover, the required data sources are mentioned and the results are demonstrated in various case studies and worked examples.

In this regard, we thank Mr. Bernd Raffelhüschen and Mr. Christoph Müller, Forschungszentrum Generationenverträge of the University of Freiburg, for providing a first draft of the Compilation Guide and also the numerical examples. Mr. Peter Parlasca and Mr. Ismael Ahamdanech-Zarco, both from Eurostat, and Mr. Reimund Mink, from the ECB, have contributed to the preparation of this Compilation Guide.

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We encourage all European Union countries to use this Compilation Guide for estimating the pension obligations of such schemes for which no actuarial estimates are made available from other data providers such as from business accountants or from supervisory agencies.





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Abbreviations

ABO	Accumulated benefit obligations
ADL	Accrued-to-date liabilities
AWG	Ageing Working group — EPC Working group on ageing populations and sustainability
BHPS	British Household Panel Survey
COFOG	Classification of the functions of government
CWL	Current workers' and pensioners' liabilities
DB	Defined benefit
DC	Defined contribution
Destatis	German Federal Statistical office
DRV	Deutsche Rentenversicherung (German statutory pension insurance)
ESA	European System of Accounts
ESSPROS	European System of Social Protection Statistics
EU-SILC	European Union Statistics on Income and Living Conditions
EVS	Einkommens- und Verbrauchsstichprobe (German Income and Expenditure Survey)
GAAP	Generally accepted accounting principles
hetCC	Heterogeneous contribution careers
homCC	Homogeneous contribution careers
IAS	International accounting standards
IPSAS	International Public Sector Accounting Standards
NA	National Accounts
NDC	Notional defined contribution
OSGL	Open-system gross liabilities
OSL	Open-system liabilities
OSNL	Open-system net liabilities
PAYG	Pay-as-you-go
PBO	Projected benefit obligation
SHIW	Survey on Household Income and Wealth
SKK	Slovakian Koruna (Slovakian national currency before 1 January 2009)
SNA	System of National Accounts

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SOEP	Sozio-oekonomisches Panel (German Socio-Economic Panel)
ZUS	Zaklad Ubezpieczen Spolecznych (Polish social insurance institution)

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1

Introduction

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1 Introduction

Demographic projections for the European Union (EU), as for many other industrialised countries, are characterised by an ageing of the population. This will have a substantial impact on general government spending. A declining European workforce combined with a rapidly expanding number of retirees will force up spending on pensions, health-care and long-term care, while populations will start to decrease in the coming years. The dynamics of general government-managed pension schemes in Europe are usually based on the pay-as-you-go principle whereby current contributions finance current benefits. To examine and improve the recording of these schemes in the System of National Accounts (SNA), the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) agreed, in 2006, to establish a Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government. This Task Force made significant input to the SNA update process for pensions, notably through the design and compilation of a *supplementary table on pension schemes* in social insurance in the 2008 SNA and also in the European System of Accounts (ESA 2010) as adopted by the Commission.

Pension entitlements were already partly recorded in the 1993 SNA. However, the 1993 SNA did not recognise pension entitlements of defined benefit (unfunded) pension schemes as assets of households and as liabilities of such schemes. The ESA 95 treated defined benefits pension schemes in the same way.[1] The 2008 SNA and the ESA 2010 as the new statistical standards provide detailed guidelines for compiling supplementary data on pension entitlements under defined benefit schemes. They cover schemes managed by non-general government units and schemes managed by the general government and also social security schemes.[2] According to these standards, pension entitlements of households (and pension obligations of the schemes) are recorded in national accounts (NA).[3] However, the new international standards define a set of rules which provide compilers with guidance on when to include pension schemes in the core system of accounts and when to

[1] According to ESA 95, 'provisions or similar funds constituted by employers to provide employees with pensions (non-autonomous pension funds) are only included in the category insurance technical reserves if they are calculated according to actuarial criteria similar to those used by insurance corporations and autonomous pension funds' (see ESA95, paragraph 5.101).
[2] For a description of the recent steps taken to reform the SNA, see Mink (2007), p. 203 et seq. For a short explanation of the reasons to change the SNA, see Mink and Rother (2007), Semeraro (2007) or Dippelsman (2010).
[3] According to the SNA 2008, paragraph 11.107: 'pension entitlements show the extent of financial claims both existing and future pensioners hold against either their employer or a fund designated by the employer to pay pensions earned as part of a compensation agreement between the employer and employee.'.

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include the outstanding amounts of pension entitlements only in the supplementary table on pension schemes in social insurance[4].

The supplementary table records all positions and flows in pension obligations of all pension schemes in social insurance. This new table provides a complete and consistent coverage of all pension entitlements and obligations across countries.[5] It shows all positions and flows of pension obligations of pension schemes in an economy and (as a counterpart) the corresponding pension entitlements as held by households.

In the context of the ESA 2010, it may be mandatory in the coming years for EU countries to record a full set of position and flow data on pension obligations of all pension schemes including the schemes managed by general government for its own employers and social security pension schemes.

In 2007, the Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government had started to model and estimate position and flow data for defined benefit schemes for general government employees and for social security pension schemes. First benchmark estimations of pension entitlements were made based on harmonised assumptions for 19 EU countries. In March 2008, this work was taken over by the Eurostat/ECB Contact Group on Pensions.[6]

To compile position and flow data for government pension schemes source data may be made available from government entities and also from supervisory agencies. Such data are usually the basis to carry out actuarial estimates for defined benefit schemes for government employees and for social security pension schemes. Actuarial estimates are broadly applied in the insurance and pension fund business.

This Technical Compilation Guide for Pension Data in National Accounts (the Technical Compilation Guide) helps countries compile pension entitlements and obligations to be included in the supplementary table as described above. The Technical Compilation Guide covers:

[4] The supplementary table on pensions in social insurance is described in Chapter 17 of the 2008 SNA and in Chapter 17 of the ESA 2010 (Annex A). It is also part of the ESA 2010 Transmission Programme (Annex B, Table 29).

[5] The data reported on pension entitlements based on the 1993 SNA and the ESA 93 show considerable differences in the accounts from country to country due to the institutional variety in pension schemes. While pension entitlements and obligations of government-managed defined benefit schemes for general government employees and of social security pension schemes (like in France, Germany or Italy) were not recorded as positions in the national accounts, pension entitlements and obligations in countries with mainly defined contribution schemes were covered as assets and liabilities in the national accounts.

[6] For an overview on the recent work of the Task Force and of the Contact Group see Task Force (2008) and Contact Group (2009).

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- the main methodological concepts to be applied to estimate pension entitlements and obligations (Section 2);
- the definition and classification of pension schemes covered in the supplementary table (Section 3);
- the design and use of the supplementary table (Section 4);
- the core assumptions to estimate pension entitlements and obligations (Section 5);
- the data sources for compiling and estimating pension entitlements and obligations (Section 6);
- the approach to estimate defined benefit pension entitlements and obligations (Section 7); and
- examples illustrating how to fill in the supplementary table (Section 8).

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2

Estimating pension entitlements and obligations in national accounts

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2 Estimating pension entitlements and obligations in national accounts

2.1 Concepts of pension entitlements and obligations

Pension entitlements of households can be recorded either as financial assets in the national accounts or as contingent assets. Those treated as financial assets constitute financial claims that beneficiaries have vis-à-vis either their employer or a pension manager designated by the employer to pay pension benefits earned as part of a compensation agreement concluded between the employer and the employee. Those treated as contingent assets usually represent 'conditional claims' on defined benefit schemes managed by general government, including social security pension schemes. As counterparts, they are recorded as contingent liabilities of the government.

The aim of the supplementary table is to give an overview of pension obligations (of general government but also of other institutional sectors) vis-à-vis households covering all pension schemes in social insurance. The figures in the supplementary table present the perspective of the debtor (the pension scheme) indicating pension obligations (either liabilities or contingent liabilities) as well as that of the creditor (households) showing pension entitlements (either assets or contingent assets). In the supplementary table, the positions and flows of the pension obligations always correspond to the positions and flows of pension entitlements.[7]

Table 1: Concepts of pension obligations

Time horizon	Gross liabilities (incl. expenditures)	Net liabilities (incl. expenditures & revenues)
	Accrued-to-date liabilities (ADL)	
	Current workers' and pensioner's liabilties (CWL)	
infinite ↓	Open-system gross liabilities (OSGL)	Open-system net liabilities (OSNL)

[7] When the text refers to positions or flows of pension obligations, it corresponds to positions or flows of pension entitlements and vice versa.

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Pension obligations or pension entitlements in national accounts always refer to a gross concept. It means that these obligations or entitlements are not netted against expected revenue of government or expected social contributions of households. In the case of defined contribution pension schemes or social security pension schemes, no future revenue or future social contributions are taken into account to compile any type of net pension entitlements or pension obligations (see Box 1). Only pension entitlements or obligations are considered. They are based on (actual and future) pension benefits.

Box 1

Three concepts of pension obligations

In recent literature (see Franco, 1995, pg. 2) three main concepts of pension obligations have been introduced: the concepts of (a) *accrued-to-date liabilities (ADL);* (b) *current workers and pensioners liabilities;* and (c) *open-system liabilities*. Box 1 gives a detailed description of these concepts.All pension obligations of pension schemes or pension entitlements of households are assessed as part of extended balance sheets of pension schemes or households in the national accounts (showing assets and contingent assets or liabilities and contingent liabilities) at a certain point in time, usually at the year-end. The pension entitlements or obligations under defined benefit (unfunded) social insurance pension schemes are recorded in gross terms, meaning that no accrued-to-date obligations reflecting future social contributions to finance the pension entitlements are taken into account; instead only the accrued-to-date pension entitlements for current and future pension benefits (ADL) are covered, i.e. the pension entitlements accrued by current workers (including deferred pension entitlements) and the remaining pension entitlements of existing pensioners. As for all national accounts data, the data are measured ex post, as they include only the current values of the entitlements that arise from already accrued pension rights. The method is based on observable past events and transactions, such as membership of the pension scheme and contributions paid. However, these ex post measures also rely on some assumptions in the modelling process. The probability that current contributors may die or become disabled before reaching pensionable age needs to be estimated. The approach also covers future changes to the (defined) pension benefits owing to any legislation enacted prior to the year for which pension entitlements are calculated. Finally, the method requires assumptions about future developments, notably the development of the discount rate for future pension disbursements. As with all other assets, the pension entitlements are entered into the extended household balance sheet at their value on the balance sheet date. Since actuarial values for pension entitlements or obligations related to defined benefit (unfunded) pension schemes in social insurance in the EU countries are typically not made available by the manager of the pension scheme, compilers of national accounts have to estimate the actuarial value.

a) *Accrued-to-date liabilities (ADL)*: These pension entitlements or obligations contain the present value of pensions to be paid in the future on the basis of accrued rights. Accrued pension rights are due to already paid social contributions by current workers and remaining pension entitlements of existing pensioners. No rights accrued after the current year — by present or by future workers — are considered. The time horizon of this concept is, therefore, somewhat limited. As shown in Figure 1 ADL covers only integral amounts below curve B (also taking a discount rate into consideration).

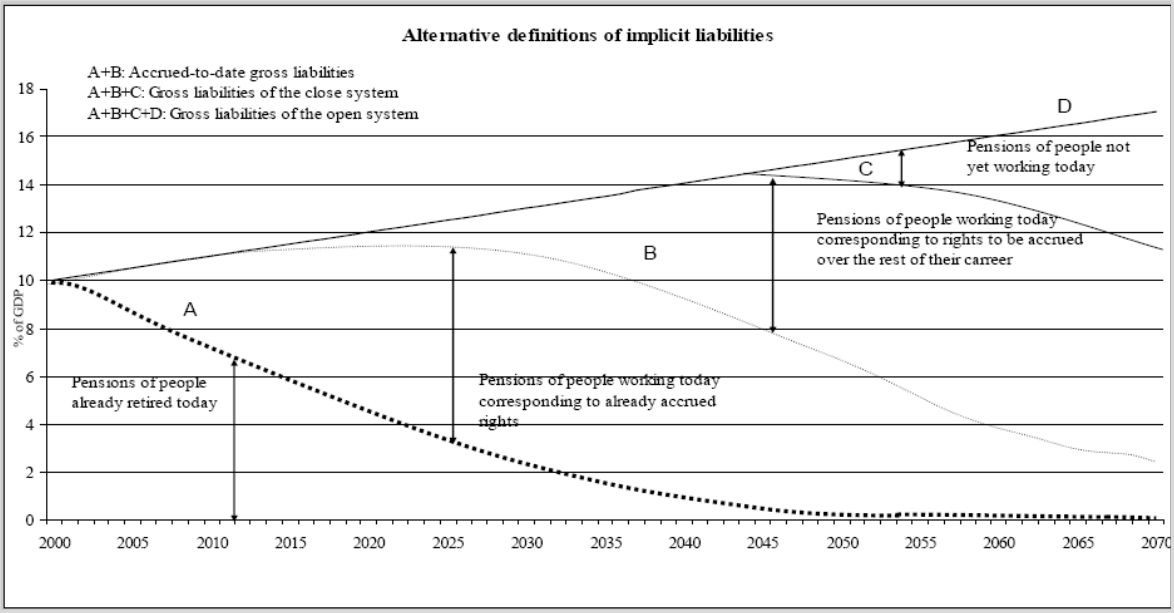
b) *Current workers' and pensioners' liabilities (CWL)*: For CWL, allowance is made for the pension scheme to continue until the last current contributor dies. However, new entrants are not included. This concept covers ADL and the present value of pension entitlements that will be accrued by current contributors due to their future contributions. CWL corresponds to the integral amounts below curve C (considering additionally a discount rate) in Figure 1.

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c) *Open-system liabilities (OSL)*: In addition to CWL, this liability concept also includes the present value of pensions of new workers entering the respective pension scheme. It is assumed that the pension scheme will be continued under current rules for a relatively long time horizon. The present value of OSL may be compiled over an infinite time horizon. For practical reasons, however, a perspective, e.g. 200 years, is usually chosen.

Figure 1

Alternative definitions of implicit liabilities



Source: European Commission Public Finance Report 2006.

Applying one of the three liability concepts depends on the specific purpose of the analysis. To assess the fiscal sustainability of a defined benefit (unfunded) pension scheme managed by government for its employees, for example, it is natural to apply the widest possible time horizon. This means using the OSL concept to examine long-term fiscal sustainability. By contrast, policy issues concerning the possible termination of an existing defined benefit pension scheme should be addressed on the basis of the ADL or the CWL concept, depending on the remaining time horizon of the scheme taking also into consideration that only the ADL concept complies fully with the methodology used in national accounts.

In line some other valuation procedures used for financial instruments like unlisted shares or other equity, for which market values are not or not always available, the compilation of ADL is based on a net present value approach. In fact, estimating position and flow data for defined benefit pension schemes for government employees and for social security pension schemes to fill in the corresponding cells of the supplementary table involves projecting historical data into the future. For this purpose, actuarial estimates have to be carried out as described in further detail in Chapter 5 and Chapter 7. This method is commonly used in the insurance and pension fund sector, where actuarial figures are estimated on a frequent and standardised basis. Source data for the general government sector, however, are often limited to annual cash reporting. Moreover, actuarial estimations are not widely used there at present.

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These actuarial calculations require a number of careful assumptions to be made. They include assumptions about future life expectancy, which determine the payout period of future pensions. In particular, assumptions on future wage growth and on an appropriate discount rate play a crucial role in projecting pension entitlements or obligations accrued-to-date.[8]

It is important to stress that pension entitlements (derived as accrued-to-date and applied in national accounts) do not allow any conclusions to be drawn as to the fiscal sustainability of a pension scheme. Large pension entitlements do not necessarily mean unsustainable pension schemes, and by the same token small pension entitlements do not mean that the respective pension schemes are fiscally stable in the long term (for a detailed discussion see Box 2).

Box 2

Pension entitlements are not sustainability indicators

Measures of pension entitlements accrued-to-date are the appropriate data to be reported in the system of national accounts. In this respect, they are useful for economic and policy analyses. They provide an estimate of the cost of a hypothetical termination of a pension scheme without reneging on accrued entitlements. As measures of household wealth (assets and contingent assets), they are also valuable statistical information to understand positions and flows in household wealth also in relation to saving and consumption. Furthermore, ADL help in assessing pension reforms of various kinds, such as establishing a new system for new contributions or new contributors, while maintaining the current system for already accrued entitlements.

Pension entitlements accrued-to-date are not an appropriate indicator of fiscal sustainability. They can be interpreted as the amount of resources which has to be set aside today in order to finance all pension rights which have been earned up to a given year. Entitlements that will accrue after that year are not included. In contrast to other liability concepts such as OSL, therefore, the time horizon of ADL is somewhat limited. As illustrated in Figure 2 for the German statutory pension scheme, the ADL represent only one part of the OSL. Moreover, the ADL are compiled gross without including the net present value of future social contributions. To assess fiscal sustainability it is vital to compare (future) pension obligations with the corresponding future pension-related assets.

Figure 2 outlines the difference between ADL and sustainability indicators for the German statutory pension scheme. It shows that a considerable amount of ADL (equivalent to about 280% of GDP in 2006) is accumulated in this scheme. If future entitlements are also considered — applying the open system gross liability concept (OSGL) — pension obligations add up to more than 600 percent of GDP. However, it is only possible to draw conclusions about the sustainability of a pension scheme by comparing these pension obligations with the respective assets. The resulting residual amount of obligations and assets represents the open-system net liabilities (OSNL), also known as the sustainability or fiscal gap. In contrast to the ADL, it represents the stock which has to be set aside today to sustain the present pension system (in its legal status quo) in the long term. While the ADL only take into account a fraction of the future demographic development, namely the change in the number of retirees, the OSNL consider the long-term development of the overall population. Figure 2 also illustrates that the ADL estimates can indeed be extended to measure open system gross and net liabilities, provided that a longer time horizon

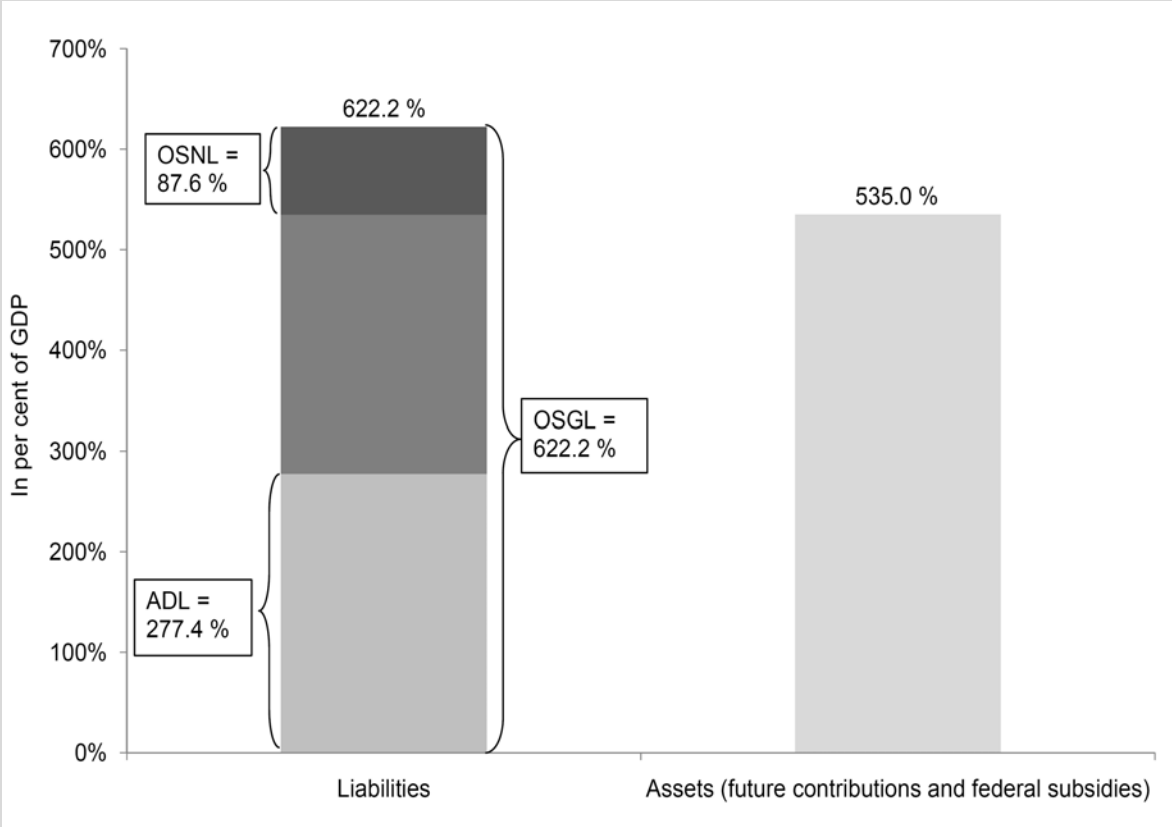
[8] The assumptions of the actuarial approach are outlined in detail in Section 5.

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is used and the corresponding assets are included.[9]

Figure 2

Accrued-to-date liabilities and related sustainability indicators



Source: Müller et. al. (2010), p. 117.

2.2 Projected and accumulated benefit obligations

When estimating the ADL, one of the following two approaches may be applied: either the *projected benefit obligations approach (PBO)* or the *accumulated benefit obligations approach (ABO)*. The main difference between these two compilation methods refers to the treatment of future wage increases. In the case of the PBO approach, (expected) future increases in income — either through promotions or through a general increase of wages — are taken fully into account. The ABO approach, on the other hand, considers only the present value of benefits earned to date. Future wage increases are not taken into account.

The choice between the two concepts may have a significant impact on the level of pension entitlements. Results are usually by 10 to 20% higher when applying PBO instead of ABO.[10]

[9] For a description of extending the ADL approach, see Müller et al. (2010).
[10] Of course, this differential depends to a large degree on the promotions during working life, i.e. it depends on the progression of the age-specific wage profile — shown exemplarily in figure 8. The higher promotions are

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Therefore, clear guidelines have to be applied which of the two approaches should be chosen to ensure comparability of results across pension schemes and also across EU countries.

Each method has its advantages and disadvantages. The probability of a termination or of a freezing of the respective pension scheme (before the end of a worker's career) should determine which method to apply. If the pension scheme is likely to exist until the end of a worker's career, his or her future wage growth needs to be taken into account, applying the PBO method. This approach is often recommended for pension schemes established for government employees.[11] The International Public Sector Accounting Standards (IPSAS25) also recommend applying the PBO approach to measure pension obligations of defined benefit plans.[12] Business accounting standards, in particular the International Accounting Standards 19 (IAS 19), also recommend the PBO approach. For social security pension schemes, the PBO approach seems the appropriate valuation method, since, in normal circumstances, an early termination of these schemes is not expected.

Furthermore, the PBO approach is a more suitable way of reflecting certain pension reforms. While an extension of the contribution periods relevant for the benefit formula (e.g. from best 25 income years to lifetime earnings), for example, may have no effect in the case of the ABO approach, it can change the entitlements when the PBO approach is applied. The PBO approach is also the most appropriate method to take into account the different indexation rules of pension schemes.

In conclusion, most arguments are in favour of the PBO approach rather than the ABO approach to estimate pension obligations of pension schemes managed by general government. This method has already been used in most countries which have already estimated corresponding pension obligations.[13]

To maintain consistency across pension schemes it is recommended to apply the ***PBO approach for the estimation of pension obligations of defined benefit schemes for government employees and of social security pension schemes. However, the ABO may be applied if there are good reasons to do so.***[14]

expected, i.e. the steeper the wage profile the more significant is the difference between ABO and PBO outcomes.

[11] See Reinsdorf (2010), p. 190 et seq.

[12] In fact, the IPSAS25 requires an entity to use the Projected Unit Credit Method, which is equivalent to the PBO approach.

[13] See Contact Group (2009), p. 10f. Only Sweden applies the ABO approach for its calculations.

[14] Some actuarial estimates provided by external institutions may apply only an ABO approach. It is feasible to use such figures to compile pension entitlements if no PBO estimations are available.

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In practice, various modifications of the PBO approach are applied, depending on how indexation effects are taken into account. These are the PBO approach with:

1) no future indexation of pensions;
2) price indexation;
3) wage indexation;
4) pensions indexed in accordance with indexation rules.[15]

To estimate defined benefit pension obligations, the PBO approach as described under 4) should be applied. This would allow country-specific differences in indexation policies to be reflected in the estimations.

[15] For a description of indexation rules, see Chapter 7.3.

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3

Pension schemes in social insurance covered by the supplementary table

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3 Pension schemes in social insurance covered by the supplementary table

The supplementary table on pension schemes in social insurance as reflected in the 2008 SNA and in the ESA 2010 covers positions and flows of pension obligations in all pension schemes regarded as social insurance. In order to complete this table, the various types of pension schemes (in the columns of the table) must be distinguished and the positions and flows in pension obligations (in the rows of the table) defined. In addition the concepts of pension benefits and other social benefits, of social insurance social assistance and individual insurance policies have to be distinguished.[16]

3.1 Pension benefits and non-pension benefits

In the 2008 SNA and in the ESA 2010 social insurance benefits (and the corresponding contributions) are divided between those related to pensions (pension benefits) and those related to all other forms of benefit.[17] All other benefits are grouped together as non-pension benefits.

Box 3

Pension benefits

Pension benefits are predominantly old-age pensions. However, survivors' pensions — consisting of widows' and orphans' pension benefits — and disability and early retirement pensions also fall under the term pension benefits.

Pensions are generally disbursed in the form of a guaranteed annuity[18] and received under predetermined legal or contractual terms. It is important to stress that, in the supplementary table, pension benefits are recorded in gross terms, i.e. there are no deductions made for taxes, social contributions or any service charge associated with the respective pension scheme.

Only pension benefits (and the corresponding contributions) are covered by the supplementary table. A definition of the term pension is given in Box 3Box . The distinction between pension benefits and non-pension benefits is important since the 2008 SNA recognises liabilities for pensions whether there are actually assets set aside to meet the entitlements or not, but recognises reserves for non-pension benefits only when these actually exist.[19]

[16] This chapter follows closely Chapter 17 of the ESA 2010 and Chapter 17 of the 2008 SNA.
[17] See 2008 SNA, paragraph 17.98.
[18] For a definition of annuities, see 2008SNA, paragraphs 17.66-17.75.
[19] See 2008 SNA, paragraph 17.99.

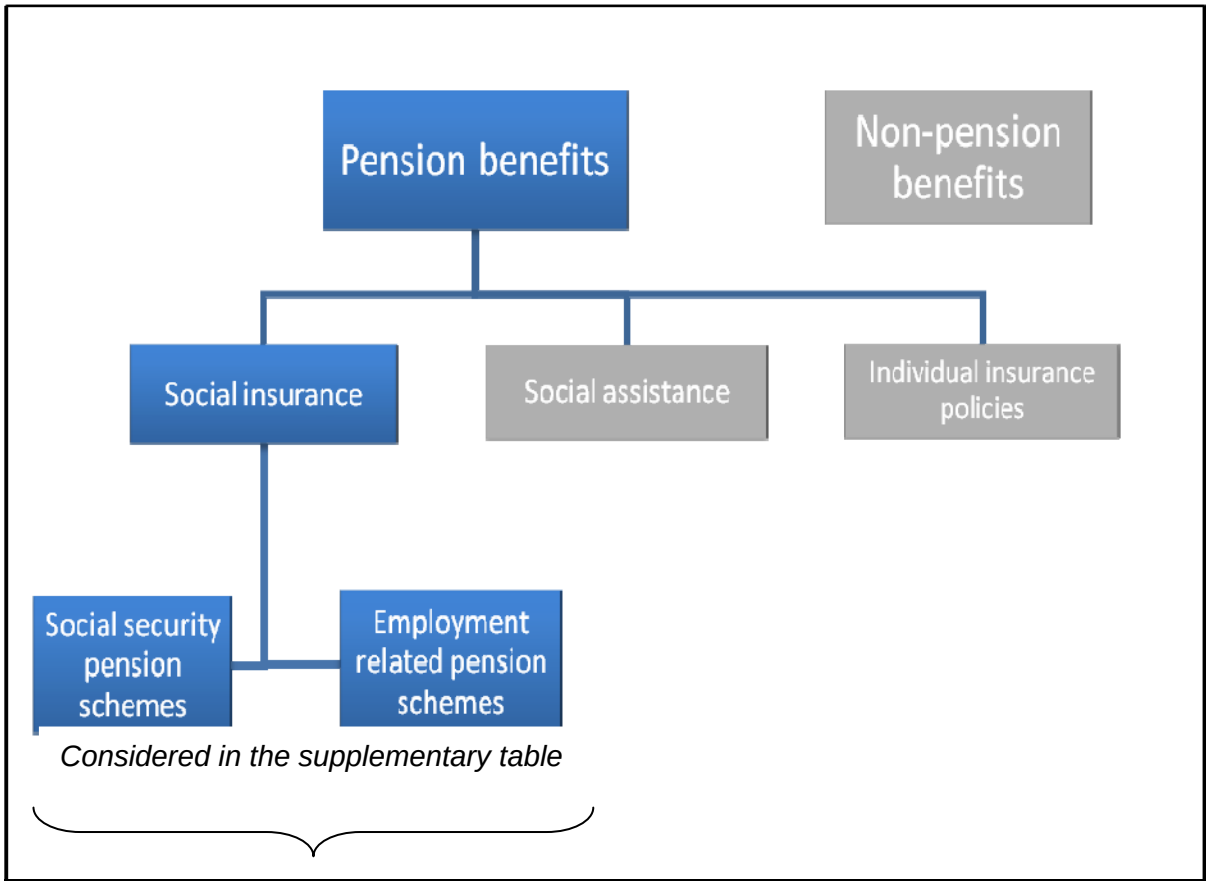
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3.2 Social insurance, social assistance and individual insurance policies

Pensions can be provided to beneficiaries in the form of (i) social insurance pension schemes; (ii) social assistance; and (iii) individual insurance policies related to pensions (see Figure 3).

Figure 3

Social insurance, social assistance and individual insurance policies



Social insurance is the predominant form of pension scheme in EU countries, covering social security pension schemes (classified as belonging to the general government sector) which, in many cases, are organized for major parts of the population, and employment-related pension schemes established by employers, including government, for their own employees. The distinction between social security schemes and employment-related schemes varies considerably from country to country, with the consequence that the coverage and, therefore, the national perception of what the term “social security” means also vary considerably, especially between European and non-European countries.

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Figure 4

Characteristics of social insurance

Characteristics	Social insurance			
	The beneficiary is obliged or encouraged to take out insurance against contingencies (old age, unemployment, illness, long-term care) by intervention of a third party.			
	Social security		**Employment-related social insurance**	
Form of organisation	Organised by general government via social security schemes		Organised by employers on behalf of their employees and their dependants or by others on behalf of a specified group	
Type of social insurance	Social security pension schemes	Other social security	Employment-related pension schemes	Other employment-related social insurance
Sector	Social security funds		Sector or sub-sector of employer, or pension funds	

In contrast to social insurance benefits, **social assistance benefits** are payable without qualifying contributions having been made to a social insurance scheme. Usually all resident households are entitled to apply for social assistance but the conditions under which it is granted are often restrictive. Generally, benefits are means-tested, including an assessment of available income and property. Only those households falling below a given income/property threshold may be granted this type of social assistance.

Sometimes it may not be feasible (or not sufficiently important) to separate elements of social assistance within pension schemes organised as social insurance. In these exceptional cases, social assistance benefits are included in the supplementary table.

Individual insurance policies related to pensions are policies that beneficiaries take out in their own names without being members of a scheme organized collectively for groups of employees, as in the case of social insurance. They are based on contracts which are (generally) made with individuals and which are not organised collectively. These individual insurance policies are not employment related and therefore are not recorded in the supplementary table.

Employment-related social insurance pension schemes may be managed by general government or by non-government entities, and they may be funded or unfunded. Funded

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schemes finance pension benefits by drawing down segregated and earmarked assets. Their design requires them to hold assets equal to their liabilities. These schemes can be exactly funded, under-funded or over-funded, depending on the size of the accumulated assets in relation to the pension entitlements. Unfunded schemes finance current pension payments with the ongoing contributions paid by future pensioners and/or other ongoing revenue, such as taxes or transfers; unfunded schemes may nevertheless hold assets (for liquidity reasons, for example, or as buffer funds).

The supplementary table covers social insurance-type pension schemes but not schemes based on social assistance-type benefits and private savings benefits. To draw a clear line between these different types of schemes, the following definitions are essential:

(i) ***Social insurance*** refers to a contractual insurance scheme where the beneficiaries are obliged or encouraged to insure against certain contingencies by the intervention of a third party. According to 2008 SNA a ***social insurance scheme must fulfil the following two conditions***:

a) The benefits received are conditional on participation in the scheme and constitute social benefits as this term is used in the 2008 SNA.

b) At least one of the three following conditions is met:

- Participation in the scheme is obligatory either by law or under the terms and conditions of employment of an employee, or group of employees.
- It is a collective scheme operated for the benefit of a designated group of workers, whether employed or non-employed, participation being restricted to members of that group.
- An employer makes a contribution (actual or imputed) to the scheme on behalf of an employee, regardless of whether the employee contributes.

Social insurance pensions are broken down into benefits provided by general government — so-called social security pensions — and pensions provided by employers, namely employment-related pensions (other than social security pensions). This distinction is applied in the supplementary table for government-managed pension schemes.

- ***Social security pension schemes*** are contractual insurance schemes where the beneficiaries, as participants of a social insurance scheme, are obliged or encouraged by government to insure against old age, unemployment and so forth. Social security pensions are provided to beneficiaries by general government.

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Contributions towards a social security pension scheme are often compulsory for a large part of the population. Furthermore, social security pension schemes are generally defined benefit schemes which means that they are unfunded and are financed on a pay-as-you-go basis.

The narrowest form of a social security pension is very basic. The level may be fixed independently of the size of contributions. Such flat-rate pension schemes are found in Ireland and the Netherlands. Most countries in Europe have earnings-related social security pension schemes, e.g. Germany and France. In these systems, the level of future pensions depends on the earnings history of contributors.

No pension entitlements for social security pension schemes are recognised in the core system of national accounts. They are only displayed in the supplementary table described in Section 4.

- ***Employment-related pension schemes***, other than the most basic form of social security pension schemes, are seen as part of the compensation package for employees. Negotiations between employees and employers may focus on pension entitlements as much as on current conditions of service and pay scales.

The relative importance of social security pension schemes relative to other social insurance schemes varies quite considerably across Europe. In some countries, such as Malta and France, almost all pension obligations accruing to employees of corporations and other legal entities may be rerouted through social security pension schemes. Other countries, such as the Netherlands and the United Kingdom, restrict their social security pension schemes mainly to the provision of basic pensions based on the dominant *employment-related pension schemes.* Social insurance contributions — paid by employees or by employers vis their employees — entitle designated beneficiaries to receive social benefits (covered by the respective scheme).

Most positions in pension obligations of employment-related pension schemes are recorded in the core system of national accounts and in the supplementary table. For government employee pension schemes, however, the classification is not so straightforward. Based on a convention, **positions in pension obligations of defined benefit pension schemes for government employees in EU countries are to be recorded in the supplementary table only**. See Section 3.4 for a detailed description of the division between core and non-core accounts.

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3.3 Defined contribution, defined benefit and other pension schemes

The supplementary table distinguishes between two types of pension schemes:

- *defined contribution schemes* (columns A and D); and
- *defined benefit schemes* (columns B, E, F and G).

In a ***defined contribution (DC)*** scheme, the level of eventual pension benefits is exclusively determined by contributions over the employee's working life and the return on funds invested. Defined contribution schemes are always organised in the form of a pension fund.[20]

The risk that an adequate retirement income may not be forthcoming is borne solely by the employees. An underfunded defined contribution scheme is impossible by definition. Measuring pension obligations of defined contribution schemes is relatively straightforward; their development is determined by the development of the assets attributed to the fund.

Defined benefit (DB) schemes, on the contrary, are pension schemes in which the pension benefits are determined by the use of a formula, either independently or in combination with a guaranteed minimum amount payable. Generally, the factors considered to estimate the defined benefits are the years of service, the salary over a defined period of time, the age at retirement and the indexation rule.

Unlike in a defined contribution scheme, the manager[21] of the pension scheme bears the risk of providing an adequate pension in defined benefit schemes. Defined benefit schemes can be, but are not necessarily, based on a pension fund. Social security pension schemes are usually designed as defined benefit schemes which are unfunded and arranged as pay-as-you-go arrangements. Therefore, pension entitlements need to be estimated using actuarial methods, which are described in detail in Section 5 to Section 8.

Other non-defined contribution schemes are recorded together with defined benefit schemes in the supplementary table; they are often described as hybrid schemes in that they combine the characteristics of defined contribution schemes and defined benefit schemes. In these schemes, the risk of providing an adequate retirement income is shared between the pension manager and the beneficiary of the scheme. The most important forms of such hybrid schemes are notional defined contribution (NDC) schemes, which are similar to

[20] A pension fund can be defined as a pool of assets that is used to pay pension benefits. It can be contrasted with the term 'pension scheme' which represents a bundle of rules for paying out pensions.
[21] For a definition of the term *manager* see below.

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defined contribution schemes but, usually, include a guaranteed minimum amount payable. In notional defined contribution schemes, contributions (from both, employees and employers) are credited to, and accumulated on, individual accounts. These individual accounts are notional in the sense that the contributions to the schemes are used to pay pension benefits to current pensioners.

3.4 Core and non-core accounts

The supplementary table on pensions in social insurance distinguishes between pension schemes whose positions are recorded in the core system of national accounts (and in the supplementary table) and those recorded only in the supplementary table. There is essentially one type of pension scheme, namely social security pension schemes, recorded only in the supplementary table. For EU countries however, by convention, all defined benefit schemes for general government employees are also recorded only in the supplementary table. Positions and flows of these two types of pension schemes are recorded in columns G and H of the supplementary table.

3.5 Pension manager, multi-employer pension scheme and pension administrator

The supplementary table classifies pension schemes according to the sector classification of the manager[22] of the pension scheme. A **pension manager** is mandated by the employer to manage the pension scheme. He is responsible for setting the terms of an employment-related pension scheme and bears the ultimate responsibility for pension entitlements. The pension manager also has a significant degree of responsibility for the long-term policy of investment in assets, including the selection of an investment strategy and the structure of administrative providers.

A single unit may often contract with several employers to manage their pension schemes. This unit is called a **multi-employer pension scheme**. As a pension manager, it bears the responsibility for any shortfall in the funds to meet the entitlements in return for the right to keep any excess funds. By pooling the risks of various employers, the multi-employer pension scheme expects to balance under- and over-funding and run a surplus in the schemes taken as a whole. This resembles the way in which an insurance corporation pools risk for many clients.

[22] Please note that the term 'manager' is used synonymously for the word 'sponsor' which has been frequently used in recent years.

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When general government takes responsibility for providing benefits to large sections of the society, the social security function fills the role of a multi-employer scheme. Like the insurance corporation, the government then takes on the responsibility for any shortfall in funds to meet the pension obligations, and may be entitled to retain any surplus generated. As social security pension schemes are financed on a pay-as-you-go basis there is usually no surplus or deficit; if there is a shortfall of the scheme, government may have the power to adjust pension obligations not only in relation to future employment but also to past employment.

Besides the pension manager, the employer may also appoint a **pension administrator** responsible for the day-to-day administration of the pension scheme. The pension administrator, however, does not take any responsibility for a shortfall of the scheme or the benefit of any surplus. The same unit may in practice carry out both functions of pension manager and pension administrator.

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4

Columns and rows in the supplementary table

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4 Columns and rows in the supplementary table

The supplementary table on pensions in social insurance (see overleaf) provides a complete and comparable overview of pension obligations from the debtor (pension scheme) perspective and also (as a counterpart) of pension entitlements from the creditor (household) perspective. In Europe, entitlements of defined benefit pension schemes represent a significant share of overall pension entitlements. Thus far figures on positions for specific government-managed pension schemes have not been compiled and included in the system of national accounts. The supplementary table (see Figure 5) bridges this information gap by showing all positions and flows of all pension schemes in social insurance including government-managed defined benefit schemes for government employees and social security pension schemes. This chapter describes in detail the columns (Section 4.1) and rows (Section 4.2) in the table. The outline follows closely Chapter 17 of the ESA 2010.

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Figure 5
The supplementary table on pension schemes in social insurance

Rela-tions	Row No.	Recording	Core national accounts						Not in the core national accounts		Total pension schemes	Counter-parts: Pension entitle-ments of non-resident house-holds[4]
		Pension manager	Non-general government			General government						
							Defined benefit schemes for general government employees[2]			Social security pension schemes		
			Defined con-tribution schemes	Defined benefit schemes and other[1] non-defined contri-bution schemes	Total	Defined contri-bution schemes	Classi-fied in finan-cial corpora-tions	Classi-fied in general govt 3)	Classi-fied in general govern-ment			
		Column number	A	B	C	D	E	F	G	H	I	J
		Opening balance sheet										
	1	Pension entitlements										
		Changes in pension entitlements due to transactions										
Σ 2.1 to 2.5	2	Increase in pension entitlements due to social contributions										
	2.1	Employer actual social contributions										
	2.2	Employer imputed social contributions										
	2.3	Household actual social contributions										
	2.4	Household social contribution supplements[5]										
	2.5	Less: Pension scheme service charges										
	3	Other (actuarial) change of pension entitlements in social security pension schemes										
	4	Reduction in pension entitlements due to payment of pension benefits										
2 + 3 – 4	5	Changes in pension entitlements due to social contributions and pension benefits										
	6	Transfers of pension entitlements between schemes										
	7	Change in entitlements due to negotiated changes in scheme structure										
		Changes in pension entitlements due to other flows										
	8	Changes in entitlements due to revaluations[6]										
	9	Changes in entitlements due to other changes in volume [6]										
		Closing balance sheet										
1+ Σ 5 to 9	10	Pension entitlements										
		Related indicators										
	11	Output										

1) Such other non-defined contribution schemes, often described as hybrid schemes, have both a defined benefit and a defined contribution element. 2) Schemes organised by general government for its current and former employees. 3) These are non-autonomous defined benefit schemes whose pension entitlements are recorded in the core national accounts. 4) Counterpart data for non-resident households will only be shown separately when pension relationships with the rest of the world are significant. 5) These supplements represent the return on members' claims on pension schemes, both through investment income on defined contribution schemes' assets and for defined benefit schemes through the unwinding of the discount rate applied. 6) A more detailed split of these positions has to be provided for columns G and H based on the model calculations carried out for these schemes. The cells shown as ■ are not applicable; the cells in ▒ will contain different data from the core national accounts.

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4.1 Columns of the supplementary table

Rela-tions	Row No.	Recording	Core national accounts						Not in the core national accounts			
		Pension manager	Non-general government			General government					Total pension schemes	Counter-parts: Pension entitle-ments of non-resident house-holds[4]
			Defined con-tribution schemes	Defined benefit schemes and other[1] non-defined contri-bution schemes	Total	Defined contri-bution schemes	Defined benefit schemes for general government employees[2]			Social security pension schemes		
							Classi-fied in financial corpora-tions	Classi-fied in general govt 3)	Classi-fied in general govern-ment			
		Column number	A	B	C	D	E	F	G	H	I	J

Pension schemes are recorded in different categories as shown in the columns of the supplementary table. The table distinguishes pension schemes by four criteria:

- by type of recording: positions and flows of pension schemes recorded in the core accounts (pension schemes in columns A to F), and positions of pension schemes recorded only in the supplementary table (pension schemes in columns G and H);
- by type of pension manager: non-general government (columns A to C), and general government pension schemes (columns D to H);
- by institutional sector: pension schemes classified in non-government sectors (columns A to E), and pension schemes including social security pension schemes classified in the general government sector (columns F, G and H);
- by type of pension scheme: defined contribution schemes[23] (columns A and D), and defined benefit schemes including other non-defined contribution schemes (columns B and E to G).

For further explanations of the terms used above, see Chapter 3.

Column I sums up all pension entitlements acquired or held by resident households. Generally, the beneficiaries of pension schemes are predominantly resident households. In some countries, however, the number of non-resident households receiving pension benefits may be considerable. In this case, Column J should be filled in and added indicating the positions and flows of pension entitlements of non-resident households.

[23] In defined contribution schemes, assets should always be equal to equal to liabilities. The figures in Columns A and D are therefore always based on actual data and not on necessarily on actuarial estimations.

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4.2 Rows in the supplementary table

The rows in the supplementary table contain a full reconciliation between the opening stock of pension obligations (entitlements) at the beginning of a period and the closing stock at the end of a period. Within this framework, all transactions and other economic flows which lead to changes in the opening and the closing stock within a given period are taken into account.

i. *Pension obligations (entitlements)* — rows 1 and 10

Row 1 illustrates the opening stock of pension obligations (entitlements), which is identical with the closing stock of the previous year. The corresponding closing stock of pension obligations (entitlements) at the end of the relevant period is given in **row 10**.

ii. *Social contributions* — rows 2.1 to 2.4

Employer and employee actual social contributions are recorded in rows 2.1 and 2.3. Note that all actual social contributions are recorded in the core accounts. For some pension schemes (notably for social security pension schemes), actual social contributions related to pensions need to be separated from social contributions related to other social risks (such as unemployment).

In Columns H and G, the actual social contributions made by both employers (row 2.1) and employees (row 2.3) appear in the core accounts, while all other entries in these columns (G and H) are shown only in the supplementary table (except row 4); they are shaded grey in the table and are explained below.

For defined benefit pension schemes, employer-imputed social contributions are generally measured as the balancing item. Any changes in pension entitlements over the year not included in the other rows of the table are captured by **row 2.2**.

Row 2.2 also covers any ‘experience effects’ where the observed outcome of pension modelling assumptions (real wage growth rate, discount rate, etc.) differs from the levels assumed. It should be noted that, for social security pension schemes, such ‘experience effects’ are not recorded in row 2.2 but in row 3. By definition, there are no entries in this row for defined contribution schemes. Row 2.2 is therefore shaded black for these schemes.

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The imputed social contributions by employers to government schemes (column G) require special consideration. In the non-core accounts, imputed contributions are to be estimated on the basis of actuarial calculations. Only in cases where the actuarial calculations are not sufficiently reliable may two other approaches be applied to estimate government employers' imputed pension contributions:

i. on the basis of a reasonable percentage of wages and salaries paid to current employees; or
ii. as the difference between current benefits payable and actual contributions payable (by both employees and government as employer).

Items for household social contribution supplements and the other changes in entitlements are shown in the same way as for non-government pension schemes.

Row 2.4 relates to the property income earned, or imputed, on the schemes; it is routed via the household (or the rest of the world) sector. For all defined benefit pension schemes including social security schemes, property income is equivalent to the unwinding of the discount rate, meaning that its value is equal to the discount rate times the pension entitlements at the beginning of the accounting period. An illustrative example is given in Section 8.1. For defined contribution pension schemes, row 2.4 denotes interest earned on assets, i.e. the investment income during a period. Any loss in defined contribution funds is recorded in row 9.

iii. *Other (actuarial) changes of pension entitlements in social security pension schemes* — row 3

Given that the supplementary table provides a complete overview of the changes in pension entitlements over the accounting period, a specific row is needed to show cases where actual social contributions to the social security pension scheme are not actuarially based. Such cases reflect an imputed contribution (which is not the responsibility of any employer). Row 3 shows these imputed transactions of social security pension schemes (as other (actuarial) increases to pension entitlements in social security pension schemes).

The entries in this row can be positive or negative. Negative cases arise in a social security pension scheme when the discount rate is higher than the scheme's internal rate of return[24], e.g., where contributions have been increased above the actuarially

[24] The internal rate of return of a pension scheme is the discount rate that equalises the actual contributions paid and the discounted value of pension entitlements accrued through those contributions.

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required level to finance a short-run cash shortfall. By contrast, positive values can occur when the discount rate is lower than the scheme's internal rate of return.

Row 3 does not show cash transfers from tax revenues, which are recorded in the core accounts as current transfers between government units, unless they affect pension entitlements. In some EU countries, however, governments make transfers to pension schemes that do increase pension entitlements (for example where transfers are made for specific social groups which are unable to contribute directly), which would indicate that the amounts should be implicitly included in this row calculated by difference.

'Experience effects' found in social security pension schemes in which the observed outcome of pension modelling assumptions (real wage growth rate, discount rate, etc.) differs from the levels assumed in the previous estimation are also recorded in Row 3. For other types of pension schemes, these experience effects are recorded in Row 2.2 (employer-imputed social contributions).

iv. ***Pension benefits*** **— Row 4**

Row 4 comprises the pension benefits that are paid during the period of time. The payment of pension benefits has the effect of 'settling' some of the pension entitlements included in the opening stock in Row 1.

v. ***Change to pension entitlements*** **— Row 5**

Row 5 shows the changes to pension entitlements due to contributions and benefits. It is equal to Row 2 + Row 3 – Row 4. This balancing item measured in the non-financial account is conceptually equivalent to that measured in the financial account.

vi. ***Transferring pension entitlements*** **— Row 6**

With increasing work mobility, the portability of pension entitlements from one employer to another has significantly increased in recent years. A change of jobs does not usually lead to a change in pension entitlements for the household concerned. However, there are transactions between the two pension funds as one assumes the liability of the other. First, there is a transfer of pension entitlements from the original manager to the new manager. Second, there may be a transfer in cash or other financial assets to compensate the new manager. The value of the transfer of financial assets may not be exactly equal to the value of the pension entitlements transferred. In that case, a third entry is needed (in the core accounts) in transactions (capital transfers) to correctly reflect the changes in net worth of the two units concerned.

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If a government assumes responsibility for pension obligations for the employees of a non-government unit through an explicit transaction, a pension liability should be recorded in the balance sheet of the government. If the government does not receive matching assets in return, the difference between the increase in the government's liability and the assets received is shown as a capital transfer to the non-government employer.

vii. *Pension reforms* — Row 7

Due to demographic and economic developments, employers may reform the pension schemes they manage. Such reforms often take the form of parametric changes, e.g. a change of the retirement age, the indexation rules or the benefit formula. In some cases, systemic reforms can be observed, e.g. a shift from a defined benefit scheme to a defined contribution scheme. It is important to underline that not all reforms lead to a change of pension entitlements in the supplementary table.

First, only enacted pension reforms are recorded in the national accounts. They affect the estimates of pension entitlements in the year in which the reform is enacted and subsequently. An announcement by an employer of an intention to undertake a pension reform is not a sufficient basis for introducing the effects of the reform into national accounts data.

Some reforms, although formally enacted, may not have an impact on current pension entitlements. This is the case when the employer chooses to leave the rights of existing members untouched, confining the reformed arrangements to new entrants to the pension scheme. The impact of such reforms would be seen in future measures of pension entitlements, in line with the accrued-to-date liabilities concept described in Section 2.

In many cases, reform measures affect not only future entrants into the pension scheme but also existing members. An example would be a general change to the pension indexation rules that has an impact on present pensioners as well as on present and future contributors. Such reforms change the stock of pension entitlements during the period in which they are enacted. They must be accounted for as a transaction in the supplementary table. The impact of a reform may be very high if it affects current and future pension benefits — i.e. present pensioners and present contributors — since this affects the entire stock of existing entitlements.

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Pension reforms are treated differently in national accounts, depending on whether they have been negotiated or whether they are imposed without negotiation.

Negotiated reforms are recorded as transactions in the following manner:

(i) If the entitlements of a pension scheme are included in the core accounts, and the employer/manager agrees to change the terms of pension entitlements via negotiation with the employees concerned, this change should be recorded as a transaction in the supplementary table under row 7;

(ii) If the entitlements of a pension scheme are not recorded in the core accounts, and the employer/manager agrees to a change in the terms of pension entitlements via negotiation with the employees concerned, this change should be recorded as a transaction in Row 7 in the supplementary table;

(iii) Changes agreed in parliament to pension entitlements under social security schemes are recorded as if the changes had been negotiated.

Changes to pension entitlements that are imposed without negotiation are recorded as other changes in the volume of assets (row 9).

viii. *Other flows* — rows 8 and 9

Rows 8 and 9 show other flows as revaluations and other changes in volume associated with pension schemes in social insurance. Table 2 breaks down the other flows into revaluations and other changes in volume.

Table 2

Other flows as revaluations and other changes in the volume of assets

Revaluations:
Changes in assumed discount rate
Changes in assumed wage developments
Changes in assumed price developments
Other changes in the volume of assets:
Changes in demographic assumptions
Other changes in the volume of assets

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Revaluations are due to changes to the key model assumptions in the actuarial calculations and are covered in **row 8**. These assumptions are the discount rate, the wage rate and, if used in the model, the inflation rate.[25] Other changes in prices such as write-downs are also covered in row 8.[26] Experience effects are not to be included here in principle, though in some circumstances it may not be possible to single them out.

When the demographic assumptions used in the actuarial calculations are changed, they are recorded as other changes to the volume of assets (**row 9**).Any other changes to assumptions which are not revaluations are covered in row 9. This includes presumptions on future retirement behaviour. If these retirement patterns are altered in the model, the resulting changes to the outcomes are recorded in row 9. However, such changes are only covered in row 9 if they are not derived from a legislative reform.[27]

Besides changes to the underlying assumptions, the general framework of the actuarial model applied may also change from one year to the next to improve the accuracy of the results. Row 9 records these changes to the estimation approach which are not due to altered assumptions but result from a change in the model framework.

Row 9 also covers a number of other changes in the volume of assets. This includes changes to pension entitlements that are imposed without negotiation and defined contribution pension schemes that hold losses of pension funds.

ix. *Financial services* — row 11

Financial services provided by all pension schemes are recorded as being paid by scheme members (thus the costs of pension schemes will never be recorded as intermediate consumption of the employer operating the scheme). Accordingly, Figure 6 shows financial services separately from social contributions. Presenting financial services in this way means that the figures shown as social contributions received by employees from their employers are exactly the same as the share of contributions paid by the employees to the pension fund. It is not necessary to show which element of social contributions covers the service fee. It is the household contribution supplement for a defined contribution scheme and either the employer or the household contribution for a defined benefit scheme.

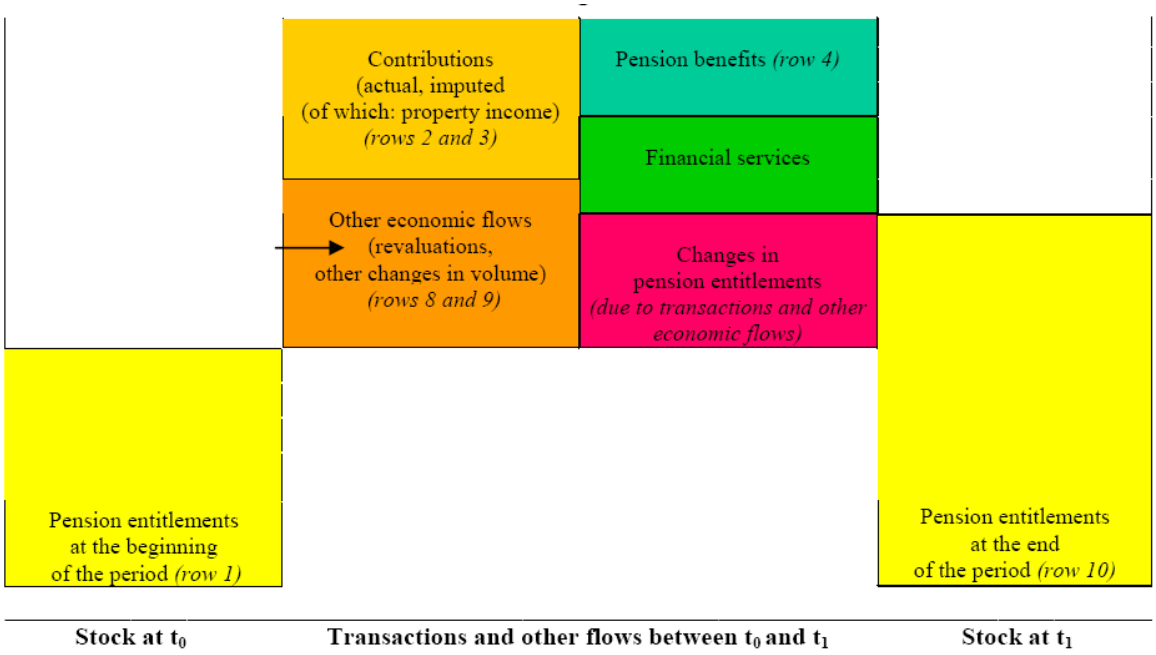
[25] For a further discussion on the use of the inflation rate, see Section 5.4.1.
[26] Note that, while write-downs are covered in row 8, write-offs are recorded in row 9.
[27] All changes due to enacted reforms are covered in row 7.

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Output covers financial services. They are the costs of running the pension scheme for a given period. The output data provide additional information to be included in the supplementary table.

Figure 6

Pension entitlements and their changes



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Key assumptions in measuring pension entitlements

5

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5 Key assumptions in measuring pension entitlements

Pension entitlements are recorded as positions in national accounts representing future payments of pension benefits. Moreover, the changes in positions between two points in time are also registered; these changes cover transactions, revaluations and other changes in the volume of assets as described in Section 4. Positions in pension entitlements are derived by applying actuarial estimation methods which are based on the net present value concept. Such actuarial estimation methods are used for all pension schemes. For pension schemes managed by non-government units, position data on pension entitlements are usually available based on business accounting or supervisory data sources (see Section 6).

For defined benefit schemes for general government employees and for social security pension schemes, such data are not available and need to be compiled based on data taken from government finance and population statistics. For such estimations various assumptions have to be made.

First of all, a suitable **discount rate** has to be chosen since pension entitlements are calculated in present value terms — i.e. they reflect the discounted sum of present and future flows compared to a certain base year. Another key assumption concerns future **wage growth**. Often, the development of future pension levels is highly dependent on wage assumptions, e.g. via pension indexation. Further, **demographic assumptions** — mainly concerning life expectancy — play a significant role in estimating pension entitlements. Following the appropriate choice of these three key assumptions, the estimation of pension entitlements is described for such government-managed pension schemes. In addition, some **other assumptions** such as assumed inflation rates are discussed.

5.1 Discount rate

a) The concept of the discount rate

The choice of the discount rate is one of the most crucial assumptions for estimating pension entitlements, since its accumulated impact over many decades is quite high.[28]

[28] See e.g. ECB (2010), p. 95.

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Pension entitlements as positions are compiled based on the net present value method, i.e. they reflect the value of a future payment stream for a given base year. When calculating pension entitlements, the crucial question is: what are future payments of pension benefits worth today?

One tool for valuing a future stream of payments is the discount factor (DF). The DF is compiled based on the following Equation 1:

$$(1) \qquad DF_t = \frac{1}{(1+r)^{s-t}}$$

The discount rate r as part of the denominator determines the level of the DF. To calculate the present value in year t of a future pension benefit in year s this future payment needs to be multiplied by the DF_t.

Generally, there are two approaches of interpreting this factor. From the point of view of the creditor who earns the pension entitlements, the discount factor reflects the time value of money. It is the value of a future payment in terms of a present payment. Present payments are seen as worth more than future payments due to opportunity costs and possible risks associated with future payment streams. It means that the discount factor is generally smaller than one.

From the debtor's point of view the discount rate is used to calculate the pension reserves to be set aside today to finance future pension obligations. For a more detailed description of these two perspectives, see Box 4.

Box 4
The creditor's and the debtor's perspective: two interpretations of the discount rate

For pension entitlements (obligations), the discount rate can be interpreted from two perspectives, from the perspective of the creditor and from the perspective of the debtor.

From the perspective *of the creditor*, a future payment is influenced by the opportunity costs of 'waiting'. If a future pension benefit were available today, it could e.g. be saved and therefore could yield a return in the coming period. In such cases, the opportunity costs are reflected by the interest rate on the possible investment. Additionally, the discount rate of the creditor may be affected by the uncertainty of future payments. For example, there is the risk that the pension scheme may default. From the individual perspective of the creditor, therefore, the discount rate may be higher than the risk-free interest rate. Obviously, the discount rate from this viewpoint is difficult to measure and might vary considerably across individuals and time depending on individual preferences. However, for the estimation of pension entitlements in national accounts, such aspects of risk and preferences need to be taken into account.

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The discount rate can also be interpreted from the debtor's perspective, representing a tool to measure the present capital costs of financing future payments. Due to gains through interest rates, the amount of money to be set aside today to finance a future payment can be smaller than the actual payment in the future. On the basis of these interest rates (discount rates), therefore, present pension reserves can be estimated to finance future pension payments. In the case of defined benefit schemes, notional reserves may be quantified. In practice, most accounting standards require debtors to calculate using relatively risk-free interest rates such as corporate bonds or central government bonds.

b) The choice of the discount rate

The choice of the discount rate in business accounting standards differs. International accounting standards (IAS) aim for a discount rate that reflects market yields on the balance sheet of 'high-quality corporate bonds'. In this context, 'high quality' is generally defined by business accountants as bonds with a high rating. Where the markets for corporate bonds are thin, it is possible to use yields on central government bonds.

For **government-managed pension schemes**, it is generally agreed that central government debt securities provide a suitable basis for the discount rate.[29] Furthermore, the choice of the discount rate should be based on the following criteria:

1) In order to obtain a suitable proxy for a risk-free interest rate, it is advisable to base it not on central government debt securities of one single country but on a basket of e.g. European central government debt securities.
2) The maturity of these debt securities should be similar to that of pension entitlements, i.e. at least 10 years, but preferably longer.
3) In order to guarantee comparability across countries, the same discount rate should be applied to all EU countries and all government-managed pension schemes (including social security pension schemes) at whatever level of government.
4) A stable discount rate should be applied to avoid the *noise* resulting from frequent changes.

In line with the above criteria, **it is recommended to set the discount rate at three per cent in real terms and five per cent in nominal terms.** This will considerably improve the comparability of results across EU countries and will be in line with the assumptions made by the Ageing Working Group.

[29] E.g. IPSAS recommends (long-term) government bonds as a basis for the discount rate.

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The appropriate choice of discount rate for pension obligations under unfunded public pension schemes is discussed in more detail in Box 5.

Box 5

The appropriate choice of a discount rate for government pension obligations

In order to produce comparable estimates for pension entitlements (obligations) in national accounts across pension schemes, countries and time, the following criteria should be met with regard to the discount rate:

1) To obtain a suitable proxy for a risk-free interest rate it is advisable to base it not on the central government debt securities of one single country but on a basket of e.g. European government long-term debt securities.

The first argument for such a portfolio of bonds is based upon risk considerations. Government bonds are usually not absolutely risk-free and generally include the risk of default by the country concerned in the shape of a risk premium. This risk premium can vary across countries and over time.
Another argument in favour of a basket of European bonds is the issue of interdependence, or more specifically the interdependence between a country's pension entitlements and its government bonds. The following example illustrates this issue. Imagine a country increases future pension levels via new pension legislation. Such a reform may lead to a higher default risk for the country and thus to increased interest rates on government bonds. Despite the increase in pension levels, therefore, the pension entitlements recorded in national accounts may actually decrease due to a higher discount rate. To avoid such a possible interdependence between the pension policy and the discount rate, it is advisable to choose a basket of European government bonds as a basis for the discount rate — which is (almost) unaffected by national pension policies.

2) The maturity of these bonds should be similar to that of pension entitlements, i.e. at least 10 years but preferably longer.

When calculating the accrued-to-date liabilities (ADL) of government-managed defined benefit pension schemes and of social security pension schemes, one projects future pension benefits accrued to date into the future. These benefits will arise after a period of some several decades. The government bonds used should cover (at least) a similar period of time. Therefore, only government bonds with a maturity of at least 10 years should be considered as a basis for the discount rate. Preferably, duration of 30 years should be chosen, which reflects the average length of pension entitlement payments.

3) To guarantee comparability across Europe, the same discount rate should be applied to all EU countries and all government-managed defined benefit pension schemes (including social security pension schemes) at whatever level of government.

In theory, there is only one risk-free interest rate. This interest rate should be equal for all countries and all levels of general government. Therefore, only one value should be approximated for the corresponding discount rate and used for estimations across Europe. Furthermore, differing discount rates across European countries would make it difficult to compare cross-country pension entitlements since outcomes can differ widely. A discount rate lower by just 2 to 3 per cent (in real terms) may increase outcomes by about 20 per cent. Therefore, using a single discount rate also ensures the comparability of results across countries.

4) A stable discount rate should be applied to avoid the noise resulting from frequent changes.

Frequent changes in the discount rate can make it difficult to explain to the public and compare time series of pension entitlements since outcomes can differ widely. As stated above, variation in the discount rate may change outcomes considerably. Excessive changes to the discount rate

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should therefore be avoided.

Why to choose a discount rate of three per cent per annum?

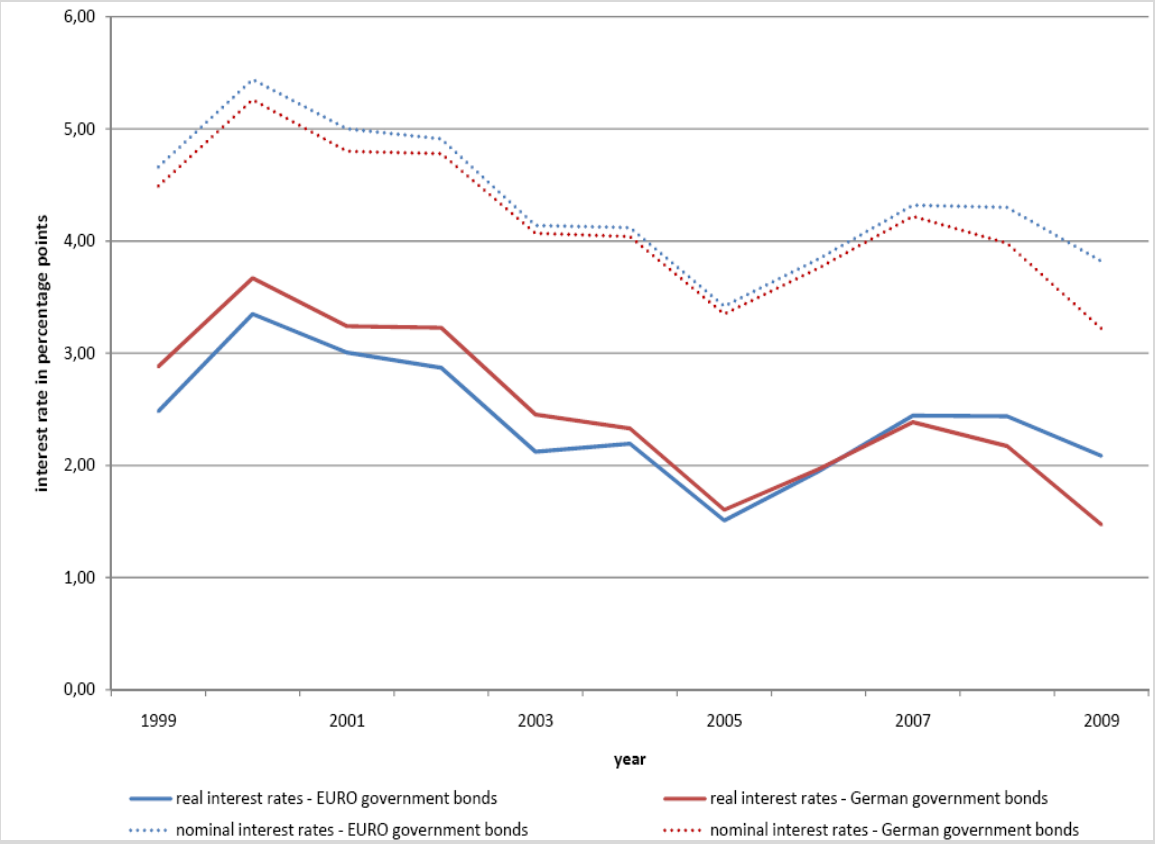
Figure shows the average yield on government bonds (with 10-year duration) in euro countries compared to German central government bonds yields. The chosen discount rate of three per cent p.a. (in real terms) is close to the average interest rate over this time period.

A discount rate of three percent p.a. corresponds closely to the interest rates applied by European institutions and some national regulations. The Ageing Working Group agreed with Member States a constant real discount rate of three percent p.a. for its long-term projections. For estimating pension entitlements in the business sector, the reformed German Commercial Code also prescribes a long-term interest rate of about five percent p.a.[30] in nominal terms — corresponding to three percent p.a. in real terms. Of course, there remains some uncertainty about the future development of the real interest rate.[31] Therefore, the choice of discount rate should be reviewed regularly.

Figure 7

Interest rates of euro and German government bonds

% p.a., 1999-2009



Source: ECB and Eurostat.

[30] The discount factors to apply to pension liabilities under the German GAAP are published monthly by the Deutsche Bundesbank and based on the average yields over the period of the last 7 years. In accordance with the yield curve interest rates are published for different maturities. For pension liabilities with a duration of 30 years the interest rate in June 2010 was set at a level of 5.28 %.

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5.2 Wage growth

To estimate the pension entitlements of defined contribution schemes, no assumptions regarding wage growth are required. In such systems, pension entitlements depend solely on the financial assets accumulated through contributions.

In contrast, in defined benefit schemes the level of pension entitlements depends also significantly on future wage growth.[32] These schemes usually apply a formula to the member's salary (final salary, an average over a period of years, or lifetime earnings) to determine the level of the initial pension. When using the PBO approach — described in Section 2.2 — the future wage development is taken into account. Therefore, assumptions have to be made regarding future wage growth, through promotion/career progression but also due to general economic growth.[33]

a) The choice of wage growth

Assumptions as to the future development of wages have a significant impact on the level of pension entitlements when the PBO method is used. Therefore, guidelines for determining this essential parameter for actuarial estimations are given below.

Generally, two factors lead to future wage growth:

1) Promotions and the career progression; and
2) The general wage growth in the economy

The **career path** of individuals is usually relatively age-specific. Most countries show a hump-shaped wage development over the employment cycle — as illustrated in Figure 8. Younger cohorts (here aged around 20-30 years) generally earn less than their older counterparts in the workforce. With an increasing age, average earnings rise and reach their maximum usually around the age of 50. In many countries, the average earnings profile — shown in Figure 8 — decreases at ages close to retirement (here: 55-60 years). To approximate future career paths, it is useful to take the earnings profile for the base year as the basis (for an example see Figure 8). It is assumed that the present age- and gender-

[31] Some authors (see. e.g. Börsch-Supan et al. (2004) or Canton et al. (2003)) assume that due to an ageing population and resulting changes in investment and saving behaviour real interest rates might drop in the coming two decades. However, it is not clear to which extent this is already anticipated in the current interest rates of long-term government bonds.
[32] In NDC systems, generally, future pension levels are determined by the wage growth or more precisely the wage bill growth in the economy.
[33] When applying the ABO method no assumptions have to be made about the future development of wages. With this approach the members' pensions are determined solely on the basis of their current salary in the base year.

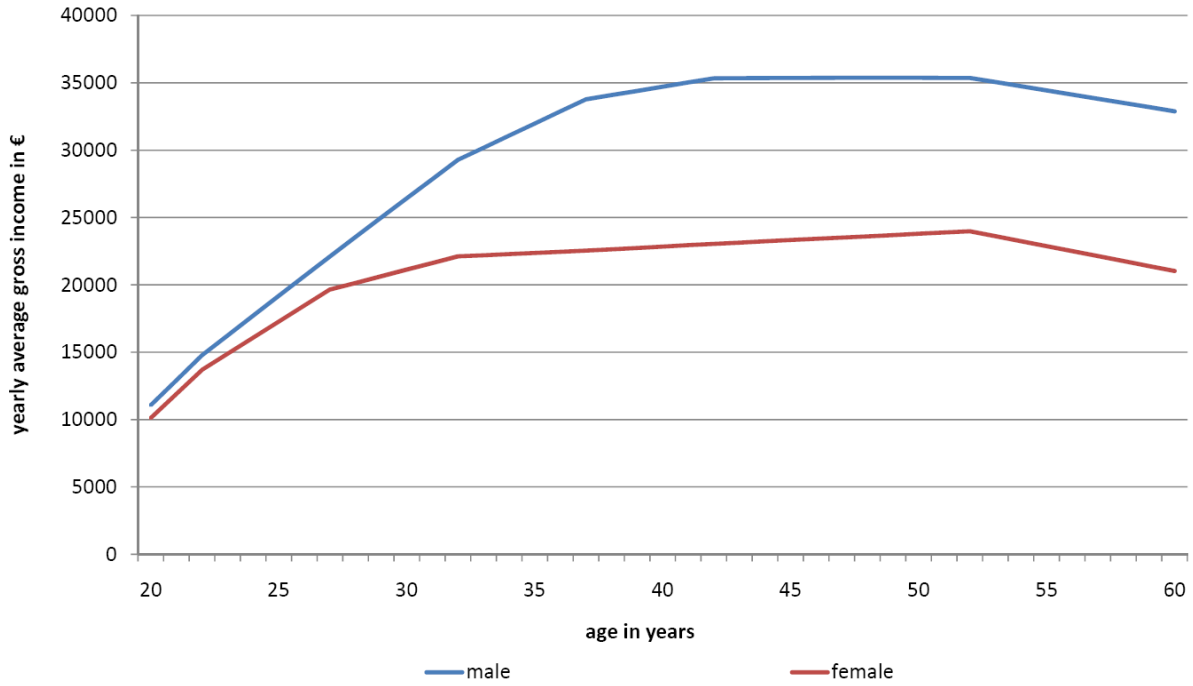
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specific salary structure will remain constant over time. In the example given, a male individual aged 25 in the base year 2006 can thus expect to earn 75 per cent more at the age of 40 (in 2021) due simply to career progression.

Career progression might differ between members of government-managed pension schemes for its employees and members of social security pension schemes. This is mainly due to differences in promotions in the private sector compared to the public sector. Therefore, earnings profiles should distinguish between private and public employees, if possible.

Figure 8

Age- and gender-specific earnings profile (German statutory pension scheme 2006)



Source: Forschungszentrum Generationenverträge, University of Freiburg, based on data provided by the German statutory pension scheme.

General wage growth in the economy will also affect future pension levels, and therefore PBO pension entitlements. Since the development of future wages is uncertain, assumptions have to be made here as well. Generally, it is assumed that, over the long term, wages follow labour productivity growth per capita in the economy.

An overview of EU countries shows that this growth rate is relatively heterogeneous (see Figure 9). Specifically, countries with lower GDP per capita rates have seen higher productivity growth rates in recent years. According to the projections of the Ageing Working Group (AWG), this trend will continue in the coming decades. In particular, central eastern EU countries are expected to experience higher growth paths, catching up to the

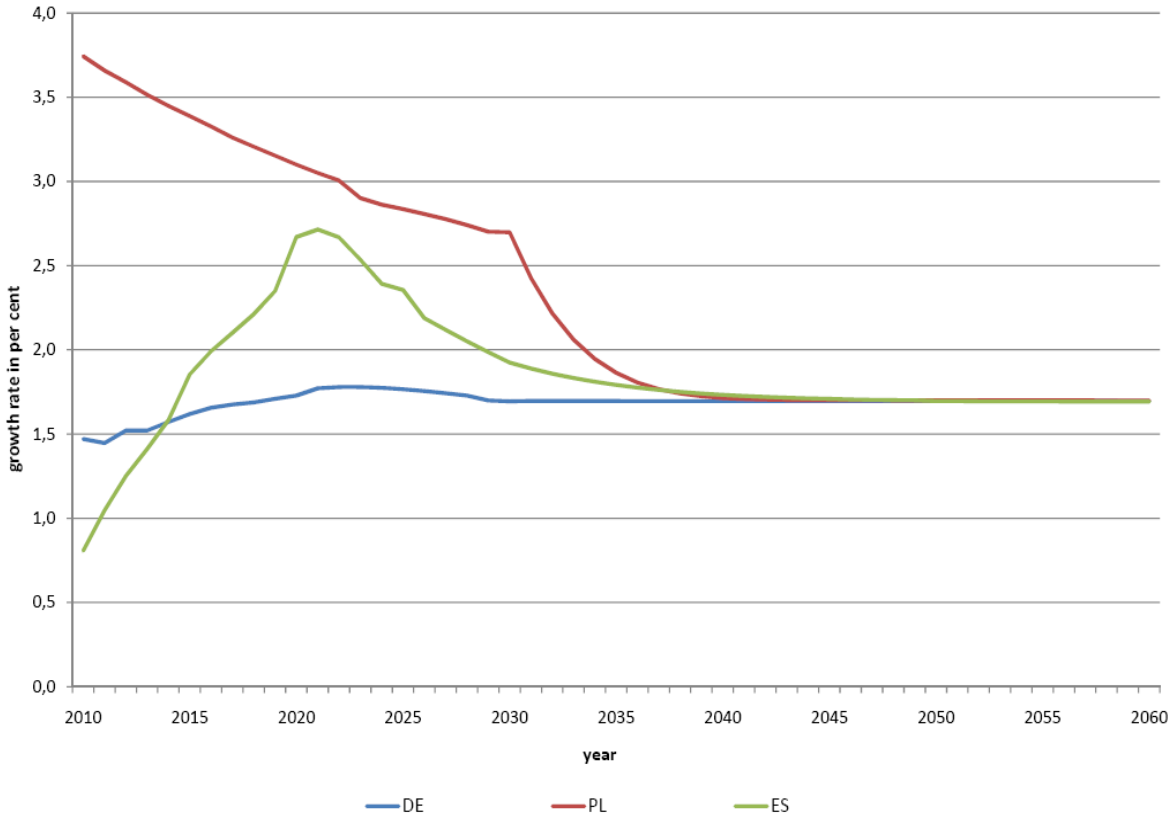
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productivity levels of the 'old' EU Member States (see e.g. the example of Poland in Figure 9).

In order to reflect heterogeneous growth paths across the EU, the wage growth assumptions of the AWG — reflecting productivity growth per capita — should if possible be used for the estimation of pension entitlements. This provides a basis for harmonised growth assumptions and at the same time allows for heterogeneous growth paths across EU Member States.

Figure 9

Ageing Working Group productivity and wage growth paths for Germany, Poland and Spain



Source: Ageing Working Group.

In most government-managed pension schemes of the EU countries, wage growth also plays a crucial role in the indexation of pension benefits. In the Netherlands, for example, pension benefits are adjusted twice a year in line with the average wage growth. To ensure consistency, the AWG assumptions for future wage and productivity growth should be used to estimate the future indexation of pensions.

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Changes in the wage growth assumptions

The assumptions for wage growth should be reviewed and updated on a regular basis. The latest productivity projections of the AWG should always be applied. These forecasts are revised generally every three years, and the last update has been made available in September 2011.[34] The AWG assumptions can be obtained from the national representatives in the AWG. If there are changes in the assumptions for future real wages, this will be recorded as other flows (revaluations).

5.3 Demographic assumptions

5.3.1 Life expectancy

The level of pension entitlements is also dependent on future demographic developments. Assumed future life expectancy plays a significant role. It determines the expected number of years the pension annuity is to be paid out. As a consequence, pension entitlements may vary if different life expectancies are applied. Life expectancies are calculated on the basis of mortality tables already established for the modelling of pension and life insurance schemes.

Choice of life expectancy

In the case of social security pension schemes covering a large part of the population, demographic data provided by Eurostat should generally be used. This ensures a comparable data set across EU countries. Eurostat provides age- and gender-specific mortality tables for all EU countries. Only if specific data on the mortality of social security members are available such data should be used. Since mortality rates differ widely between men and women, a gender-specific differentiation of mortality data is necessary.

An increase in life expectancy has been observed over recent decades. This trend is generally expected to continue in the coming years. **Assumptions provided by Eurostat regarding future life expectancy should thus be applied as well**. In doing so:

- Eurostat's most recent population projections must always be used. The most recent update of EUROPOP has been made available in spring 2011.
- There are several possible population change scenarios. In the case of EUROPOP, the convergence scenario must always be assumed.

[34] To contact the national representatives in the AWG see 'The 2012 Ageing Report: Underlying Assumptions and Projections Methodologies' (2011), p. 4-6 on the following link: http://ec.europa.eu/economy_finance/publications/european_economy/2011/pdf/ee-2011-4_en.pdf.

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- Furthermore, assumptions regarding future life expectancy must again be differentiated by gender.

Eurostat's mortality data are available at:
http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database

If the mortality of pension scheme members is assumed to differ widely from the general population mortality, scheme-specific mortality data should be used if available. This might be the case for e.g. civil servants, who are generally assumed to have a higher life expectancy than the population average. In contrast, the beneficiaries of disability pensions might have significantly higher mortality rates than average members of the population.

5.3.2 Fertility rate

The modelling of some pension schemes may involve the use of other demographic assumptions such as future fertility rates. This may play a role in estimating entitlements for an orphan's pension. The right to these benefits is accrued today by present contributors to the pension scheme. When they die at some point in the future, however, their dependent children — whether born or unborn at present — will generally receive an orphan's pension. A higher future fertility rate will therefore lead to a higher number of children receiving an orphan's pension. However, this should play only a minor role since orphans' pensions account only for a small part of overall pension entitlements.

In addition, the future fertility rate may play a role in certain benefit formulas under European pension schemes, as e.g. in the German general pension scheme. Here, future pensions are linked — via a so-called sustainability factor — to demographic developments, which are partly determined by future fertility rates.

Choice of future fertility rate

Here too, Eurostat provides a suitable harmonised basis for choosing future fertility levels. They are available at:
http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database

5.3.3 Migration

Migration is another factor that might be relevant for the estimation of pension entitlements. In some countries, individual pension levels may differ if contributors migrate. Sometimes, as e.g. in the case of the United Kingdom, different pension rules apply to pensioners who choose to emigrate. Also, migration may play a role in the pension benefit formula — e.g. if

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a sustainability factor is applied as in notional defined contribution schemes. Here, national modellers have to make assumptions about how migration will develop in future.

Choice of future migration rates

Eurostat also provides a suitable basis for choosing future migration levels at:http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database

5.4 Other assumptions

5.4.1 Inflation

For calculating pension entitlements, it has to be decided whether future flows are to be projected in nominal or in real terms. If nominal values are chosen, both the discount rate and the wage growth rate should include future inflation expectations. If the projection is based on real values, inflation expectations are not considered. The latter approach has the advantage of avoiding further assumptions regarding future price levels. Generally, for calculating present values both approaches (nominal and real values) should lead to similar results (see Box). Therefore, both approaches can be used for the estimation of pension entitlements. However, it is essential to check which is being taken as the basis for the assumptions. Discount rates are usually quoted in real terms, but not always. Wage growth is sometimes presented in nominal terms. Hence, it is important to verify whether inflation is considered in the financial assumptions or not.[35]

Choice of future inflation

For the future, an inflation rate of two per cent should be applied. This is in line with the ECB's inflation rate target of just under two per cent over the medium term.

[35] For some examples how to apply inflation for the estimation of pension entitlements see also section 7.3, Box .

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Box 6

Projecting future flows — nominal terms versus real terms

To estimate the present value (PV) in year t of a pension benefit P paid out in t+1, the following growth-discount factor (GDF) is applied:

(2) $$GDF_{real} = \frac{(1+g)}{(1+r)}$$

The discount rate is denoted by r and the growth in the pension benefit, e.g. due to pension indexation, is denoted by g. The present value is then calculated by multiplying the pension level with the GDF:

(3) $$PV_t = P_{t+1} \times GDF_{real}$$

If a nominal approach is adopted, expected inflation (π^e) is considered for future wage growth and for the discount rate, leading to the following growth-discount factor:

(4) $$GDF_{nominal} = \frac{(1+g+\pi^e)}{(1+r+\pi^e)}$$

Since expected inflation (π^e) is in both the nominator and the denominator it (π^e), it is almost cancelled out. GDF_{real} and $GDF_{nominal}$ therefore have a similar value, with the consequence that the results calculated in nominal terms are rather close to the outcomes estimated in real terms.

5.4.2 (Un)employment rates

In some countries such as Poland and Germany the level of future pensions is directly linked to (un)employment rates in the economy. In Poland, for example, entitlements are (annually) recalculated in accordance with recent employment growth. Therefore, employment assumptions may be required for the estimation of pension entitlements.

The choice of future (un-)employment rates

For the choice of future (un-)employment rates, the AWG provides a basis comparable across EU countries. Therefore, these assumptions should be used if required for the estimation of pension entitlements.

5.4.3 Future prevalence of disability

The supplementary table covers all types of pensions, including disability and invalidity pensions. In order to estimate entitlements to disability and invalidity pensions, assumptions thus need to be made regarding the probability of becoming disabled in the future. This probability is reflected in the so-called *prevalence rate*, which is defined in this context as the total number of disabled persons divided by the total population.

Pension entitlements take into account the probability of receiving a pension in future. Therefore, they are generally higher — other things being equal — the higher the assumed

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future prevalence rates for disability. Accordingly, the crucial question is whether the present health status will remain constant in the future.

The choice of future prevalence rates for disability

In recent decades, a rise in disability due to mental illness has been observed. Whether this trend will continue in the coming years is uncertain, and is not clearly evident from academic studies. Moreover, some countries have seen disability pension claims rise as a behavioural feedback loop in response to legal changes, e.g. an increase in legal retirement ages. Also, future behavioural responses of this kind are difficult to forecast. Due to this uncertainty, constant prevalence rates should be used for the estimation of pension entitlements.

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6

Data sources for compiling pension entitlements

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6 Data sources for compiling pension entitlements

Different data sources can be utilised to fill in the supplementary table on pension schemes. For the figures in columns A to F, accounting data (see Section 6.1) and regulatory data (see Section 6.2) generally provide a suitable basis. The information for columns G and H can be partly obtained from annual government finance data.[36] Some rows in columns G and H, however, have to be estimated on the basis of an actuarial model (see Section 6.3). The various data sources that can be used to complete the supplementary table are outlined in the following sections.

6.1 Accounting data (rows A to F)

The accounting statements of both private businesses and (for some countries) public bodies are guided by accounting principles for pension schemes. These principles may be based on one of the following international or national accounting standards:

a) International Accounting Standard (IAS) for private businesses
b) National accounting standards for private businesses
c) International Public Sector Accounting Standard (IPSAS) for the employer pension schemes of public bodies

These standards are explained below to facilitate the interpretation and use of pension data from sources that apply these accounting standards[37].

a. International Accounting Standard (IAS)

The accounting treatment of pension schemes in private businesses is set out in International Accounting Standard 19 (IAS19 – 'Employee Benefits'). This standard is mandatory for the consolidated accounts of listed companies in Europe, with some countries extending its application (obligatory or voluntary) to individual accounts and unlisted companies.

IAS19 does not distinguish between funded and unfunded pension schemes. It is based on the principle that all schemes should be recorded in company accounts. However, IAS19 does distinguish between defined contribution (DC) and defined benefit (DB) schemes, and differentiates between the accounting treatment applied: (i) Defined contribution schemes entail a cost to the employer in the current period, but the only balance sheet obligations recorded are for employer contributions not paid by

[36] The figures of column F may also be estimated by an actuarial model depending on the accounting practices.
[37] In all cases, data from any source have to be adjusted according to National Accounts valuation and principles.

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year-end; (ii) Defined benefit schemes entail costs to the employer in the current period along with balance sheet obligations representing the discounted value of future pension payments.

For defined benefit schemes, the balance sheet obligations for pension schemes under ISA19 are calculated using an actuarial model with the following characteristics:

- A discount rate equivalent to the market yield (on the balance sheet date) on high-quality corporate bonds (by convention with an AA ranking or better) should be used.
- The 'Projected Unit Credit Method' should be used; this method is equivalent to the Projected Benefit Obligation (PBO) approach described in Section 2.
- Valuations should be carried out regularly and assumptions should be mutually consistent.

Accounts should therefore record the following on the income (profit and loss) statement for a company pension scheme: (i) current service cost (the actuarial estimate of benefits earned by employee service in the period); (ii) interest cost (the increase in the present value of the obligation as a result of moving one period closer to settlement); (iii) expected return on the pension scheme's assets[38]; (iv) actuarial gains and losses[39], to the extent recognised; (v) past service cost, to the extent recognised; (vi) the effect of any plan curtailments or settlements (e.g. pension reforms).

During the process of designing IAS19, there was a widespread fear that fully recognising actuarial gains and losses on the income statement would lead to excessive volatility. Therefore, a smoothing process was introduced, whereby actuarial gains and losses would be reflected only if they exceeded higher and lower bands (known as the 'corridor'). However, it should be noted that IAS19 is currently under review by the International Accounting Standards Board (IASB). According to the latest draft proposal published in April 2010,[40] the 'corridor' approach is to be abolished. In other words, it is planned to include all estimated changes in the cost of providing defined benefits and all changes in the value of plan assets. Furthermore, a

[38] This is the source of some controversy because the basis for calculating the expected return on assets is left to the discretion of the company.
[39] Representing the experience effect of outcomes compared to assumptions, and also changes in assumptions between one modelling exercise and the next.
[40] On the current revision of the IAS19 see http://www.iasplus.com/standard/ias19.htm#0908ed .

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new presentation approach that clearly distinguishes between different types of gains and losses arising from defined benefit plans is envisaged.[41]

b. National accounting standards for private businesses

As regards companies that do not apply IAS, accounting practices differ across Europe. In some jurisdictions, e.g. the UK, there is a national standard for business accounting which is similar to IAS19, while in other countries a historical approach continues to be used, which can be quite different from IAS19. In Germany, for example, an ABO approach and a fixed interest rate were used for a long time. With recent reforms in 2009, however, the German GAAP is now closer to IAS19, requiring a PBO approach and a time-variant discount rate (which is regularly defined by the Deutsche Bundesbank).

It is important to stress that data reported by corporations for regulatory purposes may use a different basis than company accounting practices. Generally, it should be examined which approach is applied in accounting practices. Preferably, the approaches used for the columns of the supplementary table should be comparable. If e.g. both ABO and PBO data are available, the latter should be used to complete the supplementary table.

c. International Public Sector Accounting Standard (IPSAS)

The international accounting standard for the employer pension schemes of public bodies is set out in International Public Sector Accounting Standard (IPSAS25 – 'Employee Benefits'). This standard is largely based on IAS19, including the use of the projected unit credit method[42]. Yet it diverges from IAS19 in one main respect: there is more leeway concerning the discount rate, as it can be based on the yields of either government or corporate bonds. In this context, the IPSAS Board has concluded that the required rate should reflect the 'time value of money' and that in some jurisdictions the yield on government bonds would be the most appropriate. The new standard will apply to reporting periods commencing on or after 1 January 2011. It should be noted that the IPSAS25 standard does not cover reporting by social security pension schemes.

Where IAS19 or IPSAS25 based accounts are available, they can often be readily used to complete the main parts of the supplementary table. In these accounts, the pension

[41] More specifically, the following changes in benefit costs should be presented separately: 1) service cost — in profit or loss, 2) finance cost (i.e. net interest on the net defined benefit liability) — as part of finance costs in profit or loss and 3) remeasurement — in other comprehensive income. .

[42] Similar to the current legal status of IAS 19, the IPSAS 25 recognises a corridor approach. Presently, there is no information that this approach will be eliminated. For further information on IPSAS 25 see: http://www.ipsas.org/PDF_ipsas_standards_ifac/IPSAS25.pdf .

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entitlements are measured on an actuarial basis and the assumptions made are usually readily available from the notes to the accounts.

Access to business accounts varies between countries. In some cases, the full data are available through central balance sheet offices or similar central data collections, while in other countries the collection might be based on the largest companies or some other sample-based approach. However, the data available might not be broken down by defined contribution schemes and defined benefit schemes — for this, regulatory data sources may need to be used (see below).

6.2 Regulatory data (rows A through F)

All European countries have a government agency (or possibly several agencies) responsible for the regulation of pension schemes (possibly life insurance, too). This agency will have laid down clear reporting requirements for pension schemes, usually on an annual basis, though in some cases with a limited collection of key quarterly data. National accountants are usually already in touch with this agency, but close cooperation is nevertheless recommended on this point.

While many pension regulators collect data based on business accounts (for example they require the annual accounts of the schemes to be provided), some data requirements relate to quite specific measurement and valuation standards. For example, pension requirements may be reported on an ABO basis while they are recorded on a PBO basis in the business accounts. It will be useful for national accountants to obtain the precise definitions used to compile the regulatory data, usually available as a technical manual. Comparable approaches should be chosen for the columns of the supplementary table. A PBO approach should thus be used if the necessary data are available.

Where regulatory data are published, they will be readily available to national accountants. It is usually helpful to agree on direct data transfer from the pension regulator, possibly subject to safeguards on confidentiality of individual returns.

Additionally, data on pension funds can be obtained from the European Structural Business Statistics. This database — which is collected by Eurostat — includes pension contributions (differentiated by defined contribution, defined benefit and hybrid schemes), pension payments, capital gains and losses as well as liabilities. However, it has to be underlined that the data are provided with a time lag of three years.

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The European Structural Business Statistics are available at:[43]

http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/data/database

Practical examples of the use of regulatory and accounting pension data for completing the supplementary table are given in Section 8.2.

6.3 Other pension data (columns G and H)

While non-government employer pension schemes are usually recorded on a business accounting basis or subject to reporting requirements for regulatory purposes, this is often not the case for government-managed pension schemes. Especially for social security pension schemes, usually only cash data are available. In government employer schemes as well, regular 'long-term' accounting, e.g. of pension liabilities, is not widely used. Therefore, for these government-managed pension schemes the figures for the supplementary table (in columns H and G) can only be partly derived directly from statistics. Only some rows can be extracted from government finance data. Large parts of the rows in columns H and G need to be estimated with an actuarial model.

6.3.1 Pension data directly obtained from statistics (rows 2.1, 2.3 and 4)

Parts of columns G and H can be derived directly from the administrative data of general government, namely for:

- row 2.1 (employer actual social contributions);
- row 2.3 (household actual social contributions); and
- row 4 (reduction in pension entitlements due to payment of pension benefits).

The pension data should be recorded in gross terms and social assistance schemes should not be included. Table 3 illustrates, for example, the aggregated budget data for Spain's social security pension scheme required to complete rows 2.1, 2.3 and 4.

If pension data cannot be obtained from administrative entities, alternative sources may be used. They are described in Box 7.

[43] Once the link to the European Structural Business Statistics has been opened pension funds data can be found under the following folder 'SBS — services/financial services statistics/ Statistics on pension funds'.

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Table 3

Required aggregated budget data (social security in Spain)

EUR billions

Aggregated budget data (in bn. EUR) - Social Security, Spain	
Year	2006
Expenditures	**73.72**
Employer (actual) contributions	**61.39**
Household (actual) contributions	**21.37**

Source: Müller et al. (2009).

6.3.2 Pension data to be estimated by an actuarial approach (all rows except 2.1, 2.3 and 4)

Most of the rows in columns G and H — namely all rows other than 2.1, 2.3 and 4 — need to be estimated by means of an actuarial model. Different actuarial tools already exist across European countries, ranging from simple dynamic simulation models to comprehensive stochastic micro-simulation models. At national level there are an increasing number of models for individual pension schemes, often developed by the ministries of finance or social security and/or government bodies responsible for pensions. Moreover, various research institutions use pension models for long-term projections of government-managed pension schemes. These models may be used and extended to estimate pension entitlements under social security and government employee pension schemes.

In the course of the AWG exercises, experience has been gained with a unified approach to long-term projections of government-managed pension schemes.[44] However, the concept used in these exercises is an OSL concept which differs from the concept of ADL with respect to the time horizon applied (for more details see Box). Nevertheless, both approaches — the estimation of pension entitlements in national accounts and the projections carried out by the AWG — rest upon similar input data. Therefore, close cooperation and exchange of data sources and underlying assumptions (e.g. employment rates and productivity growth) between the Eurostat/ECB Contact Group dealing with estimations of ADL and the AWG is recommended.[45]

For some pension schemes whose pension entitlements are reflected in columns G and H, actuarial estimates may already exist. These actuarial estimates may be used to fill in the

[44] The AWG publishes an 'Ageing Report' including long term budgetary projections. The last report was published in 2009: http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf .
[45] For an overview of the current national representatives in the AWG see the European Commission (2009), p. 4ff.

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supplementary table. However, the concept and approach applied to estimate these figures should be cross-checked against other data in the supplementary table. In particular, it needs to be ascertained whether the ADL approach is always taken.

a) Data inputs for the actuarial estimation of pension entitlements

Generally, pension data for actuarial estimations of social security and government employer pension schemes can be obtained from the institutions responsible for the pension schemes in question. The government entities responsible for a specific pension scheme usually collect (and publish) data on contributors and pensioners on a regular basis.

The necessary pension data include both macro data and micro data:

- Generally, the required **macro data** cover information on total pension expenditure and contributions (also required for rows 2.1, 2.3 and 4) as well as the total number of beneficiaries and contributors differentiated by age and gender in a given base year.
- The required **micro data** relate to individual contribution and benefit levels in a given base year — preferably broken down by age and gender. Additionally, individual accounts stating the contribution history of contributors should be obtained if available. Some countries provide their citizens with periodical information about their accrued pension entitlements. The pension schemes as observable in Sweden, Poland and Austria have introduced individual pension accounts that explicitly show the value of personal entitlements. Such information should be collected and applied in the actuarial calculations if obtainable. However, individual accounts might not always be available. Furthermore, the compilation of these data may turn out to be time-consuming and costly. In such cases, the pension entitlements of contributors can be approximated e.g. on the basis of present pensioners.[46]

The quality of data sources may vary across countries and schemes. For the actuarial estimation, ideally, processed data provided by the institutions responsible for the pension schemes in question should be used. The advantage of these data is that they cover (nearly) all members of the pension scheme and are already processed, e.g. average data per cohort are given. Therefore, they can be more easily used in the calculations.

[46] The PROST model of the Worldbank works on this basis but also the Freiburg model — used for the benchmark calculations of the Contact Group on pensions — uses data of present pensioners to estimate the pension level of future pensioners. For a detailed description see Heidler et al. (2009).

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Apart from publicly available pension data, files provided by the pension scheme administrations may also be used. These data sets provide users with a broader and more detailed picture of the pension scheme. This is thus useful for modelling complex features of pension schemes such as e.g. the development of minimum pensions, which generally requires detailed information on the distribution of entitlements. The application of such data bases may demand knowledge of statistical software and can be relatively time-consuming.

If no pension data can be obtained from the institutions responsible for the pension schemes, alternative data sources may be used as described in Box 7.

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Box 7
Additional data sources to compile pension entitlements

Macroeconomic data

ESSPROS

One additional data source based on macroeconomic data is the European System of Social Protection Statistics (ESSPROS) maintained by Eurostat. It contains statistics on the financial flows of social security expenditure and receipts. ESSPROS is based on registers and other administrative sources, surveys, and estimates by EU Member States and is designed to provide a comparable data base for EU countries plus Iceland, Switzerland and Norway. Pension data are categorised by various types of pensions such as old age pension, disability pension or survivor's pension. ESSPROS data are generally available with a time lag of 2–3 years. Similar to the distinction made between social insurance and social assistance pension schemes — the latter are not to be included in the supplementary table (see Section 3) — ESSPROS divides benefits into means-tested benefits and those that are not means-tested. However, ESSPROS should only be used if no other data sources are available because it lacks precision on a number of issues. For example, it provides only limited information on the number of beneficiaries, which is differentiated by gender but not by age. Furthermore, it does not provide aggregated contribution data. Also, no distinction is made between government employee and social security pension schemes.

COFOG

Another macroeconomic data source refers to data based on the Classification of the Functions of Government (COFOG), which is compiled under the ESA transmission programme. It provides a breakdown of general government expenditure by economic function and by type of transaction. Pension data are divided into old age, survivor, and sickness/disability pensions. It should be noted that COFOG data provide only a very rough overview of pension expenditure aggregates. They cannot give a differentiated picture of pensions since they do not distinguish between social insurance and social assistance. Furthermore, no differentiation is made between government employee and social security pension schemes. Also, the category of sickness and disability benefits should ideally be split into two groups — sickness and disability — since only the latter is relevant for the supplementary table. Accordingly, COFOG data should only be used for the supplementary table if no other data source is available.

Microeconomic data

National and EU household surveys

Household surveys focus on the living conditions of representative households and generally cover pensioners too. Household surveys are usually available at national level but also at European level. Since national surveys generally cover a larger sample, it is recommended to use these data sources. If national household surveys are not available, European household surveys should be used.

One major European household survey is the European Union Statistics on Income and Living Conditions (**EU-SILC**), which was launched in 2003 and collects comparable multidimensional micro-data on income, poverty, social exclusion and living conditions on an annual basis. Every year, both cross-sectional data (covering a given time or a certain time period) and longitudinal data (relating to individual-level changes over time, observed periodically over — typically — a four-year period) are collected. EU-SILC covers all EU Member States as well as Iceland and Norway. It differentiates between various pension types, namely old age, survivors, disability and sickness benefits. Furthermore, benefits are distinguished by whether they are paid out by a pension scheme managed by general government or not. The same differentiation applies to contributions. However, EU-SILC does not differentiate between pensions paid out by government employee and social security pension schemes.

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Before using household survey data, it has to be examined whether the individuals covered by the household survey are representative of the members of the pension scheme analysed. Generally, these surveys cover a sample characteristic of the overall population. Therefore, household surveys may be a particularly suitable alternative data source for social security pension schemes

b) Further quality issues and benchmarking

While the estimation of pension entitlements should be based on a harmonised approach across Europe, this may not always be feasible in practice. Nonetheless, to ensure accurate estimations, the following general guidelines should be followed:

- Pension data and estimations should be divided by gender; this is necessary since men and women show differences not only in the level of contributions and pensions but also in expected life expectancy, and should therefore be modelled separately.
- Pension data and estimations should be differentiated by age; pension entitlements should ideally be calculated in one-year age groups (i.e. entitlements of a 20-year-old, 21-year-old etc. should be calculated), which can considerably improve the accuracy of results since e.g. pension reforms may affect a cohort born in the year x but not in the year $x - 1$.

It is furthermore recommended to divide participants of a pension scheme into present beneficiaries and future beneficiaries, i.e. present contributors. The latter have accrued pension rights but have not yet received any payment, while present beneficiaries have accrued 'full' entitlements and are receiving payments from the pension scheme. Both groups may also be differently treated due to pension reforms and indexation rules. It is thus reasonable to estimate the pension entitlements of these two groups independently.

Pension models are usually relatively complex — often considered even a 'black box'. Therefore, benchmarks are crucial in order to cross-check the plausibility of the outcomes. This is particularly the case when new pension models are introduced to estimate pension entitlements. Here, the probability of error is generally higher than in frequently used and well-established models. Different generic models can be used for benchmarking and quality assurance. These include the World Bank's pension reform modelling software PROST, although generational accounting models can be used for benchmark exercises too.[47]

[47] For an application of PROST to estimate pension entitlements see e.g. Holzmann et al. (2004) who examined public pension schemes of 35 low and middle income countries. For an application of generational accounting see e.g. Müller et al. (2009) who calculated ADL of government employee and social security pension schemes in 19 EU countries. This model is outlined as a worked example in section 8.1.

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A high level of transparency in the compilation process should be ensured. Countries are therefore encouraged to publish a description of the compilation of the supplementary figures. This may include an outline of the actuarial model used to estimate pension liabilities as well as a description of the external actuarial valuations and data sources used.

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7

Description of the approach to estimating pension entitlements for government-managed pension schemes

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7 Description of the approach to estimating pension entitlements for government-managed pension schemes

7.1 Overview

The aim of the following section is to outline step-by-step the procedure to estimate pension entitlements of unfunded public pension schemes. The actuarial approach[48] to estimating these new figures in national accounts is presented in a general way to provide a description which can be applied for a variety of pension schemes. This chapter will address a broad audience, including actuaries, as well as non-actuaries (statisticians, data compilers, etc). Against this background, the calculation procedure is outlined using formal equations as well as various illustrative examples. Furthermore, this section is intended to assist countries which have not yet (fully) built up a model to calculate accrued-to-date pension liabilities.

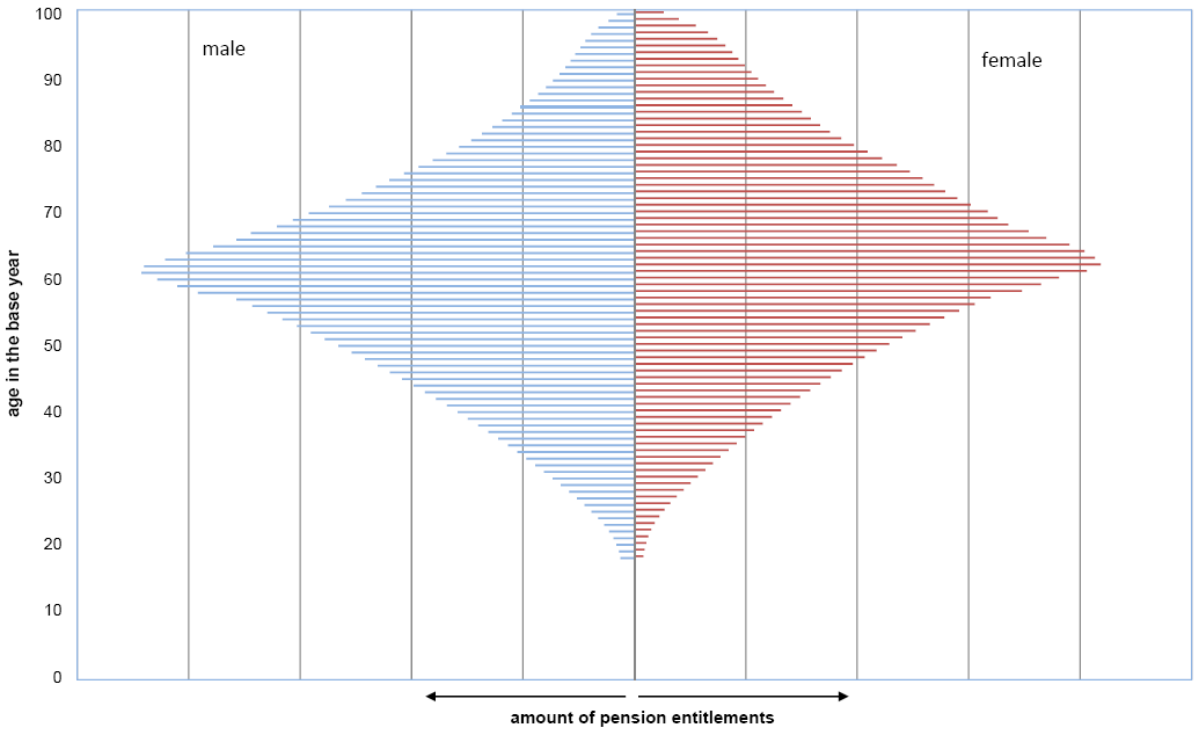
Before the calculation procedure is outlined, it is useful to state the aim: pension entitlements accrued-to-date of all public unfunded pension schemes in the country concerned. This figure represents the sum of entitlements of each participant in the relevant pension schemes. Of course, individual entitlements differ by age and gender. Figure illustrates the typical distribution of pension entitlements, by age groups as well as by gender. Cohorts at the age of retirement, i.e. around the age of 60, have usually, accrued-to-date comparably high pension entitlements. They have, generally, contributed to a pension scheme over a longer period than younger cohorts, and have therefore accrued higher pension entitlements. Furthermore, cohorts at the age of retirement usually show a higher value of pension rights than older age groups. This is mainly due to the fact that only future pension benefits are taken into account in the calculations. New retirees can look forward to a relatively longer remaining retirement period. Older retirees, on the other hand, have already received some of their pension benefits. Their entitlements are, therefore, accumulated over a shorter remaining pension period.

[48] As outlined in section 2 an actuarial calculation bases on a forward looking approach. For the estimation of pension entitlements it is, simply speaking, applied to project pension benefits in the future and to accumulate and discount them finally to the present value of the base year. .

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Figure 10

Example showing distribution of pension entitlements by age and gender



Source: Forschungszentrum Generationenverträge, University of Freiburg.

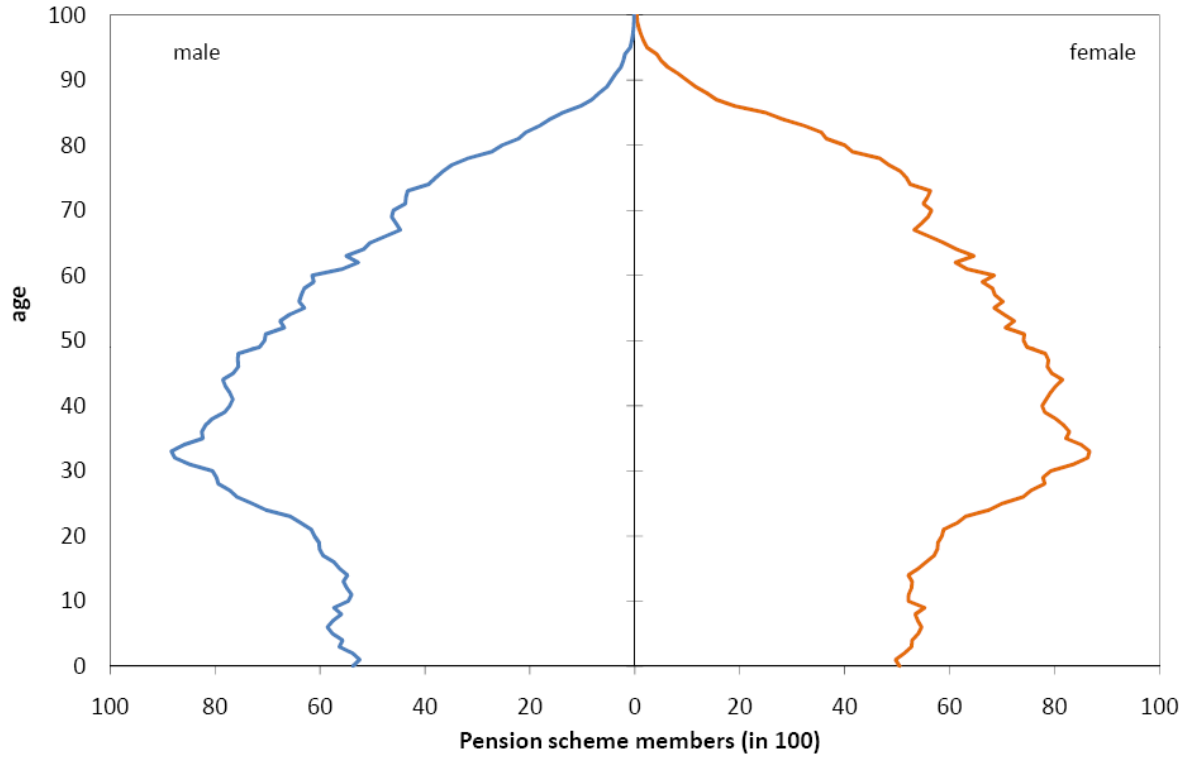
Besides age-specific differences, differences in pension rights between genders are also apparent. As displayed in Figure 10, women have usually accrued lower pension entitlements than men. Such gender differentials may be explained by, for instance, shorter contribution periods, as well as lower average wages for women, which result in comparably lower pension benefits and entitlements. To estimate accrued-to-data liabilities, these age- and gender-specific differences in pension entitlements should be taken into account.

Two major steps are required to estimate accrued-to-date pension liabilities. In the **first step,** average pension entitlements of different age and gender groups are estimated, as illustrated in Figure 10.

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Figure 11

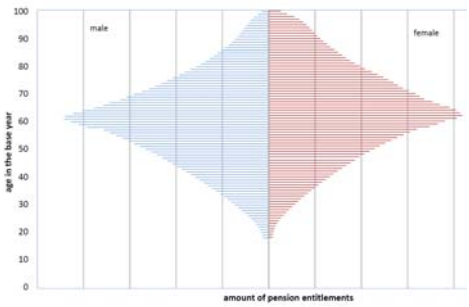
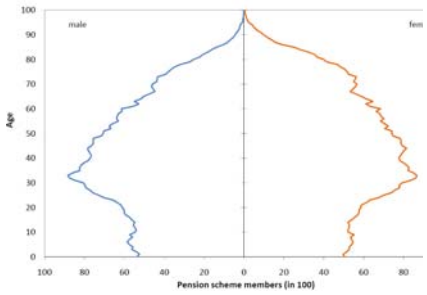
Exemplary cohort sizes by age and gender



Source: Forschungszentrum Generationenverträge, University of Freiburg.

In a **second step,** these group-specific pension rights (shown in Figure 10) are multiplied by the respective age- and gender-specific cohort sizes of the pension scheme members (displayed in Figure 11Figure). Step 2 generates the final result: the total value of pension entitlements. To give a general overview, both major steps to calculate pension liabilities are displayed in Figure 12 below.

Figure 12: Overview on the calculation of pension entitlements

Step 1: Estimating age- and gender-specific average pension entitlements		Step 2: Weighting these average pension entitlements by the respective cohort sizes		
	X		=	*Pension entitlements*

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Step 1 (Chapter 7.2 – 7.4) considers the pension entitlements of a single participant. In step 2 (Chapter 7.5), these individual pension rights are aggregated.

7.2 Estimating individual pension entitlements

Pension entitlements represent the sum of all future pension benefits which are accrued-to-date in present-value terms of a base year. The approach to calculating this figure will be demonstrated below. A formal outline will be given first, to provide an introduction, especially for actuaries. Then the estimation approach will be illustrated through various examples.

Formal outline of the estimation approach

Equation 5 presents the general approach to calculating pension entitlements.[49] In the following sections, further extensions of this formula are discussed.

$$(5) \qquad E_{x,g,b} = \sum_{s=x+1}^{D} B_{s,g,f}^{accrued} * p_{s,g,f} * (1+r)^{x-s}$$

where

$E_{x,g,b}$ = the pension entitlements of a representative individual of age x and gender g in the base year b,

$B_{s,g,f}^{accrued}$ = the annual pension benefits accrued-to-date of a representative individual at age s and gender g in a future year f ($f = b + s - x$),

$p_{s,g,f}$ = the probability of a representative individual of gender g of surviving to age s in a future year f ($f = b + s - x$),[50]

D = the maximum life time,

r = the discount rate.

The aim is to calculate pension entitlements E for an average representative of different age groups x and genders g in a given base year b. The variable $B^{accrued}$ denotes the annual

[49] Please note that the following definitions may not be fully applicable for disability, survivors' and early retirement pensions. It should be e.g. taken into account that after the death of a retiree his/her surviving spouses/orphans (if existing) are entitled to a survivors'' pension benefit. For a further description of the differentiation by pension type see section 7.4.4.

[50] These survival rates should reflect the expected increase of the life expectancy according to the newest EUROPOP projections. For a further discussion see section 5.3.

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pension level accrued-to-date. How to derive this pension level accrued-to-date is then discussed in detail. It is important to note that only future pension payments are taken into account for the estimation of pension entitlements. All payments durin g or before the base year are disregarded. Therefore, the control variable s starts with the age $x+1$, i.e. one year after the base year, and ends at the age D. In this context, the variable D denotes the highest maximum life time considered in the calculations. Usually, a level of 100 years is chosen for the variable D. Pension entitlements represent the expected amount of pension payments accrued-to-date. In line with this concept, future survival rates are taken into account for the calculation of entitlements. For this purpose, the variable p $(0 \leq p \leq 1)$ is introduced. It represents the probability of an individual of gender g surviving to a certain age s (in the year $b+s-x$). In accordance with the applied present value concept, all future pension payments are discounted to the base year.

Distinguishing between current retirees and current contributors

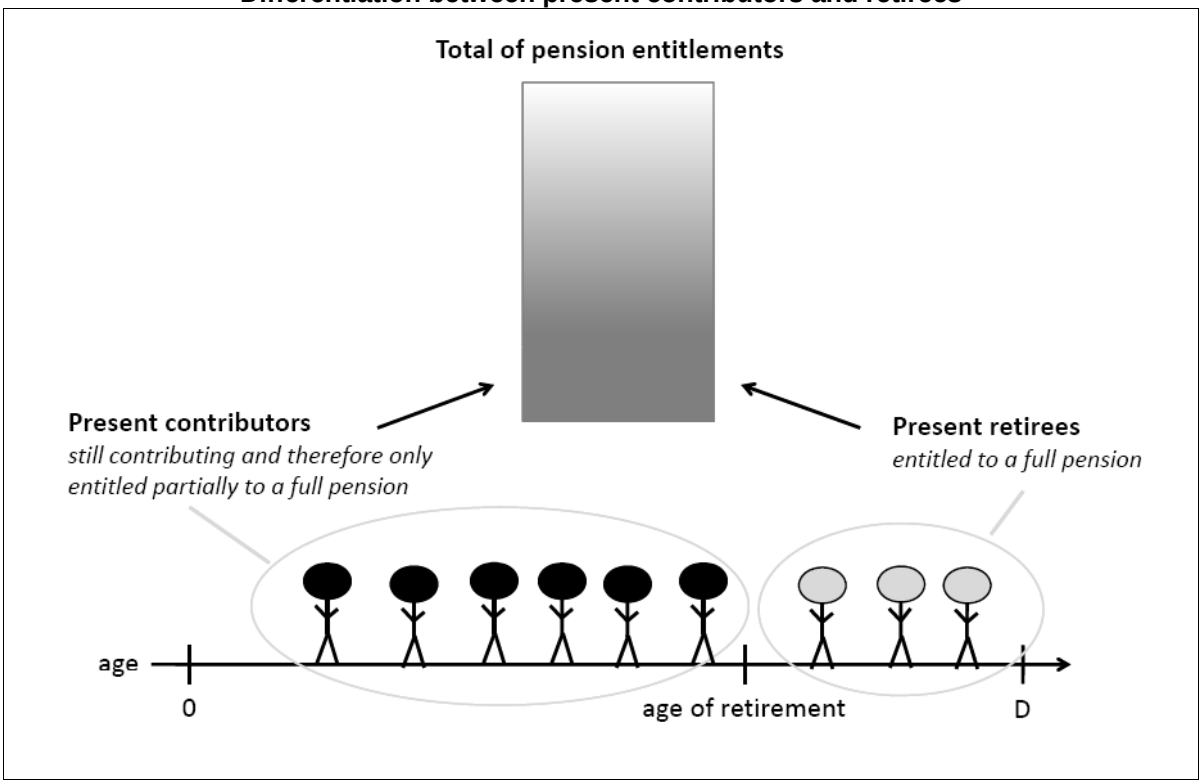
For the estimation of pension liabilities, it is important to distinguish between pension entitlements accrued by present retirees, and pension entitlements accrued by current contributors. The former group has its working and contribution period behind it, and is therefore already entitled to full pension benefits.[51] For the estimation of accrued-to-date liabilities, it is important to take into account that current contributors have not yet accrued 100 per cent of their future (expected) full pension benefits upon retirement. They still have an (expected) contribution period ahead of them, whether this is one year (in case of a 59-year-old) or 40 years (in case of a 20-year-old, in our example). It is strongly recommend to distinguish between present retirees, who have already accrued full pension benefits, and present contributors, who have only partially accrued their future full pension benefits. Figure 13 illustrates this important distinction.

[51] Of course, in some pension systems — such as in Germany — it is possible to contribute and accrue further pension rights after receiving a pension benefit. .

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Figure 13

Differentiation between present contributors and retirees



Pension entitlements reflect the present value of all future pension benefits which have been accrued-to-date. Contrary to other figures in national accounts, accrued-to-date liabilities are not calculated solely on the basis of historic data; rather a projection of future pension payments is required. This forward-looking approach will be discussed in further detail below. First, the actuarial method for estimating pension entitlements for current pensioners will be outlined (Chapter 7.3). Then an equivalent description will be provided for present contributors (Chapter 7.4). The following two sections always consider an average representative of a certain age group and gender.

7.3 Estimating individual pension entitlements for current retirees

Current pensioners are entitled to pension benefits on the basis of past accrued pension rights. As outlined above, this group is entitled to full pension benefits. In other words, the benefits they receive in the base year are fully accrued. It is important to note that current pensioners are entitled to pension benefits not just for one year but, in fact, to all future pension payments, usually until they die.[52] To illustrate the estimation approach for current retirees, see the example in Box 8.

[52] In fact, one may furthermore attribute future survivor's benefits — which accumulate after the death of present retirees — to the entitlements of current pensioners. For a further description see Box 18. .

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Box 8

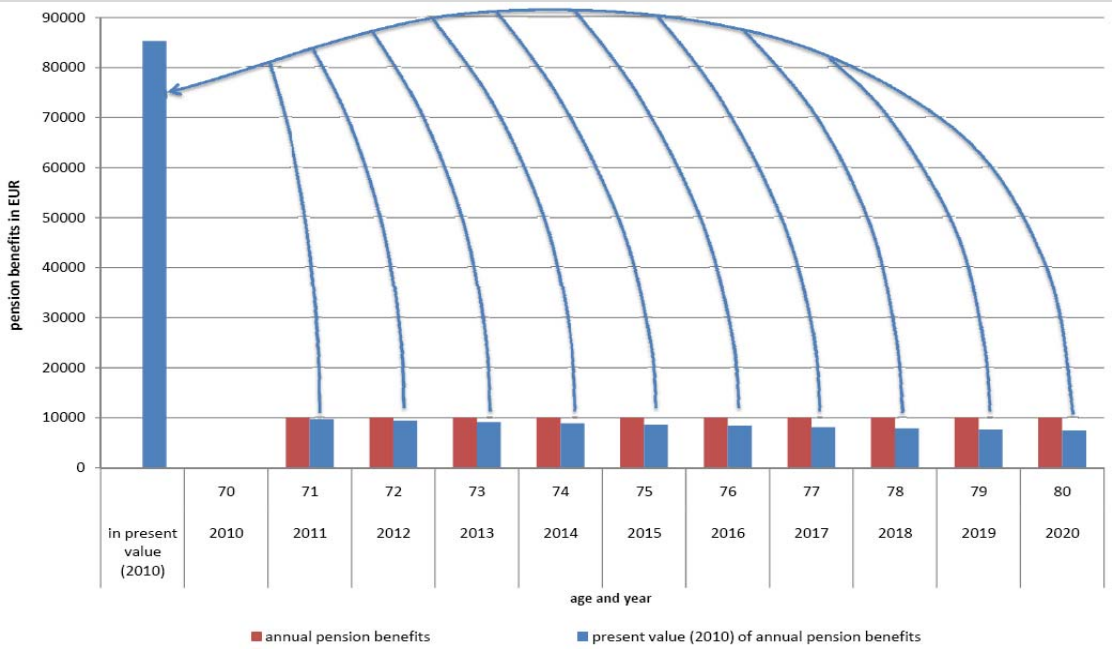
Estimating pension entitlements for current retirees

To outline the estimation approach applied for current retirees, take the example of an average male pensioner, aged 70. His pension entitlements are relatively straightforward to calculate. The current retiree's pension benefit level is projected over his remaining (expected) life span. Generally, the pension data needed for this projection can be obtained from the respective pension scheme institutions, while assumptions on the (contingent) life expectancy should be obtained from Eurostat.[53] For the following example, the representative retiree will receive an annual pension payment of EUR 10,000 in the year 2010. His life expectancy at age 70 is 10 years. In other words, he can expect to receive EUR 10,000 per year over an (expected) period of 10 years, which adds up to EUR 100,000 over the rest of his retirement.

Calculation of the present value of pension entitlements

Pension entitlements represent the aggregated present value of future pension payments. In accordance with this present value concept, pension benefits in the far future are generally considered less valuable than present pension payments. To estimate entitlements, therefore, a discount factor is applied — described in Section 5.1 — to translate future pension benefits into present-value terms. As a consequence, a pension payment of EUR 10,000 in 10 years is, for instance, worth only EUR 7,440 in present-value terms at a discount rate of 3 per cent. The blue bars in Figure 14 represent the respective present values of the future pension payments.

Figure 14
Aggregating annual pension benefits in present value terms



Source: Forschungszentrum Generationenverträge, University of Freiburg.

In the final result, pension entitlements are calculated by summing up all future pension payments in present- value terms. In this example, the total pension entitlements of a 70-year-old pensioner would amount to about EUR 85,000 EUR. From the point of view of the government, this figure represents the accrued-to-date pension liability. In other words, the value of EUR 85,000 reflects the amount of money which has to be set aside today by the government to finance all accrued pension rights of the hypothetical 70-year-old average retiree.

[53] For a further description of the demographic data and assumptions see section 5.3.

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Choosing a base year for the calculations

Only future pension benefits over the remaining life cycle of an individual are considered in estimating pension entitlements. All pension benefits received in the past — or more precisely, before the end of a certain base year — are not taken into account. The pension payments considered, therefore, depend on the base year applied. If the base year is 2010, the aim is to estimate the stock of pension entitlements at the end of the year 2010 for inclusion in row 10 of the supplementary table of the base year 2010.[54]

Consideration of pension indexation rules

For the calculation of entitlements, the indexation practice of the respective pension scheme should, possibly, be reflected. Most EU countries, including, for instance, France and Spain, adjust pension benefits annually in accordance with the change in the consumer price index (CPI). This is '*price indexation*'. Several EU countries, for instance, Slovenia or the Netherlands, base annual pension adjustments on general wage growth in the economy. This is referred to as '*wage indexation*'. Other countries have a *mixed indexation* system. In their annual pension indexation changes, they consider the CPI and, to some extent, wage growth.[55] In accordance with the respective pension indexation, an accrued pension benefit ($B^{accrued}$) in year $t+1$ may differ from that in the previous year t (see Equation 6). The variable a denotes the annual adjustment factor, which reflects the indexation rules in the respective country.

$$(6) \qquad B_{t+1}^{accrued} = (1 + a_{t+1}) * B_t^{accrued}$$

Before implementing country-specific indexation rules, it is crucial to decide whether future payments will be calculated in nominal or in real terms. As outlined in Section 5.4.1, the difference between these two approaches concerns the way in which future inflation is considered. A nominal estimation approach takes into account assumptions on future inflation, while a real approach disregards such expectations.[56] The indexation of pensions with prices as well as with wages is illustrated in Box 9

Box , which shows calculating pension entitlements both in nominal and in real terms.

[54] For an overview on the new supplementary table see chapter 4.
[55] For example Finland adjusts pension benefits annually with 80 per cent of CPI changes and with 20 per cent of the growth of the earnings level.
[56] For a further discussion on these two approaches see section 5.4.1.

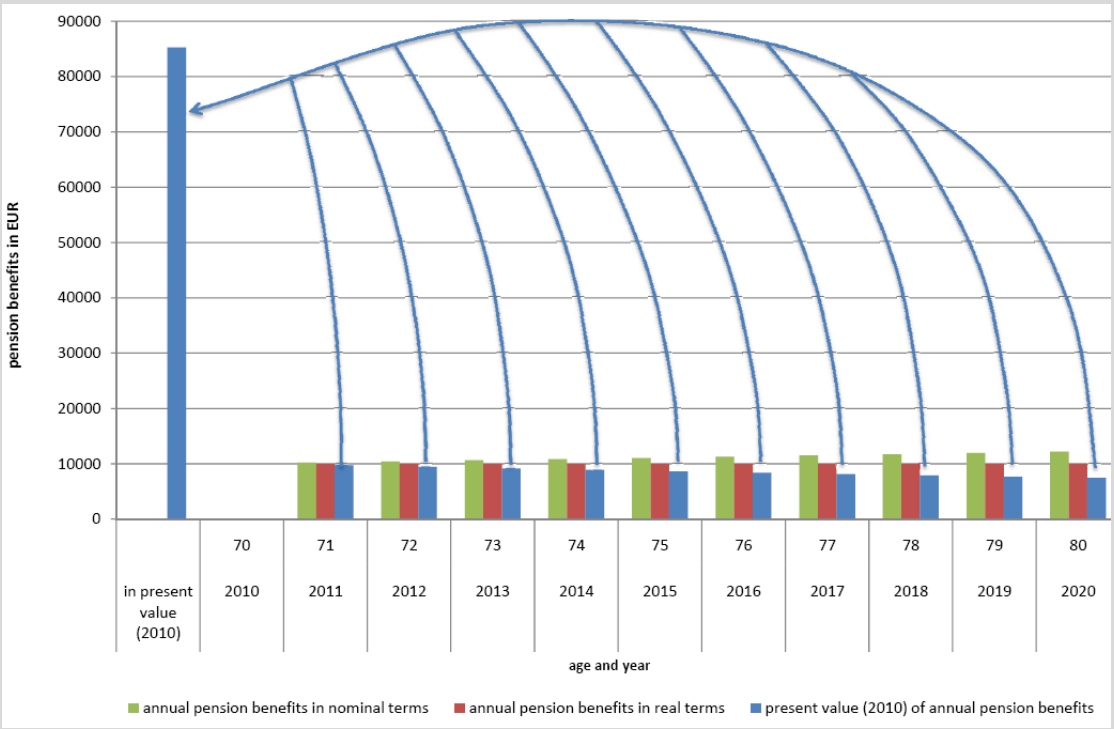
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Box 9
Estimating pension entitlements for current retirees — considering pension indexation rules

Below are outlines of examples regarding pension indexation rules. The case again is a typical 70-year-old male pensioner, on the same assumptions as in Box 8**Box** . First, the application of a price indexation is described. Under these rules, an expected future price rise of e.g. two per cent would translate into annual pension increases of two per cent — see green bars in Figure 15. If future pensions are projected in real terms, an indexation of the pension in line with prices would imply that pensions stay constant in real terms — see red bars in Figure 15.

Figure 15

Consideration of price indexation in real and in nominal terms



Source: Forschungszentrum Generationenverträge, University of Freiburg.

As outlined in Section 5.4.1, both approaches, a nominal and a real calculation approach, should lead to almost the same level of pension entitlements. It is, however, crucial that the approach used for the pension indexation is also applied to the discount rate. In other words, if the projection is undertaken in real terms, inflation expectations should not be considered in either the discount rate, or the pension indexation.

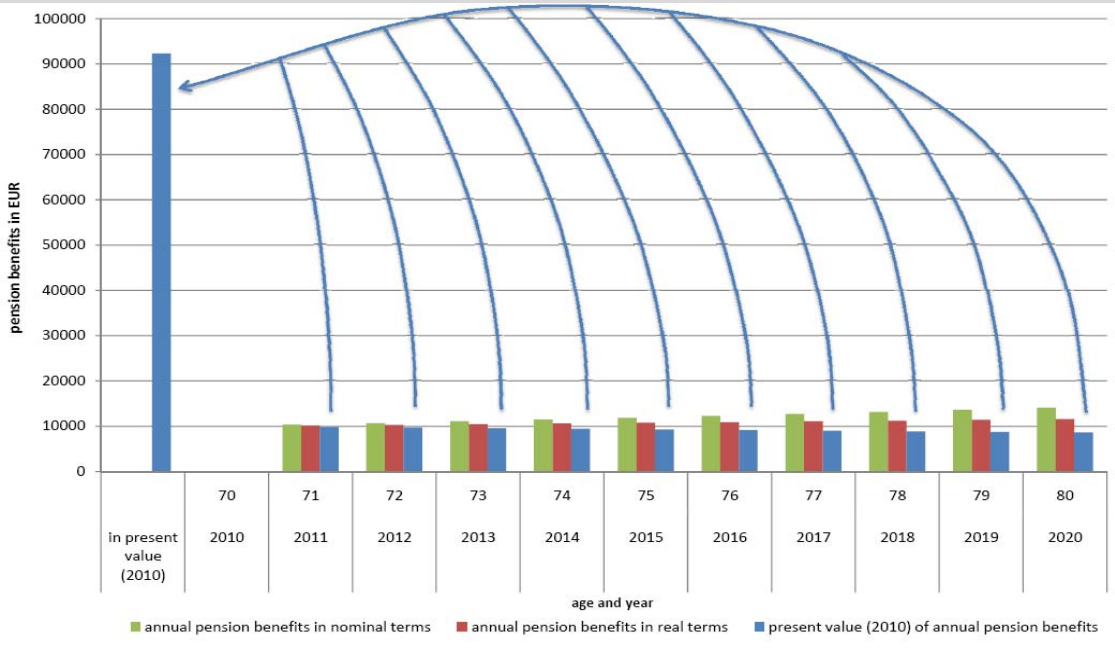
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Further assumptions have to be taken in pension schemes which apply wage-growth indexation. To estimate pension entitlements for these schemes appropriately, assumptions on future growth of wages are required. For the sake of simplicity, constant wage growth of 1.5 per cent in real terms is assumed in the following example. This translates into nominal wage growth of 3.5 per cent.[57] Obviously, future pension levels differ if varying pension indexation rules are applied. To take the example of a current pensioner aged 70 again, if pensions are adjusted only according to the CPI, this retiree can expect an increase in his pension benefits from EUR 10,000 currently to EUR 12,200 (EUR 10,000) in nominal (real) terms until the age of 80. Under wage indexation, as observed in the Netherlands or Germany, his pension level would, on the other hand, rise to EUR 14,100 (EUR 11,600) in nominal (real) terms at the age of 80 — see Figure 16.

Indexation rules play an important role in the estimation of pension entitlements, since the effects of indexation accumulate over the entire retirement period. This is also apparent in our example. In the case of price indexation, the pension entitlements of the 70-year-old pensioner add up to about 85 000 EUR. However, they are considerably higher, by 7 000 EUR, if wage indexation is applied to the entitlement.

Figure 16

Consideration of wage indexation in real and in nominal terms



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Consideration of future adjustments in the benefit formula

Besides indexation rules, future pension levels of current retirees might also be altered due to future adjustments in the benefit formula. For example, the German statutory pension scheme has a sustainability factor. With this new element in the benefit formula, pensions are adjusted annually in accordance with demographic and employment changes. Such

[57] The level of 1.5 per cent follows closely the forecasts of the AWG on the labour productivity in EU countries. As discussed in section 5.2, the AWG labour productivity predictions should, possibly, be applied as a basis for the future wage growth. Furthermore, as outlined in chapter 5.4.1 an inflation rate of two per cent should be used in the calculations. This value has also been chosen in the example above.

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future alterations in the benefit formula should if possible be taken into account when projecting future pension benefits of current retirees. The variable b in Equation 7 denotes such changes in the benefit formula.

$$(7) \qquad B_{t+1}^{accrued} = (1+a_{t+1}) * (1+b_{t+1}) * B_t^{accrued}$$

For the estimation of entitlements, it has to be taken into account that in most European countries, future adjustments in the benefit formula affect only future new pensioners, i.e. current (and future) contributors. For example, the future rise in the age of retirement in the United Kingdom, or the gradual change of accrual factors in Portugal, only play a role for future new pensioners. Such changes in the benefit formula will be discussed in Section 7.4 below, which outlines the estimation procedure for future new pensioners.

The conclusion is that data on the annual pension level and life expectancy are required for the estimation of pension entitlements of current pensioners. Furthermore, pension indexation rules as well as future adjustments in the benefit formula of the respective pension scheme should be reflected in the calculation procedure. To obtain the present value of entitlements, a discount rate of, preferably, three (five) per cent in real (nominal) terms should be applied.

7.4 Estimating individual pension entitlements for current contributors

7.4.1 A general overview

The estimation of pension entitlements for current contributors closely follows the approach described in the previous section. However, two further aspects need to be considered when calculating the accrued pension rights of this group. On the one hand, the fact should be taken into account that present contributors are not yet entitled to the full pension[58] they would receive after a complete contribution career. On the other hand, current contributors are not yet retired. Hence, their future pension payment needs to be newly estimated.

Current contributors are, generally, expected to accrue further pension rights in the future. This differentiates them from current retirees. To indicate the extent to which a future full

[58] A full pension is defined as the pension level one receives after the completion of the individual contribution career. The individual contribution career may vary considerably. Some individuals may retire already at the age of 40 due to a disability while others finish their contribution career not until the age of 65 or later. Consequently, also the full pension levels can differ. This aspect is discussed in further detail in the following sections.

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pension B^{full} has been accrued-to-date, the so-called accrual factor λ is introduced (see Equation 8).[59]

$$(8) \qquad E_{x,g,b} = \sum_{s=x+1}^{D} \underbrace{B_{s,g,f}^{full} * \lambda_{x,g,b}}_{B_{s,g,f}^{accrued}} * p_{s,g,f} * (1+r)^{x-s}$$

Equation 8 illustrates the link between the estimation of pension entitlements and other pension projections such as the AWG exercises. While the latter group, generally, takes into account only pensions after a full contribution career (B^{full}), the ADL approach considers only a certain proportion (λ) of such 'full' pensions (in the case of current contributors). In other words, only accrued-to-date pension benefits ($B^{accrued}$) are considered in ADL calculations.

The value of $\lambda (0 \leq \lambda \leq 1)$ may differ by age and gender. For present pensioners, the accrual factors sum by definition to unity, i.e. they are fully entitled to their pensions paid in future years. For current contributors, who are still expected to earn further pension rights in future, the accrual factor, generally, amounts to less than unity.

For present pensioners, the level of pension benefits can be obtained from the institutions responsible for the respective pension scheme. For current contributors, on the contrary, this future retiree income has to be newly estimated. The following two sections describe how to estimate the initial annual pension benefit accrued-to-date ($B_r^{accrued}$) at the point of retirement *r.*

Generally, there are two approaches for calculating the 'starting pension' to which a current contributor is entitled. On the one hand, the estimation may be based on the assumption that all contributors feature *homogeneous contribution careers (homCC)*. With this approach, future pension levels of current contributors are not estimated using past contribution data. In fact, future retirement benefits are approximated on the basis of current pension levels. This approach has the advantage of significantly limiting the input data required for estimations, so data on past contributions can be (partly) disregarded. The homCC approach is, therefore, recommended if no or only limited contribution data are available. Alternatively, *heterogeneous contribution careers (hetCC)* may be considered.

[59] Please note that Equation 8 follows the same notation as Equation 5.

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This approach requires comprehensive data on past contributions. The hetCC approach has the advantage of reflecting cohort-specific employment careers. Its application may therefore lead to more accurate estimations than the homCC approach.

The following sections are structured as follows: first, the estimation of the initial annual pension benefit accrued-to-date ($B_r^{accrued}$) is outlined, applying a homCC approach (Chapter 7.4.2) and a hetCC approach (Chapter 7.4.3); then (in Chapter 7.4.4), these annual pension benefits will be projected over the remaining retirement phase to calculate the final result, namely the pension entitlements of current contributors.

7.4.2 Estimating the initial pension by applying homogeneous contribution careers

With the homCC approach, future accrued-to-date pension benefits ($B_r^{accrued}$) of current contributors are not directly calculated on the basis of past contribution data. In fact, $B_r^{accrued}$ at the future point of retirement *r* is estimated from current pension levels. This small detour helps to limit the required data inputs for estimations, namely to limit the data on past contributions. This procedure, therefore, can be valuable for countries wishing to limit the data input for calculations. A worked example applying the homCC approach is provided in Chapter 8.1.

The estimation under the homCC approach proceeds as follows. In the first step, future full pensions[60] B^{full} of current contributors are estimated using the pension data of current retirees. The second step takes into account the fact that current contributors are only partially entitled to their expected full pension B^{full} which is accounted for with the so-called accrual factor λ. Equation 9 summarises formally the steps for the estimation of $B^{accrued}$.

$$(9) \qquad B^{accrued} = \underbrace{B^{full}}_{Step\ 1} * \underbrace{\lambda}_{Step\ 2}$$

Both steps — 1) the approximation of future full pensions and 2) the estimation of the accrual factor — are outlined in detail below.

[60] As outlined before a full pension is defined as the pension level one receives after the completion of the individual contribution career.

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Step 1: Approximation of future full pensions

For the first step, the approximation of future full pensions B^{full} of current contributors, the basis can be the pension data of present retirees. It is assumed that future full pensions of current contributors are equivalent to pension benefits of current new pensioners.[61] All future new retirees are assumed to have the same contribution history as present new pensioners, i.e. using homCC as a basis.[62] As a consequence, future new retirees will receive (almost)[63] the same pension benefit as current pensioners.

In a flat-rate pension scheme, the homCC approach implies that all cohorts are assumed to have the same number of contribution years at the point of retirement as current new pensioners. In an earnings-related pension scheme, this assumption would mean that contributors show not only the same contribution periods but also (almost)[64] the same reference earnings over their contribution career as present pensioners. A formal outline of the procedure to estimate full pensions of future new pensioners is provided below. As a start, the pension benefit B^{full} of a new pensioner in the base year b would be equivalent to the pension of a new retiree in the following year $b+1$, as outlined in Equation 10. Of course, Equation 10 ignores the impact of 1) pension reforms and 2) indexation effects.

$$B_{b+1}^{full} = B_b^{full} \quad (10)$$

Most European countries have implemented profound pension reforms in recent years. Usually, these reforms will lower the level of pensions for future new retirees. Therefore, a deduction factor θ should be applied (defined by a reform or, for instance, inherent in the benefit formula, as in the notional defined contribution scheme).

[61] It is recommended to base on the contribution history of present new pensioners and not all current pensioners. The former group is temporally 'closer' to current contributors. Therefore, their contribution history can be assumed to be, generally, more similar to current contributors. This is e.g. the case when looking on female participation rates. While very old female retirees often show low participation rates, new female retirees feature, usually, a higher labour activity over their contribution history which is more comparable to current female contributors.

[62] It should be stated that such an assumption is only reasonable in pension schemes which are sufficiently matured.

[63] Of course, the pension level of future new retirees might differ from current retirees even if one assumes homogeneous contribution histories. For example pension reforms may lower pension levels of future new retirees. This aspect is considered later in the text.

[64] We will outline later that not exactly the same reference earnings should be assumed. In fact, one should take into account wage growth effects, i.e. one should consider (under the PBO approach) that reference earnings increase yearly with the general wage growth in the economy. .

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$$(11) \qquad B_{b+1}^{full} = B_b^{full} * \theta_{b+1} * (1+v)$$

Secondly, pre-retirement indexation effects need to be considered. The valorisation of pension rights of current contributors up to the point of retirement should be taken into account. In a number of countries, past entitlements are indexed annually to wage growth. These pre-retirement indexation effects are reflected with the valorisation factor *v*.[65]

In schemes where past pension rights are indexed only to prices, the valorisation factor also comes into play. Here future pensioners have, usually, earned higher reference earnings than present retirees, due to general wage growth in the economy. As a result, they should in earnings-related pension schemes benefit from higher pensions than their present counterparts.[66] This aspect is also taken into account with the valorisation factor *v* in Equation 11.

Step 2: Estimating the proportion of the full pension entitlements accrued-to-date

The second step takes into account the fact that current contributors are not yet fully entitled to their future full pension B^{full} since they are, generally, expected to accrue further pension rights. In fact, current contributors are only entitled to a fraction of B^{full} which is denoted by the so-called accrual factor λ.

The crucial question is the extent to which current contributors are entitled to their future full pensions. The answer depends on the choice between the ABO and the PBO approach, as described in Section 2.2. Generally, the PBO approach should be applied for the estimation of government-managed defined benefit pension schemes.[67] Against this background, the following description of the accrual factor is based on the PBO method.[68] Generally, the

[65] Under the ABO approach *v* would equal to zero in schemes with a wage-indexation.
[66] For an illustration we want to imagine a final earnings scheme where the pension level depends on the last earnings in the year before retirement. We want to compare the initial pension benefit of a 60 year old new retiree in 2010 and a 60 year old new pensioner in 2020. Due to the future general wage growth the last earnings of the new retiree in 2020 are expected to be higher than the last salaries of its '2010-counterpart'. In accordance with the benefit formula, also the initial pension benefit of '2020-retiree' would be greater than the pension payment of the new retiree in 2010. This example outlines that even if past earnings are 'only' indexed to prices, wage increases need to be considered under the homCC approach.
[67] As stated in chapter 17 of the ESA 2010(paragraph 17.177) the PBO approach should be followed where the benefit formula 'includes implicitly or explicitly a factor for wage increases (before or after retirement)'. With the PBO approach reference earnings applied in the pension benefit formula are projected over the entire (remaining) contribution career. In this sense the PBO approach is similar to the projected unit credit method — widely used in the private sector accounting (e.g. in IAS).
[68] It should be noted, that the accrual factor can also be applied — after a few modifications — for the calculation of ABO entitlements.

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accrued proportion of the full pension under the PBO approach depends on contribution periods (see Equation 12).

$$(12) \qquad \lambda = \frac{c^{base\,year}}{c^{retirement}} \approx \frac{x-e}{l-e}$$

Where

$c^{baseyear}$ = the contribution periods of the participant until the base year,

$c^{retirement}$ = the total expected contribution periods of the participant until retirement,[69]

x = the age of the participant in the base year,

e = the age at which the participant entered the pension scheme,

l = the expected retirement age of the pension scheme participant,[70]

As outlined in Equation 12, the level of the accrual factor depends on the ratio of contribution years accrued until the base year ($c^{baseyear}$) to the (expected) total number of contribution years upon retirement ($c^{retirement}$). A longer accrued contribution period automatically translates into higher pension entitlements.

In the absence of data on contribution years accrued until the base year ($c^{baseyear}$), this figure can be approximated by subtracting the age at which the scheme member started paying contributions (e) from the age in the base year (x) — as outlined in Equation 12. The value of total contribution years upon retirement ($c^{retirement}$) is then calculated in the same way. To illustrate the approach to estimating the accrual factor further, some illustrative examples are given in Box 10.

[69] In case of disability pensions $c^{retirement}$ denotes the total contribution periods of the participant when he/she is expected to become disabled while in case of survivors' pensions $c^{retirement}$ represents the total contribution periods at the expected age of death of the pension scheme participant.

[70] Please note that this definition holds for old age and early retirement pensions. In case of disability pensions l denotes the age when an individual is expected to become disabled while for the estimation of survivors' pensions l represents the expected age of death of the pension scheme participant. For a further discussion on a differentiation of the estimations by pension type see section 7.4.4.

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Box 10

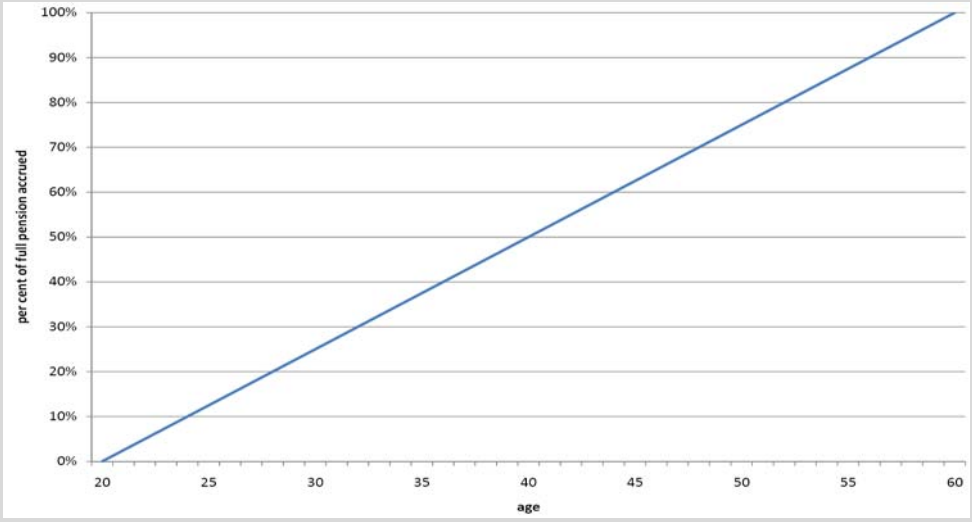
Estimating pension entitlements for current contributors — the accrual factor

The case of an average contributor, aged 40 in the base year 2010, will provide an example of how to estimate the accrual factor. Selection of a base year always refers to the situation at the end of that year. This case takes a 40-year-old at the end of 2010 with, for simplicity, a birthday at the beginning of 2011. The 40-year-old is assumed to have accrued 20 out of 40 contribution years in a final-earnings pension scheme, and is expected to retire at the age of 61. The accrual rates applied in the benefit formula are constant over the contribution career. Under the PBO approach, this individual is not yet entitled to a full pension. In fact, he/she has accrued 50 per cent of his/her full pension. This value is calculated on the basis of the relative contribution history. The 40-year-old can only look back on 20 contribution years out of 40 (expected) contribution years. For the calculation of entitlements, the accrual factor would, therefore, amount to 0.5.

A 21-year-old contributor who also started to contribute at the age of 21 and who likewise looks forward to retiring at 61 with 40 contribution years is, however, entitled to a considerably lower future pension benefit as of end-2010. At the end of the base year, this individual can look back on just one contribution year out of an expected 40. Due to this relatively short contribution record, this contributor has accrued pension rights amounting to only 2.5 per cent (=1/40) of his/her (expected) full pension. Figure 17 illustrates the relationship between the proportion of the full pension accrued-to-date and the relative contribution history. It displays the accrual factor for each age group. To keep the example simple, it is assumed that one contribution year is accrued in each year of the contribution career.

Figure 17

Proportion of full pension accrued-to-date (PBO approach)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

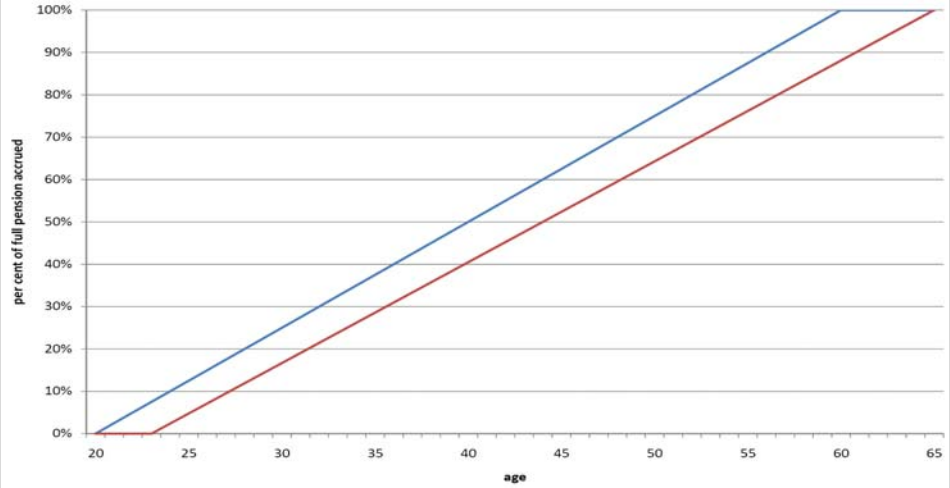
Of course, the proportion of the full pension accrued-to-date depends on the starting and finishing point of the individual contribution career. A further example is a 40-year-old contributor who started to contribute at the age of 24 and who can be expected to retire at 66. This 40-year-old would not be

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entitled to 50 per cent of his/her full pension benefit, but only to roughly 38 per cent (=17/42) — see Figure 1.[71]

Figure 18

Proportion of full pension accrued-to-date (PBO approach) — varying contribution behaviour



Source: Forschungszentrum Generationenverträge, University of Freiburg.

The examples outline that the starting point (the age at which contributions are first paid) as well as the finishing point of the contribution career (the expected retirement age) are significant for the estimation of the accrual factor. The choice of these parameters is outlined below.

Choosing the age to pay first contributions

For the estimation of the accrual factor, the number of contribution periods accrued until the base year are required. If such data is not available, one may approximate this figure on the basis of the average age at which contributions are first paid (see Equation 12). Generally, this starting point is usually at the age of 20 across European pension schemes. However, in government employee pension schemes, the age may vary due to specific employment policies in the government sector. The age at which contributions are first paid can be derived from contribution data which is usually obtainable from the institutions responsible for the respective pension scheme. It can differ by birth cohorts and gender.[72]

[71] Of course, it has to be considered that a relatively longer contribution period (in the example 42 instead of 40 years) may also lead to comparably higher full pension levels.

[72] To limit the data input one may base the estimations on one single average age to pay first contributions for all current contributors. For example, it may be assumed that all contributors started their contribution career on the age of 20 years — if this is reflected in the data. Nevertheless, it is recommended to apply a differentiation by birth cohorts and gender.

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Choosing the expected retirement age

For the choice of the end of the contribution career, one has to make assumptions regarding future retirement age. One option is to assume a constant retirement behaviour, but a change in retirement behaviour in future may be considered. For further discussion on the choice of retirement age, see Box11 below.

Box 11

Choosing the retirement age

To estimate pension entitlements, various assumptions on future retirement age are possible. There is a choice between constant or changing retirement behaviour, as well as between homogeneous or heterogeneous retirement behaviour. Below, we discuss the appropriate choice of assumptions.

Constant vs. changing retirement behaviour

One option is to assume constant retirement behaviour. We assume that future pensioners will retire at the same age as their current counterparts. Of course, such a scenario is only appropriate if the pension legislation allows current retirement behaviour to be prolonged into the future. In some countries, such as the UK or Malta, the age of retirement will gradually rise in the coming decades. For these countries, a constant retirement approach would not be suitable. The future expected retirement age should always be chosen in accordance with future legal retirement ages (it has to be underlined that only changes of the statutory retirement age which have been legislated until the base year are considered in the estimations).

Alternatively, one may assume changing retirement behaviour on the basis of behavioural forecasts. For some countries, there are authoritative predictions on future retirement choices. Berkel and Börsch-Supan (2004) provide such a forecast for Germany.

It should be noted that the choice between a constant and changing retirement behaviour should have no impact on the level of pension entitlements if the respective pension scheme can be considered actuarially neutral (actuarial neutrality in the context of pension systems means that the present value of accrued pension entitlements does not change due to an earlier or later pension start date. For a detailed description of this concept see Queisser and Whitehouse (2006). As these authors indicate numerous pension systems in the OECD cannot be considered actuarially neutral. A substantial number of countries do subsidise early retirement and penalise late retirement since pension decrements as well as increments are lower than an actuarial neutral rate. In these countries one would overestimate (underestimate) pension entitlements with the constant retirement behaviour assumption if future pensioners will decide to retire later (earlier) than today.

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Homogeneous vs. heterogeneous retirement behaviour

When choosing the assumption on future retirement age, the question arises as to whether to consider retirement ages as homogeneous or heterogeneous. Should a single retirement age be assumed for all contributors, or not? As a starting point, it is sufficient to take one retirement age, preferably the average retirement age, as a basis (however, a differentiation between genders is highly recommended since retirement behaviour usually differs considerably between males and females). If possible, however, heterogeneous retirement ages should be taken into account. Box 1 provides a further description of how to include heterogeneous retirement behaviour in the calculation of pension entitlements, under the homCC approach.

Considering pension increments and decrements

For the estimation of pension entitlements, it is important to consider that the level of pension benefits depends on the choice of future retirement age. In most pension schemes, retirement after (before) the legal retirement age leads to an increase (decrease) in annual pension benefits. Such pension increments (decrements) should always be taken into account in the calculations.

Box 12

Taking into account heterogeneous retirement behaviour

Usually, retirement ages vary between males and females. Different retirement behaviour may also be observed within a cohort. Some individuals may choose to work until the age of 65, while others prefer to retire at 60. How should such heterogeneous retirement behaviour be taken into account? To give an illustration, let us return to the example of the average 40-year-old contributor (see). As stated, this contributor can look back on a contribution history of 20 years. For the example with heterogeneous retirement behaviour, let us assume that the probability of this person retiring at the age of 61 is 50 per cent. Furthermore, he/she might retire at 60 (with a probability of 25 %), or at 62 (with a probability of 25 %). Pension entitlements are calculated separately for each of these three retirement paths. In the first path, the 40-year-old individual is assumed to retire at 60, and has therefore accrued-to-date 51 per cent (=20/39) of his/her full pension for that retirement age. According to the second path, he/she is expected to work until the age of 61, and has consequently accrued-to-date 50 per cent (=20/40) of the full pension to which they will be entitled at the age of 61. The third path is calculated analogously, resulting in an accrual factor of 0.49. Of course, it has to be considered that in most pension schemes a later retirement age would result in a higher full pension level. This issue will be discussed below. Finally, the sum of these pension rights, weighted with the respective probabilities, represent the pension entitlements of the 40-year-old female contributor.

Equation 13 provides a formal outline of the procedure to calculate pension entitlements with heterogeneous retirement behaviour under the homCC approach (please note that Equation 13 can be applied for old age

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and early retirement pensions). For the consideration of other pension types, such as e.g. disability pensions (see Box 18) In fact, this formula represents an extension of Equation 5. In Equation 13, the final entitlements $E_{x,g,b}$ of a contributor are reflected by the probability-weighted sum of pension entitlements for each possible choice of the retirement age l ($x < l \leq l^{max}$). Furthermore, the accrual factor $\lambda_{x,g,l,b}$ as well as the annual pension benefit $B_{s,g,l,b+s-x}$ depend on the respective choice of the retirement age l.

$$(13) \qquad E_{x,g,b} = \sum_{l=x+1}^{l^{max}} [\lambda_{x,g,l,b} * q_{x,g,l,b} * (\sum_{s=l}^{D} B^{full}_{s,g,l,b+s-x} * p_{s,g,b+s-x} * (1+r)^{x-s})]$$

where

l^{max} = the highest possible retirement age,

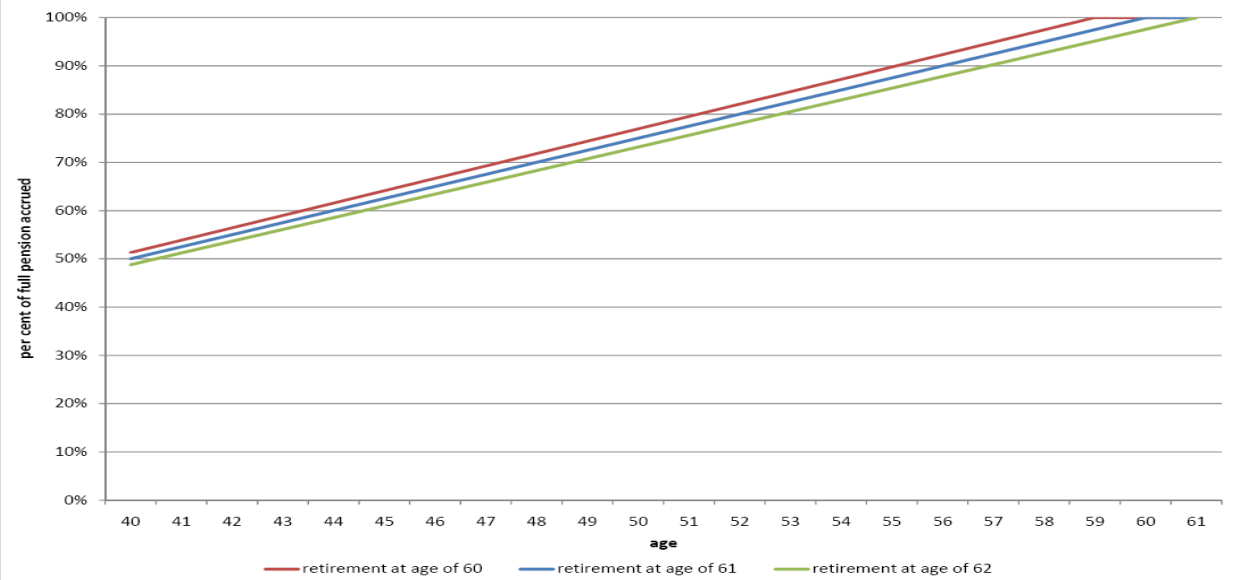
$\lambda_{x,g,l,b}$ = the accrual factor for a given retirement age l,

$q_{x,g,l,b}$ = the probability of a x year old in the base year b to retire at age l,

$B^{full}_{s,g,l,b+s-x}$ = the annual full pension benefit of a s year old in the year b+s − x after retirement at age l.

Figure 19

Accrual factors considering different retirement ages



7.4.3 Estimating the initial pension by applying heterogeneous contribution careers

A more detailed approach to estimating pension entitlements represents the consideration of heterogeneous contribution careers (hetCC). This procedure allows the contribution career of a future new retiree to differ from those of current pensioners. For example, due to longer unemployment or education periods for younger age groups, contribution careers

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may vary considerably between birth cohorts.[73] To consider such hetCC, comprehensive data on the contribution history of current contributors need to be collected. On this basis, the accrued-to-date pension benefit ($B_p^{accrued}$) at the future point of retirement *r* is directly estimated, and later projected over the remaining retirement phase.

The way in which the past contribution career precisely translates into pension entitlements varies from pension scheme to pension scheme and is formulated in the respective benefit formula. Therefore, before describing the required steps to estimate $B_p^{accrued}$ of current contributors, it is useful to classify government-managed employee pension schemes more closely with regard to the benefit formula applied. Across Europe, pension schemes may be distinguished as follows:

1) ***flat-rate pension schemes***
2) ***earnings-related pension schemes***
   - ***final earnings schemes***
   - ***pension account schemes***

In flat-rate pension schemes, the final pension level depends on the individual's number of contribution or residence years, as well as on a certain benchmark pension. In earnings-related pension schemes, on the other hand, the level of benefits depends not only on the number of years during which contributions were made, but also on the amount of reference earnings or contributions during the contribution career. Earnings-related pension schemes can be further differentiated into final earnings types and pension account types. A more detailed classification of pension schemes with respect to the benefit formula is provided in Box 13.

Box 13

Classification of pension schemes with regard to the benefit formula

In all government-managed defined benefit pension schemes covered in the supplementary table, the calculation of pension benefits is based on the past contribution career of scheme participants. How this past contribution career precisely translates into pension benefits and entitlements varies from one pension scheme to another and is formulated in the benefit formula. It is useful to classify these pension schemes with regard to the benefit formula applied. In this context, dividing pension schemes into flat-rate and earnings-related schemes.
Flat-rate pension schemes can be found in the Netherlands or in the UK, for instance. They provide a basic flat-rate pension (in the UK also earnings-related public pension schemes can be found.[74] In these schemes, the final pension level depends on the individual´s number of contribution or residence years (C) as well as a certain benchmark pension (BP), as outlined in Equation 14. The BP is, generally, the highest possible pension one can receive after a certain number of contribution

[73] Such differences are also referred to as *cohort effects*.

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years.

$$(14) \qquad B^{accrued} = benefit\ \ formula(C, BP)$$

Most other European countries — such as France, Poland, Greece and Germany — feature **earnings-related** pension schemes. In these schemes, the level of benefits depends not only on the number of years of contribution, but also on the amount of reference earnings or contributions during the contribution career. All earnings-related pension schemes are based — at least to some extent — on the principle of equivalence. According to this notion, higher reference earnings should result in higher pension benefits. This aspect plays a role and should be reflected in estimates of pension entitlements.

Earnings-related pension schemes can be differentiated further with respect to their benefit formula. Traditionally, benefit formulas across Europe are designed as **final earnings schemes.** In such schemes, the pensions are calculated, as the name implies, on the basis of final earnings (FE) before retirement. These FE may comprise the earnings over the entire contribution career, or over a shorter period, such as the last year or the last 10 years before retirement. Furthermore, benefit formulas of final earnings schemes explicitly take into account the number of past contribution years (C) and generally also a so-called accrual rate (AR).

A formal outline of the calculation for accrued-to-date pension benefits in final earnings benefit formulas is provided in Equation 15. The earnings-related part of social security pensions in the Czech Republic is an example of a final earnings scheme. In this scheme, future pension benefits are calculated by multiplying contribution years by the accrual rate (amounting to 0.015) and the respective reference earnings[75].

$$(15) \qquad B^{accrued} = benefit\ \ formula(FE, C, AR)$$

In recent years, final earnings benefit formulas have been replaced in many countries by **pension account schemes.** The characteristic of such schemes is that individual contributions are directly converted and recorded in an individual pension account (PA). In comparison to final earnings schemes, individual accounts are explicitly considered in the benefit formula — see Equation 16.

$$(16) \qquad B^{accrued} = benefit\ \ formula(PA)$$

Typical examples of such pension account schemes are notional defined contribution (NDC) accounts, as found in Poland, Latvia, Italy or Sweden. In these systems, the amount of yearly individual contributions is directly transformed into an equivalent increase in individual pension accounts. Pension point systems, found in Germany or Slovakia, are also examples of pension account benefit schemes. In these schemes, individual earnings translate into a certain level of pension points, recorded in individual accounts.[76]

The following description distinguishes between flat-rate pension schemes and two types of earnings-related pension schemes, namely final-earnings and pension accounts types.

[74] In the UK also earnings-related public pension schemes can be found.
[75] Currently reference earnings in this scheme cover all earnings since 1985.
[76] Generally, one pension point is accrued by contributors who earn in a certain year the average earnings in the economy. Higher or lower salaries result in increased or diminished pension point values per year.

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Collection of data on the past contribution career

In a first step, data on the contributions of current contributors need to be collected. The extent of data required depends on the benefit formula of the respective pension scheme.

In a flat-rate pension scheme like those found in the Netherlands, the accumulated number of contribution or residence years should be taken into account. It is useful to collect past contribution data broken down by one-year age groups and by gender. This are data for the accumulated contribution years for an average *x* year-old male, an average *x* year-old female, an average *x* +1 year-old male, an average *x* +1 year-old female and so forth.

In earnings-related pension schemes, additionally, past earnings or contributions of current contributors should be considered. This past contribution data depend on the type of earnings-related pension scheme. The following description, therefore, distinguishes further between final earnings and pension accounts schemes.

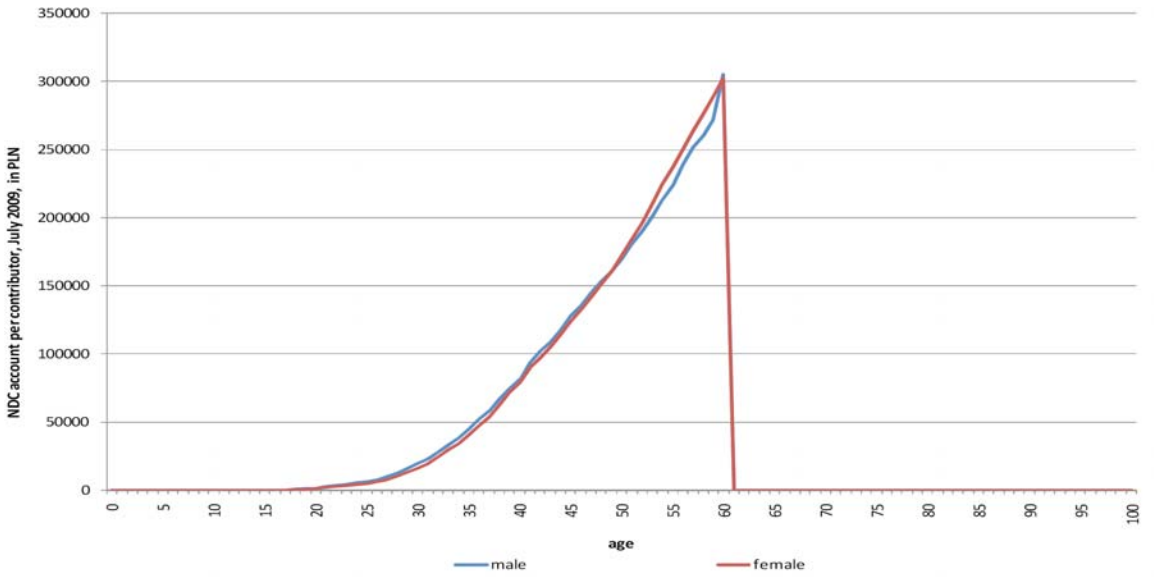
For pension accounts schemes, past earnings/contributions are, generally, already accumulated in individual pension accounts. These accounts facilitate the collection of contribution data since they also reflect (implicitly) the number of past contribution years. For pension schemes classified as pension accounts, the recommendation is to collect past contribution data broken down by one-year age groups and by gender. An example of such data is presented in Figure 20, which displays the required average notional defined contribution accounts, distinguished by age and gender, in the case of Poland.[77]

[77] Contributors older than 60 years have no NDC account in the Polish general pension system. They are insured according to the old, pre-NCD pension rules. For a description of the pension system and the use of this data to project future pension levels see Jablonowski et al. (2010), p. 26-36.

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Figure 20

Value of NDC accounts differentiated by age and gender



Source: Forschungszentrum Generationenverträge, University of Freiburg, based on data provided by the Polish social insurance institution (Zaklad Ubezpieczen Spolecznych, ZUS).

In pension schemes classified as final-earnings types, such as those in Bulgaria or Portugal, past reference earnings and the number of contribution years of current contributors need to be collected, preferably broken down by one-year age groups and by gender, that is, data for past reference earnings and the number of contribution years for an average x year-old male, an average x year-old female, an average x+1 year-old male, an average x+1 year-old female, and so forth.

On the basis of the contribution data, future initial pension levels accrued-to-date can be calculated. Below, this estimation procedure is outlined separately for 1) flat-rate, 2) final earnings and 3) pension account schemes.

I. Estimation of accrued pensions in flat-rate pension schemes

The aim is to estimate the annual accrued-to-date pension benefit $B^{accrued}$ of current contributors at the point of their future (expected) retirement. For flat-rate pension schemes, this calculation is relatively simple. In a first step, the future retirement age of current contributors should be set. A discussion on the appropriate choice of future retirement ages is provided in Box .

As a second step, the information about accumulated contribution or residence years in the base year $C_{base\ year}$ is applied in the respective benefit formula.

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$$(17) \qquad B_r^{accrued} = benefit\ \ formula(C_{base\ year}, BP_r)$$

Furthermore, it is necessary to project in a third step the benchmark pension BP from the base year *b* to the future year of retirement *r*. Here — in accordance with the PBO approach — the annual adjustments of BP starting from the year after the base year *b* until the year of retirement *r* should be considered (see Equation 18). In most flat-rate pension schemes, wage indexation is applied. But other indexation arrangements, such as an adjustment for prices, can also be found. In correspondence with the indexation rules, the level of the BP is adjusted annually by a factor v – as outlined in Equation 18.[78]

$$(18) \qquad BP_r = \prod_{s=b+1}^{r} [1+v_s] * BP_b$$

An example of the procedure to estimate $B^{accrued}$ in flat-rate pension schemes on the basis of the hetCC approach is provided in Box 14.

Box 14

Estimation of accrued pensions in a flat-rate pension scheme

Below is a case study on how to estimate annual accrued-to-date pensions at retirement in a flat-rate pension scheme. The example is an average 50-year-old male contributor who participates in a flat-rate pension scheme, similar to the basic state pension scheme in the United Kingdom.

The final basic pension level received at the point of retirement depends solely on the number of contribution years the individual accumulates. A 'full basic pension'[79] (FBP) — corresponding to the benchmark pension in the general description above — is granted if 30 or more contribution years have been earned. In the example given, the FBP would amount to EUR 5,000 in the base year. Furthermore, it is assumed that the FBP is adjusted annually for wage growth in the economy. The example assumes constant future wage growth of 1.5 % (in real terms). Pensions are reduced if fewer than 30 qualifying years have been accrued. More precisely, the number of qualifying years is compared to the number of years needed for a FBP (30 years). This 'contribution years ratio' is then multiplied by the amount of a FBP (in the retirement year) to estimate the individual pension level at retirement. In the example, the representative 50-year-old male contributor has accumulated on average 23 contribution years. To keep the description simple, it is further assumed that all contributors retire at the age of 65. This representative 50-year-old contributor will retire 15 years after the base year.

The estimation of $B^{accrued}$ of the 50-year-old contributor would be as follows: First, the ratio of contribution years accrued until the base year (23 years) to the number of years needed for a FBP (30 years) is calculated — amounting to about 76 percentage points. Thereafter, in accordance with the PBO approach, the FBP is projected to the year of retirement *r*. Finally, both the contribution years ratio and the projected

[78] Often a time lag of one or two years is set in the benefit formula. In other words pensions are indexed to the wage growth one or two years before the base year. The impact of indexation can be considerably. In the example given in Box 1 the level of a full basic state pension in 15 years — when the current 50 year old will retire — would increase by roughly 25 per cent (in real terms) with a wage indexation in comparison to an indexation with prices.

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FBP are multiplied to estimate $B^{accrued}$ at the point of retirement.

$$(19) \qquad B^{accrued}_{50,male,r} = \frac{23}{30} * [(1.015)^{15} * 5000\,€] \approx 4800\,€$$

As outlined in Equation 19, the 50-year-old male contributor would be entitled to an annual pension benefit of roughly EUR 4, 800 at his (expected) retirement age.

II. Estimating accrued pensions in final earnings schemes

In final earnings schemes, pension levels depend not only on the number of contribution years accumulated until the base year ($C_{base\,year}$), but also on final earnings before the retirement year *r* (FE_r). Moreover, in most final earnings schemes, an accrual rate (AR) is applied. For the estimation of $B_r^{accrued}$ of current contributors, all the factors outlined above should be taken into account (see Equation 20).

$$(20) \qquad B_r^{accrued} = benefit\ \ formula(FE_r, C_b, AR)$$

Most of the above-mentioned input factors can be relatively simply obtained from past contribution data. This includes information about C_b but also about past earnings until the base year *b*. Furthermore, the AR is defined in the respective benefit formula and can therefore be directly applied in the estimations.

For the estimation of ABO pension entitlements, the above-mentioned input data would be sufficient.[80] However, to estimate pension entitlements with the PBO approach — described in Chapter 2.2 — some further steps need to be taken: future wage increases have to be considered for the estimation of $B_r^{accrued}$. This involves a projection of future earnings periods. The framework and the assumptions of such a projection are outlined below.

Defining the starting and finishing point of the projection

First, it is important to set the starting and finishing point of the required projection. Commonly, the projection of the future contribution career should start after the year for which the latest data on past earnings is available. Since the aim is to estimate pension

[79] A 'full basic pension' should not be mixed up with the term 'full pension'. The latter expression represents a pension benefit received after a full contribution career, while a 'full basic pension' is granted after 30 contribution years. .

[80] Under the ABO approach only reference earnings until the base year are applied for the estimation of $B^{accrued}$. This approach requires no projection of future wage increases.

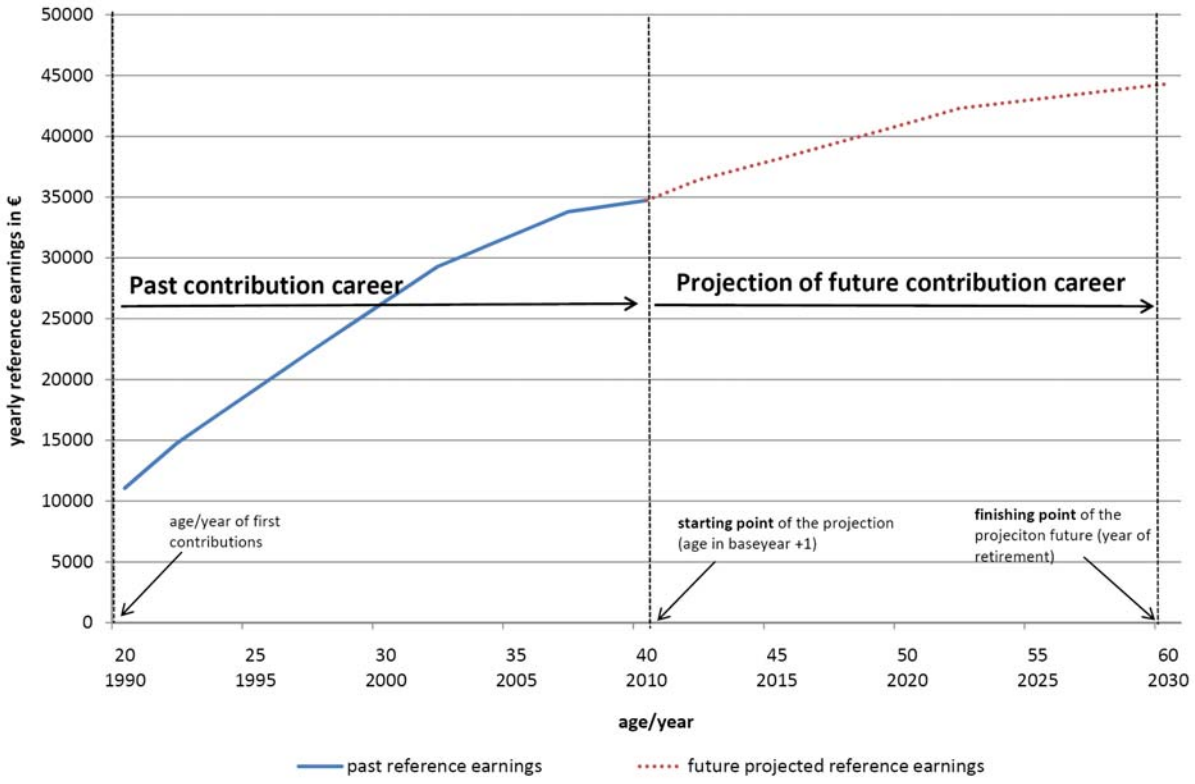
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benefits upon retirement, the natural finishing point of the projection is the year *r* in which the respective contributor is expected to retire. A discussion on the appropriate choice of future retirement ages is provided in Box 11.

The example is an average 40-year-old contributor in base year 2010. He is expected to retire at the age of 60. Data on his past contributions are assumed to be available until the base year 2010.[81] Figure 21 illustrates the required projection period for this example. Data on his past contribution career — reflected by past reference earnings — is obtainable until the base year. For all future years, starting from 2011, until the year 2030,[82] when he is expected to retire, his contribution career needs to be projected.

Figure 21

Projection of the future contribution career under the PBO approach



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Required assumptions for the earnings projection

Generally, the development of individual future earnings depends on two main factors:

[81] Sometimes data on the past contribution may only be available for years before the base year. Of course, in such a case the projection of the future contribution career may begin already in the base year or even in the years before.

[82] To be precise, the projection should finish already at the end of the year 2029 in this example. If the contributor is expected to retire in beginning of 2030 his contribution career finishes at the end of 2029.

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***1) future promotions** and*

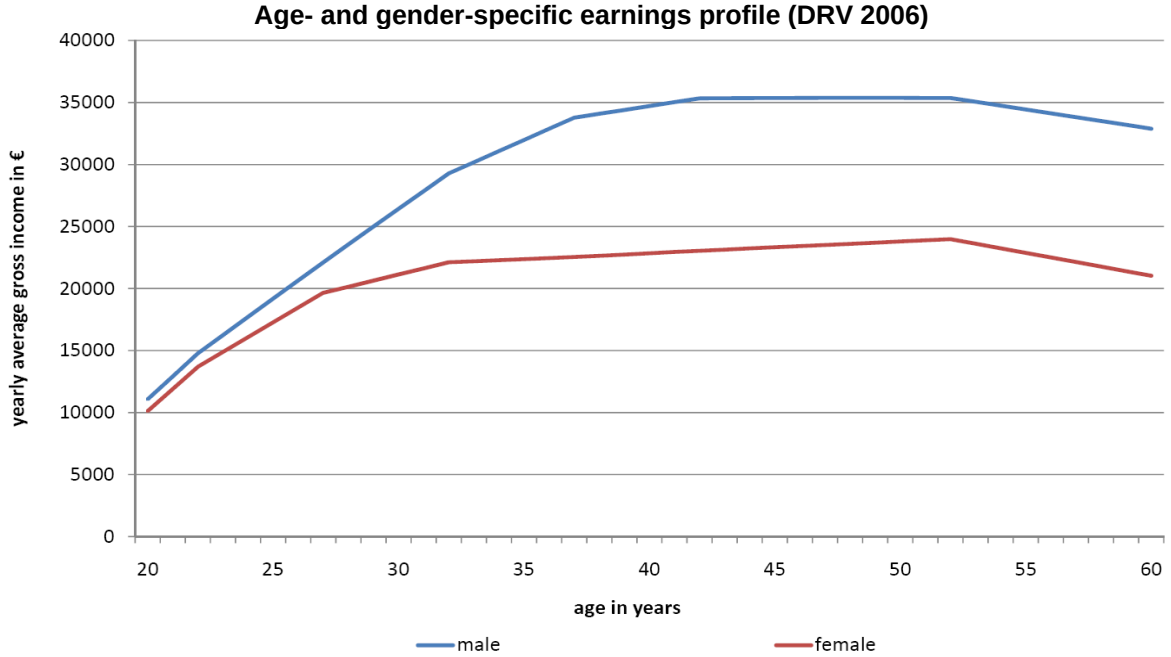
2) future general wage growth in the economy

To project future earnings over the (expected) remaining contribution career, assumptions about these two factors need to be taken. The choice and application of these is described in detail below.

As outlined in Chapter 5.2, it is recommended to forecast future promotions on the basis of profiles reflecting the reference earnings or contributions for different age groups and genders. Figure 22 shows such an earnings profile for contributors to the German statutory pension scheme (DRV). The profile reflects a number of factors which might vary by age and gender, such as the average wage paid per hour, the number of hours worked per year, the part-time employment of older (55+) and younger cohorts (20 to 25) and so forth. For the following description, all these factors will be summed up by the term 'promotions'. The picture makes clear that earnings vary over the working career. Generally, salaries increase with age and decline slightly before retirement. In this sense, the profile shown displays the usual hump shape which can be found in many European countries.

Figure 22

Age- and gender-specific earnings profile (DRV 2006)



Source: Forschungszentrum Generationenverträge, University of Freiburg, based on data for 2006 provided by the Deutsche Rentenversicherung (DRV).

For the projection of the future contribution career, it is appropriate to base the calculation on a constant earnings or contribution profile over time. A current average contributor

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'walks' along this profile over his/her remaining employment life cycle until retirement. Equation 21 provides a formal outline of how to calculate future earnings with this approach.

$$(21) \qquad w_{x,y,m} = w_{y,b} * \prod_{i=b+1}^{m} [(1+\pi_i)*(1+g_i)]$$

where

x = the age of a participant whose future earnings shall be projected,

y = the future age of the participant $(y \geq x)$,

$w_{x,y,m}$ = the projected earnings of the current x year old participant than he/she reaches the age of y in the future year m

m = the future year for which the wage of a current participant is projected $(m = b + (y - x))$,

$w_{y,b}$ = the earnings of a current y year old in the base year b,

π_i = the inflation rate in a future year i $(b + 1 \leq i \leq m)$,

g_i = the general wage growth in a future year i $(b + 1 \leq i \leq m)$.

On the one hand, future earnings are determined by future promotions. According to the formula outlined above, a current pension scheme member aged x can expect to receive the same earnings at age y as a current member aged y. On the other hand, future salaries increase by inflation π and general wage growth in the economy g. Of course, inflation should only be considered if the calculation is carried out in nominal terms.[83]

Data used for earnings profiles can usually be obtained from the institution responsible for the pension scheme. Household surveys can be an alternative data source. For a further discussion on data sources, see Chapter 6.3.2. As outlined in Section 5.2, the AWG assumptions on future labour productivity growth provide a suitable basis for estimating general wage growth in the economy.[84]

With the application of the earnings profile and the assumption on general wage growth and inflation (if required), earnings can be estimated for each year of the individual's future contribution career. For an example showing how to project future earnings, see Box 15.

[83] For a further discussion see section 5.4.1.
[84] For a more detailed discussion on the future wage growth assumption see chapter 5.2.

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Box 15

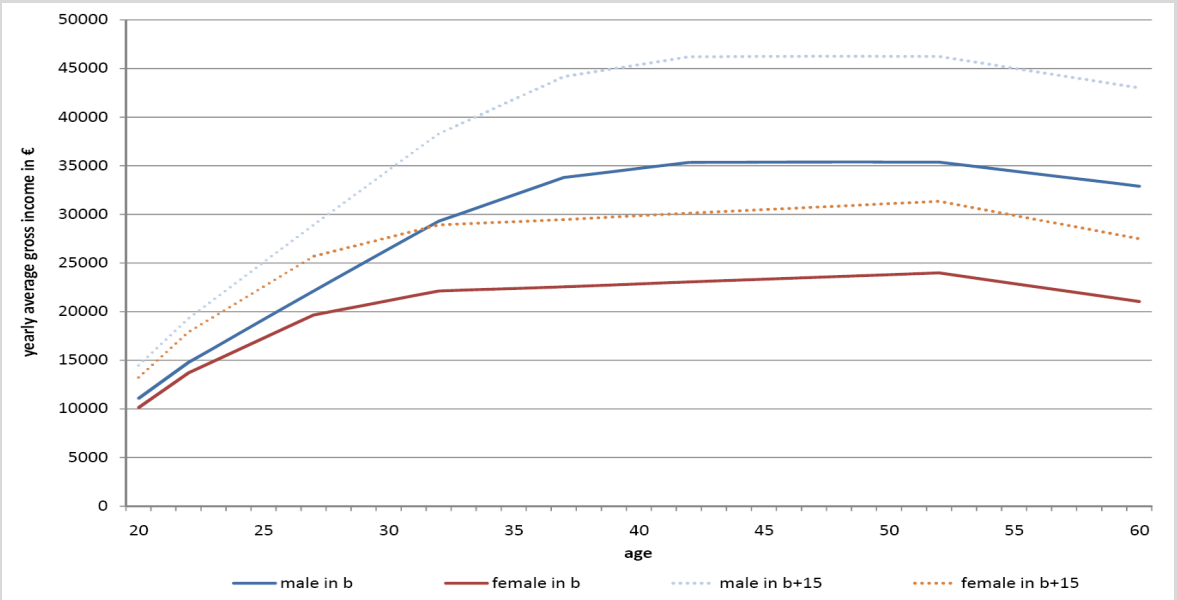
Projection of future earnings

The following case study illustrates a projection of future earnings. This example takes the case of a 25-year-old man, an average contributor who is expected to follow the earnings profile shown in Figure . The aim is to calculate his projected earnings at the age of 40. Of course, the same approach can also be applied to other periods of the individual's contribution career.

The projection is carried out in real terms, i.e. inflation is disregarded. In base year *b,* the contributor earns about EUR 20,000 (see Figure 23). Assuming a constant earnings profile over time, he can expect to earn a 75 per cent higher wage at the age of 40 (in 2021), due to career progression. However, there are factors other than promotions to consider for the projection of his future contribution career. The level of future contributions and reference earnings is also affected by general wage growth in the years until 2021. The assumption here is that annual real wage growth in the economy is 1.5 per cent, and that all employees benefit equally. Under these assumptions, the 25-year-old contributor can expect to improve his relative income position in the workforce due to promotions as well as from general wage growth in the economy. In quantitative terms, this implies that in 15 years' time, he will exceed the earnings of a current 40-year-old contributor, about EUR 35, 000 annually. When the 25-year-old reaches the age of 40, he can expect future earnings of about EUR 45, 000 due to general salary growth. The dotted lines in Figure 23 illustrate the increase in the earnings profile due to expected wage growth after 15 years.

Figure 23

Age- and gender-specific earnings profile considering general wage growth (DRV 2006)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

For the estimation of $B_{by}^{accrued}$ a number of further aspects of the benefit formula need to be taken into account, such as the definition and valorisation of final earnings. The most important issues are discussed below.

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Defining final earnings

Generally, final earnings reflect the average of annual reference earnings (*RE*)[85] over the last *n* years before retirement (as outlined in Equation 22).

$$FE_r = \frac{\sum_{t=(r-1)-(n-1)}^{r-1} RE_{t,r}}{n} \quad (22)$$

The calculation of final earnings may differ widely from one pension scheme to another. In most pension schemes across Europe, not all contribution periods until retirement age are relevant for the pension calculation. In some schemes, only the earnings in the last three years before retirement matter (e.g. in the German civil servants pension scheme). In other pension schemes, the reference earnings of the best 25 years (e.g. in France) before retirement or even of the entire contribution career (e.g. in Slovakia) are taken into account. The length of the contribution career considered in the benefit formula can have a significant impact on future pension levels.[86] It is important to reflect this aspect in the estimation of $B^{accrued}$. The definition of final earnings should, therefore, always be chosen precisely in accordance with the benefit formula. Furthermore, it has to be considered that these past earnings are usually valorised to the point of retirement *r.* This aspect is described below.

Indexation of past earnings

To estimate future pension levels, the indexation of reference earnings until the point of retirement should be reflected. These adjustments are also referred to as pre-retirement indexation. Most pension schemes across Europe apply indexation to past earnings according to wage growth in the economy.[87] Only a few pension schemes (e.g. in Portugal) choose a lower indexation of past contributions, using the CPI.[88] In accordance with the benefit formula, a past earning *w* in a year *t* is indexed by a factor *v* until the year of retirement *r* (see Equation 23). This valorised past salary represents the reference earning *(RE)* of the year *t* applied in the benefit calculation (see Equation 22).

[85] Reference earnings are defined as the past earnings relevant in the benefit formula.
[86] Generally, an extension of the reference earnings translates into a decrease of pension levels — given the ceteris paribus condition.
[87] In these schemes the AWG assumptions on the future labour productivity growth provide a suitable proxy for the future wage growth. For a further discussion see section 5.2.
[88] In fact, in Portugal reference earnings are indexed to the growth of CPI from 2012 onwards. Before the year 2012 a slightly higher indexation is applied. .

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$$(23) \qquad RE_{t,r} = w_t * \prod_{i=t+1}^{r} [1+v_i]$$

Considering future adjustments to the benefit formula

Besides the contributions career, future changes to the benefit formula should also be taken into account. For example, alterations to accrual rates (e.g. in Austria or Hungary) as well as extensions of the periods relevant for reference earnings (e.g. in Portugal or Malta) should be considered. In some countries, moreover, demographic factors should be applied when estimating the final pension level upon retirement. These factors, often referred to as sustainability factors, link future pension levels to demographic trends and play a role in, for instance, Germany, Austria or Portugal. It is important to stress that only pension reforms which have already been enacted in the base year for calculations should be taken into account.

Once final earnings have been accurately defined and valorised, $B^{accrued}$ at the point of retirement can be estimated. An example for the estimation of $B^{accrued}$ at the point of retirement in final-earnings pension schemes (applying the hetCC approach) is provided in Box 16.

Box 16

Estimation of accrued pensions in a final-earnings pension scheme

The following case study illustrates how to estimate annual accrued-to-date pensions at retirement in a final-earnings pension scheme. Take the case of a 50-year-old male contributor who is a member of a final-earnings pension scheme. The individual pension received at the point of retirement (P) will depend on the number of contribution years (C), the valorised final earnings of the year before retirement (FE) and on an accrual rate of two percentage points. Equation 24 provides a formal outline of the applied benefit formula.

$$(24) \qquad P = FE * C * 2\%$$

To keep the description simple, it is assumed that all contributors retire at the legal retirement age of 65. Moreover, it is assumed that reference earnings are wage-indexed up to the year of retirement. The example assumes constant future wage growth of 1.5 % (in real terms). In the base year, the representative contributor earned a salary of EUR 20,000. In the case of the ABO approach, this would be applied as FE. However, as pension entitlements will be based on the PBO approach, future wage increases need to be taken into account, requiring an earnings projection. According to this projection the representative contributor will earn an (expected) annual salary of EUR 30,000 (in real terms) in the year before his retirement. Of course, in line with the benefit formula, these final earnings need to be valorised to the year of retirement. Here the valorised FE would amount to EUR 30,450 EUR (= EUR 30,000 * 1.015) in real terms. Furthermore, this contributor has collected 30 contribution years until the base year.

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(25) $B^{accrued}_{50,male,65} = 30{,}450\,€ * 30 * 2\% = 18{,}270\,€$

These inputs yield an estimate of the level of $B_r^{accrued}$ at the future point of retirement *r* — as presented in Equation 25. In this example, the 50-year-old male contributor would be entitled to an annual pension benefit of EUR 18,270 at his (expected) retirement age of 65.

III. Estimation of accrued pensions in pension account schemes

In recent years, final earnings benefit formulas have been replaced in many countries by a pension account scheme. The characteristic of these schemes is that individual contributions are directly converted and recorded in an individual pension account (PA). Individual accounts are explicitly taken into account in the benefit formula — see Equation 26. This aspect distinguishes them from final earnings schemes.

(26) $B_r^{accrued} = benefit\ \ formula(PA)$

In pension account schemes, accrued pension rights are reflected by the value of the PA in the base year. In line with the ADL approach, pension rights accrued in future years are not taken into account. The degree to which the level of the pension accounts translates into future pension payments depends on the pension formula used. Pension account schemes can be divided into: NDC, pension point and other pension schemes (as outlined below).

Pension account schemes — ***NDC pension schemes***; ***Pension point schemes***; ***Other pension account schemes***

The following description of the estimation of $B_r^{accrued}$ distinguishes between these three types of pension account schemes.

NDC pension schemes

NDC schemes are typical examples of pension account schemes such as those in Poland, Latvia, Italy or Sweden. In these systems, the amount of yearly individual contributions is directly transformed into an equal increase in individual pension accounts.[89]

[89] Characteristic for NDC plans is that their benefit formula mimics the build-up of pension accounts in DC plans. Similarly to DC schemes, individual accounts in NDC schemes already reflect to a certain degree the value of individual pension entitlements — at least of old age pensions. Against this background, one may argue that an estimation of pension entitlements based on a projection of future pension payments is not required in case of NDC schemes because pension entitlements should correspond to the value of the NDC account. However, this

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For the estimation of $B_r^{accrued}$ of current contributors, one has to take into account mainly two factors: 1) the NDC account ($PA_{b,r}$) of the base year *b* valorised to the future retirement age *r* and 2) the average remaining life expectancy LE_r at retirement age *r* (see Equation 27).

$$(27) \qquad B_r^{accrued} = \frac{PA_{b,r}}{LE_r}$$

As a first step, appropriate assumptions about the future retirement age *r* of current contributors are needed.[90] As a second step, the base year NDC account (PA_b) should be valorised until the future retirement age r to reflect future wage growth.

$$(28) \qquad PA_{b,r} = PA_b * \prod_{i=b+1}^{r} (1+v_i)$$

Usually, individual NDC accounts (*PA*) are adjusted annually in accordance with wage bill growth or GDP growth. The indexation rules applied are reflected in the annual valorisation factor v (see Equation 28). On the basis of these two steps, the level of $B_r^{accrued}$ may be estimated – as outlined in Equation 27 above.

Pension point schemes

Pension point systems, such as those in Germany or Slovakia, are also examples of a pension account benefit formula. In these schemes, individual earnings translate into pension points which are recorded on individual accounts.[91] The level of $B_r^{accrued}$ at the future point of retirement depends on 1) the total number of pension points accrued until the base year (TP_b) and 2) the valorised point value in the retirement year ($PV_{b,r}$).

$$(29) \qquad B_r^{accrued} = TP_b * PV_{b,r}$$

'non-projection approach' has a number of shortcomings. First of all, the results would not be comparable to the estimations of other countries which apply a (PBO) projection approach based on harmonised assumptions. With the above described 'non-projection approach' also cases where contributors die before retirement cannot be appropriately reflected. Furthermore, a projection is in most NDC schemes required since survivor's pension benefits are usually linked to old age NDC pensions. Against this background, a projection approach as described in Equation 27 should be applied for the calculation of NDC pension schemes. Only if this approach is not yet realisable for a start a 'non-projection approach may be acceptable for the estimation of current contributors´ entitlements. In other words under such circumstances the sum of individual pension accounts may serve as a proxy of total current contributors´ (old age) pension entitlements.

[90] For a further discussion on the choice of future retirement ages see Box .

[91] Generally, one pension point is accrued by contributors who earn in a certain year the average earnings in the economy. Higher or lower salaries result in increased or diminished pension point values per year.

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Generally, the level of PV is adjusted annually to the growth of average earnings in the economy. But other indexation rules are also possible. The valorisation factor *v* reflects the respective indexation rules for the annual adjustments of PV.

$$(30) \qquad PV_{b,r} = PV_b * \prod_{i=b+1}^{r} (1+v_i)$$

To take into account future wage growth, the PV of the base year is valorised until the future point of retirement *r* (see Equation 30).[92] $B_r^{accrued}$ may then be estimated as outlined in Equation 29 above.

Other pension account schemes

In all pension account schemes, accrued pension rights are directly reflected in individual accounts. These accounts are then explicitly considered in the benefit formula. Besides NDC and pension point schemes, there are also other forms of pension account schemes. One example is the UK civil service pension scheme, *Nuvos*. In this scheme, participants pay a certain percentage of pension earnings into a *PA* each year. In other words, the amount of yearly contributions is directly transformed into an equal increase in the individual *PA*. Finally, in the year of retirement *r* the initial annual pension payment equals the level of the *PA*.

$$(31) \qquad B_r^{accrued} = PA_{b,r}$$

For the estimation of $B_r^{accrued}$ it is necessary to valorise the base year pension account to the future point of retirement *r*. This procedure is outlined in Equation 32. In the case of the Nuvos pension scheme, the pension account value of a year *t* is increased in line with inflation to the following year *t+1.* In fact, under such price indexation, no future wage increases need to be taken into account. As a consequence, the results of the PBO estimation approach would equal the ABO outcomes. Of course, other annual adjustment rules, such as wage indexation, are possible. The valorisation factor *v* — in Equation 32 — reflects the indexation rule of the pension scheme analysed.

$$(32) \qquad PA_{b,r} = PA_b * \prod_{i=b+1}^{r} (1+v_i)$$

[92] For a discussion of the choice of the retirement age see Box 11Box .

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7.4.4 Estimating pension entitlements

In the sections above, the procedure to estimate the initial annual pension accrued-to-date $B_p^{accrued}$ was outlined — applying both a homogeneous (Chapter 7.4.2) and a heterogeneous contribution careers approach (Chapter 7.4.3). In other words, the calculation of the 'starting pension' of current contributors was described. On this basis, it is relatively straightforward to estimate pension entitlements of present contributors. First, the initial pension level $B_p^{accrued}$ at retirement year *r* is projected over the entire remaining retirement phase. This projection follows the same procedure described for current retirees. For the projection of current contributors´ benefits, (post-retirement) indexation rules also need to be taken into account. and future adjustments in the benefit formula have to be considered. A more detailed description of the projection of pension benefits over the remaining retirement phase is provided in Chapter 7.3.

On the basis of the benefit projection, $f\ (f = b + s - x)$ the annual pension benefit received by a current contributor can be calculated for any future year. To estimate the expected entitlements, future pension payments are weighted in a further step by the respective survival probabilities p. Finally, all future pension payments are summed up and discounted to the base year (see Equation 33 below).[93]

$$(33) \qquad \mathrm{E}_{x,g,b} = \sum_{s=x+1}^{D} B_{s,g,f}^{accrued} * p_{s,g,f} * (1+r)^{x-s}$$

An example of the procedure to estimate pension entitlements for current contributors is provided in Box 17.

Box 17

Estimation of pension entitlements of current contributors

This case study outlines the estimation procedure to calculate pension entitlements of current contributors. This example is used to calculate the pension rights of a 40-year-old male contributor, base year 2010. This individual is expected to retire at the age of 61 (in 2031). At the beginning of his retirement he can look forward to receiving a full pension benefit of EUR 10,000 (see first green bar, Figure 24), representing a pension payment after a full contribution career.

For the estimation of pension entitlements, however, only accrued-to-date pension benefits are

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taken into account. In the example given, the initial annual pension benefit accrued-to-date ($B_{y}^{accrued}$) will amount to EUR 5,000 (see first red bar, Figure 24). In other words, the 40-year-old contributor would be entitled only to half of his future (expected) full pension. This proportion has been estimated on the basis of the homCC approach, described in Chapter 7.4.2.

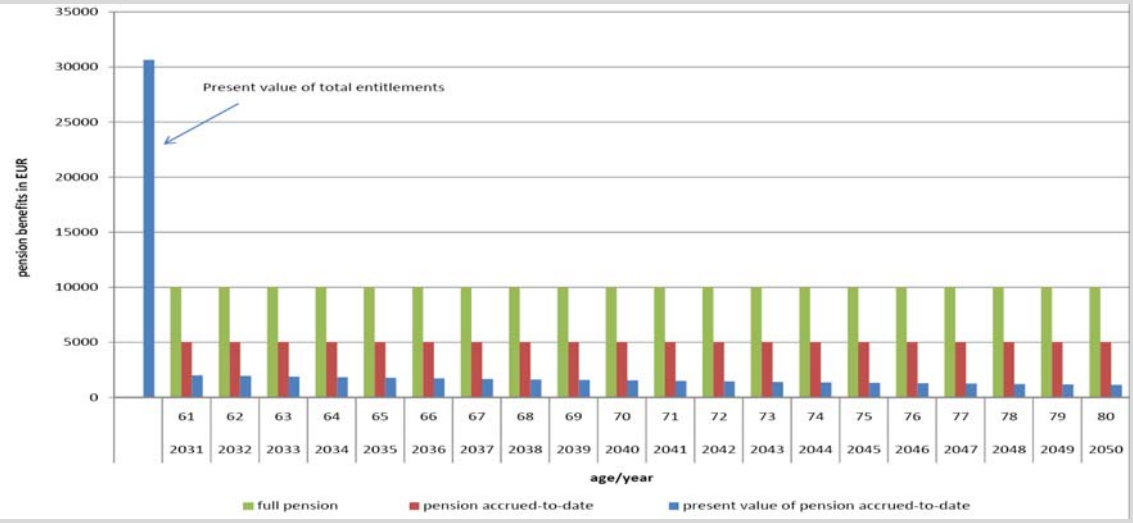
Pensions are paid until his expected death after the age of 80 (after 2050). To keep the case study simple, all values are calculated in real terms and price indexation is assumed. According to these assumptions, he can expect to receive the value of the initial pension over his entire retirement.

The aim is to calculate pension entitlements in the present value terms of the base year. All future accrued pension payments are therefore discounted. Since these future flows are paid out in the far future, in 20 to 40 years they are heavily discounted (see blue bars in Figure 20). At this stage of the estimation, an important aspect becomes apparent. Younger contributors especially have accrued only relatively little pension entitlement. This can be explained by two factors. First, their future pension payments are paid out in the far future, and are therefore heavily discounted. Secondly, they have accrued only a relatively small proportion of their full pension. Therefore, younger cohorts play only a minor role in the total of pension liabilities. This aspect should be kept in mind when setting up a pension model. It is important to focus especially on the estimation of pension entitlements of present pensioners and older contributors, since they have the largest impact on the total value of pension liabilities.

Finally, all discounted accrued-to-date pension payments are accumulated to obtain the stock of pension entitlements. For the example of the 40-year-old male contributor, these pension rights would amount to about EUR 30, 000 in the base year (see blue bar to the far left). Analogously, for all other age groups, pension rights should be calculated and projected differentiated by gender.[94]

Figure 24

Estimating pension entitlements of current contributors



Source: Forschungszentrum Generationenverträge, University of Freiburg.

[93] Please note that Equation 33 equals Equation 5. For a description of the used parameters and variables see, therefore, Equation 5.

[94] In the given example it was so far assumed that current contributors reach with certainty the age of retirement. This is of course not a realistic presumption since a certain, though, small proportion of contributors is expected to die before they can receive any pension benefits. The aim of the estimations is to calculate the expected pay-out of pension benefits. Therefore, the mortality of current contributors should be taken into account by weighting the final pension with the probability to reach the respective retirement age. This aspect is considered in Box 18 with the probability to die before retirement.

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7.4.5 Differentiation by type of pension

As outlined in Box 3, the supplementary table covers various types of pensions. The most significant category for the estimation of entitlements is old age pensions. Generally, the largest amount of pension expenditure and entitlements is determined by this type of pension. However, disability, early retirement, widows' pensions and orphans' pensions should also be considered in this new table of national accounts. As an example Table 4 displays the breakdown of aggregate payments by type of pension for the social security pension scheme in Slovakia.

Table 4

Differentiation of aggregate payments by type of pension — the example of the Slovakian social security pension scheme

Type of pension payments	Pension payments SKK billions, 2007
Total of pension payments	**126.519**
Old age pensions	96.148
Disability pensions	15.380
Survivor pensions	14.991

It is desirable to distinguish among pension types, for two main reasons: the benefit formula and the resulting pension levels may vary considerably between pension types; and the duration for which participants receive a specific benefit may vary significantly by pension type. While old age pensions, for instance, are granted until death, disability benefits are usually paid until the legal retirement age or the death of the beneficiary.[95] Box 18 outlines how to differentiate the calculation procedure by pension type.

In some countries, however, the data and resources to differentiate by pension types in making the calculations may not yet be available. In such cases, it is best to focus on the calculation of old age pension entitlements, due to their relative importance (see Table 4): a detailed estimation of disability and survivors' pension entitlements (for current contributors)[96] may initially be disregarded.[97] Under such circumstances, the final old age pension

[95] Also pension type specific survival rates may represent a reason to differentiate the calculation by pension type. E.g. survival rates of disabled individuals ($p_{x,5}^{disab}$) may deviate from the average survival rates applied for old age. If possible — as outlined already in section 5.3.1 — such pension type-specific survival rates should be taken into account.

[96] For present pensioners the estimation procedure is more straightforward. For this group a differentiation in the course of the calculations by pension type should, possibly, always be applied.

[97] For the development of a pension model it should always be taken into account which factors play the most decisive role for the final results. Generally, about half of pension entitlements are accrued by current

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entitlements of a current contributor should be rescaled by a factor reflecting the ratio of the total aggregate pension payments and the aggregate of old age pension payments in the base year.[98]

Box 18

Differentiation of estimations for current contributors by pension type

The aim of the calculations is to estimate entitlements for different types of pension: old-age and early retirement, disability and survivors' pensions. The calculation procedure should distinguish between these pension categories. This approach is explained below. The description is provided for a homCC approach. But it is also applicable for a hetCC approach after the consideration of a few minor modifications.[99]

Pension entitlements of current contributors should reflect the fact that these individuals retire with a certain probability q^{old} at age d, but also that they may become disabled or may die with a certain probability at an age d. Their pension rights should represent the probability-weighted sum of entitlements for each of these pension types. Equation 34 provides a formal outline of the estimations differentiating by pension type. The formula reflects heterogeneous retirement ages $d\,(x+1 \le d \le D)$.[100] For every d the accrual factor $\lambda_{x,g,d}$ is calculated. Moreover, the present value of the expected payment stream PV is calculated for each type of pension considering the type-specific survival rates *p* and pension benefits *B*.

$$(34) \qquad E_{x,g,b} = \sum_{d=x+1}^{D} [\lambda_{x,g,d,b} * [q^{old}_{x,g,d,f} * PV^{old} + q^{disab}_{x,g,d,f} * PV^{disab} + q^{surv}_{x,g,d,f} * PV^{surv}]$$

$$PV^{old}_{x,g,d,f} = \sum_{s=d}^{D^{old}} (p^{old}_{s,g,m} * B^{full,old}_{s,g,d,m} * (1+r)^{x-s})$$

$$PV^{disab}_{x,g,d,f} = \sum_{s=d}^{D^{disab}} (p^{disab}_{s,g,m} * B^{full,disab}_{s,g,d,m} * (1+r)^{x-s})$$

$$PV^{surv}_{x,g,d,f} = \sum_{s=d}^{d+D^{surv}} p^{surv}_{s+u^{surv},g^{surv},m} * B^{full,surv}_{s,g,d,m} * (1+r)^{x-s}$$

where

$\lambda_{x,g,d,b}$ = the accrual factor of a participant of age *x* and gender *g* in the base year b who retires/becomes disabled or dies at age d,

$q^{old}_{x,g,d,f}$ = the probability of a x year old to retire at an age d and to receive B^{old} in a future year f $(f = b + d - x)$.[101]

contributors. Of these half about 70 per cent are old age pension entitlements. Old age pensions are therefore rather significant for the final level of pension entitlements while disability and survivors' pensions play a less important role. One may conclude that 'only' about 15 per cent of overall pension entitlements are calculated not in depth when disregarding disability and survivors' pensions of current contributors.

[98] This rescaling approach has been applied e.g. by Holzmann et al. (2004), see p.34. In the Slovakian example shown in Table 4 the rescale factor would amount to about 1.3. In this example it is assumed that only old age pension have been calculated in detail by the actuarial model. Of course, it also imaginable that further types of pensions (besides old age pensions) can be estimated in detail and fewer categories have to be disregarded. In this case the rescale factor would consequently decrease. .

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$q_{x,g,d,f}^{disab}$ = the probability of a x year old to become disabled at an age d and to receive B^{disab} in a future year f,

$q_{x,g,d,f}^{surv}$ = the probability of a x year old to die at an age d and to have a surviving spouse/orphan who receives B^{surv} in a future year f,

$PV_{x,g,d,f}^{old}$ = the present value of the expected payment stream of old age and early retirement pensions after retirement at age *d* in future year f,

$PV_{x,g,d,f}^{disab}$ = the present value of the expected payment stream of disability pensions,

$PV_{x,g,d,f}^{surv}$ = the present value of the expected payment stream of survivors pensions,

$B_{s,g,d,m}^{full\ old}$ = the annual full old age or early retirement pension benefit at age s in year m after retirement at age d,

$B_{s,g,d,m}^{full\ disab}$ = the annual full disability pension benefit at age s in year m after the participant became disabled at age d.

$B_{s,g,d,m}^{full\ surv}$ = the annual full survivor's pension benefit at age s in year m after a participant died at age d,

m = a future year after retirement/disability/death $(m = b + s - x)$,

D^{old} = the highest possible age to receive B^{old}, i.e. the highest age considered in the calculations,

D^{disab} = the highest possible age to receive B^{disab},

D^{surv} = the number of years a spouse/orphan at age $d + u^{surv}$ can at most receive B^{surv},

$p_{s,g,m}^{old}$ = the probability of an old age pension beneficiary of gender g to survive an age s,

$p_{s,g,m}^{disab}$ = the probability of a disability pension beneficiary of gender g to survive an age s,

$p_{s,g,m}^{surv}$ = the probability of a survivor's pension beneficiary of gender g^{surv} to survive an age $s + u^{surv}$,

u^{surv} = the number of years, positive or negative, that when added to the participant's age (in the year of his death) gives the age of the surviving spouse (in this year).

[99] In case a hetCC approach is applied accrued pension benefits are estimated directly. Therefore, the accrual factor λ would be omitted. Furthermore, annual pension benefits B would reflect not a full pension but accrued-to-date pension payments estimated on the basis of past contribution data — as described in chapter 7.4.3.

[100] In case homogeneous retirement behaviour is assumed it is recommended to choose separately: 1) one average retirement age, 2) one average age to become disabled and 3) one average age to die during the time of contribution. For a further description on heterogeneous and homogeneous behaviour see Box .

[101] In various countries the entitlement of a pension is dependent on a minimum period of membership or contribution in the pension system. For example, in Italy 20 years (for people insured before the year 1996) of contribution are necessary to receive a pension entitlement while in Belgium no minimum period of membership in the pension system is required. The variable q^{old} should possibly reflect the probability to reach the minimum periods of contributions, i.e. to be eligible to a pension benefit.

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The approach to calculating pension entitlements for average present pensioners (Section 7.3) and for average current contributors (Section 7.4) has been described). The distribution of pension entitlements for each age group and gender can then be estimated. The last step for estimating the total pension entitlements of a respective pension scheme is relatively simple. As outlined in Equation 35, all average pension entitlements calculated by age and gender in the previous steps need to be multiplied by the respective cohort sizes N in these groups. The sum represents the total of pension entitlements $\{TE\}$ in the respective scheme in present values of the respective base year *b*.

$$(35) \qquad TE_b = \sum_{s=0}^{D} E_{s,b}^{male} * N_{s,b}^{male} + \sum_{s=0}^{D} E_{s,b}^{female} * N_{s,b}^{female}$$

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8

Worked examples

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8 Worked examples

In this section worked examples are provided in order to complete the new supplementary table of national accounts. These case studies include the application of an actuarial model to estimate both the pension entitlements of social security pension systems (column H), and those of government employee pension schemes (column G) — see Section 8.1. Additionally, the use of business accounting data and regulatory data to compile the figures in columns A to C is described — see Section 8.2.

8.1 Using an actuarial approach to fill in columns G and H

The following section provides a worked example for the estimation of pension entitlements recorded in columns G and H. First, the so-called Freiburg model is outlined — which is applied to estimate these new figures in the national accounts. Thereafter, the outcomes of the actuarial approach will be presented using the example of the German supplementary table of 2007.

The Freiburg model has been developed to make benchmark calculations of pension entitlements on behalf of the Eurostat/ ECB Contact Group on Pensions.[102] The starting point for the Freiburg model is the method of generational accounting.[103] This method can be used for a wide variety of purposes. For this project, the method is applied to government-managed pension schemes[104] in isolation and to a group of existing retirees and current contributors (future retirees) only.[105] Additionally, the standard method is modified to account for the amount of benefits accrued to date, instead of considering future pension benefits in total. These calculations include old-age pensions, disability pensions and survivors' pensions. Any kind of means-tested social assistance is excluded wherever feasible. In order to estimate the entitlements of current contributors, the approach is based on the homCC approach described in Chapter 7.4.2. However, the Freiburg model may also be applied to a hetCC approach as outlined in Chapter 7.4.3.

[102] The model has been applied for 19 EU countries. For an outline of the results see Müller et al. (2009).
[103] This method was developed by Auerbach et al. (1991, 1992 and 1994). See Raffelhüschen (1999) and Bonin (2001) for a detailed depiction of theory and application as well as limitations of the method of generational accounting.
[104] The terms 'public pension scheme', 'government pension scheme' and 'pension scheme in general government' are used as synonyms. However, we differentiate between two different types of schemes. The government employer pension scheme indicates a pension scheme for civil servants, whereas a social security pension scheme describes a general pension scheme. For a discussion of the definition of government pension schemes see Eurostat/ ECB Task Force (2008), p. 20 et seq.
[105] For a closer look on the application of generational accounting to public pension schemes see Müller et al. (2010) or Jablonowski et al. (2010) who employed the concept of open-system net liabilities to investigate the sustainability of the German and the Polish statutory pension scheme respectively.

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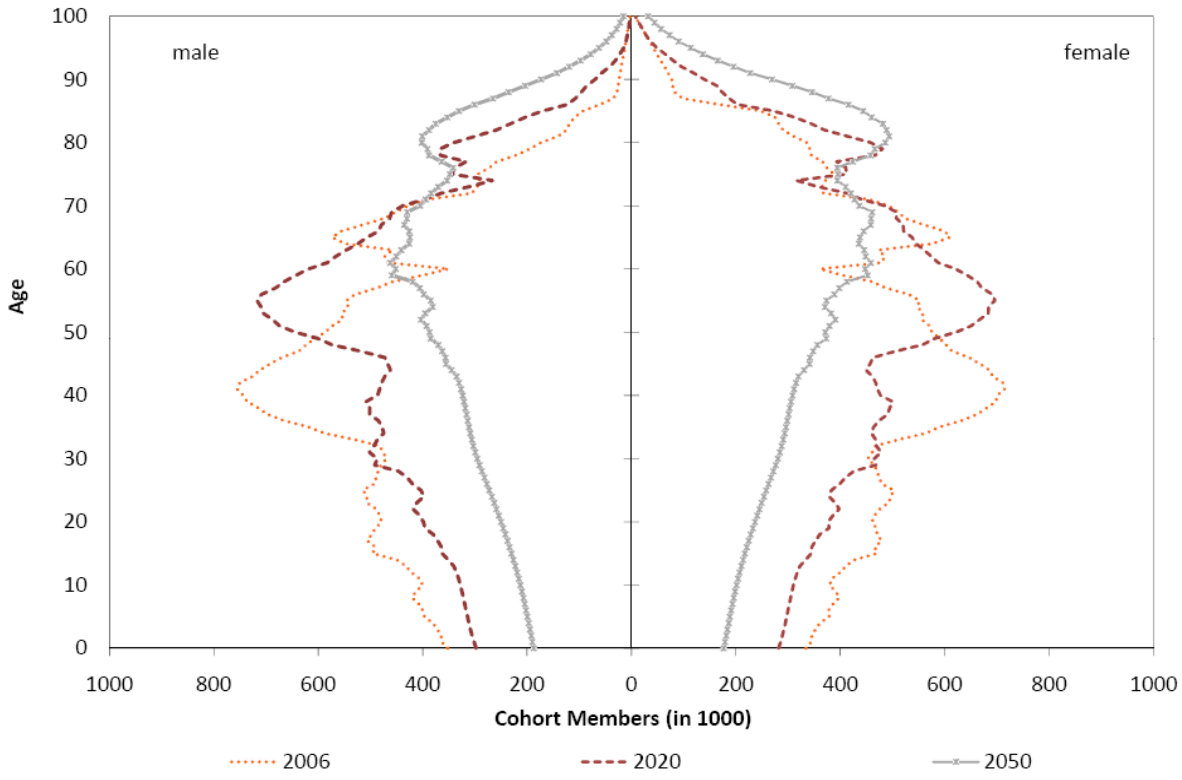
The core presumption is a projection of per capita future pension benefits based on those of today's existing retirees: the entire calculation procedure is set out in the five steps described below.

Step 1 — Population projection: Age-sex-specific projections of the base year's population need to be calculated. The demographic model used to generate these projections is based on a discrete and deterministic formulation of the cohort component method.[106]

In general, the three major determinants of future population changes are fertility, mortality and migration. Since ADL only take into account rights accrued by existing and former workers before the base year, the future migration of the base year population is irrelevant. The development of survival rates is examined by adjusting the initial set of survival rates using an exponential adjustment procedure.[107]

Figure 25

Projected German population



Source: Source: Forschungszentrum Generationenverträge, University of Freiburg, based on data provided by Eurostat.

The population data used for the calculation come from Eurostat. Also the assumptions on the future trend in life expectancy are based on data provided by Eurostat, i.e. the

[106] For a detailed description of the demographic model applied see Bonin (2001), p. 245 et seq.
[107] This procedure is suggested by Pflaumer (1988). See also Bonin (2001), p. 248.

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Eurostat population projection (EUROPOP). Both declining fertility rates and the ongoing and fairly steep increase in life expectancy have led to a significant ageing process in Germany. As a result, the configuration of the German population pyramid will change considerably in the coming decades. Figure 25 illustrates the outcomes of the population projection for the years 2006, 2020 and 2050 as examples.[108]

Step 2 — Projecting the pensions of existing retirees: The projection starts by estimating the benefits of the average age-sex-specific existing retirees in the base year. As mentioned above, the projection of these pension benefits is the centrepiece of the calculations, the accrued pension benefits of the future new retirees are developed by changing the benefits of the existing retirees. Please note that *future new retirees* include all individuals who retire after the base year, while *existing retirees* are already in retirement in the base year.

It has to be emphasised that these calculations look only at average individuals within the respective age groups, i.e. they are not separated into different income groups. In fact, the calculation of age-sex-specific benefits is separated into existing and future new retirees, assuming that an average representative of an age group is to some extent an existing and a future new retiree in every year of his or her life-cycle.

The example of a 65 year old average representative may make this easier to understand. At this age this representative individual is to a large extent already retired, as he/she is an existing retiree. Nevertheless, with the concept of the representative individual, the fact is also taken into account that — although the probability is low — the 65 year old average representative may not retire until he/she is aged 66 or older. Hence, the average 65 year old taken as an example in the calculations is also to some extent a future new retiree.

Generating age-specific pension profiles

Before going further into detail, the projection approach for the benefits of existing retirees is outlined here. First of all, the benefits are calculated by distributing the aggregated amount of today's pension expenditure to the different cohorts of retirement age. This procedure creates a cross-section profile of age-sex-specific benefits generated from the budget and micro data of the observed country, in this case Germany.

Figure 26 shows an average rescaled[109] profile of existing retirees' benefits for living male cohorts in the year 2006.[110] This profile reflects heterogeneous retirement behaviour.[111]

[108] In line with the ADL concept future migration is neglected.

[109] The profiles are rescaled in a way that the aggregates based on micro-profiles and population data correspond to the respective government budget aggregates in the base year. This rescaling approach is described in further detail below.

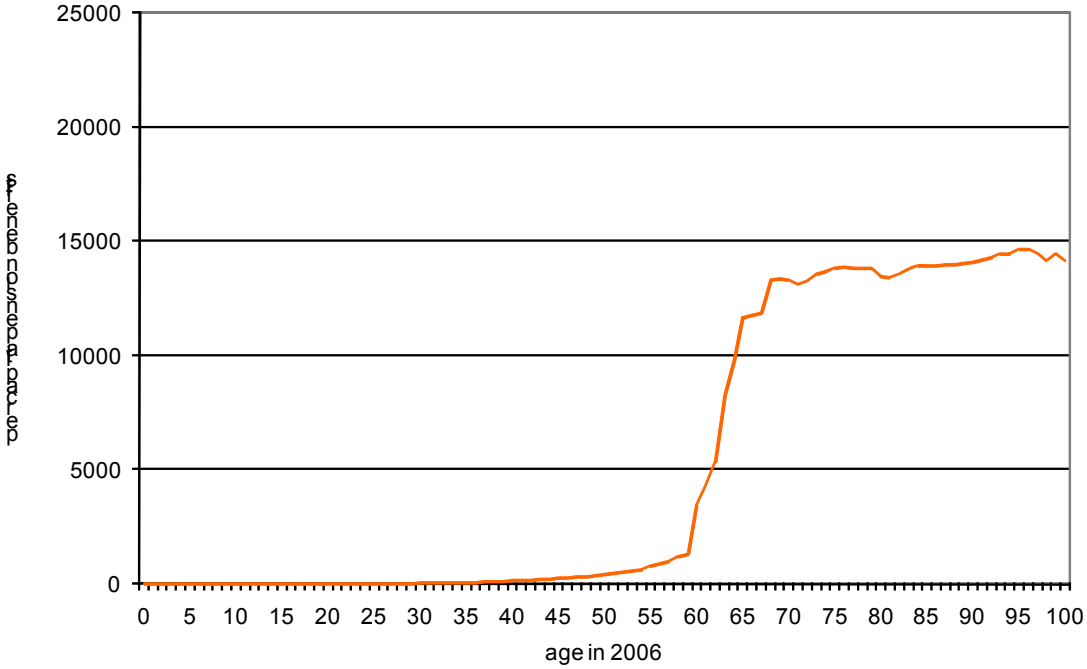
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Benefits are measured in per capita of the population units. In other words the pension benefits $p_{b,k}$ (in the base year b of the cohort born in k) of a x $(x=b-k)$ year old representative residing in the respective country in a given base year are quantified.[112] Formally (see Equation 35), $p_{b,k}$ is derived by multiplying the average pension benefit of a scheme's retiree $B_{b,k}$ of a certain age x by the number of scheme retirees at this age $M_{b,k}$ and dividing this product by the cohort size of the overall population.

$$(35) \qquad p_{b,k} = \frac{B_{b,k} * M_{b,k}}{C_{b,k}}$$

Figure 26

Rescaled profile of average existing retirees' benefits in 2006 (Social security in Germany, men, EUR)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Typical of most European pension schemes is the sharp increase in the pension profile around the age of 60. A steep rise of this type can also be observed in the German example (see Figure 26). It mainly reflects an increasing share of pension cases, because

[110] For illustrative reasons we only show here a male profile. For the calculations also a female profile was applied.
[111] For a description of heterogeneous retirement behaviour see Box . Most former surveys apply one constant average retirement age for their calculations instead of an age-sex-specific pension profile. From our point of view, this approach represents a simplification of retirement behaviour and leads to less accurate results.
[112] Since our projection method does not correct aggregates for business cycle effects, base year economic performance is perpetuated indefinitely. This may lead to a bias. Nonetheless this effect seems not as critical in case of considering pension expenditure only since they are for the most part dominated by demography.

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the probabilities of retirement around the age of 60 are relatively high.[113] It should be noted that the profile also reveals other age-specific characteristics, namely the average rate of participation in the respective pension scheme (in per cent of the population) as well as the average pension benefits at a given age ($B_{b,k}$).

The profiles applied include payments in respect of old-age pensions, disability pensions and survivors' pensions.[114]

Rescaling the pension benefits of existing retirees

Formally, the estimation of the existing retirees' benefits is based on the following identity:

$$(36) \qquad P_b = \sum_{k=b-D}^{b} p_{b,k} C_{b,k}$$

This identity states that the sum of age-specific individual pension benefits $p_{b,k}$ (in the base year b of the cohort born in k) weighted by the cohort size $C_{b,k}$ must equal the corresponding overall aggregate pension expenditure, denoted by P_b.[115] The problem of Equation 36 is that it applies only in theory. While macroeconomic data – which are, typically taken from national accounting statistics - are relatively exact, micro data are generally difficult to gather and often inaccurate. To resolve this problem, re-scaled age-sex-specific benefit profiles are estimated in two stages. First, age-sex-specific information regarding per capita pension benefits has to be collected in order to calculate the relative fiscal position of different age groups as accurately as possible. The vector of relative pension benefits by age taken from the statistics, ($\tau_{t,t-D}, \ldots \tau_{t,k}, \ldots, \tau_{t,t}$), is then denoted by $\tau_{t,k}$.[116] This vector is supposed to show only the relative pension position in period t of an individual born in the year k, and thus imposes a lesser restriction on the accuracy and availability of micro data at the absolute level. Second, the estimated relative age distribution is checked against the corresponding aggregate pension benefit P_b by the application of a proportional, non-age-specific benchmarking factor, denoted by φ. The relative distribution of pension payments is re-evaluated according to

$$(37) \qquad p_{b,k}^{rescal} = \varphi \tau_{b,k}$$

for all living generations $b\text{-}D \leq k \leq b$, where φ is defined by

$$(38) \qquad \varphi = \frac{P_b}{\sum_{k=b-D}^{b} \tau_{b,k} C_{b,k}}.$$

[113] At this point it is worth mentioning that we employ age-sex-specific pension data which is broken down into one-year intervals. Most former surveys use five-year interval data which can lead to inaccuracies especially when looking at the cohorts retiring in.
[114] In doing so, we are able to take into account survivor pensions in a rather accurate way, compared to most other surveys dealing with the measurement of pension liabilities.
[115] Please note that D represents the maximum age of an individual which is 100 years by our assumption.
[116] For ease of notation we drop the sex-specific notation as from now on.

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Equation 38 ensures that Equation 36 is finally satisfied. On the basis of the rescaling factor φ, it is ensured that the micro pension data match the given macro data.

Projecting the pension benefits of existing retirees

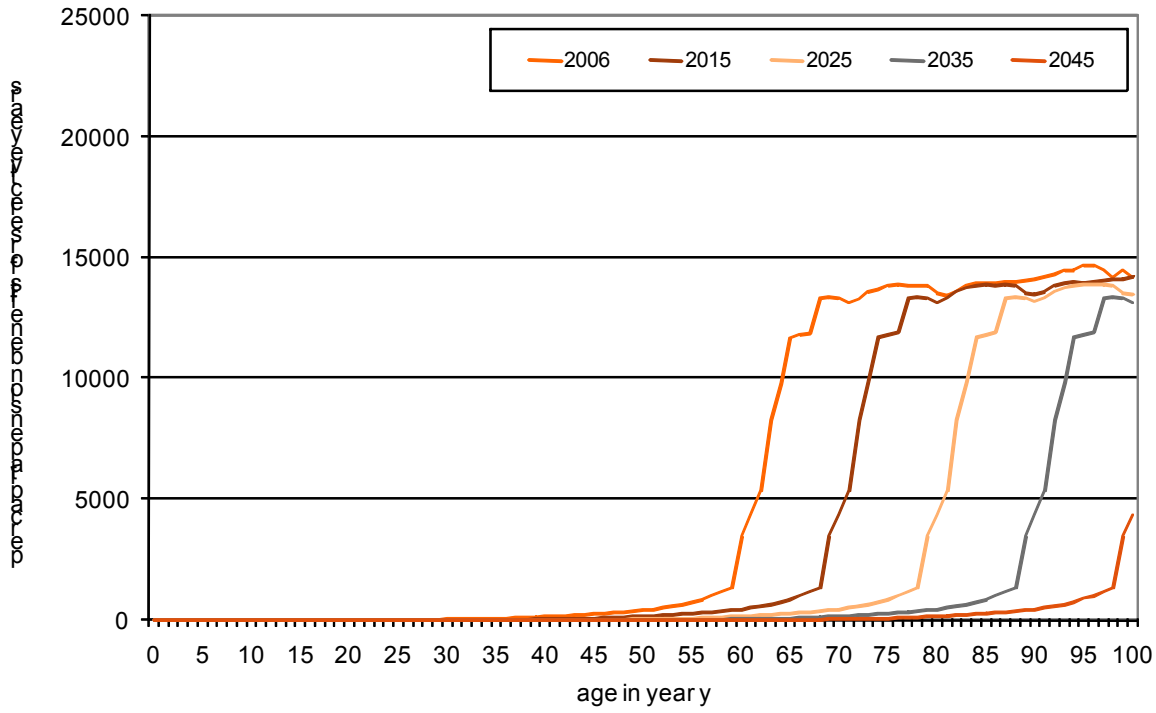
Lastly, the resulting rescaled average age-sex-specific benefits of existing retirees' are projected according to the indexation rules of the respective country:

$$p_{t,k}^{exis} = p_{b,k}^{rescal}(1+g)^{t-b}, \quad (39)$$

for all cohorts $b\text{-}D \leq k \leq b$ living in the base year. This Equation 39 states that an individual already retired in base year b receives the same pension in a specific year t as in the base year b, only corrected by the indexation g of a pension in payment. In the case of the German statutory pension scheme, pensions are adjusted annually to wage growth. For the calculations, a real wage growth rate of 1.5 per cent is applied.

Figure 27

Phasing out the average profile of existing retirees' benefits from 2006 to 2045 (Social security in Germany, men, EUR)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Equation 39 also involves a 'phasing out' of the stock of existing pension benefits, since it applies only to all living generations. Thus, the pensions of all existing retirees for the base year will have disappeared at the latest when the youngest existing retiree of the base year is dead. To account for this future cohort-specific development of the pension benefits of existing retirees, the rescaled age-sex-specific existing retirees' profile is

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phased out year-by-year and the pension benefits are indexed according to the benefit formula (see Figure 27). Consequently, the pension benefit of a 65 year old existing retiree in base year 2006, for example, would equal the pension benefit of an 84 year old existing retiree in 2025, disregarding indexation effects.[117] In year 2045 the 65 year old representative in the base year would be 104 years old. However, his benefits in that year would be disregarded, since the calculations do not take account of any payments after the age of 100.

Step 3 — Projecting the pensions of future new retirees: The age-sex-specific pension profile for future new retirees, which is the basis for the estimation of accrued-to-date entitlements, is calculated by manipulating existing retirees' benefits in the base year. This is done in five stages. First, the difference of the existing benefits for consecutive age groups (during the base year) provides the pension benefits for new retirees in the base year.[118] This provides the basis to estimate pension benefits for new retirees in future years. In a third step, pension benefits for new retirees are evaluated for a specific year *t.* Thereafter, if necessary, future new pension benefits are altered by a deduction factor defined, for example, by a pension reform. As a fifth and last step, the cumulated average benefits of future retirees are calculated by totalling year-by-year the benefits of new retirees, which explains why an individual can receive a new retiree benefit on average for any future year *t*.[119] All of these four steps will be described in greater detail below.

Estimation of pension benefits for new retirees in the base year

First, the pension benefits for new retirees in the base year are estimated. Formally (see Equation 40), the new retirees' benefit $p_{b,k}^{new}$ in the base year *b* for a cohort *k* is generated by calculating the absolute change in existing retirees' benefit $p_{b,k}^{exist}$ of the cohort *k* to the cohort one year younger in the base year, namely *k+1*.[120]

$$p_{b,k}^{new} = \left[p_{b,k}^{exis} - p_{b,k+1}^{exis} \right] \quad (40)$$

This example estimates the average pension benefit of a 60 year-old new retiree in the base year 2006, that is a representative of the cohort born in 1946 (*k=1946*). From the pension data of existing retirees we know that an average male individual of the population

[117] Please note that for illustrative reasons in all figures wage growth rates have been set to zero. Correspondingly, no pension indexation effects can be observed in the figures.
[118] Note that new retirees' benefits represent those benefits that are paid for the first time upon retirement in a specific year *t>b*.
[119] The separation of existing pensions and future new pensions (pensions paid out for the first time after the base year) bears one big advantage: In case of a pension reform which affects only future pensions, only these pensions are changed while existing pensions are held constant.
[120] Changes after the age of 67 years are generally set to zero since new retirees' old-age benefits after the age of 67 are negligible. The only exception from this rule is widow's pensions.

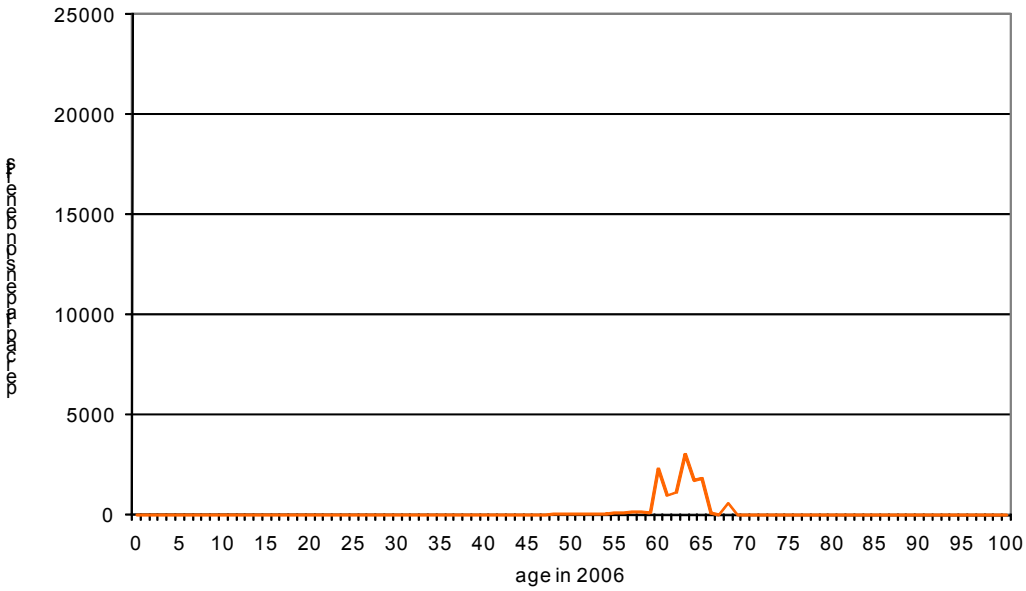
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at the age of 59 (i.e. of the cohort *k+1=1947*) received a pension benefit of EUR 1,300[121] in 2006. This figure reflects all pensioners who retired at the age of 59 or earlier. The male cohort that is one year older, i.e. born in 1946 and aged 60, received an average pension of EUR 3,500 per capita. This pensioner aged 60 is assumed to have been to some extent a new pensioner in 2006 and to some extent an existing pensioner — who already retired before the age of 60. So the pension benefit of EUR 1,300 — which reflects pension benefits of pensioners who retired at the age of 59 or earlier — is allocated to existing pensioners. The remaining increase of the average pension from the age of 59 (EUR 1,300) to 60 (EUR 3,500) is accorded to new retirees entering at the age of 60. In line with Equation 40, the benefit received by new retirees at the age of 60 in base year 2006 would amount to EUR 2,200.

Figure 28

Rescaled profile of average new retirees' benefits for 2006

(Social security in Germany, men, EUR)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

The same estimation procedure as for the example of the 60 year old new retiree in the base year is applied to all relevant age groups from the age of 0 to 100.[122] Figure 28

[121] It should be once again underlined that this figure does not represent the average pension benefit of a 59 year old retiree. In fact, it quantifies the amount of pension payments an average male representative of the overall population receives at the age of 59. This representative individual is with a high probability not yet retired — which explains the relatively low average pension benefit of EUR 1,300 per capita.

[122] We consider only differences until the age of 67. After this age, new retirees' benefits are negligible This treatment allows designing maturation effects for future retirees' cohorts and is necessary since the existing retirees' benefit profile after the age of 67 is not a good predictor for future retirees' benefits. This is due to the fact that both average benefits and the share of pension cases vary substantially across existing retirees cohorts reflecting past differences in working careers. Note that this proceeding nonetheless maintains base year economic structures for new retirees indefinitely. In particular, the analysis thus abstracts from changes in labour force participation and unemployment rates for future new retirees' benefits. Please note that this does not count in case the age-sex-specific survivor pensions are available. In this case we consider the difference of the rescaled base year profile until the age of 90 in order to take into account widow's pensions in a more

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illustrates the resulting profile of average benefits of new (male) retirees for the year 2006. This profile reflects the average pension payment per capita of the population of a male individual at age *x,* who retires in 2006. The shape of this profile is mainly determined by the probability of retiring at age *x*. The kinks at the ages of 60 and 63 indicate that the highest probabilities of retiring can be found at these ages.

Estimation of pension benefits for new retirees in a future year

So far we have estimated the age-specific pension benefits of new retirees in the base year. For future years this profile remains constant, i.e. the base year retirement behaviour continues in the years to come.[123] As a consequence, the pensions of new retirees in future years *t* are estimated in the same way as in the base year (see Equation 41, step 2). Only the notation of the respective cohorts is slightly altered and now linked to the future year *t* and the base year *b*. Accordingly, a new retiree's benefit $p_{t,k}^{new}$ in a specific year *t* of a cohort *k* is developed by calculating the absolute change in the benefit of the existing retirees of the cohort *b-(t-k)* (the cohort with the same age *(t-k)* in the base year *b)* to the cohort one year younger in the base year, namely *b-(t-1-k)*.[124] Equation 41 sums up the calculation of pension benefit for future new retirees in a given future year *t*:

$$(41) \qquad p_{t,k}^{new} = \underbrace{\left[p_{b,b-(t-k)}^{exis} - p_{b,b-(t-1-k)}^{exis} \right]}_{Step\ 2} * \underbrace{(1+v)^{t-b}}_{Step\ 3} * \underbrace{\theta_{t,k}}_{Step\ 4}$$

for all cohorts $b\text{-}D \le k \le b$.

Added value of the pension benefit for a future new retiree

The third step takes into account the fact that past pension rights are re-valued annually according to the benefit formula.[125] As a result, in most pension schemes the pension benefits of new retirees in year t+1 will be higher than in the previous year t. This aspect is reflected by the valorisation rate $(1+v)^{t-b}$ (see Equation 41, step 3). The variable *v* is the valorisation factor calculated according to the benefit formula.[126]

accurate way. After this age, the data usually is non-representative due to small numbers of cases in the age cohorts above 90.

[123] Only in some cases where a future increase of the legal retirement age has been legislated, we alter future retirement behaviour respectively.

[124] Changes after the age of 67 years are generally set to zero since new retirees' old-age benefits after the age of 67 are negligible. The only exception from this rule is widow's pensions.

[125] In some pension schemes past earnings are valorised in other schemes so called pension points during the contribution career are yearly adjusted. In NDC schemes individual accounts are annually valorised. Usually, the valorisation of such past pension rights — whether reflected by reference earnings, NDC accounts or pension points — is linked to wage growth.

[126] Usually, the valorisation rate is linked to the wage growth.

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Pension reforms

The majority of European government-managed pension schemes have introduced wide-ranging reforms in recent years which will lower future pension benefits. In a fourth step, the benefits of future new retirees' are therefore reduced accordingly by a deduction factor $\theta_{t,k}$ (see Equation 41, step 4). This factor reflects already implemented pension reforms, such as the raising of the legal retirement age in Germany from 65 to 67.

Estimating the cumulated benefits of future new retirees

Lastly, the accumulated future benefits of new retirees need to be calculated. This fifth step cumulates year-by-year all future new pension benefits of an *x*-year-old representative (in the base year) during his remaining life cycle. Thus, for example, a 59 year old representative (in the base year) will have a certain probability of retiring at the age of 60, 61 and so on. Formally, this is done by cumulating year-by-year $p_{t,k}^{new}$ according to Equation 42. The accumulated age-sex-specific future pension benefits $p_{t,k}^{fut}$ of a retiree for a specific year *t* of the cohort *k* are defined as follows:

$$p_{t,k}^{fut} = p_{t-1,k}^{fut}(1+g) + p_{t,k}^{new}, \quad (42)$$

From this equation it follows that the average individual born in year *k* receives a future benefit in year *t* (*t*>*b*) which consists of the accumulated pension payment one period earlier (*t-1*) corrected by the pension indexation *g*[127] plus the pensions paid to new retirees in that year. In other words, a future new retiree (i.e. an individual who retired after the base year) in year *t* is to some extent a new retiree in this year *t* — receiving $p_{t,k}^{new}$ – and to some extent an 'old' retiree who has already received a pension benefit in the years before *t-1*. Thus, the age-sex-specific benefit profile for future retirees builds up year-by-year to project the future accumulated benefits of retirees.

Figure 29 shows the development of future retirees' pension benefits for selected years. An example is a 50 year old male future new retiree (in the base year 2006). He is increasingly likely to enter retirement in future years (after the base year). In particular there is a strong probability that he will retire between the ages of 60 and 65, as can be seen by looking at the kinks in the profile for the year 2006. In 2025 — when he is aged 69 — his accumulated future new pension benefits will amount to EUR 12,000. After the age of 69, i.e. after the year 2025, his probability of taking retirement is close to zero. This explains why, in the year 2035 (at the age of 79) or in the year 2045 (at the age of 89), the

[127] The growth rate g reflects the annual indexation of pensions. In Germany pensions are indexed to the wage growth. The impact of the sustainability factor needs also to be taken into account.

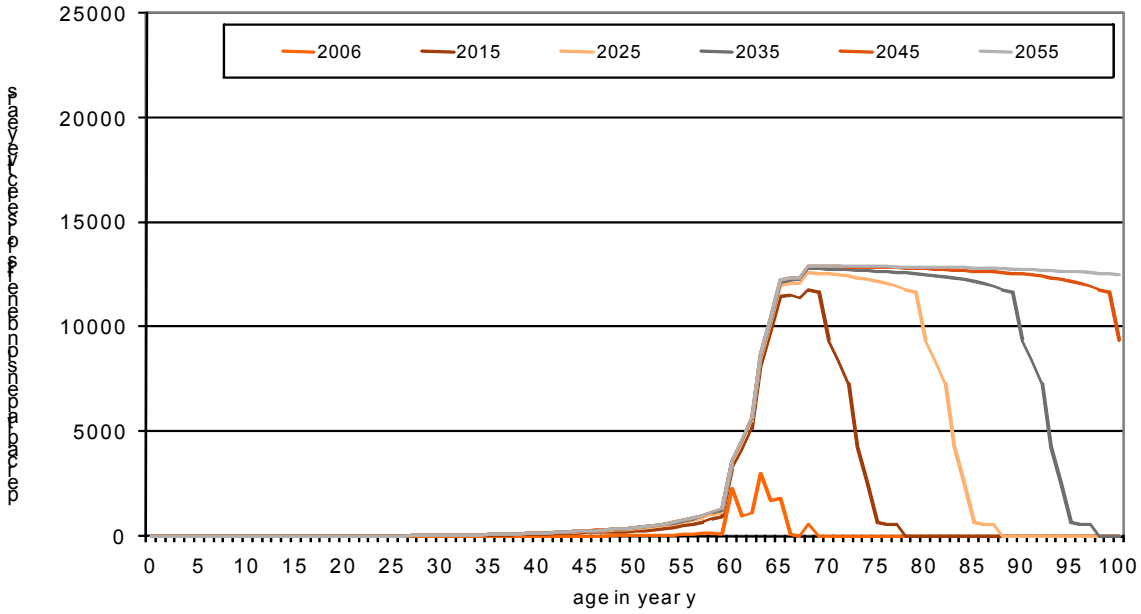
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amount of the accumulated future new pension benefits of this person is almost unchanged and equal to the level in 2025, which was roughly EUR 12,000.

As Figure 29 shows, after being built up almost completely the right to a full pension (year 2055), in the case of Germany his profile is considerably lower than the profile of existing retirees. This is due to reforms which will considerably lower future pension levels.[128]

Figure 29

Build-up of accumulated future new retirees' pension benefits profile from 2006 to 2055 (Social security in Germany, men, EUR)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Step 4 — Considering the proportion of full pensions accrued-to-date: Now, in order to meet ADL, only that part of the future pension benefits (of current workers) which is earned until the base year has to be considered. This means in turn that $p_{t,k}^{new}$ must be reduced by a factor $\lambda_{t,k}$ representing the cohort-specific amount of entitlements of current contributors in relation to the full entitlements.[129]

Future pension benefits are thus finally defined by

$$p_{t,k}^{fut} = p_{t-1,k}^{fut}(1+g) + \lambda_{t,k}\, p_{t,k}^{new}, \qquad (43)$$

for all cohorts *b-D* ≤ *k* ≤ *b.*

[128] For an overview of the considered reforms see Müller et al. (2009), p. 51ff.

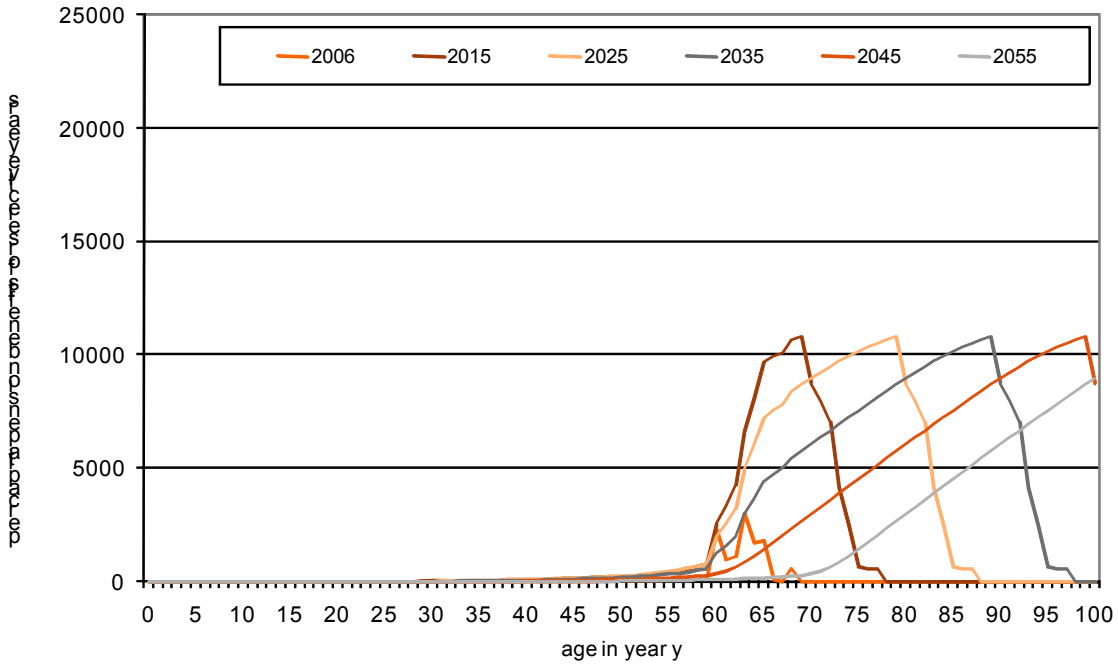
[129] The calculation of the factor $\lambda_{t,k}$ requires the knowledge of the average age-sex-specific wage distribution. Many other surveys work with one single average wage over the whole career which leads to different results.

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The reduction of future retirees' benefits to account for only the part that is accrued to date is outlined in Figure 30. Given that PBO is applied in this case, the benefits are cut in a linear manner according to the ratio of contribution years until base year to average contribution years until retirement.

Figure 30

Amount of average future retirees' pension benefits accrued to date Profile from 2006 to 2055 (Social security in Germany, men, EUR)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Note that the accrued-to-date concept requires a definition of the valorisation and accruing process for the entitlements. As a matter of principle there are several possibilities that have to be accounted for, including ABO and PBO. These two approaches, which applied in the Freiburg model, are described below.

Step 5 — Aggregating and discounting pension benefits: Finally, the ADL of the pension scheme are calculated by discounting and adding up the above projected pension benefits over the cohorts living in the base year. For the real discount rate, a value of 3 per cent has been applied.

Thus, the ADL_b (accrued-to-date liabilities of the base year b) can be expressed as follows:

$$ADL_b = \sum_{t=b}^{b+D} \sum_{k=b-D}^{b} \frac{(p_{t,k}^{exis} + p_{t,k}^{fut})}{(1+r)^{t-b}} C_{t,k} \quad (44)$$

This means that, in every period t, the pension benefits of the existing retirees ($p_{t,k}^{exis}$) and the pension rights accrued until the base year ($p_{t,k}^{fut}$) — which are both discounted by the factor $(1+r)$ for every future year $(t-b)$ — are multiplied by the number of members of this

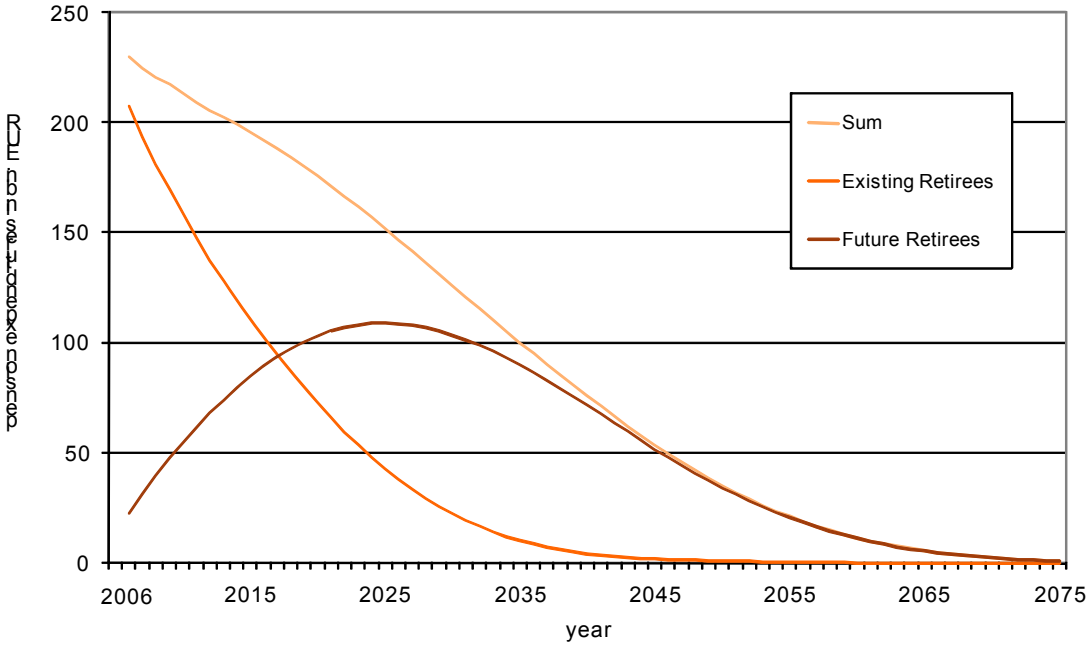
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age cohort $C_{t,k}$. This is done for each age group, beginning with those born in $k=b-D$, which goes back 100 years prior to the base year.

Figure 31 shows the development of the projected aggregates. The sum of the existing retirees' benefits decreases due to the phasing out of the profiles, i.e. due to the ageing of existing retirees. By contrast, the aggregated benefits of future retirees show an inverse u-shaped pattern, because the future retirees' benefits initially increase as a result of the building up of the profile. However, these benefits are reduced accordingly, since only the accrued-to-date amount is considered.

Figure 31

Future pension expenditure
(Social security in Germany, EUR billions, present value in 2006)



Source: Forschungszentrum Generationenverträge, University of Freiburg.

Implementation of ABO and PBO in the Freiburg model

As described previously in this chapter, pension entitlements are estimated by calculating future pension payments. In layman's terms this is done by projecting present age-sex-specific pension payments into the future, taking into account the indexation of the respective pension scheme plus any pension reforms which have already been decided and which will have an impact on future pensions. In order to receive the ADL of a pension scheme, it is crucial to divide the beneficiaries of future pension payments into two groups: The first group consists of those who are receiving pension payments today. The members of this group enjoy full pension entitlements because they have already retired

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and are unable to increase their pensions by paying contributions.[130] The pension payments of this group — the 'existing retirees' (or more precisely: persons who are already in retirement in the base year) — are accordingly projected in line with the relevant indexation until the last retiree dies.

The second group consists of persons who do not yet receive pension payments. They have earned some kind of pension entitlements in the past — regardless of whether they took up employment only one year ago or are close to retirement — and they will probably earn more pension entitlements in the future, up to the time when they retire. It follows that this group does not yet enjoy full pension entitlements. The ADL approach includes entitlements earned up to the base year only; therefore the projected future pension payments of a 'future retiree' (or more precisely: a person who will retire after the base year)[131] has to be reduced. This introduces the issue of ABO versus PBO:

New pensioners will enter the pension scheme in every year after the base year. The initial question to be answered is what will be the amount of the first paid benefit in relation to the new pensioners' benefits in the base year. Let the amount of first paid pension — sometimes referred to as the primary insurance amount (PIA) — in the year b be $B(t)$ and the constant per-capita wage growth in real terms be g. When applying the PBO approach, the first paid pension will be defined as follows:

$$B_t = B_t(1+g) \quad (45)$$

Since g is assumed to be constant over time, the first paid pension can also be expressed subject to the base year b.

$$B_{t+1} = B_b(1+g)^{t-b} \quad (46)$$

When changing to the ABO approach, it has to be borne in mind that no allowance is made for future pay increases. In the current case, only general wage growth is observed. It follows that the first paid pension of a future year *t* in the ABO approach changes to:

$$B_t = B_b \quad (47)$$

The difference between Equations 46 and 47 can be explained by the different approaches of ABO and PBO. The latter takes into account general future wage growth,

[130] This counts only for pension schemes which do not allow their beneficiaries to increase their pension after retirement, i.e. by taking up employment, paying contributions and thus augmenting their pension entitlements.
[131] Please note that 'future retirees' involve all individuals that retire after the base year. In contrast to this, 'new retirees' indicate individuals who retire in a certain year x in the future. Those individuals who retire in the year x will in that year enter the group of 'future retirees'. In the year x +1 they will still be 'future retirees' but not 'new retirees' anymore.

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while ABO does not consider any future changes of earnings; the wage level of the base year is kept constant in real terms.[132]

The second difference between ABO and PBO can be observed when reducing the initially calculated full benefits of 'new pensioners' according to the concept of ADL. The full benefits are reduced by a vector — the 'accrued-to-date vector' – which expresses the entitlements earned up to the base year as a share of the amount of entitlements which qualifies for a full pension. This share is given for every projection year. It is straightforward that the share decreases from a value close to one for primary pensions paid out shortly after the base year to a value of close to zero for primary pensions paid out in the distant future. This vector is multiplied by the respective accounts of full pension entitlements and the outcome is the amount of pension entitlements earned up to the base year for every projection year, known as the 'accrued-to-date entitlements'. The difference between ABO and PBO is shown by the different consideration of increases in personal earnings during the person's working life. Generally, the earnings at the beginning of a person's career are less than the average earnings and end up somewhere above average as the person comes closer to retirement. PBO takes this effect into account, ABO does not.

Regarding the accrued-to-date vector in the PBO approach, only the missing amount of contribution years has to be taken into account, given that the full pension primarily calculated by the model includes assumptions for both personal and general wage growth. In summary, the difference between ABO and PBO consists of two parts. The first part is general wage growth, which in most cases is connected to general economic growth. The second part is the development of earnings over the individual's career.[133]

Results of the Freiburg model — the supplementary table of 2007

Table 5 illustrates the results of the actuarial model, the non-core accounts of the supplementary table for Germany in 2007. A distinction is made between social security (column H) and government employee pension schemes (column G). The stocks of pension entitlements in these columns are estimated on the basis of the Freiburg model using the PBO approach.

[132] It is crucial that this only counts for the calculation of the first paid pension or PIA. When projecting a benefit which has already been paid out before, i.e. the indexation of existing benefits, a constant real wage growth is assumed. In this regard the ABO approach displays a schizophrenic world where in one situation future wage growth is considered and in the other it is not. Please note, that there are other interpretations of the ABO approach which do not consider (post-retirement) pension indexations.

[133] For a further description see also section 7.3.

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Table 5

Supplementary table for Germany

PBO, EUR billions, 2007

			Non-core national accounts (figures in bn. EUR)	
			Defined benefit schemes for general governemnt employees classified in general governemnt	Social security pension schemes
			G	H
		Opening Balance Sheet		
	1	Pension entitlements	**1,129.18**	**6,522.94**
		Changes in pension entitlements due to transactions		
Sum 2.1 to 2.4	**2**	**Increase in pension entitlements due to social contributions**	**51.17**	**489.27**
	2.1	*Employer actual social contributions*	0.00	78.21
	2.2	*Employer imputed social contributions*	-5.41	
	2.3	*Household actual social contributions*	0.00	84.89
	2.4	*Household social contribution supplements*	56.58	326.17
	3	Other (actuarial) increase of pension entitlements		-75.23
	4	Reduction in pension entitlements due to payment of pension benef	**46.52**	**234.87**
2 + 3 - 4	**5**	**Change in pension entitlements due to social contributions and pension benefits**	**4.65**	**179.17**
	6	Transfers of entitlements between schemes	**0.00**	**0.00**
	7	Changes in pension entitlements due to other transactions	**0.00**	**-178.19**
		Changes in pension entitlements due to other economic flows		
	8	Changes in entitlements due to revaluations	**0.00**	**0.00**
	9	Changes in entitlements due to pension scheme reforms	**0.00**	**0.00**
		Closing Balance Sheet		
	10	Pension entitlements	**1,133.83**	**6,523.92**
		Pension entitlements (% of GDP 2007)	**46.80**	**269.20**
	11	Output	L	3.57

Source: Source: Forschungszentrum Generationenverträge, University of Freiburg, based on data provided by the respective pension schemes.

Starting with the general government employer pension scheme (column G), pension entitlements at the beginning of 2007 total EUR 1129,18 billions (row 1). This figure is calculated on the basis of the Freiburg model. In contrast to social security pension schemes, there are no actual contributions to this scheme, and so zeros are entered in rows 2.1 and 2.3. The imputed social contributions amount to minus EUR 5.41 billions (row 2.2). This row serves as a balancing item. It represents the difference between current benefits and actual contributions payable (by both employers and employees). Supplements to household social contributions account for EUR 56.58 billions. In practice, they are equal to the nominal discount rate (5 per cent in this case) times the pension entitlements at the beginning of the respective base year. The overall increase in pension entitlements due to social contributions (row 2) — reflecting the sum of rows 2.2 and 2.4 — amounts to EUR 51.17 billions. Pension benefits paid out in 2007 reduce the entitlements by EUR 46.52 billions. This figure has been provided by the institutions responsible for government employee pension schemes, namely the general civil servants' scheme and the supplementary pension scheme (VBL).

The change in benefits (row 5) amounted to EUR 4.65 billions in 2007. It is calculated by subtracting row 4 from the total of rows 2 and 3. There were no changes of pension entitlements due to other transactions (row 7) such as legislated pension reforms. Nor has

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there been a transfer of entitlements between schemes in 2007 (in column G). Furthermore, no changes in entitlements due to revaluation (row 8) or other changes in volume (row 9) need to be considered in 2007. At the end of 2007, pension entitlements (row 10) amount to EUR 1,133.83 billions, which is equal to 46.8 per cent of GDP in 2007. This figure is also estimated using the actuarial model. Unfortunately, no data on financial services —on the cost of running the pension scheme during 2007 — have been provided. Therefore, the letter *L* is entered in the last row 11 — indicating that no data are currently available.

With regard to social security pensions in Germany (column H), the value of the opening stock of pension entitlements was EUR 6,522.94 billions in 2007. Actual contributions paid by households and employers account for EUR 84.89 billions and EUR 78.21 billions respectively. The data needed to complete the rows 2.1 and 2.3 have been provided by the statutory pension insurance scheme as well as the old age insurance for farmers, which is also covered by social security in Germany.

The household contribution supplement comes to EUR 326.17 billions, the residual value (row 3) is minus EUR 75.23 billions. This row reflects the case of actual social contributions that are not actuarially based. In the case of this base year the negative value is due inter alia to the increase in pension contributions from 19.5 to 19.9 per cent in the German statutory pension insurance scheme, without an increase in pension entitlements. Pension benefits in 2007 amount to EUR 234.87 billions, which has led to a difference of EUR 179.17 billions in pension entitlements.

In 2007 Parliament approved a major pension reform of the statutory pension insurance scheme by increasing the legal retirement age gradually from 65 to 67 between 2011 and 2029. Furthermore, a catch-up element was introduced into the pension formula in 2007 which factors in non-implemented deductions from the period 2011 to 2013. According to actuarial estimates this reform lowered the level of pension entitlements by EUR 178.19 billions. — as shown in row 7 (changes in pension entitlements due to other transactions). The final result, is a closing stock of pension entitlements amounting to EUR 6,523.92 billions, which is equivalent to 269.2 per cent of GDP in 2007.

The service fees to run the pension schemes covered under social security are recorded as additional information in row 11. According to the published data, the German statutory insurance scheme service fees amounted to EUR 3.57 billions in 2007.

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8.2 Using business accounts and regulatory data — to complete columns A to C

The following section presents a case study of the completion of columns A to C in the supplementary table. Accordingly only pension schemes recorded in the non-general government sector are taken into account. The worked example is given for the supplementary table for Germany in the base year 2006. Table 6 shows columns A to C.

Table 6

Columns A to C of the supplementary table for Germany, 2006

			Pension manager	Non-general government		
				Defined contribution schemes	Defined benefit schemes and other[1] non-defined contri-bution schemes	Total
			Code	XPC1W	XPB1W	XPCB1W
			Column number	A	B	C
Relations	Code	*Row No.*	**Opening balance sheet**			
	XAF63LS	1	Pension entitlements (incl contingent pension entitlements)			479000
			Changes in pension entitlements due to transactions			
Σ 2.1 to 2.4 – 2.5	XD61p	2	Increase in pension entitlements due to social contributions			49000
	XD6111	2.1	Employer actual social contributions			35000
	XD6121	2.2	Employer imputed social contributions			
	XD6131	2.3	Household actual social contributions			14000
	XD6141	2.4	Household social contribution supplements[5]			
	XD619	3	Other (actuarial) change of pension entitlements in social security pension schemes			
	XD62p	4	Reduction in pension entitlements due to payment of pension benefits			32000
2 + 3 - 4	XD8	5	Changes in pension entitlements due to social contributions and pension benefits			17000
	XD81	6	Transfers of pension entitlements between schemes			
	XD82	7	Change in entitlements due to negotiated changes in scheme structure			
			Changes in pension entitlements due to other flows			
	XK7	8	Changes in entitlements due to revaluations[6]			
	XK5	9	Changes in entitlements due to other changes in volume[6]			
			Closing balance sheet			
1+ Σ 5 to 9	XAF63LE	10	Pension entitlements (incl. contingent pension entitlements			499000
	XP1	*11*	*Output*			

Source: Destatis.

As the example makes clear, the German data do not enable a differentiation to be made between defined contributions (column A) and defined benefit schemes (column B). Only

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the total of pension schemes classified in the non-general government sector can be reflected in the supplementary table in column C. Generally, when compiling the supplementary table, countries should make a distinction between defined contribution (column A) and defined benefit schemes (column B).

The total of pension entitlements at the beginning of 2006 (row 1) amounted to EUR 479 billions. This figure is published annually by the Deutsche Bundesbank.[134] It is based on a number of sources. Much of the pension data was provided by the German Federal Financial Supervisory Authority (BAFIN). This public institution is responsible for the supervision of banks and financial services providers. In this context most pension schemes are required to submit frequent reports to this body. However, not all types of pension schemes are covered by the BAFIN in Germany: other institutions such as the German Insurance Association (GDV), which is the umbrella organisation for private insurers in Germany, provide data to complete the data on pension schemes. The data sources consist of both regulatory and accounting data. In cases where the entries did not appropriately reflect the current value of pension entitlements on the market, further conversions have been applied in line with the accounting standards of the ESA. The increase in pension entitlements due to social contributions (row 2) during the year 2006 amounted to EUR 49 billions. This number is made up of employers' actual contributions of EUR 35 billions (row 2.1) plus actual household social contributions (row 2.3) amounting to EUR 14 billions in 2006. These values come from the German Federal Statistical office (Destatis). It should be emphasised that the data used in row 2.1 and row 2.3 are also used in the core accounts.[135] Furthermore, entitlements have been reduced during the year 2006 due to payments of pension benefits (row 4) amounting to EUR 32 billions. This figure was also provided by Destatis and is taken from the core accounts.[136] Altogether, pension entitlements during the year increased due to social contributions and pension benefits (row 5) by EUR 17 billions. The stock of entitlements at the end of 2006 (row 10) amounted to EUR 499 billions. This figure, which is provided by the Deutsche Bundesbank, is based on the same data as the opening balance (row 1).

[134] See Deutsche Bundesbank (2007), p. 26.
[135] See Destatis (2010), p.248.
[136] See Destatis (2010), p. 244.

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FOREWORD

The first ECB/Eurostat Workshop on Pensions, which was held in Frankfurt on 29 and 30 April 2009, served to bring together a wide range of experts from national central banks, national statistics institutes, international organisations, and research institutes to reflect on the accounting issues involved in the recording of pension schemes under the System of National Accounts, 2008 (2008 SNA) and also under the European System of Accounts which is currently under revision. At the same time, it provided the opportunity to discuss user's needs and the political messages on this important topic, not least with regard to the sustainability of public finances.

This foreword provides a short overview of the various contributions made by the authors and discussants in the five sessions of the Workshop. Mr. Steven Keuning's welcome speech, given in his capacity as the ECB's Director General Statistics, touched on some key issues of the workshop by referring to the new recording of pension entitlements in the 2008 SNA, in particular in relation to measures of fiscal sustainability.

The issue and discussion papers are presented according to the five sessions of the Workshop: Session I was dedicated to discussing the concept of accrued-to-date pension entitlements from a national accounts perspective. Session II dealt with the experience of pension modellers and accounting standard setters as to how to compile and record pension entitlements. Session III was organised as a panel to illustrate the user's perspective.

Session IV and Session V focused on national experience in compiling accrued-to-date pension entitlements under government schemes. Seven country cases were presented and discussed: the country cases for Spain, Luxembourg, Finland, Canada, the United States, Poland and Germany. In a closing address, Mr. Werner Bier, the ECB's Deputy Director Statistics, Mr. Eduardo Barredo-Capelot, Head of Unit C5 at Eurostat, and Mr. Reimund Mink, a, Senior Adviser at the ECB, concluded the Workshop by focussing on how to communicate the results presented at this Workshop to the public at large.

The content of the e-book is structured by session. Each session contains an introduction with a short overview of the various papers, followed by the issue papers and the discussion papers themselves. The e-book has been compiled and edited by Ms. Marta Rodriguez and Mr. Reimund Mink, both of whom work at the ECB in the Directorate General Statistics.

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INTRODUCTION

BY STEVEN KEUNING,
DIRECTOR GENERAL STATISTICS, EUROPEAN CENTRAL BANK

Ladies and gentlemen,

INTRODUCTION

On behalf of Mr Walter Radermacher, Director General of Eurostat, and myself I would like to welcome you to the ECB/Eurostat Workshop on Pensions. I would like to thank all of you who are participating in this Workshop and as well everyone who is involved in organising it. Let me start by saying that I am particularly happy that many of you who have contributed to the successful completion of the System of National Accounts, 2008 (2008 SNA), and specifically of the accounting treatment of pensions that it incorporates, are also present today.

Recently, the UN Statistical Commission has adopted the 2008 SNA as the international statistical standard for national accounts and has encouraged countries to implement it. In the area of balance of payments, the sixth edition of the IMF's Balance of Payments and International Investment Position Manual (BPM6) will be published soon. These two handbooks are seen as constituting the new global international statistical standards. The European System of Accounts (ESA 95) as a counterpart to the SNA is also under revision. For EU countries, its importance goes far beyond that of the SNA, as it is a legal instrument with a very significant impact on key policy decisions in the European Union. Among other effects, it has a direct bearing on the so-called excessive deficit procedure, the contribution to the EU budget, the allocation of regional funds by the European Union and the contributions of Member States to the capital of the ECB.

Considerable attention has obviously been given to the revision of the government accounts and specifically to the impact of the revision on the recording of government deficit and debt. Thus, the new recording of pension entitlements and its impact on these variables is one of the topics of this discussion.

NEW RECORDING OF PENSION ENTITLEMENTS IN THE 2008 SNA

In the discussions from 2004 on how to record pension entitlements in the new SNA the question arose as to whether all or only part of them should be covered within the asset and liability boundary. This question is closely linked to the issue of the extent to which the recording of pension entitlements in the national accounts should be harmonised when the underlying institutional reality differs significantly across countries. For the time being, the institutional differences across countries related to pension schemes (capitalised versus pay-as-you-go) generate significant differences in the accounts, not least because they lead to different economic behaviour. In particular, pension assets (in other words, future pension rights)

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in countries with mainly capitalised systems are recorded as household wealth, while future pension rights in countries with government-sponsored pay-as-you-go schemes (like France, Germany, Italy or Spain) are not recorded. Of course, the entitlements in the former case are contractually determined.

In essence, there is now consensus in the 2008 SNA on distinguishing pension schemes sponsored by general government, which should be recorded in the core national accounts, from those schemes that should be recorded only in a new supplementary table on pensions (like social security schemes). The updated SNA includes such a table showing the flows and stocks of all pension schemes. For the benefit of users of the accounts, all countries will be expected to produce the new table, and it was suggested that this table would be compulsory for all EU countries under the new ESA regulation.

In 2007, work of the Eurostat/ECB Task Force on Pensions, mandated by the Committee on Monetary, Financial and Balance of Payments statistics (CMFB), concentrated on the design of the supplementary table. The overall aim of the table is to present the opening and closing stocks of pension entitlements for all social insurance pension schemes (including social security), and the transactions and other economic flows during the period that account for the difference between the opening and the closing positions, thus systematically showing pension obligations for all these schemes, and thereby facilitating international comparability. It was clearly indicated in the January 2008 CMFB Report of the Eurostat/ECB Task Force on Pensions, which was presented to the Economic and Financial Committee (EFC), that the pension entitlements derived for government-sponsored pay-as-you-go schemes are not measures of fiscal sustainability which require elaborate modelling simulations. Instead they display the cost of terminating such a pension scheme at the reference date of the accounts.

LONG-TERM SUSTAINABILITY OF PUBLIC FINANCES

In Europe, the Stability and Growth Pact, which was adopted in 1997, strengthened the Treaty provisions on fiscal discipline in the European Union. Government sector accounts as part of the system of national accounts play a key policy role in this field. The new Code of Conduct of the Pact has also incorporated guidelines on the countries' strategies to ensure the sustainability of public finances, especially in view of the economic and budgetary impact of ageing populations.

Timing nicely with the Workshop is the recent release by the European Commission (DG ECFIN) and the Economic Policy Committee's (EPC's) Ageing Working Group (AWG) of the "2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060)". This report is based on the need for the Council to "regularly review the long-term sustainability of public finances, including the expected strains caused by the demographic changes ahead". In 2006, the ECOFIN Council gave a mandate to the EPC to update and further deepen its common exercise of age-related expenditure projections by autumn 2009, on the basis of a new population projection by Eurostat, which was released in April 2008.

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ACCRUED-TO-DATE LIABILITIES AND FISCAL SUSTAINABILITY

An advantage of this Workshop is that it brings together national accounts experts who have contributed to developing the concept of accrued-to-date liabilities for measuring government-sponsored pay-as-you-go pension schemes and analysts dealing with fiscal sustainability indicators. Two straightforward questions that need to be answered are whether the data derived for the supplementary table on pensions will be appropriate to serve as an input for the AWG pension projections and what the link is and what the differences are between the approaches of accrued-to-date liabilities and implicit liabilities, in terms of fiscal sustainability indicators?

The data on pension entitlements following the accrued-to-date liabilities approach are compiled ex-post; they are not projections. However, the closed system implicitly used for this approach may be expanded in a consistent way, to derive liabilities for open systems on a gross or even on a net basis, by compiling net open system liabilities following a generational accounting approach.

According to the 2009 Ageing Report, sustainability conditions are defined by comparing current government debt figures with the discounted values of all future primary balances. Sustainability gaps emerge because these discounted values are usually too small to offset current debt. According to the report, age-related government expenditure, as a percentage of GDP, will increase for the European Union as a whole, from 2007 to 2060, by 4.7%, and half of this increase results from the increase in pension expenditure.

The economic and budgetary projections made by the AWG are based on such sustainability indicators. In addition to Eurostat's population projections, the main data source for the report is government finance statistics following ESA 95 principles. In recent years, Eurostat, with the assistance of the CMFB, has taken a number of decisions that have clarified the national accounts for the government sector in Member States and have made them more comparable. There have also been international initiatives to align government accounting practices and international statistical standards. The outcome of this work has been a new chapter on general government and public sector accounts in the 2008 SNA. A similar chapter is under preparation for the new ESA.

FUTURE CHALLENGES

An ageing population raises challenges from an economic point of view. Their seriousness depends on how economies respond and adapt to these changing demographic conditions. Policy-makers need to ensure long-term fiscal sustainability in the face of clearly anticipated risks, as well significant uncertainty. In this context future pension expenditure has to be taken into

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consideration especially as Europe is in the midst of the deepest recession in decades, which is putting unprecedented stress on economies while also having a major impact on the sustainability of public finances.

I hope that we will continue to enjoy the support that we have received in the past from so many of you. I wish you a stimulating and enjoyable workshop today and tomorrow.

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SESSION I

PENSION SCHEMES IN INTERNATIONAL STATISTICAL STANDARDS

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INTRODUCTION

Session I of the Workshop on pensions deals with the subject of pension schemes in international statistical standards. These standards are the System of National Accounts, 2008 (2008 SNA), the new revision of the European System of Accounts currently under preparation (new ESA). Both, the 2008 SNA and the new ESA deal with pensions and their accounting treatment in separate chapters.

To shed further light on the current work in this area there are three presentations on this topic. John Verrinder's (Eurostat) presentation is on pension schemes in the new ESA and in the 2008 SNA. John starts with a short description of the current recording of pension schemes in the 2003 SNA and in the ESA 95, highlight the incomplete coverage of pension entitlements – specifically those under government schemes. He goes on to describe the long and complicated process of how the new recording of pensions was developed from 2002. It started with an Electronic Discussion Group led by the IMF, continued with the lively discussions at the Advisory Expert Group (AEG) from 2004 to 2007 and was successfully concluded by a compromise solution adopted by the United Nations Statistics Committee (UNSC) in 2008. The major achievement of this work was the design of a supplementary table on pensions in social insurance. Various modelling issues are considered like the valuation of wage increases, the choice of the discount rate, and the treatment of transfers of pension schemes and of pension reforms. Finally, some information is given on the current revision of the ESA 95 in relation to pensions.

Robert Dippelsman (IMF) concentrates in his presentation on the recording of defined benefit pension schemes in macroeconomic statistics. These schemes are defined in such a way that the benefits payable to the employee on retirement are determined by the use of a formula. They are set in contrast to defined contribution pension schemes. Rob clearly indicates that defined benefit pension schemes may be funded or unfunded. Moreover, actuarial methods are required to derive measures of pension obligations based on the pension formula. In a further step, the difference is shown in the treatment of unfunded government employer retirement schemes in the 1993 SNA compared with the Government Finance Statistics Manual (GFSM 2001), in which such obligations are treated as contractual liabilities for a government to its employees. This is in line with the accounting standards applied for the private sector (IAS 19). Finally, the proposed future treatment of pension schemes is described as part of a big picture, namely to recognise defined benefit pension entitlements as financial assets and liabilities, taking into account the higher range of uncertainty than for most other financial instruments due to the application of actuarial methods and the difficulty that social security and government employee benefit elements are often combined.

John Walton deals with the guaranteeing and insuring of defined benefit pension entitlements. He distinguishes between three levels of security for pension entitlements under autonomous and non-autonomous pension schemes as they exist in various countries. He further explores whether funding of the guarantor

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exists and whether it is independent of government. Accordingly, different levels of cover are distinguished for the different schemes. In this context he thinks that this distinction might not be shown in the supplementary table as there is to be no option to show different degrees of quality of an asset due to guarantees. In a further step, he considers options for how to treat these guarantees – as contingencies or as financial instruments, taking into account the recommendations on the treatment of guarantees in the 2008 SNA.

Gabriele Semeraro (Banca d'Italia) as the discussant of this session provides an overview of the three contributions looking, at the common elements and also some specific issues. All the papers are seen to shed some light on more general properties of pension schemes. While the paper of John Walton focuses on aspects of guarantees (explicitly or implicitly) given to the beneficiary of the entitlements, the presentations of John Verrinder and Robert Dippelsman deal with the new statistics in general as they are presented in the new international statistical standards.

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PENSION SCHEMES IN THE INTERNATIONAL STATISTICAL STANDARDS

BY JOHN VERRINDER

1 INTRODUCTION

This article explains the background and main results of the Eurostat/ECB Task Force on pensions.

The System of National Accounts 1993 (SNA93) and its European Equivalent (ESA95) record pension schemes in "social insurance" according to their features:

– *Private funded social insurance schemes* – insurance technical reserves (liabilities/assets), actuarial treatment;

– *Unfunded social insurance schemes operated by employers* – no reserves, actuarial treatment in principle but not in practice;

– *Social Security* – no reserves, no actuarial treatment.

Thus there is a potentially inconsistent treatment of pensions across sectors/ countries depending on administrative set-up. In the lead up to the revision of the SNA93 this was identified as an area of concern and there was an IMF-led Electronic Discussion Group in the period 2002-2004, which culminated in discussions at the SNA Advisory Expert Group (AEG) in the period 2004-2007. The AEG concluded that:

– In principle pension obligations (assets/liabilities) should be recorded on an actuarial basis for all employer schemes (whether funded or unfunded),

– but recording of social security remains unchanged.

2 THE SUPPLEMENTARY TABLE ON PENSION SCHEMES IN SOCIAL INSURANCE

It quickly became apparent that the first of these conclusions raised some important issues in Europe, notably in the difficulty to distinguish unfunded government employer schemes from social security. The following discussions led to a worldwide compromise, which would allow for some flexibility in recording unfunded government employer schemes under clearly defined conditions.

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Following these discussions, the SNA 2008 Chapter 17 (part 2 deals specifically with pensions) was adopted by UN Statistical Commission in August 2008, subject to some specific follow-up issues, notably the concept of a sponsor, the criteria for core/non-core accounts treatment pension obligations, and the recording of actuarial gains/losses.

Within Europe, work on pensions started in a Eurostat Task Force on pensions, which explored the difficulties of distinguishing government employer and social security pension schemes. Given the importance of the issue, a Task Force of the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) was established. This was jointly chaired by ECB/Eurostat, consisted of members from many EU countries plus the OECD and the IMF, and delivered its final report to the CMFB in February 2008 (available on the CMFB website: www.cmfb.org).

A key element of the worldwide compromise was the compulsory production of a *Supplementary Table for pensions*. This is designed to make pensions data more visible and to aid international comparison. It reconciles opening and closing stocks of pension entitlements through rows show transactions and other economic flows, notably:

– Contributions received which lead to entitlements;

– Benefits paid;

– "Changes in pension entitlements" (the net of the above entries);

– Other changes in entitlements (reforms, modelling, etc).

The columns of the table show the types of pension schemes, with "non-core" schemes clearly distinguished in separate columns.

It became clear in designing the table that economic flows would have to be clearly identified – they would have a knock-on effects throughout the national accounts. In general the approach taken was to define what is in the "other economic flows", and many transactions lines, with the "residual" left as imputed employer social contributions (i.e. the remaining part to be met by the employer). Other economic flows obviously include modelling effects which are split between revaluations (discount rate) and other changes in volume (other assumptions).

The measurement of pension entitlements relies heavily on the availability of source data; in general statisticians are not resourced or professionally equipped to model pension schemes. However statisticians need to understand the sources (whether actuarial reports, business accounts, sustainability models…) in order to make appropriate estimations.

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For *defined contribution schemes*, the pensions entitlements are inextricably linked to the assets of the scheme (assets = entitlements), which means that the main issue is to obtain estimates of asset values.

For *defined benefit schemes*, given that the eventual pensions are based on a formula, they can only be estimated based on a model applying the formula with given assumptions. SNA 2008 does not seek to impose practical measurement requirements, though it does mention some key assumptions.

Of all the assumptions discussed at the Eurostat/ECB Task Force, *the one which generated the most discussion was the treatment of future wage rises*. Eventual benefits in a defined benefit scheme depend on final or average salary, and the usual career path of an employee involves periodic wage rises due to promotion. There are two ways in which future wage rises could be taken into account:

– Include them as they occur (Accrued Benefit Obligation, or ABO)

– Project them in model (Projected Benefit Obligation, or PBO)

The SNA 2008 describes the issue in detail but does not recommend one or the other approach, leaving the decision to the modeller, who would need to consult carefully the applicable rules for each specific pension scheme.

A few other important points were raised in the drafting of the SNA 2008 chapter:

- The output of pension schemes should be measured for all schemes!

- The notion was established of the "Sponsor" of a pension scheme–a unit which determines the conditions of a defined benefit scheme and possibly has a legal burden to meet shortfalls in pension scheme. Assets and liabilities are to be recorded in the national accounts system to reflect the relationship between the sponsor and the unit administering the scheme.

- Transfers between pension schemes should be recorded as financial transactions, with a pension liability being recorded for government if government assumes responsibility for future payments of a non-government scheme.

- The reform of a pension scheme could be transaction or other economic flow depending on whether or not the reform is negotiated between employer and employees.

- The treatment of "actuarial gains/losses" (if model assumptions do not turn out to be correct) is still a source of debate, since they could be viewed either as transactions or as other economic flows.

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Eurostat is developing the revised European System of Accounts (ESA); a draft chapter on pensions has already been made available. The key principles of the revised ESA are fully in line with SNA 2008. However the ESA will contain:

- Stricter criteria on the core/non-core recording of pension entitlements to ensure consistency across EU – in practice this means that entitlements of unfunded government sponsored employment related pension schemes will only be recorded in the Supplementary Table;

- More guidance on key modelling issues, such as:

  – ABO versus PBO;

  – Discount Rate.

There is the intention to draw up a compilers' guide, which will contain further information on practical issues and assumptions.

The Supplementary Table will be a compulsory part of the revised ESA transmission programme, and more emphasis is placed on the Table in the ESA chapter.

3 TIMETABLE FOR THE REVISED ESA

The timetable for the revised ESA envisages:

- Until November 2009: Drafting of chapters and comments of MSs.

- December 2009 – June 2010: Finalisation of the new ESA regulation and adoption of the Commission proposal.

- 2012: Adoption of the ESA regulation by the Council and the European Parliament.

- 2014: Implementation of new ESA and transmission programme (but it is important to note that back-series will be needed, including for pensions).

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RECORDING OF DEFINED BENEFIT PENSION SCHEMES IN MACROECONOMIC STATISTICS

BY ROBERT DIPPELSMAN

1 INTRODUCTION

Obligations under defined benefit pension schemes can involve a major future burden for both public and private employers, and a corresponding asset for the beneficiaries. Similarly, the emergence of those pension benefit obligations imply current cost incurred by the employer and income earned by the employee. However, under previous statistical standards, these liabilities (and the corresponding assets) were only recognized to the extent that they were funded. The previous treatment was paradoxical, in that these obligations are most likely to cause problems when no fund had been set up to provide for them.

For economic analysis, it is important to understand these asset and liabilities, because they affect financial position and have liquidity implications for the future. In line with general accrual accounting principles, it is also important costs incurred during the period are measured, including accrual of the rights to pensions to be paid in the future. For the employer, failure to take these expenses and liabilities into account may lead to misunderstanding of actual costs and poor decisions, such as a bias in favor of incurring unrecognized expenses and failure to make proper provision for future cash flow commitments.

This paper provides an overview of the treatment of defined benefits pension schemes in accounting and statistical standards. Because the statistical treatment analyzes the operation of these schemes by breaking them down into several different underlying economic processes, it requires a range of imputations, partitions, and rerouting. Furthermore, defined benefit pension schemes raise additional issues of measurement because the estimation of future benefits is subject to a range of uncertainty.

2 DEFINITIONS

A defined benefits pension scheme is defined in the *2008 SNA* as "… one where the benefits payable to the employee on retirement are determined by the use of a formula, either alone or a minimum amount payable" (paragraph 17.129). The factors taken into account in the formula can include factors such as years of service, final salary or salary over a period, family situation, age at retirement, and options taken by the employee as well as changes in the cost of living.

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Defined benefits schemes are contrasted with defined contribution pension schemes, in which the benefits are determined by contributions and the return on funds invested. The two types of scheme have very different ways of bearing of the risk of changes in market performance. With a defined contribution scheme, the variability of market returns is the risk or benefit of the employees, while for a defined benefit scheme, the return is determined by the formula, so is not affected by market conditions (as long as the sponsor of the scheme remains solvent).

The term "pension scheme" can be contrasted with "pension fund." A pension scheme is a set of rules and arrangements for paying pensions, while a pension fund is a designated pool of assets that is used to pay benefits. Defined contribution schemes always have a fund and the issue of underfunding does not arise. Defined benefit schemes sometimes but not always, have a fund. If there is no fund, the employer meets the costs from its own resources, so it is a pay-as-you-go arrangement. If there is a funded defined benefit scheme, it may be fully funded, underfunded, or overfunded. With an underfunded scheme, the funds are inadequate to meet the estimated present value of entitlements that have arisen from labor that has already been provided. In the case of an overfunded scheme, the funds are more than the present value of pension entitlements, as can arise if the fund's returns have exceeded expectations or if there have downward revisions in the estimates of variables such as life expectancy or salary growth. Underfunded and unfunded schemes usually give rise to the greatest economic policy concerns as they generate require additional funding in the future.

The formula used in a defined benefit scheme usually includes at least some items that are not known at the individual level at the time they are accrued. For example, while doing work in the period adds to the length of service by a known amount, the exact benefit may be affected by factors such as departure before vesting, age at retirement, length of life of the employees and their dependents, future general salary increases, and the employee's future promotion path. While individually, these factors can be highly uncertain, the values can be actuarially estimated for a whole group of employees with greater accuracy, based on past behavior and possibly adjusted for trends. Despite the ability to make actuarial estimates, there is still a degree of uncertainty greater than other financial liabilities such as a loan or a bond. Measurement is also much easier for defined contribution schemes, because it is determined on the basis of the assets of the fund.

3 TREATMENT IN THE ACCOUNTING STANDARDS

A. PRIVATE SECTOR

For private sector defined benefit plans, International Accounting Standard (IAS) 19 requires that actuarial techniques be used to estimate the amount of benefits. It requires discounting the future benefits to present value, valuing any assets of the pension scheme at fair value, and recognizing changes in the present value of future benefits resulting from changes in the actuarial assumptions and estimates. Businesses that follow these standards will be able to understand the recognition of pension entitlements and will be able to supply

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the necessary statistical data. However, the degree of standardization of detailed techniques in practice is possibly an issue, for example on the choice of discount rates, and whether the estimates take into account existing compensation levels (accumulated benefit obligation) or estimated compensation levels that existing employees will have in the future (projected benefit obligation).

The United States General Accepted Accounting Principles (Statement No. 87 and 132) also recognize pension entitlements in expenses and liabilities. However, general accrual principles are qualified by delayed recognition, so that changes in the pension entitlements and changes in the value of assets set aside to meet those entitlements are not recognized as they occur but are recognized systematically and gradually over subsequent periods, although additional disclosure is specified for notes to the balance sheet. As suggested in the text of the statements, it was recognized that the standards involved some compromises from first principles.

B. PUBLIC SECTOR

For the public sector, International Public Sector Accounting Standard (IPSAS) 25 sets out standards which also require recognition of accrued pension entitlements as an expense and liability. (See http://www.ipsas.org/PDF_ipsas_standards_ifac/IPSAS25.pdf). In IN7 the Standard requires an entity to:

(a) Account not only for its legal obligation, but also for any constructive obligation that arises from the entity's practices;

(b) Determine the present value of defined benefit obligations and the fair value of any plan assets...;

(c) Use the Projected Unit Credit Method to measure its obligations and costs;

(d) Attribute benefit to periods of service under the plan's benefit formula, unless an employee's service in later years will lead to a materially higher level of benefit than in earlier years;

(e) Use unbiased and mutually compatible actuarial assumptions about demographic variables (such as employee turnover and mortality) and financial variables (such as future increases in salaries, changes in medical costs and relevant changes in state benefits). Financial assumptions should be based on market expectations, at the reporting date, for the period over which the obligations are to be settled…

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4 TREATMENT IN THE STATISTICAL STANDARDS

A. SYSTEM OF NATIONAL ACCOUNTS 1993 (1993 SNA) AND EUROPEAN SYSTEM OF ACCOUNTS 1995 (ESA 95)

In the previous standards, funded entitlements were recognized as an instrument:

> Net equity of households on life insurance reserves and on pension funds (AF.61) Reserves held against life insurance and annuity policies by insurance enterprises, whether mutual or incorporated, and by pension funds. These reserves are considered to be assets of the policyholders and not of the institutional units that manage them (*1993 SNA* Chapter 13 Annex).

Since net equity of households in pension funds was limited to reserves held, the obligations of unfunded schemes were not recognized, as was the underfunded amount in the case of underfunded schemes.

The *1993 SNA* gives indications that it realized that this was not an entirely satisfactory treatment. In paragraph 13.88, it was recommended that a memorandum item of the present value of the promises to pay future benefits be shown in the balance sheets of households and employers.[1] For the corresponding income and expense, there is recognition that benefits should be taken into account in principle. The contributions could in principle "be based on the same kind of actuarial considerations that determine the level of premiums charged by insurance enterprises" (paragraph 8.72). However there is also discussion of the practical difficulties in measurement for unfunded schemes. Recognizing the difficulties, it is concluded in paragraph 8.73 that "the benefits actually paid in the current period may nevertheless provide the best available estimates of the contributions and the associated remuneration."

The *1993 SNA* shows an awareness of the issue of unfunded obligations, but fell short of recognizing them in the same way as other liabilities.

B. GOVERNMENT FINANCE STATISTICS MANUAL 2001 (GFSM 2001)

GFSM 2001 generally follows the *1993 SNA* closely in terms of content, although with some presentational changes to meet some particular analytical needs. However, in paragraph 4.35 it is very explicit in stating:

> Contrary to the *1993 SNA*, transactions in unfunded government employer retirement schemes are considered in this manual to involve a contractual liability for a government to its employees.

1 While *ESA 95 is* generally consistent with the *1993 SNA*, the memorandum item is not mentioned.

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This divergence between the *1993 SNA* and *2001 GFSM* reflected the growing concern of policymakers and government finance experts that unfunded obligations of governments were a major and growing issue for some countries. In some cases, the unrecognized obligations were of comparable magnitude to the conventional liabilities in the form of bonds and notes. Off-balance sheet liabilities are a matter of particular concern for analysts.

As a consequence, the pension liability is included in the balance sheet of government and payment of benefits to retirees and their families are regarded as withdrawals from the value of the assets of households, rather than transfers.

C. SYSTEM OF NATIONAL ACCOUNTS 2008 (2008 SNA)

By the time of the update of the *SNA*, the concerns that had been recognized in the text in the 1993 edition were becoming a matter for wider concern. The inconsistency between the treatment of funded schemes and unfunded ones was recognized as being a serious anomaly. The concerns about the extent of off-balance sheet liabilities of government employer schemes that had been recognized in *GFSM 2001* were also relevant to analysis of governments in the *SNA* context. As well, some private employers, such as the US car manufacturers, had suffered weakened balance sheets because of underfunded pensions. Over the same period, there had been increasing recognition of pension entitlements in the accounting community, so that the actual or potential availability of actuarial estimates was much improved since 1993.

As a result of these concerns, the statistical community agreed to move the *2008 SNA* in the direction already taken in the accounting profession and *GFSM 2001*. Nevertheless, it was recognized that the practical implementation would still have some difficulties, especially due to variation in methods of valuation and because many governments had not adopted the international accounting standards for pension schemes. There are also difficulties when government employee pension schemes operate in conjunction with social security. An irony associated with the improved treatment of defined benefit schemes is that such schemes are becoming less common, particularly in the private sector, and many existing schemes have been closed to new staff.

A new instrument "pension entitlements" (AF63) was created to recognize pension obligations, regardless of whether and how the schemes was funded:

> Pension entitlements show the extent of financial claims both existing and future pensioners hold against either their employer or a fund designated by the employer to pay pensions earned as part of a compensation agreement between the employer and employee. The only transaction for pension entitlements recorded in the financial account is the difference between net contributions receivable and benefits payable (paragraph 11.107).

As a consequence of the recognition of the entitlements as being an asset of households, it is necessary to show them as being built up by contributions over the period of employment. For actual contributions by employees it is

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straightforward. For actual contributions by employers, the contributions are rerouted (from employers through households to the entity that is responsible for the pension scheme's liabilities). The rerouting is necessary to include the contribution in household income and correctly show which party acquires the asset. For unfunded or underfunded amounts, an employer contribution is imputed, and then rerouted through households.

As part of the change from the 1993 to the 2008 treatment, the terminology was amended from "reserves" in the *1993 SNA*, where only funded obligations were recognized, to "entitlements" which also covers entitlements where there are no reserves. "Entitlements" tends to highlight the beneficiaries' viewpoint, while "obligations" tends to emphasize the employer's viewpoint, but national accounting needs to use the same term for both parties. Another implication of the changed treatment is that the income accruing on the pension entitlements in the case of defined benefit schemes is not based on the returns on invested funds, if any, but the increase in entitlements due to the unwinding of the discount factor.

In the *2008 SNA*, there is also a recognition of the possibility of nonpension liabilities, such as for health insurance and other allowances. In countries where employers provide health insurance cover for their retirees at concessional rates, these may be an important issue.

A new instrument "claims of pension funds on pension managers" (AF64) is identified to cover the situation when the scheme is a separate entity from the employer or other sponsor of the scheme. When the sponsor has responsibility for any underfunding, the claim of the pension fund is shown under this heading. Alternatively, if the scheme is overfunded, and the surplus is repayable to the sponsor, the asset is negative.

In addition to changes in the value of pension entitlements arising from employment during the year, the value may also alter due to changes in the plan benefit conditions and actuarial assumptions, which are recorded as other change in volumes. Changes due to price indexation are treated as revaluations, as are promotions (although mainly arising with the accrued benefit obligation method).

The value of pension entitlements are subject to a range of uncertainty. However, this is not a unique situation in accounting or statistics. For example, actuarial estimates are already used in national accounts data for the closely related activities of insurance and annuities. However, statistical compilers cannot be expected to undertake actuarial estimation themselves, so there is a constraint of data available from compilers; or possibly, data as supplied could be adjusted by adjustments to cover gaps or differences in treatment. Countries vary in the extent to which accounting practice recognizes pension entitlements. Although not able to duplicate the work of actuaries, it is important that statistical compilers have some understanding of the methods used so as to identify problems of comparability. As common in statistics, there may be a margin of uncertainty, but omitting the pension entitlements is the equivalent of making an estimate

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of zero, which is not an uncertain figure, but is certainly wrong. The revision of assumptions underlying actuarial estimates also raises difficult issues. They were subject to different views in the *SNA* revision process as to how they would be recorded, such as whether there should be backward revision of estimates for earlier periods or one-off changes through other changes in volume.

The definition given in paragraph 19 is limited to schemes related to employment, so excludes social security schemes, which resemble defined benefits schemes in some ways, but the requirement to pay benefits is of different nature, more policy-driven and less contractual. Nevertheless, the *2008 SNA* notes that the line between pension and social security schemes is not entirely clear-cut, and arrangements may differ between countries. It shows income and stocks for pension entitlements under social security schemes in a supplementary table (Table 17.10) with different kinds of pension schemes, but does not include them in the core accounts. While not in the core accounts, the data are likely to be of interest to analysts and policymakers. In some countries, social security entitlements are large and helps to address fiscal sustainability issues. Although the *2008 SNA* supplementary table refers to social security pension obligations, health and other obligations may also be relevant in some countries.

D. BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION MANUAL (BPM6)

BPM6 was developed in parallel with the *2008 SNA* and is completely consistent. Its previous edition had given minimal consideration to cross-border pensions, but with globalization of labor markets, the issue has become more important in some cases. For example: multinational companies may have a single pension scheme for employees in different countries; guest workers and other expatriate employees may accrue entitlements in their host country, then return to their home countries; mobile workers can be employed in several different countries during their careers; and people may move to sunnier or cheaper countries after retirement. Depending on the international mobility of its labor force, the issue may be minor for many countries, while in others, it could be economically significant either as a source or recipient of pensions, so statistical compilers need to monitor the situation in their countries.

The principles for measurement are the same as in the *2008 SNA*. For measurement of nonresidents' claims on residents, the residents are pension funds or employers, which are generally capable of reporting data. They usually have some indication of the residence of the beneficiaries, although ratios may be needed to split totals that cover both residents and nonresidents. However, for residents' claims on nonresident employers or pension funds, the data situation is more difficult, because the local parties are a diffuse group of individuals. In those cases, estimation may need to be made with ratios in conjunction with demographic data on retirees from abroad, or data on a pensions from abroad received through the banking system or reported for taxation. When pension recipients change residence to a country, there is an entry for other change in volumes for the pension entitlements.

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E. RECORDING OF 2008 SNA ENTRIES

The recording of defined benefit schemes has a impressively long list statistical complications: It involves entries in the production, generation of income, distribution of primary income, secondary distribution of income, use of income, and financial accounts (but not the capital account). As well, there are complications involving indirectly measured output, rerouting (employer contributions are rerouted through the beneficiary households), and imputations (for unfunded liabilities). There is also a special entry for "adjustment for change in pension entitlements" to reconcile the fact that payment of pension benefits are treated as secondary distribution of income, while at the same time as the withdrawal of a financial asset that has been accumulated over previous years.

These processes can be illustrated from the numerical example (*2008 SNA* Table 17.8, summarized in the Table below). The example covers a defined benefit scheme with a separate fund that is partly funded:

From observed transactions:

Employers make actual contributions of 10.0.
Households make actual contributions of 1.5.
The pension fund generates income on its assets of 2.2.
Benefits are paid to retirees and other beneficiaries of 19.0.

From actuarial estimates:

The underfunding for the year is 4.1, which is therefore the employers' imputed contribution.
The property income payable (due to the discount factor) is 4.0, which is also treated as a pension supplement.

Derived items are:

Pension fund output is 0.6 (difference between total inflows to the fund and total outflows – (10.0+4.1+1.5+4.0-16.0-3.0, i.e., employers' actual contributions plus employers' imputed contributions plus household actual contributions plus household pension contribution supplements less benefits payable less increase in pension entitlements, respectively).

Household pension contributions are 19.0, including actual contributions by households, rerouted actual and imputed contributions by employers. (10.0+4.1+1.5+4.0-0.6, i.e., employers' actual contributions plus employers' imputed contributions plus household actual contributions plus household pension contribution supplements less pension schemes service charges, respectively). (In this way, the contributions, actual and imputed, can be seen as giving rise to the liability).

Change in pension entitlements is 16.0 (19.0-16.0, i.e., contributions less benefits).

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Example – Accounts for Defined Benefit Pension Scheme

	Uses				
	Employer	**Fund**	**Households**	**Other**	**Total**
Production account					
Output					
Generation of income account					
Employers' actual pension contributions	10.0				10.0
Employers' imputed pension contributions	4.1				4.1
Distribution of primary income					
Employers' actual pension contributions					
Employers' imputed pension contributions					
Property income				2.2	2.2
Prop. inc. payable on pension entitlements					
Secondary distribution of income					
Household pension contributions			19.0		19.0
Pension benefits		16.0			16.0
Use of income					
Final consumption expenditure			0.6		0.6
Adj. for change in pension entitlements		3.0			3.0
Saving/net lending/net borrowing	-10.0	-5.3	17.5	-2.2	0.0
	Changes in assets				
Financial account					
Net lending/net borrowing					
Adj. for change in pension entitlements			3.0		3.0
Pension fund claim on sponsor		4.1			4.1
Other financial assets	-10.0	-2.3	14.5	-2.2	0.0
	Resources				
	Employer	**Fund**	**Households**	**Other**	**Total**
Production account					
Output		0.6			0.6
Generation of income account					
Employers' actual pension contributions					
Employers' imputed pension contributions					
Distribution of primary income					
Employers' actual pension contributions			10.0		10.0
Employers' imputed pension contributions			4.1		4.1
Property income		2.2			2.2
Prop. inc. payable on pension entitlements			4.0		4.0
Secondary distribution of income					
Household pension contributions		19.0			19.0
Pension benefits			16.0		16.0
Use of income					
Final consumption expenditure					
Adj. for change in pension entitlements			3.0		3.0
Saving/net lending/net borrowing					
	Changes in liabilities				
Financial account					
Net lending/net borrowing	-14.1	-5.3	17.5	-2.2	0.0
Adj. for change in pension entitlements		3.0			3.0
Pension fund claim on sponsor	4.1				4.1
Other financial assets					

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Saving is the same as net lending/net borrowing in this case because there are no capital account entries. In the *1993 SNA* treatment, all the underfunding would have been omitted (and hence any items where 4.1 was taken into account the above example would be calculated without that amount). As well, the property income payable to the beneficiaries would have been 2.2 instead of 4.0.

5 CONCLUSION

The recognition of defined benefit pension entitlements as assets/liabilities and income/expenses in macroeconomic statistics improves the relevance of the statistics by giving a more complete picture of their economic effect. The treatment is in line with economic principles because these entitlements represent a future benefit/burden that accrues from current activities and will remove the anomalies of ignoring underfunded and unfunded entitlements until they are paid.

Accounting practice increasingly recognizes these entitlements, which will assist in adoption of the methodology. However, it should be taken into account that these changes add some additional burdens in data collection and compilation. It will also be important to keep users informed of the explanation for the change, the methods used, and the size of the effects.

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GUARANTEE OR INSURANCE OF DEFINED BENEFIT PENSION ENTITLEMENTS

BY JOHN WALTON [1]

ABSTRACT

In some countries there is a degree of guarantee of the pension entitlements of members of autonomous defined benefit (DB) schemes. Often the guarantor takes over the assets and liabilities of schemes which are in deficit when a sponsoring employer becomes insolvent. The guarantee may be only for a proportion of the entitlements, and may have an upper limit. The UK, USA and the provincial government of Ontario (Canada) are examples.

In other countries, regulation is very tight and such guarantee arrangements have been unnecessary. The Netherlands is the main example.

Likewise, in Germany and some other countries with non-autonomous DB schemes, there is a need for a guarantor. Then the guarantee applies, not just to the deficit of an autonomous scheme with segregated assets, but to the entire entitlements (the "book reserves"), or to a proportion of them.

In this paper I refer to and draw on OECD's summary of an examination of such arrangements and of the desiderata for them. I then consider the treatment of these activities in the national accounts, looking forward to the SNA 2008 basis, and in the Supplementary Table. One approach is to assume – perhaps doubtfully, because of systemic risks – that a guarantor's objective is achievable to have usually a positive level of technical provisions (technical reserves), actuarially sufficient to cover future calls to activate guarantees. There is then a choice between considering the counterpart of these technical provisions – representing the net assets of the guarantor – as either contingent or actual assets of the pension schemes whose members benefit, potentially, from the guarantee.

The SNA 2008 treatments of both standardised and one-off guarantees on *loans* do not attribute, before activation, any excess of the guarantor's assets over its liabilities as assets of the bodies receiving the guarantee. If either treatment is applied to guarantee schemes for autonomous funded *pension schemes*, the amounts paid to a guarantor, as premiums (or levies), would not lead to a result in which the net assets of the guarantor are regarded as part of the level of collective savings for pensions.

1 I have written this paper independently and my views could well diverge from those of the ONS, UK. I am indebted to Gabe de Vries and John Verrinder for helpful comments on a draft, though the opinions in the paper are my own; and to various ex-colleagues for corrections to the country notes.

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An alternative for pension schemes would be to treat the guarantor as a kind of reinsurer of the risks incurred by the pension schemes (who incur investment risk and so can be thought of as similar to direct insurers), located therefore in the same sub-sector. Then the technical provisions of a guarantor with assets exceeding activated claims would be combined with those of pension schemes. Likewise, if the guarantor has net liabilities. Another treatment in which the guarantor is regarded as a specialist insurer in the insurance sub-sector probably lacks this symmetry.

The paper also considers the direct implications of these treatments for the Supplementary Table, including what happens when entitlements are transferred to a guarantor, and some indirect implications. There are country notes for Germany, the Netherlands, UK, USA and Ontario (Canada).

INTRODUCTION

The risks, through insolvency of a sponsor, to the obligations of funded defined benefit (DB) pension schemes are insured or guaranteed in some countries, usually compulsorily. There is a detailed description of these arrangements in *OECD Working Papers on Insurance and Private Pensions*, No. 5, April 2007, which also considers desiderata for them. The paper, by Fiona Stewart, is entitled "Benefit Security Pension Fund Guarantee Schemes". It is available for download at www.oecd.org/daf/fin/wp.

In this note I consider the recording of such insurance or guarantee arrangements in the national accounts and in national and sector balance sheets. I mention the possible implications for the Supplementary Table. Country notes include some updating of the OECD report for Germany, UK and USA and Ontario (Canada), see the Annex. The system in the Netherlands, which has many funded DB schemes, is also considered, as a major example of a country which has avoided the need for a pension insurance or guarantee system through other means;[2] and the Netherlands are also included in the country notes.

2 The OECD Working Paper also covers guarantee schemes in Japan, Sweden and Switzerland.

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First level. Segregation of the assets of the fund, under control independent of the sponsor (by "Trustees", in the UK).

Second level. Regulation, for example of the targeted level of funding and of the speed of recovery when underfunded. Regulation has recently been tightened in the UK and USA.

Third level. Establishment by law of a protection scheme or fund ("pension insurer"), which guarantees all or a large part of the obligations of a pension fund if the sponsor becomes insolvent, and which levies a premium from the active pension funds. The level of the guarantee may be less than the full entitlement, and is often subject to an upper threshold.

All these levels take account of the risks of default, including fraud or bad management as well as insolvency of the sponsor. There is also a risk of default due to changes in the markets for financial investments, which is more difficult to cover by insurance or guarantee, as all funds face the same problem – see "systemic risk", 3 below. Usually these risks faced by DB pension funds are not covered by pension insurers when the sponsor remains solvent, but there is an association between the two types of difficulty.

All three levels of security now exist in UK and USA and Ontario (Canada). With very tight regulation of funding levels, the second level suffices in the Netherlands: the funds are required to maintain assets at 105 per cent of liabilities (measured using current market interest rates for discounting) and to maintain a buffer reserve for fluctuations in the value of investments, interest rates and currencies – leading to an average fully funded level, with 'normal' interest rates, of some 120-130 per cent of liabilities. Once a deficit at the 105 per cent level emerges, the funds are allowed a short recovery period for restoration of the funding levels. Until recently this was three years, but a temporary extension to five years is now being considered, in view of the difficulties caused by the current very low interest rates and the disturbances on the financial markets. Also see the country note on page 42.

A further possibility, which may replace the possible third level of security, is that an autonomous DB fund hands over all or part of its risks (from mortality, survivorship or the return on investments) to a life insurer, or to a consortium of life insurers. In that case, solvency of the fund depends on solvency of the insurer. "Multi-employer" schemes may or may not include such transfer of risks.[3]

It is worth noting that the guaranteed amounts are probably related to entitlements on the accrued benefit obligation (ABO) basis at the time of wind-up after an

3 In the USA, some multi-employer schemes are covered by the Pension Benefit Guarantee Corporation, and pay lower premiums than individual funds.

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insolvency, rather than entitlements on the projected benefit obligation (PBO) basis. See section 9, on page 39 below, first paragraph, for a further discussion.

2 ENTITLEMENTS IN NON-AUTONOMOUS DB SCHEMES

A degree of priority for the claims of the "book reserves", or pension entitlements, is a possibility. But as the assets to support these obligations are not segregated, insurance of the risk of insolvency of the employer is vital. It exists in Germany and in Sweden. In Germany the insurer is established by law as a mutual insurance corporation, and it is the same in Sweden; their income and expenditure accounts follow the pattern usual for non-life insurers.

However, in both countries autonomous funds with segregated assets also exist; in Germany they are quite new (since 2002) and are covered by the pension insurer. Also, some companies with a non-autonomous scheme have segregated investments in a separate legal entity, corresponding to part of their pension obligations. In Germany the premiums payable to the insurer by the non-segregated schemes are much higher than those payable by the segregated schemes, because in the event of failure the insurer has to cover the full level of the pension obligations, not just the amount of any shortfall in segregated assets.

3 DESIDERATA FOR PENSION INSURERS OR GUARANTORS

This is a summary of the full survey in OECD Working Paper on Insurance and Private Pensions, No.5 (pages 11-13), mainly taken from the conclusions of that paper, setting out "principles for the successful operation of a pension benefit guarantee system". Readers are recommended to go to the original source. The excerpts below are shown in quotation marks.

- *Regulation*: "accurate and consistent funding rules: pension benefits should be fully funded and plan sponsor should be required to act swiftly in order to limit losses. Successfully combining a guarantee scheme with funding rules ensures some upside limit to potential claims and makes the guarantee scheme affordable. Consistent and adequate financial measurement and disclosure are required."

  Earlier, the report suggests that, for autonomous schemes with diversified assets "good funding rules can achieve almost all of what a guarantee scheme is striving for, are arguably easier to design and manage and, especially when combined with other measures (such as asset liability matching or priority bankruptcy rights) offer a high level of protection" but points out that, for the non-autonomous schemes, the OECD Guidelines of 2002 say "the establishment of an insolvency guaranty scheme should in general be required for occupational defined benefit plans that are financed through the book reserve system."

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- *Limited benefit coverage:* such as a ceiling on benefit coverage and exclusion of benefits granted prior to insolvency.

- *Risk based pricing:* so as to avoid *moral hazard* (the adoption by funds of "riskier models of behaviour as an undesirable response to the financial protection provided by the insurance carrier") and *adverse selection* (or cross subsidisation of failing schemes by the viable ones).

- *Prudent asset liability management:* both of pension funds and of "the guarantee fund itself, if it takes over the assets of insolvent schemes".

- *Adequate powers:* "a pension guarantee scheme needs to have adequate powers to avoid moral hazard and prevent plan sponsors using their guarantee as a 'put' for their pension liabilities… Any guarantee scheme needs to operate without undue political influence."

Earlier, the OECD report says that

- *Systemic risk* is an unavoidable disadvantage.

"This stems from the fact that the bankruptcy and underfunding risks of pension plan members are correlated, meaning that the insured risk cannot be spread sufficiently" and goes on to say that insurance cover cannot be provided for systemic risks "such as macroeconomic weakness, which increases the bankruptcy risk of all companies, or sharp equity market and interest rate declines."

The following thoughts occur to me. It is evident that systemic risks also affect the pension funds, to a higher degree when there is no insurance/guarantee body. But funds may be less inclined to limit benefits in the face of systemic risks when there is one.

In my opinion, despite the present crisis, a further difficulty of pension insurance or guarantee is the risk of overfunding of the insurance/guarantee body in the long-term, in view of the difficulty of assessing the systemic risks. There are usually no competing bodies to limit possible overfunding, and, even if there are, on the analogy with mutual life insurers, an over-cautious accumulation of reserves could still result.

4 ACTUAL SITUATION OF PENSION INSURERS OR GUARANTORS

Funding of guarantor		
	Funding objectives Independent of Government?	Risk based Levies?
Germany	Yes	No
UK	Yes	Yes
USA	? No	No
Ontario (Canada)	No	Yes

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Levels of cover		
	Upper limit?	Proportion only?
Autonomous		
UK	Yes	Yes
USA	Yes	?
Ontario (Canada)	Yes	Yes
Non-autonomous		
Germany	Yes (100%)	No

Levels of cover	
	Action after a claim
Autonomous	
UK	Takes over the fund and pays compensation
USA	Takes over the fund and pays compensation
Ontario (Canada)	Pays the unfunded proportion
Non-autonomous	
Germany	Buys annuities

5 POSSIBILITIES FOR TREATMENT IN THE NATIONAL ACCOUNTS

I try to look forward to treatments in SNA 2008 (and in the revised ESA that will follow it) but, in the country notes, the references to current treatments refer, of course, to SNA 1993 and ESA 1995.

There appear to be several options for the treatment of a pension insurer or guarantee body in the national accounts and national and sector balance sheets, associated with the possible risk of default of a DB pension scheme from insolvency of the sponsor or other causes. The situation probably varies between countries, depending on the legal status and *modus operandi* of the insurance/guarantee entity.

A primary distinction is between treatments which treat the net assets of the insurance or guarantee body as *contingent* assets of the insured entities and treatments which regard these net assets as *actual* assets of these entities, attributable to the insured entities – collectively, even if not individually.

- *Contingent assets of the insured entities*

  (i) The insurer/guarantor is classified as an ordinary non-life insurer (on the criterion of 'no certainty of benefit')

  (ii) It is classified as a financial auxiliary (a treatment following ESA 1995, perhaps subject to change in the next ESA)

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(iii) It is classified as an issuer of guarantees:
(a) One-off (perhaps as a financial auxiliary)
(b) Standardised [4]

- *Actual assets of the insured entities, taken collectively*

(iv) The protection body is classified as a specialist insurer (on the basis that its technical reserves/technical provisions are part of overall saving for pension provision)

(v) In the case of autonomous pension funds, it is regarded as like a reinsurer and is combined with the funds.

(vi) Its activities, if located in Government, are part of unfunded social insurance (perhaps unlikely)

The advantage of treatments as actual collective assets of the insured entities is to portray the feature that the existence of a protection body with net assets improves the 'quality' of individual pension entitlements, by reducing deficits of the funds, when taken collectively. The entitlements, taken collectively, are then seen in direct relation to all the assets supporting them. A treatment as collective assets diversifies risks, by adding the net assets of the protection body to the collectivity of assets available for the funding of pension obligations. As a DB pension fund itself incurs investment risk, and possibly mortality/survivorship risk as well, it is like an insurer, so that the guarantee body could be regarded as like a reinsurer offering "excess of loss" cover.

Protection bodies as issuers of guarantees. It is useful at this point to look at discussions in the AEG for the 2008 SNA about guarantees on loans.[5] The note setting out conclusions on this issue (No. 37) distinguishes between standardised and one-off guarantees. Standardised guarantees on loans are "issued in large numbers, usually for small amounts", and have the characteristic of the pooling of risks, such that the levies or fees paid are expected to cover the predicted risks of default on loans, as with insurance. However, the present value of these predicted risks (similar to technical provisions in insurance) is not regarded as an actual asset of the collectivity of the entities receiving the guarantee, but as a 'stand alone' liability of the guarantor, with no counterpart asset. One-off guarantees are regarded only as contingent assets of the guaranteed entity at the time when issued, and are not recorded in the core accounts until they are activated, with the full amount of premiums or levies being treated as payments for a service.

4 Standardised guarantees on loans are similar to insurance, and in SNA 2008 the treatment in the income and expenditure accounts is the same as for insurance, but I have been advised that in balance sheets there is a difference between the recording of an issuer of standardised guarantees on loans and the recording for an insurer, in regard to the treatment of the counterpart to their technical provisions, see section 5 of this paper. The treatment for loans suggests that any entity, benefitting from standardised guarantees accorded to it, should be treated as having no actual asset in respect of a guarantee until it is activated. However, the case of guarantees relating to pension funds is not mentioned specifically in SNA 2008.

5 See AEG issue paper No.37: and the paper for the fourth meeting of AEG "Granting and Activation of Guarantees in an updated SNA", by Reimund Mink (SNA/MI.06/18).

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Thus both types of guarantees, if similarly applied, in regard to the risk of default of DB pension funds, would exclude attribution to the funds of the technical provisions (net assets) of the guarantor, unlike the treatment under insurance. Likewise, there would be no question of attributing negative technical provisions, if a guarantor has claims exceeding assets.

Protection bodies as specialist insurers. Another possibility would be treatment of a protection body as part of insurance proper. What is at issue here is whether a protection body can have a secure basis on which to make actuarial provision for future claims, like an insurer. That appears to be the intention and the practice in some countries. The difficulty is systemic risk, but it should be noted that the risks being covered are both that a pension fund is in deficit and that the sponsor becomes insolvent – not just that the fund is in deficit, perhaps temporarily because of unusually low interest rates, whilst the sponsor remains solvent.

In the first and fourth cases listed in page 33 and 34 above – treatment as insurance proper – the technical provisions of the insurer would be attributed to the "policy-holders", which are the funds. In these cases, the body accepting the risks of default could be called a "pension insurer".

If it were treated as an ordinary non-life insurer – leaving aside for the moment the proposed substitution of expected claims for actual claims – each year's provision for claims, unlike life insurance, would take account only of events which had occurred in the year, that is, insolvencies giving rise to a call on the guarantee; provisions from current premiums for future claims would not be treated as technical provisions but as second line reserves funded out of operating surplus. (However, the substitution of expected claims blurs the distinction between events that have happened and provision for future events; it would be difficult to estimate statistically the expected claims of a pension protection body.)

In some cases such as health insurance a provision for future events is made (and so it would be, if term insurance were treated as non-life insurance, on the 'no certainty of benefit' criterion). Therefore, if the treatment as a pension insurer includes provision for future events within the insurer's technical provisions, these would include the balance of its reserves held for future claims (somewhat similar to the "life insurance provision" of a life insurer). Thus, these liabilities of the guarantor would be attributed as assets to the pension funds which benefit from the guarantee. But symmetry might require attribution of negative technical provisions, when a pension insurer has claims from actual events exceeding its assets.

If it can be considered that the normal situation is one where the pension insurer has positive net assets, it makes sense to attribute the technical provisions of the guarantor to the pension funds which it covers, because the funds' deficits, in aggregate, would thereby be reduced. This appears to be consistent with

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the fact that there is an increase in the 'quality' of the given DB entitlements.[6] The pension funding sub-sector is often thought of as being analogous to life insurance, primarily because it shares the savings element of the latter. Therefore the attribution of an insurer's net assets to the pension funds, even if only taken collectively, as cover for risks faced by them as policy-holders, looks at the similarity between pension funding and life insurance through their contributions to collective saving. However, there would be difficulty when a pension insurer is in deficit; in that case there are likely to be variations in national law about what should be done – for, instance higher premiums or levies, lower guarantees or the possibility of bail-out by Government.

6 OTHER FEATURES RELEVANT TO TREATMENT IN THE NATIONAL ACCOUNTS

Activities of a pension fund guarantor after activation. Another feature relevant to the treatment in the national accounts is what happens when there is a default of a pension fund. If the guarantee body takes over the obligations of a failed fund, and pays pensions etc itself, rather than purchasing annuities, it acquires features such as the management of pension payments which are similar to those of a pension fund proper.

Combination of a 'guarantor' with autonomous pension funds. Treatment of the guarantee body as like a reinsurer and its combination with autonomous pension funds, as in the penultimate bullet in the list on page 34, would produce a similar effect to treating them as specialist insurers – that of increasing the 'quality' of the given DB entitlements, through reducing the excess of obligations, taken in aggregate, over the combined assets (assuming a 'normal' situation where the pension insurer has net assets). Transactions between pension funds and a guarantee body would be recorded in the same way as those between direct insurers and reinsurers.

Combination also has the advantage of leaving the sector classification unchanged when a fund is wound up and its assets are transferred to the insurance or guarantee body.[7] Thus it avoids entitlements, covered by insurance, being transferred to a separate sub-sector whenever the insurance is triggered, and avoids some differences of treatment stemming from the possibility of different practices once this happens.[8] It also takes account of the fact that the guarantee body may well get involved in the administration of pensions. A difficulty remains, however: that of possible lack of symmetry of recording if the pension

6 A similar effect, through a different route, is seen in a tightly regulated system such as the Dutch one, where the balances of the individual funds reflect higher requirements for the actual asset holdings of each fund. When pension guarantees are treated as insurance, the net asset holdings of the insurer would be regarded as bolstering the reserves of the funds, when taken collectively.

7 In the USA national accounts, benefits paid by the Pension Benefits Guarantee Corporation are split between those previously funded by failed pension funds (around 60 per cent), which remain in the pensions funding sub-sector, and those funded by premiums, which are public social insurance. See footnote in page 44.

8 In the UK, the Pension Protection Fund takes over insolvent funds after an assessment period, itself invests transferred assets and itself pays the guaranteed element of pensions.

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insurer has a deficit, including differences between countries in law and practice about what should then be done.

Public or private sectors. The guarantee body or insurer could be classified as a publicly controlled corporation or as a private sector corporation, depending on the circumstances. If it depends on money from Government, it could be classified to General Government. It could either be classified as part of funded social insurance, or – less likely – as part of unfunded social insurance, if owned or controlled by Government. Unless it is profit making, its output of services would be represented by its administrative costs, which may be included in the premiums levied, or may be charged separately. These administrative costs become intermediate consumption of the premium payers.

Which treatment is best? Very uncertain. It will depend on law and practice in each country, which may well differ. On both the SNA 2008 bases for the guarantee of loans, the net assets (or net liabilities) of the guaranteeing body would be kept away from the guaranteed entities until such time as a guarantee is activated; and after activation a guarantor may acquire some functions similar to those of the funds themselves.

In a 'normal' situation where a body accepting risks of default of DB pension funds has net assets, there are advantages of:

a) classifying it as a specialist insurer with attribution to policy-holders, or
b) treating it as like a reinsurer and combining it with pension funds in the same sub-sector.

If so, the aggregated level of a deficit of the autonomous funds, attributed to the sponsors, is reduced by the level of the technical provisions of the insurer (if positive), consistently with an increase in the 'quality' of the given entitlements of members of DB schemes due to pension insurance. Or if the aggregated level of the funds is a surplus, it is increased.

Symmetry of recording would also require attribution or combination of any deficit of the 'pension insurer', at least in regard to claims known to exist at its accounting date. On treatment a.), there might be lack of symmetry in the recording of any provisions for future claims – included if positive, not included if negative. On treatment b.), any provisions for future events would be included whether positive or negative.

7 EXISTING CLASSIFICATIONS IN THE NATIONAL ACCOUNTS (ON SNA 1993/ESA 1995 BASIS)

Existing classifications (SNA 1993)	
UK	S.125
USA	Public social insurance (part) and pension funds (part)
Ontario (Canada)	Government, sub-sector provincial Government
Germany	S.125, pension funding sub-sector

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Treatment of levies or premiums. For DB schemes, the Supplementary Table records both opening and closing levels of the actuarially determined entitlements and the factors accounting for changes in these. The actuarial valuation of DB entitlements is not directly affected by pension insurance; but the 'quality' of the entitlements is. There appear to be two options for treatment of the levies payable to a guarantor/insurer in respect of autonomous schemes. Either they could be treated as directly payable by the sponsor, so by-passing the accounts of the pension fund, or they could be regarded as payable by the fund with reimbursement from the sponsor. The latter seems preferable. In the case of non-autonomous schemes, they are paid by the employer. They could be either payments for a service (when contingent assets of the entities receiving the guarantees) or – when actual assets of the entities receiving the guarantees insurance – premiums, consisting of a risk premium (or net premium) matched by a provision for present or future claims, and a smaller charge for a service.

Treatment of lost and relocated entitlements. When a fund is closed whilst in deficit, for whatever reason, presumably the entitlements lost without compensation are "Other Volume Changes". When there is no guarantee or insurance, a fund in deficit may remain active during a run-down period, even though the sponsor is insolvent; there is then a moot question: at what stage are some entitlements lost? Probably it is at the time when the sponsor backs out, unless the participants retain a credible legal claim on the fund for the lost part of their entitlements, whilst the fund remains in being.

If a fund is guaranteed or insured, and a large part of the entitlements is potentially picked up by a guarantor or insurer, the balance lost by individual members still seems to part of "Other Volume Changes". But this could well be the net effect of:

a) what the loss would be if not guaranteed or insured, and
b) a degree of restitution by the guarantor or insurer.

For instance, the funding level of the original scheme might be only 60 per cent and, depending on its rules, this might affect the entitlements of active members more than those of retired members. Leaving this complication aside, the average level of entitlements might be restored by the guarantor/insurer to 90 per cent of their original level. Thus "Other Volume Changes" of the sub-sector pension funding would reduce entitlements by 40 per cent and "Other Volume Changes" of the sector in which the guarantor/insurer is located would increase the entitlements by 30 per cent of their original level.

Thus the entries in row 6 of the Supplementary Table (Transfer of pension entitlements between schemes) would show, in Column B for DB schemes, the loss of 60 per cent of entitlements and this would carry through to Col. I (Total: pension schemes) when the guarantor/insurer is in another sector. However, on Option (v) of the list on page 34 above – combining the guarantor/ insurer with the DB pension funds – there would be no net effect. Likewise, on the USA treatment – see footnote 1 on page 44 – the 60 per cent stays where it is.

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9 INDIRECT IMPLICATIONS FOR THE SUPPLEMENTARY TABLE

There may also be some indirect implications. I can think of three. First, ABO/PBO (accrued benefit obligation / projected benefit obligation). By definition an guarantor/insurer encounters a claim only when there is a failure. Thus, the ABO basis applies. IAS 19, on the other hand, looks at a going concern basis (PBO), coupled with defining a state of being fully funded as that required in a potential wind-up situation. Thus a current market rate of interest is used for discounting estimated future outgoings to the present day. (If the interest rate tallies with that used by annuity providers, a fully funded scheme could purchase annuities sufficient to fund existing and future pensions, with some allowance for expected future increases in real wages.)

The possible existence of guarantee/insurance arrangements does not seem to figure in IAS 19 but arguably, on a going concern basis, the potential claims of funds, taken collectively, on the net assets of the guarantor/insurer should be credited to their balance sheet. (This is based on the idea that the guarantor/insurer's net assets are regarded as part of collective savings for future pensions, and so as *actual* assets of the funds – see options (iv) and (v) on page 34.)

Secondly, the very existence of a guarantor/insurer alleviates day-to-day funding requirements, to some extent, by spreading risks. The levies which it charges will cover the risk of collapse of the sponsor at a time when the relation between market interest rates and longer term investment yields is adverse, as well as the risk of collapse at other times. Thus it may become unnecessary for each fund to seek to cover individually the risk of volatility in the relationship between market interest rates and longer term investment yields – the risk of collapse, due to failure of the sponsor, could be viewed in a longer-term manner. In other words, the discount rate used for valuing liabilities – when making funding decisions – could perhaps be smoothed, as was usual practice in many countries, before IAS 19. In this connection, it is interesting to note the following statement by the UK Pension Protection Fund about the basis on which it determines its aggregate requirement for levies.[9]

"To determine the aggregate levy schemes pay, the Pension Protection Fund uses a long term risk model (LTRM). This ensures that the Pension Protection Fund adjusts for short term volatility and uncertainty by taking a longer term time horizon. The LTRM generates a probability distribution of claims on the Pension Protection Fund on different longer term horizons from five to twenty years, taking into account a very large number of possible economic and financial market outcomes".

9 Source: Note 1 of the Pension Protection Fund's series of monthly updates providing the latest estimated funding position of almost 7,800 predominantly private sector defined benefit (DB) pension schemes in the UK. This does not indicate how the aggregate levy is distributed amongst individual funds; the Pension Protection Fund is responsible for keeping the assumptions used for valuations in line with estimated pricing in the bulk annuity market – see the country note for the UK.

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This appears to suggest that recovery periods from a position of deficit could take account of the impact of such short-term volatility, on the basis that premiums reflect cover.

Thirdly, there may also be an implication for the on-going study of the core/ non-core boundary. A degree of guarantee established by law of the entitlements of members of the DB schemes of *private* sector employers, if it exists, implies that their entitlements are relatively secure at the ABO level. Thus, by implication, it would become politically difficult for *Government* to change the structure of the DB schemes set up for their own employees, in such a way as to reduce, retrospectively, the ABO level of their entitlements (viz., a retrospective change in the accrual rate). On the other hand, restructuring of social security pension schemes involving changes in accrued-to-date entitlements are common. Thus, when a guarantee scheme exists, the case may be strengthened for inclusion in the core accounts of any unfunded entitlements of General Government employees, in schemes which are distinct from social security (Col. G of the Supplementary Table).

10 UPDATED COUNTRY NOTES

At Annex, pages 41-45. Also see the OECD Working Papers on Insurance and Private Pensions, Nos. 5 and 17, for more detail. In the country notes I have drawn extensively on both papers. Paper No.17, issued in April 2008. is entitled "Fund Regulation and Risk Sharing", by Colin Pugh and Juan Yermo.

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ANNEX

A1 GERMANY (BOOK RESERVE SYSTEMS ONLY)

Regulation	
Funding target	Not applicable (book reserve system).
Discounting of obligations	6% fixed,[1] the required basis for corporate taxation.
ABO/PBO	ABO, the required basis for corporate taxation.
Recovery periods	Not applicable.
Remarks	Some autonomous schemes with segregated assets, which started in 2002, are also covered by the insurance and pay much lower premiums.
Guarantee/insurance body	
Name	Pensions Sichererungs-Verein Versicherungsverein auf Gegenseitigkeit (PSVaG).
Classification in the national accounts	S.12502, sub-sector, private pension funds.
Level of compensation:	
A proportion only?	No, 100%
Upper threshold?	7,400 euro per month.
Annuities, or self-financing? [2]	Annuities are purchased through a consortium of life insurance companies.[3] (Consideration, earlier, of introduction of a capitalised system – self investment of premium income and own payment of compensation – is no longer active.)
Investment restrictions	No.
Independence from Government	Yes.
Remarks	Premiums are flat, based only on the level of obligations (book reserves) – 0.18% for 2008, 0.30% for 2007 and, on average, 0.38% in the five years 2002-2006. German companies have generally accepted the fact that viable companies subsidise those companies which fail, as an acceptable ingredient of the book reserve system. A risk-based structure of premiums was considered two years ago (with a lawsuit), but has not led to a decision.

1) The Accounting Law Reform has proposed taking the average of market interest rates over the past seven years.
2) After assuming obligations of failed schemes.
3) For this purpose, when PSVaG purchases annuities from insurance companies, a discount rate of 2.5% is used for valuing the entitlements of previous employees of failed companies.

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A2 NETHERLANDS

Regulation	
Funding target	105% of obligations, plus a buffer reserve for volatility in investments, currencies and interest rates, equal in total to some 120%-130% of obligations on average.
Discounting of obligations	Market based. The central bank publishes each month a yield by duration curve, based on the inter-bank swap market.
ABO/PBO	Mostly PBO, but can exclude inflation proofing of deferred benefits or of pensions in payment.
Recovery periods	105% target: limited to three years, but currently a temporary extension to five years is being considered. Investment buffer reserve: 15 years.
Remarks	No known instance of failure whilst underfunded, to date. The current difficulties (very low interest rates) could lead to a restructuring of benefits of some schemes at a lower level, probably starting with fringe benefits such as inflation proofing of pensions, which is discretionary and is linked to funding levels. The rules of some schemes provide for changes in employee contribution rates when there are funding difficulties.
Insurance/guarantee body	None.

A3 UK

Regulation	
Funding target	The Pensions Act 2004 set up a new Pensions Regulator with substantial powers, but it does not have a prescriptive minimum funding requirement. One measure of adequate funding, perhaps a lower bound (being less than on the ISA 19 basis), is to hold assets matching what would have to be paid to an insurance company to take on payment of compensation at the same (restricted) level as payable by the Pension Protection Fund (the so-called "Section 379 basis"). Obligations include statutory price indexation of deferred benefits and pensions, now capped at 2.5%.
Discounting of obligations	At market rates (implied by the S.379 basis), depending on the bulk annuity market, but there may be some flexibility, on a going concern basis.
ABO/PBO	? (but it is PBO in the UK accounting standard, FRS 17).

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Recovery period	Ten year maximum.
Remarks	The Pensions Regulator identifies 'at risk' funds and establishes a funding target for them and an associated recovery plan. It seeks to 'educate' Trustees.
Guarantee/insurance body	
Name	Pension Protection Fund (PPF).
Classification in the national accounts	S.125.
Level of compensation:	
A proportion only?	90% of entitlements for active members, 100% for pensioners.
Upper threshold?	An annual pension of £28,000, currently.
Annuities, or self-financing?[1)]	Self-financing.
Investment restrictions	No. Stated objective is 70% in bonds (?).
Independence from Government	Yes, the Act requires the PPF to be self-financing, gives it freedom to set levies, subject to an upper limit, and provides some discretion in reducing compensation, should the PPF get into in financial difficulty.
Remarks	After an initial period, 80% of the levy will be risk related, depending both on the degree of underfunding and on an independent assessment of the financial strength of the sponsor.

1) After assuming obligations of failed schemes.

A4 USA

Insurance relates to private corporate schemes; funded DB schemes for State and local government employees are regulated differently and are not insured.

Regulation	
Funding target	Yes. The Pension Protection Act, 2006, establishes minimum funding standards & identifies "at risk" schemes.
Discounting of obligations	Investment grade corporate bonds of the appropriate duration.
ABO/PBO	Generally ABO.
Recovery period	Not more than seven years.
Remarks	No statutory indexation of benefits.
Guarantee/insurance body	
Name	Pension Benefit Guarantee Corporation (PBGC).

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Classification in the national accounts	Split between a part treated as social insurance of Government, national accounts when payments are funded by the pool of premium income, and a part remaining classified as pension funding, when benefits are paid out of the resources of the fund, when taken over.[1)]
Level of compensation:	
A proportion only?	?
Upper threshold?	Yes.
Annuities or self-financing?[2)]	Self-financing.
Investment restrictions	Yes (for premium income).
Independence from Government	No-premiums set by Congress.
Remarks	Also covers multi-employer schemes (lower premiums).

1) Information from BEA:
"The sectoring is a bit complicated. When a plan fails and is taken over by the PBGC, the plan will typically have enough assets to fund a significant proportion of the promised benefits (I'd guess 60 per cent would be typical) Those assets are available to the PBGC to help fund the promised benefits. So we split the benefit payments into a part that is paid for out of plan assets and a part that is paid for out the resources of the PBGC itself (which come from insurance premiums paid by the funds). The benefits that are funded by the resources of the PBGC are classified as social insurance paid by government. As for the plan assets, they are already the property of the plan participants, so the interest and dividends earned by these assets are part of household income and the benefit disbursals funded by earnings on plan assets are just a financial transaction." (Author's Note: that is, these disbursals are not treated as part of household disposable income, "dual recording" not being used).
2) After assuming obligations of failed schemes of unfunded entitlements of schemes in deficit whose sponsor fails.

A5 ONTARIO (CANADA)

Regulation	
Funding target	100% of technical provisions and 100% of going concern liabilities as valued at PBO on projected unit credit method.
Discounting of obligations	Federal bonds of appropriate maturity + 0.5%.
ABO/PBO	Both.
Recovery periods	Five years.

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Remarks	The above are mostly Provincial Government regulations. No statutory price indexation.
Guarantee/insurance body	
Name	Pension Benefit Guarantee Fund.
Classification in the national accounts	Consolidated within the Provincial Government subsector, Government sector.
Level of compensation:	
A proportion only?	Yes, based on a share of funding.
Upper threshold?	Yes, lower than USA, at 12,000 Canadian dollars, fixed[1)].
Annuities, or self-financing?[2)]	Annuities.
Investment restrictions	Probably not.
Independence from Government	Sets own premiums, but has had to borrow from Provincial Government.
Remarks	Premiums now are a rising proportion of the degree of under-funding, rising from 0.5% to 1.5% of underfunding as a proportion of total obligations (10%, 10-20% and 30%+). Any indexation of benefits in scheme rules not covered. Mult-employer schemes not covered.

1) The fund will provide for benefits based on a share of funding up to $1000 per month. For example, at the time of bankruptcy of an employer if the pension plan was able to cover 70% of the assets required to fund the benefits payable, the fund would pay $300 in benefits. Any benefits in excess of $1000 per month would not be covered.
2) After assuming obligations of failed schemes.

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DISCUSSION ON SESSION I

BY GABRIELE SEMERARO [1]

1 INTRODUCTION

This discussion is based on the papers by John Walton, Robert Dippelsman and John Verrinder, all devoted to the new statistical treatment of pensions in the international standards, from different viewpoints. John Walton chooses to focus on a specific, technical point. But the result looks like a test for the whole picture, able to shed some light on more general properties. Robert Dippelsman discusses the developments of new pension statistics, with specific regard to leading role played by the IMF and the concern of government finance experts. John Verrinder presents the new statistics with more emphasis on European contributions, notably in the field of pension modelling and measurement techniques (ABO/PBO, discount rate, treatment of reforms).

In this discussion, I will focus on three specific points, explicitly or implicitly suggested by the papers: the problems of "quality of assets" reflected in the accounts; the importance of modelling aspects, including the separation between transactions and other economic flows; and the coverage of the new criteria on constructive obligation (where should they stop?).

2 ISSUES ON THE QUALITY OF ENTITLEMENTS

The starting point for John Walton's paper is the existence of a second level protection for pension schemes, observed in many countries. This additional protection is normally imposed by the state or a guarantor, and ranges from simple regulation to taking over the assets and liabilities of schemes in deficit when a sponsoring employer becomes insolvent. The paper's purpose is to identify an appropriate treatment in the "core" national accounts, as well as in the Supplementary Table on pensions foreseen in the new System of National Accounts (SNA 2008). At one extreme there is the possibility of regarding the additional level of insurance as contingent liabilities: this basically means recording *nothing*, at least before activation of the "guarantees". At the opposite extreme there is the possibility of treating the protection body as taking part in the insurance process (by adding its own net assets to the original schemes, and by diversifying risks). The body would then act as a sort of reinsurer of the risks incurred by the pension schemes. This basically means recording *something*, in form of actual assets, fully recognised in the system.

1 Banca d'Italia, Economic and Financial Statistics Department. The views expressed herein are those of the author and are not necessarily endorsed by the Bank of Italy.

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One of the conclusions is that several options may be adopted for the treatment of a pension guarantor in the national accounts, and the best treatment may vary between countries, depending on the legal status and the operating rules of the guarantee entity. In addition to the specific points directly raised by Walton, it seems natural to ask ourselves something more general. It seems that cases where recognition of assets is more likely are those where some reserves are built up by the guarantor (may be using premiums). Other forms may be less likely to be recognised in the accounts: for example, where there are no payments that might be thought of as part of a reinsurance scheme; nonetheless, in comparison to the former, those latter forms may provide the same level of security, due to a strong degree of commitment by the guarantor. Are we sure that, in the new SNA, entitlements with the same intrinsic value are measured in a consistent way?

The existence of a protection body causes an improvement in the 'quality' of individual pension entitlements, that should be captured in the system of the accounts. Walton's discussion is more focused on schemes where the guarantee resembles the form of a sort of private scheme and standard actuarial techniques are therefore applicable. A representative example is the case where a protection scheme is established for autonomous DB schemes, levies premiums and builds up net assets, in order to reduce the funding risk of the first level schemes. This latter arises from investment risk incurred by the DB funds, as well as from mortality/survivorship risk, and its relationship with the premiums levied by the protection body could be assessed in a standard way. However, it should be stressed that other cases exist, where the "quality" of individual pension entitlements is "de facto" increased by a guarantor, without the form of an explicit reinsurance scheme. Standard actuarial values would take into account the life expectancy, the expected income and age of retirement, and other information on the side of the insured. Things are more complicate on the side of the insurer. Calculations could be made for the investment risk of the fund. A second level fund (combining financial as well as mortality/survivorship risk) may also be assessed, even though incurring some additional estimation problems (see Walton's comments on the risk of overfunding). However, the level of commitment of a third party, as well as the probability of default of all subjects on the insurer side might prove not easy to measure. Of course, it is easy to write down a formula showing the final value as a function of all relevant probabilities. But unfortunately, tables with tested coefficients are available for the employee side, not for the level of commitment of a public protector. Nonetheless, if entitlements were allowed to be exchanged on an appropriate market, their value would be in principle impacted.

This introduces one key, general issue of the new treatment of pensions in the SNA 2008, that is the different properties of actuarial values versus market values. As a general rule in national accounts, consistency within financial instruments of different "quality" is assured by reference to market evaluation. Bonds with the same nominal value and interest payments may differ in the probability of default, depending on a number of factors, including the behaviour of the issuer. However this difference will be reflected in different market values. Actuarial values are tentative substitutes for market values, but this substitution is not perfect. It would be not fully appropriate to object that non standardised

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protection would be treated as any other (non standardised) guarantees in the SNA 2008. The value attached to liabilities issued by a corporation would be affected by a guarantee, even though the guarantee itself is not recorded. Whereas in the case of DB pension schemes, if the guarantee does not enter the actuarial formula, it is definitely lost in the accounts. As a consequence, different categories of households may face the same level of expected benefits (and actuarial values), with different levels of protection. The entitlements shown in the national accounts may be the same. However, the economic behaviour of the two groups would likely differ: when planning current and future expenditure, households would reasonably take into account the additional level of security. The national accounts would not capture some significant factor impacting on the economic behaviour. It should be noticed that some problems are not direct consequences of the use of actuarial methods as substitutes for market values. As suggested by Walton in other occasions, they may depend on the specific actuarial approach that has been favoured by the national accountants. The current actuarial method is strictly linked to a break-up basis, expressing the cost of terminating the pension schemes. This method is deemed by the accountants to be closer to the concept of current market value. However, there are cases in the national accounts where the break-up basis may significantly diverge from market values, as defined and used in other cases.

Again, investigation of the topics discussed by John Walton reminds us that actuarial values are useful and necessary in the new SNA; but for the purposes of national accounts, they are still imperfect substitutes for market values.

3 COMPARISON BETWEEN SNA 2008 AND ESA 2010

The presentations by Robert Dippelsman and by John Verrinder have some elements in common, since both of them recall the reasons for changing pre-existing rules and comment on the current solutions. However, the presentation by Dippelsman is focused on the SNA, in relation to the big picture provided by the pre-existing International accounting standards and IMF's Manual on government finance statistics (GFS 2001), as well as the 6th Manual on balance of payments. On the other hand, Verrinder's focus is on the ESA, with specific regard to the European debate and contributions. Verrinder recalls the inputs from the first Eurostat Task Force on pensions, that explored the difficulties of distinguishing government employer and social security pension schemes. Then, a CMFB task force was established, jointly chaired by ECB/Eurostat and collecting members from many EU countries plus OECD and IMF. This task force final report, welcomed by CMFB in February 2008, was strictly related to the Draft revised ESA chapter on "Pensions" (17), summarised and commented by Verrinder. In order to add something to their very clear interventions, I will concentrate more on points where the two presentations, though consistent, show alternative points of view.

It is worth comparing how the two authors deal with the problem of reliability of estimates for pension entitlements. When reviewing the reasons for changing the previous treatment of pensions, Dippelsman recalls the particular concern for

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the IMF about off-balance sheet liabilities. Omitting unfunded schemes would facilitate incurring unrecorded expenses and accumulation of obligations and would mean that vulnerabilities are not reflected in balance sheets. Following Dippelsman, this explained the original deviation of the GFSM 2001 from the pre-existing SNA. Measurement of pensions depends on the award formula in conjunction with assumptions about life expectancies of employees and dependents, staff turnover, future general salary increases, the employees' future promotion path, etc. This raises statistical concerns on the degree of estimation of actuarial figures and on revision of assumptions. Nevertheless, is the agreeable conclusion implicit in the reasoning, estimates subject to revisions are better than off-balance liabilities.

Verrinder's approach also takes into account the same problems of reliability. However his discussion is more biased toward technical solutions minimizing the effects of assumption revision. This aspect is related to emphasis assigned by Verrinder to modelling issues and accurate separation between transactions and other economic flows. The idea is that accurate modelling prescriptions help to obtain "clean" flows, only explained by underlying economic events, and less dependent on assumption revisions. Those latter revisions would then impact on other economic flows (or OEF, that is: changes in stocks not polluting flows). This diverse approach reflects the different purposes of SNA and ESA: the former is a general guidance for macroeconomic statistics in all countries. Whereas the latter (apart from being used in less countries) is more related to administrative uses, including the Eccessive Deficit Procedure foreseen in the European Stability and Growth Pact. Where the SNA include some solutions, the ESA should foresee one solution (leaving aside non-core liabilities of Government, where flexibility is recommended).

The most important difference may be observed in the case of ABO and PBO recording, that are two alternative ways to model promotions. The usual career path of an employee involves periodic wage rises due to promotion: under ABO treatment, future wage rises are included when they occur, whereas under PBO they are projected in the model and recorded before they occur. SNA 2008 describes the issue but does not recommend one or the other approach. However, a clear preference is expressed on the distinction between flows and OEF:

"The question arises, though, of how to record the impact of promotion on the employee if an ABO recording is used. (...) A simpler and adequate solution is to treat the rise in salary as a price change and record the change in the revaluation account." (SNA2008, 17.185)

This basically means that the impact of promotions, treated as *transactions* in PBO recording, is a *revaluation* if ABO is used. In the long run transactions are not the same. By contrast, comparison with the corresponding articles of the draft updated ESA shows some differences in substance:

"The impact of wage increases should be reflected in transactions, because awarding a wage increase is a conscious economic decision taken by the employer. Moreover, in concept the ABO and PBO approaches lead in the long

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run to the same transactions recorded, even if the timing of those transactions would differ (...).” (ESA 2010, 17.147 (draft))

This means transaction neutrality over time: the only difference for ABO and PBO measurement approaches is the timing of the recording of transactions and entitlements whereas, as just seen, the SNA would imply that over time the transactions observed under an ABO measurement approach would not be the same as those for a PBO approach.

The preference in the SNA seems to be related to problems of aggregation.[2] In the context of the previous remarks, it is worth noting the origin of the opposite position, which has been preferred in the ESA. It has been discussed by the CMFB task force, when investigating the issue of actual computation of transactions versus other changes. It was discussed the case of summing individual calculations as well as the case of cohorts aggregation (a point mentioned in 17.185). The result was that aggregation does not seem to have strong implications for the split between transactions and other flows. Consider, for example, death before retirement. In the one case it should relate to individual death; in the other case it would relate to a generalised decrease in the life expectancy for some cohort. But exactly the same formula would allow for separating transactions from other changes. More in general, our ability to define and compute other changes seems not impacted by the level of aggregation, under both ABO and PBO approaches.

The second reason for the preference in the ESA is also interesting, since relates to the different use in comparison to the SNA (notably in the context of the EDP). The reason is that, when presenting some simulation for a big European country, it appeared that promotions may account for more than 30% of total entitlements. It appeared unreasonable that such a huge amount could either correspond to “surprise” revaluations, or to transactions impacting deficit and GDP. Leaving to countries the option to record or not record transactions amounting to 30% of total stock, it was argued, might result in a serious loss of credibility of the new statistical rules. The practical solution was recognising ABO and PBO as different techniques for identifying the same transactions. The (allowed) choice between ABO and PBO would then impact just the time of recording.

4 WHAT COMES NEXT?

The presentations by Dippelsman and Verrinder clarify most of the points on which a final agreement has been made. It is natural to ask ourselves which points of their surveys are not yet completely defined and which points are likely to change in the future. One first, obvious point refers to the treatment

2 The rationale is provided in the same article: *“(...) Any version of treating the increase as a form of compensation of employees or investment income falls back into the assumption that the aggregate of entitlements is the sum of the individual entitlements but without looking at other individual impacts on the aggregates such as when someone leaves and looses pension entitlement because not enough time has been served or when someone dies before retirement age. (...)”* (SNA2008, 17.175).

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of unfunded employer schemes vs. social security. Are there valid reasons for a different treatment? A continuous source of incomprehension and scepticism on this issue relates to the different meaning that the word "pensions" seems to assume, in the USA . Of course, behind the different meaning of words there is a substantial difference in the institutional mechanisms.

On the one hand, it is true that in the USA and other countries social security might be thought of as substantially different from all pension schemes, included those reserved to government employees. On the other hand, in many European countries, liabilities incurred in the context of social security may have the same award formula and financing mechanism as the schemes for government employees. At least in those cases, the argument by Dippelsman on omitted liabilities that may lead to poor decision making, would seem to be true for social security as well. However, the precise borderline between core and non-core pension liabilities, as well as other issues concerning the practical compilation of the Supplementary Table, far from being closed, may deserve further analysis and further attention in the near future.

Another point that is somewhat "borderline" in the current standard, but may deserve further attention in the future, is about health liabilities. Some seminal elements may be found again in the IMF's manual on government finance statistics (GFSM 2001). For example:

"(...) An unfunded scheme can pay pensions and other retirement benefits that generate liabilities or it can pay other types of social benefits, such as health care." (GFSM 2001, A2.24.)

However, in GFSM 6.15-6.18 imputed contributions only refer to retirement benefits:

"Social contributions are payments, actual or imputed, made by general government units to social insurance schemes to obtain entitlement to social benefits for their employees, including pensions and other retirement benefits. (...)"(GFSM 2001, 6.15)

As recalled by Dippelsman, explicit recognition of some health liabilities can be found in Ch.13 of SNA2008.

For the time being, it is not clear what the range of application for health liabilities might be. No revolution seems to be expected by statisticians in this regard, at least in the context of this SNA. What is sure is the increasing concern by economists and government finance experts about the growth of (unfunded) health expenditure to GDP. This is even found in countries with a mainly private health system, like the U.S. (see for example Kotlikoff (2009)). It should be added that many of the arguments for health liabilities resemble those adopted in the past for supporting the notion of pension liabilities. Even though it is not the first item in the agenda of statisticians, this may be the issue deserving more interest in the medium range future.

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SESSION II

EXPERIENCE OF ACCOUNTING STANDARD SETTERS AND PENSION MODELLERS

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INTRODUCTION

Session II deals with the experience of accounting standard setters and pension modellers. Three papers were presented.

Gabe de Vries (Sigma Statistical Consultancy) considers accounting standards for pension schemes.

Matthias Heidler, Christoph Müller and Olaf Weddige (Freiburg University) discuss concepts of modelling pension entitlements. After describing the concept of accrued-to-date liabilities, as applied in national accounts in the context of open-system gross and net liabilities, the paper outlines the main features of the Freiburg model to estimate, on an actuarial basis and with harmonised model assumptions, the pension entitlements of various defined benefit employer pension schemes and social security pension schemes in EU countries. Detailed revenue and expenditure data as well as population data have been made available for the various pension schemes in a comparable format. Some effort has been devoted to the appropriate design of the pension benefit formula. This refers specifically to the type of indexation of pensions as well as to the treatment of reductions due to early retirement. Moreover, recent reforms of the pension schemes have been taken into account, like the change of retirement age or of the wage indexation formula. The impact of such reform measures on the pension entitlements are assessed in some case studies.

Michel Englert (Bureau Fédéral du Plan in Belgium and Member of the Working Group on Ageing) presents the work on pensions by the EPC Working Group on Ageing. Forecasts of future pension expenditure and other age-related public expenditure in each of the 27 EU Member states are used to evaluate the sustainability of public finances in each of those states. This evaluation rests on a concept of implicit liabilities which is very different from the one used in the work currently being carried out in order to introduce the implicit liabilities of pensions into the national accounts. Both this concept of implicit liabilities and AWG's forecasting methods are an integral part of the budgetary surveillance mechanisms that have been installed at the EU level.

Marshall Reinsdorf (US Bureau of Economic Analysis) discusses these three papers.

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PENSION ACCOUNTING STANDARDS

BY GABE H. DE VRIES [1]

ABSTRACT

This paper deals with the international and national accounting and reporting standards that are relevant concerning the concept of pensions.

The IAS 19, the preliminary views to revise the IAS 19 and the IPSAS 25 discuss the subject premarily from the employers' position. They see accounting and reporting from the angle of the employers' annual account, the picture that should be produced to ensure that these annual accounts reflect fairly the employer's financial situation, the level of the own reserves and the changes over the accounting year. The developers of the updated System of National Account have to decide to what extent this angle should coincide with the national accounts' perception of pensions.

The definitions and terminology differ between slightly between the corresponding documents. This abstact mainly takes the "Preliminary views" as the starting point.

These accounting standards define post-employment benefit schemes as (see "preliminary views"):

> *Post-employment benefit promises are formal or informal arrangements under which an entity (i.e. the employer, ghdv) is obliged to provide employee benefits (other than termination benefits) payable after the completion of employment.*

This concept is wider than old age pensions only, it includes e.g. post-employment medical care and long-term disablement pensions.

Post-employment benefit schemes are broken down into defined benefit plans/ promises and contribution-based promises. The classification of schemes, according to these three (draft) international accounting standards, is deducted from the scheme's characteristics during the accumulation phase only (the period of employment with the employer).

If a scheme/promise is of a defined benefit nature from the employee's point of view but of a contribution-based nature from the employer's point, the later is decisive. The aspect that after the accounting year no further financial consequences are with the employer, is what matters in classifying a promise as a contribution-based promise.

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An employer should report the annual contribution and possibly the unpaid part thereof in its annual accounts with contribution-based promises. With defined benefit, the difference between the gross entitlements of (former) employees and the corresponding assets should be reported on the employer's balance sheet. Also, the current and past service costs (not yet accounted for in earlier years) plus interest costs and actuarial gains/losses should be reported in the employer's profit and loss account. The gross entitlements should take the past and projected future career with the employer as the reference.

Insurers on the other hand would only include the past career of the employee in the calculation of the gross entitlements. The same would apply to pension funds. A non-autonomous pension scheme, i.e. where the employer is the pension institution, would follow the employer's definition of the gross entitlements.

Consequently, the employer(s) should report the over- or underfunding of the pension fund in its (their) own annual account (only with defined benefit schemes). The supervisory safeguards, applying to the pension institution, are not mentioned in these accounting standards. They, as a consequence, are excluded from the definition and calculation of the employer's claim/liability against the pension scheme.

An exception to the reporting of the position with a defined benefit scheme is where the scheme is with a multi-employer fund that does not account separately the position of each individual employer in the multi-employer scheme. Here only premiums and late/early payment could be reported by the individual employers.

I INTRODUCTION [2]

Pensions have become increasingly important within the economies of the European countries over the recent decades. It is not only from the perspective of the aging of the European population and the need to facilitate the income of the elderly that this issue became important. Other relevant perspectives to look at pensions are:

- The large amount of funds that are available with the life insurers and pension funds who became major players on the European financial markets;
- The amount of premiums/contributions that are paid by the working population;
- The corresponding liabilities of employers and pension institutions;
- The effect thereof on the economic situation and development.

2 This text makes reference to the draft version of the SNA and the latest available draft of the ESA, on several places. These drafts are labelled as SNA and ESA as appropriate for simplicity reasons. In case reference is made to the present official versions this will be indicated explicitly.

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The interest concerning the issue of pension premiums/contributions, claims/ benefits and the amount of the assets associated with the pension schemes rose accordingly in society in general. Parallel, the interest in the accounting world rose also.

Simultaneously, confusion on the concept of 'pensions' can still be observed. One can see that the state pensions and the employment related pensions are mixed up. Also, the old age pension and other classes of pensions, esp. the disablement pension, frequently are not properly distinguished.

This paper deals with the way the various classes of (persons), institutions and corporations report or should report their transactions in the field of pensions. Emphasis will be on the employment related old age pensions. Various sets of new and amended accounting rules were developed over the recent years. These are international rules but national ones as well, either developed independently or as a national version of newly developed international standards.

These rules can be distinguished into private sector and public sector accounting rules. A further breakdown is between accounting rules regarding the business sector in general on the one hand and those dedicated standards applicable to specific branches of industry on the other. With the latter especially the financial sector in general and particularly the insurance and pension industry should be mentioned.

This paper aims at summarising the main features of the international and national accounting and reporting standards as seen from the perspective of the system of national accounts, the SNA and the ESA. From this perspective the main elements within these business accounting and reporting standards are the definition of the concept of 'pension schemes' and 'pension promises', the breakdown into separate classes of benefits/promises and the way the financial consequences of these schemes should enter the business accounts of enterprises and government.

Concerning these main elements, the similarities and differences between the business accounting and reporting standards on the one hand and the national accounts' standards on the other will be discussed below.

1.1 ACTORS IN THE FIELD OF PENSIONS

A series of relevant parties exist in the field of pensions.

a. Private individuals: they could be involved in a pension scheme in their role of an employee or as a former employee with deferred rights or as pensioner. A further role could come from the position as a surviving relative (wife/husband or child) of a former employee who died (either in service or whilst being a pensioner).

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According to the insurance terminology, especially the following breakdown of the roles that these individual persons have regarding the pension contract is relevant:

- Policyholder: this is the contract partner in the pension contract who is paying the premium/contribution (or the employer is paying on behalf of the policyholder);
- The insured person: this is the person who's life or death is insured on the pension contract;
- The beneficiary: this is the person who (will) receive(s) the pension benefit.

One and the same person could play various roles in this "pension play" during some period. So, the employee will be both the policyholder and the insured person during the employee's active period in many cases. After retirement, this person has the role of the beneficiary as well. In case of death of the (former) employee, the surviving spouse (and the children) will take over these roles.

b. The employer: the employer is (one of) the organiser(s) of the pension scheme. The scheme can be a single employer scheme or a multi employer scheme (e.g. a pension scheme for a branch of industry). The employer(s), normally, is (are) a large contributor(s) or often the sole contributor(s) of the scheme. Employee's contributions into the pension scheme only exist as well.

   With non-autonomous pension funds, the employer also has the role of a pension institution, i.e. all pension entitlements are on the employer's balance sheet as eventually are the corresponding assets (depending whether the scheme is funded or 'not funded or partially funded'). Also, the claims/benefits paid to the beneficiaries are included as expenditures in the employer's profit and loss account with a non-autonomous scheme. Premiums/contributions, both the employer's and the employees' part, are not explicitly mentioned within the employer's accounts in case of non-autonomous pension plans in many cases.

c. Pension institution: this is the entity that runs the scheme or a series of schemes from the same (group of) employer(s) or a random class of employers. Depending on the pension institution's characteristics, dedicated organs with the pension institution could perform specific tasks and have specific responsibilities.

The pension institution could especially be one of the following categories of institutions[3]:

- A (non-)life insurer that offers group (non-)life insurance.[4] This insurer might insure a large number of pension schemes and/or reinsure a series of pension institutions;

3 The list of pension institutions and the corresponding accounting rules will vary by country. Especially, the accounting rules with the (non-) life insurers, banks and investment institutions are largely harmonised within the European Union. Reporting for statistical purposes with these units is also coordinated within the EU.

4 A non-life insurer could take on board only specific classes of pensions, esp. long-term disablement.

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The (non-)life insurer could insure all risks associated with the pension scheme such as the short and long life risk, the investment risk, credit risk etc. It is as well possible that the insurer takes over the responsibility of only some and/or part of these risks.

- A pension fund that insures the pension scheme or schemes of a single employer or of a series of employers. The fund could reinsure part or all of the risks associated with the corresponding pension scheme(s) with a (non-)life insurer; Depending on the scheme's conditions, either the fund itself or the employer is responsible to meet the pension obligations;
- A pension fund insuring the pension scheme or schemes of a series of employers. The fund could reinsure part or all of the risks associated with the corresponding pension scheme(s) with a (non-)life insurer. A distinction exists between the case where the fund has separate accounts with the individual employers – a so-called 'Institution for Occupational Retirement Provisions (IORP)' – and the case without separate accounts. No solidarity between the employers exists with an IORP, implying that depending on the scheme's conditions, either the fund itself or the individual employer is responsible to meet the 'own' pension obligations. With the other multi-employer pension funds the group of participating employers or the pension fund itself – depending on the scheme's conditions – is responsible to meet the scheme's obligations.
- The employer can act as a non-autonomous pension fund[5]; specific risks, including the risk of default of the employer, can be reinsured with a (non-) life insurer or a reinsurer. The employer will be responsible and accountable for any deficit in the scheme in most cases;
- A government institution that is responsible for managing employment related pension scheme(s);
- Banks, investment companies etc. could be responsible for administrating non-autonomous pension schemes. Also, with an autonomous scheme, these institutions could administer the corresponding institution. They could insure or even might be obliged (re)insuring the part of the associated risks of a non-autonomous scheme with a (non-) life insurer or a reinsurer.

d. Government, a government agency or a legally independent institution as supervisory authority in the field of private pension. This entity might also set the relevant accounting rules concerning the various classes of pension institutions as relevant within the country – whether or not co-operating with government (ministry of social affairs, ministry of finance, and ministry of economic affairs) – regarding the pension institutions.

The role of government in the field of employment related pension schemes (in addition to the state pension), therefore, could be one from a series of options. Government could be involved in the pension contract as the employer, as the pension institution (a non-autonomous pension scheme regarding its own employees), as the pension institution regarding own or private sector employees or as the supervisory authority.

5 This category includes the case of a non-autonomous scheme regarding government employees. This scheme is not classified as a social security scheme (S.1314).

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Because regarding individual persons no accounting rules exist, a complete and consistent description of their individual pension situation is hardly collectable with private persons directly.[6] The description of a full picture of the country's pension situation, therefore, needs to be solely/largely based on the information receivable from the various pension institutions and the relevant employers. However, the accounting rules and standards vary with the various classes of the institutions that are relevant in the country's full pension landscape. As a consequence, the information received from the various classes of entities needs to be transformed to arrive at uniform national accounts definitions, classifications and accounting standards and they need to be integrated in the national accounts in a second run, to arrive at a coherent picture of the country's economy. This transformation, however, is not an easy task because of differences in the accounting rules and standards and the complexity of the relevant concepts.

1.2 SOME NATIONAL ACCOUNTS TERMINOLOGY

Two pairs of national accounts concepts are important when discussing the accounting rules and standards. These concepts are discussed in this section.

Autonomous and non-autonomous pension entities

A pension entity is said to be an autonomous entity if it constitutes a separate and independent institutional unit. The autonomous pension entity makes it own decisions and is accountable for these decisions.

A non-autonomous pension entity is part of the employer's institutional unit. Decisions are made by the combined unit that is also accountable for these decisions. The term 'book-reserve' is also used for the corresponding pension schemes.

The concept of accountability does not imply that the autonomous or non-autonomous pension entity is responsible for the entity's financial position, independently of the cause of any surplus or deficit. This responsibility and accountability is to be allocated in accordance with the corresponding scheme's arrangements and the relevant legislation in the country.

'Fully funded' and 'not funded or partially funded' pension schemes[7]

Fully funded schemes are schemes where the value of the investments associated with the scheme is intended to be at least equal to the scheme's obligations.

The scheme's obligations should cover the full present value of the future costs of the amount of the entitlements of the scheme's policyholders, including policyholders with deferred entitlements and/or the actual beneficiaries, as existing at the end of the accounting period. This amount should include the corresponding claims / benefits handling costs.

6 Some data from individuals might be collected from the tax authorities. The tax authorities will use specific accounting rules, different from those of employers and the pension institutions. These tax-based accounting rules are not dis-cussed in this paper.

7 SNA uses the term 'unfunded' pension schemes where the ESA uses the term 'not funded or partially funded' pension schemes.

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Any temporally shortfall of the scheme's investments compared to its obligations would not disqualify the scheme for being a funded scheme. Only, the scheme conditions and / or national legislation should require to arrive at a surplus within a defined and limited period. Also, the scheme conditions and / or national legislation could require a certain surplus to exist.

The class of 'not funded or partially funded' pension schemes deals with all pension schemes where the intension of a surplus of the scheme's assets over its liabilities does not exist.

These definitions don't refer to legally mandatory of voluntary buffers, additional reserves and corresponding assets to protect the pension rights of the employees. These buffer funds complicate the preceding definitions. The buffer fund as such is part of the (non-technical) reserves of the pension entity whereas the corresponding assets are part of the entity's investments. These assets should be taken on board when deciding whether the scheme is funded or partially funded. On the other hand these buffers should be an ingredient of the pension entity's own funds. They should not constitute a liability against the employer.

2 VARIOUS SYSTEMS OF ACCOUNTING RULES AND STANDARDS REGARDING PENSIONS

The international accounting standards board (IASB) sets the international accounting standards (IAS) and the international financial reporting standards (IFRS) regarding private sector entities. These standards apply to the business sector in general. A series of accounting entries (such as 'compensation of employees', 'intermediate consumption', 'taxes' etc) are relevant and identical with non-financial and financial corporations. Those common rules and standards could be found in the existing standards.

Concerning the pension discussion, the dedicated International Accounting Standard 19 'employee benefits' (IAS 19) is especially relevant. Apart from other elements, it sets the present international standard for accounting and reporting on pensions as an element of the employee benefits.

The international public sector accounting standards board (IPSASB) produces the corresponding international public sector accounting standards (IPSAS) that are relevant with public sector entities. A dedicated standard is developed in the field of employee benefits, the international public sector accounting standard 'employee benefit' (IPSAS 25). This standard is strongly based on IAS 19, the private sector standard concerning employee benefits.

Since the IAS 19 has been published a series of comments has been received. Following these comments the IASB has decided to review IAS 19. The IASB has so far produced a report on preliminary views to amend IAS 19. Views and comments on this report could have been sent in until September 2008.

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The preliminary views especially relate to post-employment benefits as a major component of employees benefits. These possible revisions mainly concern defined contribution schemes (labelled 'contribution-based promises in these 'preliminary views' on revising IAS 19) will be discussed also.

The International Accounting and Reporting Standards discussed so far, are oriented towards either the employer mainly. The accounting standards board ('ASB', the UK standard-setter in business accounting), in collaboration with the European financial reporting advisory group (EFRAG) has led the development of a paper on "the financial reporting of pensions, a PAAinE[8] discussion paper".[9] This paper represents a "fundamental reconsideration, starting from first principles, of the accounting that should be required for pensions".[10] This discussion paper takes a fresh look into the issue whereas the other initiatives as mentioned in the preceding text start from the idea of improving existing standards. ASB, EFRAG and the other participating standard-setters expect a large impact of their discussion paper on the future standard-setting process.

The European accounting and reporting directive concerning non-financial corporations is closely in accordance with the IAS and IFRS. Additionally, separate accounting/reporting directives exist with banks, (life and non-life) insurers and investment companies with the European Union.

National accounting legislation regarding the financial and non-financial corporations is according to these European accounting and reporting directives. Also supervisory accounting information is expected to be largely in line with these European accounting/reporting directives. Only series of supervisory details will – if and where necessary – be added.

No dedicated European accounting/reporting directive regarding pension institutions exists. Only in as far as they belong to classes of institutions to whom other accounting/reporting legislation applies (such as banks, investment companies and (non-) life insurers) pension accounting is according to European accounting/reporting standards. Nevertheless, individual countries might have developed national legislation on the accounting and reporting of the pension institutions. As far as pension funds are concerned, they are expected being fairly similar to the life insurance accounting/reporting standards.

IAS 19 and IPSAS 25 are viewing the accounting and reporting standards regarding pensions from a single perspective, the employers' point of view. Looking at the pension subject from this dedicated employers' angle implies that only/mainly considerations that are relevant with the corresponding employers are

8 PAAinE: Europe's 'Pro-active Accounting Activities in Europe'. This is a partnership between the European Financial Reporting Advisory Group ('EFRAG') and European standard-setters. The Coordinating Group of PAAinE, which comprises representatives of the standard-setters of EFRAG, France, Germany, Italy, The Netherlands, Poland, Spain, Sweden and the United Kingdom.

9 The discussion paper can e.g. be obtained from http://www.efrag.org/projects/detail.asp?id=70

10 See "The financial reporting of pensions", page 2.

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considered in developing these rules and standards. This could have implications concerning the content of these rules and standards that are not relevant with other players in this field.

The effect of this one sided orientation of IAS 19, IPSAS 25 and IFRS could be that dedicated amendments, deletions and/or supplements might be necessary when considering the various rules and standards from the perspective of the other players like government (as a pension institution), pension funds, (non-)life insurers, employers, employees, etc.

The System of National Accounts has such a multi-sector perspective. It takes into consideration the impact of rules and standards with all payers in the field. Nevertheless IAS, IFRS and IPSAS will constitute important ingredients within the total process.

3 IAS 19 'EMPLOYEE BENEFITS'

The IAS 19 on employee benefits is part of the total set of international accounting and reporting standards, concentrating on all types of employee benefits.

The concept 'employee benefits' is defined as:[11]

Employee benefits consist of all forms of consideration given by an entity (i.e. the employer, ghdv) in exchange for services rendered by employees. These benefits are broken down into:

- *Short-term employee benefits, i.e. all employee benefits which fall due wholly within twelve month after the end of the period in which the employees render the related service;*
- *Post-employment benefits, i.e. all employee benefits which are payable after the com-pletion of employment;*
- *Other long-term employee benefits, i.e. all employee benefits (other than post-employment benefits and termination benefits) which do not fall due wholly within twelve month after the end of the period in which the employees render the related service;*
- *Termination benefits, i.e. employee benefits which are payable as a result of either:*
  - *An entity's decision to terminate an employee's employment before the normal retirement date;*
  - *An employee's decision to accept voluntary redundancy in exchange for those benefits.*

11 Source: IAS 19, art. 9.

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Within the present context, the post-employment benefits benefits – i.e. those post-employment benefits as meant under the second bullet – are central. IAS 19 distinguishes within this class of employment benefits:[12]

- Retirement benefits, such as pensions;

- Other post-employment benefits, such as post-employment life insurance and post-employment medical care.

It seems worth noting, this second class includes the benefits to (former) employees in case of long-term[13] disablement. This class of post-employment benefits has little explicit attention so far in the System of National Accounts. ESA and SNA seem limiting themselves to old-age pensions when dealing with post-employment benefits. This apparent difference might constitute a source of difference between both the business accounting and reporting standards on the one hand and the System of National Accounts on the other.

Within the category of post-employment benefits plans – applicable to both types of post-employment benefits plans as mentioned in the preceding paragraph – IAS 19 distinguishes two subcategories: defined contribution and defined benefit plans.

IAS 19 defines the defined contribution plans as:[14]

- *The entity's formal or constructive obligation (i.e. the employers' obligation, ghdv) is limited to the amount that it agrees to contribute to the fund. Thus, the amount of the post-employment benefits received by the employee is determined by the amount of contributions paid by an entity (and perhaps also the employee) to a post-employment benefit plan or to an insurance company, together with investment returns arising from the contributions;*

- *In consequence, actuarial risk (that benefits will be less than expected) and invest-ment risk (that assets invested will be insufficient to meet expected benefits) fall on the employee.*

This definition of defined contribution plans implies that further obligations, either formally or informally, do not exist with the employer once the company has paid the annual amount. The benefit is straightforwardly calculated from the agreed and paid amounts and any investment income without a guarantee or whatever on the level of the investment income or the benefit that will be paid at or after retirement (or any other type of termination of employment qualifying for the receipt of post-employment benefits). The risks regarding the level of the investment income, the (change of the) value of investments etc. are fully and solely with the policy-holder/beneficiary.

12 Source: IAS 19, art. 24.
13 Long-term is defined as "a period of one year or more" according to IAS 19 art. 7.
14 Source: IAS 19, art. 25.

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IAS 19 defines the defined benefit plans as:[15]

- *The entity's obligation (i.e. the employers' obligation, ghdv) is to provide the agreed benefits to current and former employees;*

- *Actuarial risk (that benefits will cost more than expected) and investment risk fall, in substance, on the entity. If actuarial or investment experience are worse than expected, the entity's obligation may be increased.*

The main distinguishing factor with the defined contribution plans is that the obligations of the employer haven't come to a final halt after the annual payment has been made. In later years, the employer could be obliged to pay additional amounts into the plan concerning employment services rendered in earlier years.

The breakdown of post-employment benefits plans and the associated definitions according to the IAS are close to those of SNA (see para 7.147 and 7.148) and ESA (see para 4.10) in con-tent. The wording, however, is different. An explicit statement on the identity or on the difference of IAS/IFRS/IPSAS and SNA/ESA seems useful.

An element of potential difference between SNA/ESA and IAS/IFRS/IPSAS is the aspect used as the distinguishing characteristic between defined benefit and defined contribution. SNA/ESA emphasise the fact that the benefit is calculated using a formula with defined benefits. IAS/IFRS/IPSAS on the other hand starts from the idea that the employer is or is not sure having paid the full-required amount concerning any year of service. Whenever the employer – through a formal or an informal obligation – might have to supplement the funds of the pension institution (which supplement corresponds to some or all preceding years of employment) at any time in future, the corresponding scheme is classified as a defined benefit scheme according to IAS/IFRS/IPSAS.[16] If not, these accounting standards classify the scheme as a defined contribution scheme.

The classification of post-employment benefits plans does not vary dependently whether the scheme is a single or a multi-employer plan. Where a multi-employer defined benefit plan has separate accounts by participating employer, the employer shall report its share in the schemes' surplus or deficit under this defined benefit plan. If no separate accounts exist (esp. where all employers are equally responsible to the scheme) the employer could only report the financial consequences of this scheme under its liabilities and expenditure as if it is a defined contribution scheme.[17]

The reporting on state pension plans should be according to the same standards as applicable to multi-employer plans.

15 Source: IAS 19, art. 27.

16 Example. A scheme is promising a pension of €100 a month pro year of employment payable for 15 years at the maximum. After 40 years of service the pension will be €4,000 a month. This scheme should be classified under 'defined benefit' according to the IAS 19. If the scheme would additionally include the condition that the employer, after having paid the required amount concerning the year, no further premiums regarding this year could become due, the scheme should be classified under defined contribution according to the criteria of IAS 19.

17 For more details see IAS 19, art. 29-39.

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If the post-employment benefit plan is insured with a life insurer, the employer shall report this plan as a defined contribution plan – whatever its characteristics as perceived by the (former) employees – unless the employer will have a legal or constructive obligation to either:

- *Pay the employee benefits directly when they fall due;*

- *Pay further amounts if the insurer does not pay all future employee benefits relating to employee service in the current and prior periods.*

If the entity retains such a legal or constructive obligation, the entity shall treat the plan as a defined benefit plan.[18]

From the preceding definitions from the IAS 19 it will be clear that classification and treatment of post-employment benefit plans according to IAS is solely from the employers' point of view. So, an insured defined benefit plan from the (former) employees' point of view (e.g. an average or final pay pension) is classified as a defined contribution plan in case all associated risks are with an insurer. This limitation to a single angle to classify these plans might constitute a source for differences between IAS on the one hand and the national accounts on the other.

Accounting and reporting differs between defined contribution and defined benefit plans according to the IAS 19.

3.1 IAS 19 REPORTING OF DEFINED CONTRIBUTION PLANS[19]

3.1.1 THE BALANCE SHEET AND THE PROFIT AND LOSS ACCOUNT

When an employee has rendered service to an employer during a period, the employer shall recognise the contribution payable to a defined contribution plan in exchange for that service:[20]

- In the balance sheet: as a liability (accrued expense), after deducting any contribution already paid (…);
- In the profit and loss account: as an expense (…).

Defined contribution plans should be funded by nature according to IAS 19 with an external entity; it is a funded autonomous pension scheme according to the national accounts' terminology. So, the contribution is always payable to an external pension institution.

So, according to IAS 19 only contributions and late (or early) payment of these contributions should enter the employers' accounts. The pension entitlements of the (former) employees and the corresponding assets don't enter the employers' accounts.

18 Source: IAS 19, art. 39-42.
19 The following part describes the main features of IAS 19 and the 'preliminary views' from the perspective of the system of national accounts.
20 Source: IAS 19, art. 43-45.

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3.2 IAS 19 REPORTING OF DEFINED BENEFIT PLANS[21]

Defined benefit plans on the other hand might be 'not funded or partially funded' according to IAS 19. In the latter case the contributions might be paid into an external pension institution (an autonomous pension fund) or with the employer (a non-autonomous pension fund) that is responsible for the payment of the benefits. The employer, however, remains liable for supplementing the pension institution's funds in case the institution's assets fall short compared to the scheme's entitlements. This obligation to supplement the pension institution's assets constitutes an important characteristic of this class of benefit plans; the employer has not irrevocably satisfied its obligations on paying the year's contributions into the scheme. In any future year, the (formal or informal) obligation could appear for additional payments relating to earlier years.[22]

The employer should report an entry in its balance sheet and an entry in its profit and loss account to reflect the effect of the defined benefit plan on the employer's profit and the level and composition of its assets and liabilities. These two elements are the subject of the next paragraphs.

IAS 19 limits this reporting requirement of the claim/liability of the employer against the pension institution to the larger corporations, mainly those corporations on the country's stock market. Other corporations might – depending on national legislation – be excluded from this reporting requirement.

3.2.1 THE BALANCE SHEET

The employer's defined benefit liability at the end of the year equals:[23]

The gross defined benefit obligation
Minus
The fair value of the plan's assets.

This net figure could be negative; this means that the employer has a claim against the pension institution (the scheme is overfunded), or positive, a liability of the employer (the scheme is underfunded). The standard does not mention any possible separate treatment of an obligatory overfunding (e.g. as a consequence of the existence of mandatory buffers with the scheme. These mandatory buffers exist only because of supervisory regulations. They don't exist in the accounting standards. As a consequence, the definition and calculation of employer's liability don't take account of these buffers. The buffers remain outside both terms in the definition above (i.e. they aren't part of the gross obligations or of the assets associated with the scheme).

21 More details on the accounting and reporting standards concerning defined benefit plans see IAS 19, art. 46-126.

22 It is well possible that the plan excludes the obligatory supplementing of the plan's funds in cases specified in the plan's conditions.

23 IAS 19 distinguishes two further elements to include in the calculation of the employer's defined benefit obligation. These two elements, i.e. any actuarial gains (less any actuarial losses) and any past service cost not yet recognised, are of a smaller importance within a national account's framework.

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The ESA (see para. 5.100, 5.106) and the SNA (see para. 11.108[24]) acknowledges a claim against the corresponding employer. I.e. the ESA is aware of the possibility of underfunding but not of the opposite possibility. The claim in case of underfunding is classified under 'insurance technical provisions' whereas it is the balance between such a provision (the gross 'provision for pension entitlements') and the available assets with the pension institution.

3.2.2 THE PROFIT AND LOSS ACCOUNT

The employer shall account for an expenditure that equals the net total of:[25]

- Current service cost;
- Interest cost;
- The expected return on any plan assets and on any reimbursement rights;
- Actuarial gains and losses, in accordance with the entity's accounting policy;
- Past service cost.

The current service costs should be calculated using a specific actuarial method, the projected unit credit method. Each year of employment gives rise to an additional unit of benefit entitlement under this method. These are measured separately to build up the final obligation. This calculation should take account of the future increases of the employee's future benefits.[26] Further a series of actuarial assumptions should be made, e.g. on mortality, both during and after employment, the proportion of plan members with dependants eligible for benefits, the discount rate, future salary and benefit levels and the expected rate of return on plan assets.

Interest cost is computed by multiplying the discount rate as determined at the start of the period by the present value of the defined benefit obligation throughout that period, taking account of any material changes in the obligation.

The expected return on plan assets is based on market expectations, at the beginning of the period, for returns over the entire life of the related obligation. The expected return is calculated by multiplying the fair value of the plan's assets during the year (so incorporating changes in this value during the year because of transactions) by the expected rate of return.

4 PRELIMINARY VIEWS ON AMENDMENTS TO IAS 19 EMPLOYEE BENEFIT

As the International Accounting Standards Board (IASB) has received a series of comments on the existing IAS 19, it decided to launch a revision project

24 The SNA acknowledges the possibility that the claim on the employer could become negative because of high investment income (but not mentioning e.g. higher prices of the scheme's assets, actuarial factors or the discount rate). The text seems implying that this negative claim remains classified under assets (with a minus-sign) with the pension institution.

25 Only the most relevant entries as mentioned in IAS 19, art. 61 are listed here.

26 E.g. the case where pension rights are received over the 10 or 40 years of service, more years don't produce a further growth of the post-benefit benefits. These 10 or 40 years should be included in the calculation.

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concerning this standard dedicated to post-employment (benefit) promises.[27] A heavy emphasis is with contribution-based benefit promises, i.e. defining and distinguishing these promises on the one hand and the accounting and reporting of contribution-based benefit promises on the other.

One of the suggested changes deals with the terminology used and the definitions of post-employment benefit promises and its two constituent subcategories.

The "preliminary views on amendments to IAS 19 employee benefits" suggested amending these definitions as follows:

Post-employment benefit promises
Post-employment benefit promises are formal or informal arrangements under which an entity (i.e. the employer, ghdv) is obliged to provide employee benefits (other than termination benefits) payable after the completion of employment.

A defined benefit promise
A defined benefit promise is a post-employment benefit promise that is not a contribution-based promise.

A contribution-based promise
A contribution-based promise is a post-employment benefit promise in which, during the accumulation phase, the benefit can be expressed as:

- The accumulation of actual or notional contributions that for any reporting period would be know at the end of that period, except for the effect of vesting 28 or demographic risk;

- Any promised return on the actual or notional contributions is linked to the return from an asset or a group of assets or an index. A contribution-based promise needs not to include a promised return.

With post-employment benefit plans where the accumulation phase consisting of both a period with a defined benefit promise and a period with a contribution-based promise should, according to the preliminary views of the IASB, be considered as two separate promises.

Also, the IASB in its 'preliminary views' suggest that the classification of post-employment benefit promises should depend solely on the characteristics of these promises during the accumulation phase (the deferment and the pay-out phase are considered as irrelevant for the classification of the promise).

It should be decided whether this classification of pension plans/promises, solely based on the accumulation phase would satisfy the ideas of the system of national accounts.

27 With the "preliminary views on amendments to IAS 19 employee benefit" the IASB has changed its terminology into 'post-employment (benefit) *promises'*, replacing the term 'post-employment *benefits'*. Also, the term '*defined contribution* plans' is replaced by *contribution-based*'.
28 Vested pension promises are those promises that are not conditional on future employment.

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The 'preliminary views' distinguishes three further characteristics that are relevant with the definition of the concept of a 'contribution-based promise':[29]

- *A promised return might exist but (if it exists) only one that is linked to the return from an as-set, group of assets or an index.*

The option of a promised return widens the reach of the 'contribution-based promises' compared to IAS 19 (and consequently reduces the reach of 'defined benefit promises'). Esp. it allows for unfunded promises or for delayed payments.

The linkage with an external rate of return does not imply that the promised return should be equal to this external rate; e.g. the promised return might be ½ this external rate or 100 basis point over/below this external rate.

Therefore, a post-employment benefit promise of 5% of the annual income plus an accumulated return of e.g. 75% of the share total return index satisfies the conditions for a contribution-based promise according to these Preliminary views;

- *The promise might be funded or unfunded 'not funded or partially funded';*
- *The contribution is known at the end of the corresponding period except that this definition is independent of vesting conditions*[30] *and demographic risks.*

The classification of post-employment benefit promises, therefore, would not change dependent on the vesting of these promises and in case of vesting on the relevant conditions.

Neither is the classification dependent on the absence or presence of demographic risks (such as the longevity risk). A fixed conversion rate of the accumulated sum at retirement, therefore, would not withhold the benefit being classified as a contribution-based promise (the longevity risk is with the employer).

According to the 'preliminary views' of the IASB the borderline between contribution-based promises and defined benefit promises has been shifted. This is to say that the class of 'contribution-based promises' has been enlarged whereas the class of 'defined benefit promises' has become smaller.

This change of opinion by the IASB seems decreasing the conformity of the presently proposed SNA/ESA-classification of pension promises with the IASB-classification.

The liability and expense under a contribution-based promise should, according to the 'preliminary views' include as well the contribution as the promised rate of return (if any). Valuation should be at discounted value, discounted against a rate derived from present market conditions. Variations in the liability according to a contribution-based promise would result from changes in the relevant discount rate.

29 Source: 'preliminary views on amendments to IAS 19', art. 5.12 -5.59.

30 Independency of vesting conditions would mean that the classification does not change whether or not the promise is or is not conditional on further prerequisites (such as length of service).

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Valuation of the corresponding liability should take account of various risks that would affect the value of the employees' claim against the employer. The 'preliminary views' mention the risks of variations in the prices of the relevant assets, demographic risks and credit risks (i.e. the risk that the assets of the promise plus the employer's assets are insufficient).

Changes in the liability corresponding to contribution-based promises would follow from the service costs (i.e. the annual contribution) on the one hand and value changes on the other. Within the latter a series of components could be distinguished. No sufficient reasons are recognised by the IASB to report these other element separately according to its 'preliminary views'.

The service costs should be reported in the employer's profit and loss account. Regarding the other fair value changes, the 'preliminary views' do not give final guidelines. Though most probable, the IASB seems preferring the inclusion in the profit and loss account.

5 IPSAS 25 'EMPLOYEE BENEFITS'

IPSAS 25, the dedicated government oriented version of IAS 19, draws heavily on IAS 19. Parallels are numerous, therefore. The main feature they have in common is that both IPSAS 25 and IAS 19 describe the treatment of 'employee benefits' from the employers' perspective. Neither of these accounting standards, therefore, is directly applicable to pension institutions (apart from the accounting for the employment benefits concerning the pension institutions' own employees, see also introduction, art. 1).

As IPSAS 25 is based on IAS 19, it is using the terminology as used in IAS 19, giving no regard to the 'Preliminary views'. The corresponding definitions and classifications are not repeated in this section.

The employer's liability is defined in accordance with IAS 19, as reproduced in para 3.2. As in IAS 19, the defined benefit obligation towards the employees is the present value of the plan's obligations before deducting the plan's assets. However, IPSAS 25 does not reproduce the limitations to this reporting requirement.

The employer's expenditure is defined in accordance with IAS 19. The current service cost with defined benefit obligation should include all future years during which the employee's service will constitute a material higher defined benefit obligation.

One question is whether ESA and SNA in their definition of the asset/liability of the employer against the pension plan and the corresponding expenditure (see para 3.2) would limit this definition to the past period of service only or would include all future years of services with increasing promises. In other words, SNA and ESA should consider whether the projected income over the full career is the starting point or the past period of service only.

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6 INSURANCE ACCOUNTING [31]

The Council Directive on the annual accounts and consolidated accounts of insurance undertakings as amended by Directive 2006/46/EC of the European Parliament and of the Council of 14 June 2006 gives rules for the account of life and non-life insurers.

A first observation is the fact that the word 'pension' only appears once within the accounts themselves (provisions for pensions and similar obligations; item liability e.1). However, it refers to the provision for pensions for the insurer's own employees; this item is not part of the insurance technical provisions of the insurer.

Additionally, the directive obliges that the notes to the accounts shall show separately the funds that the insurer manages on behalf of pension funds (see art. 2.2). Countries may deviate from this article (under further provisions). Additionally, article 10 gives more detailed guidelines concerning the reporting of participation in an investment pool (joint investments).

It follows that contributions, benefits and technical provisions concerning pension plans is combined with the (non-pension insurance related) life insurance premiums, claims and technical provisions.

The directive requires also that the written direct premium should be broken down into individual and group premiums in notes to the accounts. It is questioned whether group insurance is identical to the insurance of pension plans.

Pension insurance with life insurers mainly is in nominal amounts. Where the plan includes the formal employer's obligation for an annual increase of the pension benefits compensating e.g. for the effect of inflation, additional annual premiums/contributions are to be paid by the employer (and the employees). With informal inflation proofing of pensions, additional premium payments are also necessary: here depending on the extent that this informal usage is a constructive obligation.

A core-issue is the measurement of benefits, contributions and the technical provisions. Written premiums/contributions and incurred claims/benefits don't constitute a major problem; the amounts invoiced according to the pension contract should be entered into the accounts, both the business accounts and the national accounts. Consequently, the earned premiums/contributions and paid claims/ benefits are also straightforward. Expectantly, only little difference between the insurer and the employer would exist.

More difficulties are expected to exist regarding the technical provisions. It is reiterated that the employer would report the corresponding expenditure and liability as follows.

31 Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings.

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Table I Employer's reporting of pension plan's assets/liabilities and expenditure

	Contribution-based	Defined benefit
Expenditure	Contribution	Change in gross pension entitlements based on projected salaries + interest costs – extern return on assets +/- actuarial gains/losses
Liability	Non-paid contribution	Gross pension entitlements – fair value of assets

Source: Missing.

With pension benefit plans, an insurer would have three entries in its balance sheet:

- Non-paid contribution (see also footnote 32);
- Pension plan assets;
- Gross pension entitlements.

6.1 CONTRIBUTION-BASED PENSION PROMISES

Regarding the non-paid contribution, no difference in accounting exists between the employer and the insurer with contribution-based pension benefit plans. Both the insurer and the employer will account for the corresponding amount. Only, the insurer might be allowed (depending on national legislation) to report this entry under its 'life insurance provision'[32] whereas the employer should report this liability separately according to IAS 19. Also, timing differences might cause a further difference between the employer's reporting and the insurer.

The pension plan assets don't enter the employer's balance sheet by definition in case the plan is with a life insurer. Only, the life insurer does not distinguish these assets separately; they are merged with the other investments of the insurer. Reporting is under 'investments for the benefit of life-assurance policyholders who bear the investment risk'.[33] So, pension plans' assets can't be seen separately from the life insurer's balance sheet.

The pension plan entitlements don't enter the employer's balance sheet by definition in case the plan is with a life insurer. They would enter the employees' balance sheet (in case these balance sheets would exist). Only, the life insurer does not distinguish the corresponding provisions separately; they are merged with the other provisions of the life insurer. Reporting is under 'technical provisions for life-assurance policies where the investment risk is borne by the

32 See 'Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings', art. 25 1st para.

33 See 'Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings', art. 6 asset item D.

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policyholders.[34] So, the pension plans' entitlements can't be seen separately from the life insurer's balance sheet.

Additional problems concerning the provisions and assets can follow from mandatory buffers with the insurer. On the liability side of the insurer's balance sheet these buffers should be reported in a dedicated provision, combined with those concerning other insurance contracts. These buffers, however, by their very nature would affect the insurer's assets also.

6.2 DEFINED BENEFIT PENSION PROMISES

The pension plan assets don't enter the employer's balance sheet by definition in case the plan is with a life insurer. However, the life insurer does not distinguish these assets separately; they are merged with the other investments of the insurer. Reporting is (depending on the type of insurance contract linked, with profit, non-linked) either under 'investments' or under 'investments for the benefit of life-assurance policyholders who bear the investment risk'.[35] So, pension plans' assets can't be seen from the life insurer's balance sheet. They are part of possibly two classes of assets.

The pension plan net entitlements (gross entitlement less the assets' fair value) should enter the employer's balance sheet in case the defined benefit plan is with a life insurer where this life insurer should report the gross entitlements (under the insurer's liabilities) and the corresponding assets (under the insurer's assets) and the employer has kept an ultimate responsibility to honour the claims following from the pension contract.[36] The gross liabilities would also enter the employees' balance sheet (in case these balance sheets would be drawn up). However, the life insurer does not distinguish the corresponding provisions separately; they are merged with the other provisions of the life insurer. Reporting is (depending on the type of insurance contract: linked, with profit, non-linked) under either the 'life-assurance provision' or the 'technical provisions for life-assurance policies where the investment risk is borne by the policyholders'.[37] So, the pension plans' entitlements can't be seen separately from the life insurer's balance sheet.

Regarding the non-paid contribution, no difference in accounting exists with defined benefit pension benefit plans. Both the insurer and the employer will account for the corresponding amount. The employer, however, won't report this entry separately in case the employer has retained an ultimate responsibility to honour the pension contract's entitlements. They will be merged with the net defined benefit pension entitlements (gross value less the assets' value) in this

34 See 'Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings', art. 6 liability item D.
35 See 'Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings', art. 6 asset item D.
36 This requirement might be limited to the country's larger corporations, often those quoted on the country's stock market.
37 See 'Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings', art. 6 liability item D.

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case. Also, the insurer might be allowed (depending on national legislation) to report this entry under its 'life insurance provision'.[38] On the other hand, the insurer is reporting both the plans' assets and gross pension entitlements separately.

As with contribution-based promises, further complications could come from timing differences between the employer and the insurer.

6.3 PENSION REPORTING WITH INSURERS AND EMPLOYERS: OVERVIEW OF DIFFERENCES

The table below summarises the differences between insurers' accounting and employers' reporting of pension schemes. As both preceding subchapters, this table distinguishes contribution-based and defined benefit promises.

Table 2 Reporting of pension plan's assets/liabilities

	Contribution-based plan		Defined benefit plan	
	Employer	Insurer	Employer	Insurer
Non-paid contribution	Yes (with 3b)	Yes, (with 3a)	Yes (with 3b)	Yes, (with 3a)
Plan's assets	-	Yes [1)]	-	Yes [3)]
Pension entitlements				
Gross value	-	Yes [2)]	-	Yes [4)]
Net value	No (= 0)	-	Yes	-
Mandatory buffers				
Assets	No	-	No	Included
Liabilities	No	-	No	Separate entry
Valuation of entitlements				
Past carrier only	No	No	No	Yes
Past and future carrier	No	No	Yes	No

1) Part of 'investments for the benefit of life-assurance policyholders who bear the investment risk'.
2) Part of 'technical provisions for life-assurance where the investment risk is borne by the policyholders', possibly including the non-paid contribution.
3) Part of 'investments' and/or 'investments for the benefit of life-assurance policyholders who bear the investment risk'.
4) Part of the 'life insurance provision' and/or the 'technical provisions for life assurance where the investment risk is borne by the policyholders', possibly including the non-paid contribution.

38 See 'Council Directive 91/674/EEC of 19 December 1991 on the annual accounts and consolidated accounts of insurance undertakings', art. 25 1st para. The text of the directive seems to imply that reporting of non-paid premiums/contributions under the life insurance provision should not depend on the type of policy (linked, with profit, non-linked).

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So, it is rather complicated to link employers' data on the value of the pension entitlements with those of life insurers even in cases where the relevant employers are identifiable uniquely. The corresponding figures with the insurers and the employers (nearly) always are part of a larger entry in their balance sheet. Less difficult is the interrelation concerning the premiums/contributions.

A further question has to be addressed: the valuation of the gross pension entitlements with the insurer. Two observations can be made:

- The insurer has obligations according to the pension promise up to date only; the insurer has no obligations that incorporate future years of service and future increases of salaries.
- The insurer will try to have assets in the contract that at least equal the amount of obligations under the pension contract.[39]

The net obligations of the insurer regarding the pension contract, therefore, will approximately be zero. The insurer's net obligations therefore deviate from the employer's obligations that incorporate also future years of employment with the company.

These valuation differences create an imbalance in the system:

- The employer reports liabilities equal to the net amount of the gross entitlements concerning past and future years of the employees' career with the company less the value of the insurance contract;
- The employer would disregard safety provisions (buffers) with the insurer (an obligatory surplus of the assets over the obligations under the pension contract); whether the employer should account for deficits with the insurer (assets are less than the pension entitlements) depends on the nature of the contract (who is ultimately responsible for the payment of benefits?);
- The insurer reports liabilities equal to the amount of the gross entitlements over the past years of the employees' career with the company;
- The employees have a claim on the insurer equal to the value of the gross entitlements over the past years of the employees' career with the company.

If we would agree on the valuations as described in the preceding points, it is the employer's valuation of the pension entitlements that causes the imbalance in the system.

39 For simplicity reasons, this does not take account of the insurer's obligation for an actuarially based safety margin. A difference between the pension entitlement and the assets might come from the system of financing the contract. A simple example from the field of life insurance might illustrate this. This example deals with a simple risk insurance annexed with a loan. Such a contract will have a constant premium (in most cases) whereas the risk of death of the insured increases over the maturity of the contract (due to the increasing age of the insured). The insurer will, therefore, set aside a (small) technical provision to be built during the first half of the contract and to be used during the second half to accommodate for this increasing risk.

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7 PENSION FUNDS' ACCOUNTING

This part of the paper deals with dedicated external pension institutions not being a life insurer. A major group of these institutions concerns the pension funds, a separate institutional unit that insurers the pension promises concerning the employees of a single employer or a group of employers, quite often employers in the same branch of industry. Legislation on pension funds is largely national legislation. Therefore, legislation – including accounting – might differ between the European countries.

The main difference between a pension fund and a life insurer is that the first is dedicated to a single employer or a single group of employers. This implies that the entries with a pension fund concern pension insurance only. No combination of pension with other classes of (life) insurance occurs. Apart from these elements, the characteristics are largely identical: esp. both expectantly operate on an actuarial basis in offering coverage for pension risks. Also, both life insurers and pension funds operate on a funded basis.

An apparent difference could be the insurance of inflation proofing. With pension funds this was rather common (at least in The Netherlands) whilst insurers normally insure nominal obligations only. With both classes of institutions an increase of benefits because of inflation, however, is only feasible with an additional premium/contribution. So, difference is limited in this respect.

The pension fund's accounts will show premiums/contributions earned, claims/ benefits incurred, the technical provisions for pensions and the associated assets. These entries would be reflected in the employer's (and employees') accounts. The main cause for differences concerns valuation differences, which will mainly relate to the pension entitlements. The pension fund will report the amount of the gross entitlements over the past years of the employees' careers with the company in case of defined benefit pension promises. Future years of the employees' ca-reers with the company will not be taken on board. With contribution-based promises the pension entitlement would equal the funds pension related assets, which would also be equal to the employer's obligation.

8 NON-AUTONOMOUS PENSION SCHEMES

With co-called non-autonomous pension schemes, the employer operates as the pension institution, either on a funded or a non-funded basis. This type of pension institution is not allowed in all European countries, mainly from the perspective of safeguarding the pension entitlements of the employees, esp. in case the employer goes bankrupt. Compensation for this aspect of risk could be found in an obligatory insurance with a non-life insurer. With non-pension post employment benefits legislation on the structure might differ or even be absent. So, a separate fond might be mandatory in the field of pension benefits whereas with non-pension benefits (such as health plans, disablement plans and sick leave plans) non-autonomous schemes could exist.

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A non-autonomous pension scheme won't show premiums/contributions received from the corporation's employer. These are consolidated within the corporation's accounts. They will only show claims/benefits to the former employees (and their surviving relatives), the pension enti-tlements and the associated assets (if the scheme is funded).

Here the pension entitlements will incorporate the total amount of the employees' entitlements over the past and future years of the employees' careers with the company (in accordance with IAS 19) that would – with a funded scheme – expectantly be equal to the scheme's assets.

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CONCEPTS OF MODELLING PENSION ENTITLEMENTS – THE FREIBURG MODEL

BY MATTHIAS HEIDLER, CHRISTOPH MÜLLER AND OLAF WEDDIGE[1]

1 INTRODUCTION

Demographic developments present a major future risk for the public pension systems of most developed countries. Continuously increasing life expectancy and large age groups of the so-called baby-boomer generation in combination with low fertility rates since the mid-1970s will cause considerable enhancements of the old-age dependency ratio which means that public pension systems organized on a pay-as-you-go (PAYG) principle will be forced to either raise contribution rates or taxes, or shorten future replacement rates. This trend raises some important issues in the context of projecting future pension payments. One of these issues refers to the question of measuring the public pension entitlements of private households until today. From a fiscal perspective, these entitlements are equal to the accrued-to-date liabilities (ADL) of a public pension system.

In this paper we will present ADL for public pension schemes of 19 EU countries. These measurements become increasingly important in the context of the recent update of the 1993 System of National Accounts (SNA93). According to this new legislation – approved by the UN Statistical Commission in February/ March 2007 – (implicit) pension liabilities of social security pension funds have to be recorded in a supplementary table of the National Accounts.[2]

We will proceed as follows: In chapter 2, we provide a basic description of the so-called Freiburg model which has been developed by the Research Center for Generational contracts (RCG) at the Freiburg University in order to estimate the ADL of a pension scheme. Chapter 3 describes the data necessary for the application of the Freiburg model and introduces the basic assumptions. In chapter 4 we present the results of our calculations for 19 EU countries. Chapter 5 contains some limitations and possible extensions of the Freiburg model. The paper finishes with a summary of our findings and a short outlook for future research.

1 Freiburg University.

2 Within the EU, it is also planned to produce a specific section on pensions in the revised 1995 European System of National and Regional Accounts (ESA95) which shall follow the updated SNA93. For a description of the recent steps taken to reform the SNA93 see Mink (2007). For a short portrayal of the reasons to change the SNA93 see Mink and Rother (2007) or Semeraro (2007).

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2 THE BASICS OF THE FREIBURG MODEL[3]

The starting point for the Freiburg model is the method of generational accounting.[4] For this project, the method is applied for public pension schemes[5] in isolation and for the group of existing retirees and current contributors (future retirees) only.[6] The core presumption is a projection of per capita future pension benefits based on today's existing retirees' benefits. We outline below the entire calculation procedure in five steps.

Step 1: Age-sex-specific projections of base year's population need to be calculated. The demographic model used to generate these projections is based on a discrete and deterministic formulation of the cohort component method.[7]

Step 2: The projection of these pension benefits is the centre piece of the calculations since we develop the accrued-to-date claims by modification

3 In this paper we will introduce the Freiburg model in a rather short and non-technical way. For an extensive technical description of the Freiburg model see Heidler et al. (2009). This method was developed by Auerbach et al. (1991, 1992 and 1994). See Raffelhüschen (1999) and Bonin (2001) for a detailed depiction of theory and application as well as limitations of the method of generational accounting.

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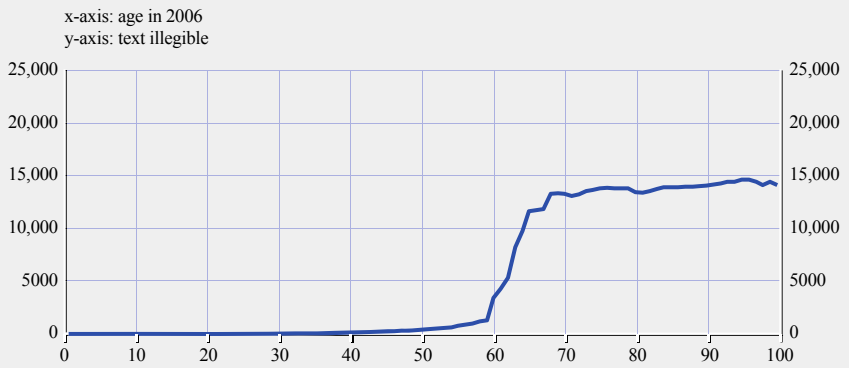
5 The terms "public pension scheme", "government pension scheme" and "pension scheme in general government" are used as synonyms. However, we differentiate between two different types of schemes. The government employer pension scheme indicates a pension scheme for civil servants, whereas a social security pension scheme describes a general pension scheme. For a discussion of the definition of government pension schemes see Eurostat/ECB Task Force (2008).

6 For a close look on the application of generational accounting to public pension schemes see Ehrentraut (2006) and Heidler (2009) who employed the concept of open-system net liabilities to investigate the sustainability of the German statutory pension scheme.

7 For a detailed description of the demographic model applied see Bonin (2001).

Chart 1 Rescaled profile of average existing retirees' benefits in 2006

(social security Germany; male; in Euro)



Source: Own calculations.

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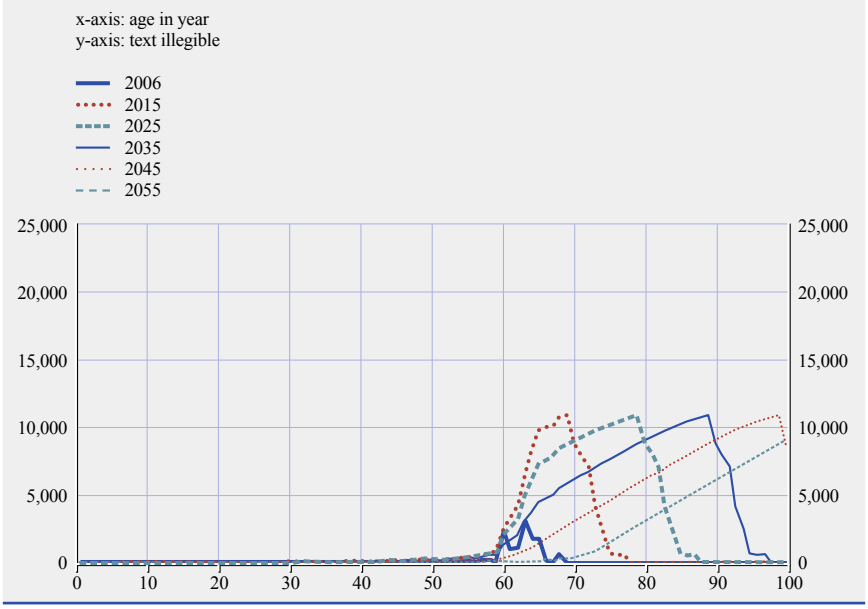
of the existing retirees' benefits. First of all, the benefits are calculated by distributing the aggregated amount of today's pension expenditures to the different cohorts in retirement age. By this procedure we create an age-sex-specific benefits' cross-section profile generated from the budget and micro data of the observed country. For the sake of clarity, in Chart 1 we show the male profile for the German social security pension scheme as an example.

Step 3: The age-sex-specific pension profile for future retirees is calculated by manipulating the base year existing retirees' benefits. An average individual born receives a future benefit in a certain year which is composed of the pension payment one year earlier corrected by the growth rate plus the pensions paid to new retirees in this year. Thus, the age-sex-specific benefit profile for future retirees builds up step by step.

Step 4: Now, in order to meet ADL, only the part of the future pension benefits (of current workers) has to be considered which is earned until the base year. Chart 2 shows how this procedure changes the future retirees profile. Once again, the German social security pension scheme is employed as an example.

Chart 2 Accrued-to-date amount of average future retirees' pension benefits profile from 2006 to 2055

(social security Germany; male; in euro)



Source: Own calculations.

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Step 5: Finally, the ADL of the pension scheme are calculated by discounting and summing up the above projected pension benefits over the cohorts living in the base year.

3 DATA AND ASSUMPTIONS

When calculating the ADL of a pension scheme, a comprehensive data set and a number of assumptions are needed. This section aims to introduce both the data (3.1) and the assumptions (3.2) to deploy the Freiburg model.

3.1 NECESSARY DATA

In general, four types of data are needed for the application of the Freiburg model. These types are given by population data, age-sex-specific pension benefits, aggregated pension expenditures for a certain base year and general characteristics of the pension scheme to be examined.

Eurostat provides population projections reaching until 2060. Due to the fact that our calculations reach as much as 100 years into the future, it is necessary to conduct our own projections which prolong official forecasts. However, our projections are based on the baseyear populations and assumptions from Eurostat.

Data regarding age-sex-specific pension benefits is normally taken from micro-data surveys such as the Survey on Household Income and Wealth (SHIW) in Italy or the Socio-Economic Panel Study (SOEP) from the DIW (German Institute for Economic Research) in Berlin, Germany. However, in many cases the administration body of the pension scheme provides age-sex-specific data regarding the recipience of pension payments. As this data encompasses the full category of persons in question instead of a (representative) sample, it is used preferably. In the case of our calculations,[8] age-sex-specific pension benefits were supplied by national central banks or national statistical bodies. Furthermore, data regarding pension expenditures in the base year is generally taken from national accounts' statistics.

The design of a pension scheme represents a crucial point when calculating its ADL. This involves issues like the classification of a pension scheme (DB, NDC, hybrid system), the consideration of past contributions, the indexation of existing pensions or regulations regarding early and late retirement. The sources of these pieces of information are manifold; both international pension surveys[9] and country-specific pension literature contain comprehensive descriptions of the constructions of the various pension schemes. Furthermore, experience shows that the support of national experts is a vital source, too.

8 See Müller et al. (2009).
9 See for example European Commission (2007), MISSOC (2009) or OECD (2007).

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3.2 GENERAL ASSUMPTIONS

As stated above, a whole set of assumptions has to be taken when computing pension liabilities. The possibly strongest assumption states that fiscal policy will not change over time. In other words, the design of the pension scheme to be examined will stay indefinitely constant at the status quo of the base year.

The projection of future age-specific pension benefits demands an assumption regarding the annual rate of wage growth. Since any long-term forecast of future growth must remain arbitrary, we do not make use of sophisticated forecasts. Instead, a supposedly constant rate of wage growth is applied in all future periods. The growth rate is set to approximate the average long-term rate of productivity growth observed in the past. We do not design specific growth patterns for the individual EU member states but rather employ a growth rate of 1.5 per cent per annum in real terms. However, this procedure is open for discussions, and by using varying wage growth paths for different countries one might be able to show the impacts of diverging economic developments on the pension liabilities of the different countries in a more adequate way.

Similar to the growth rate parameter, forecasts regarding the prospective interest rate development are uncertain. Therefore, irrespective of national peculiarities we apply a single uniform discount rate to take all pensions back to the base year. A reasonable range of interest rate assumptions is determined by the fact that public expenditures are significantly more uncertain than non-risky long-term government bonds on the one hand, but not as volatile as the return on risky assets on the other hand. We generally opt for the lower bounds of the discount rate. Thus, we normally choose a standard real discount rate of three per cent per annum, which reflects the ten-year average of Euro area ten-year government bond yields.

At this point it is worth mentioning that the use of a constant discount rate as well as a constant wage growth rate implies a serious simplification. In general, more comprehensive sensitivity analyses could take account for possible variations of these parameters. This also counts for the other key economic parameters (unemployment rates and participation rates respectively), or changes in the behaviour of economic actors.

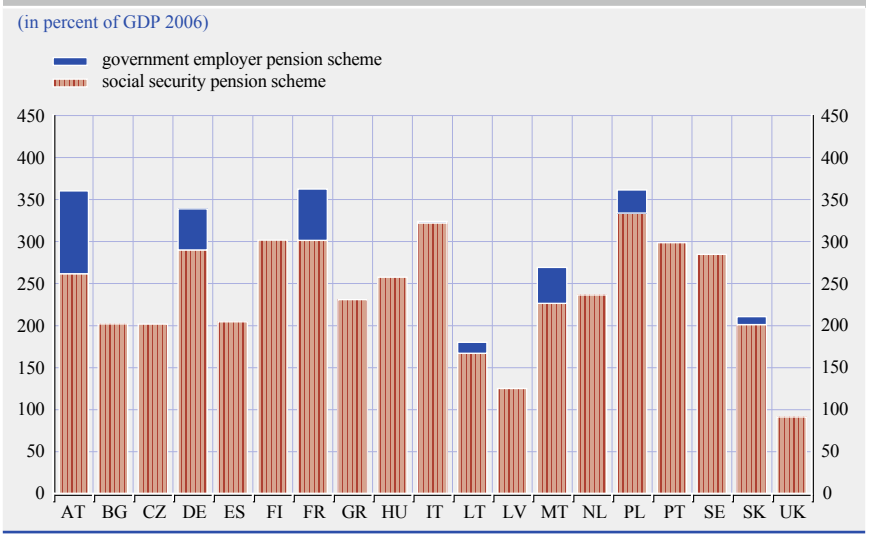
4 CROSS-COUNTRY COMPARISON OF ADL

In this chapter we will present the results of our calculations.[10] Chart 3 shows the ADL of public pension schemes of 19 EU countries in alphabetical order, expressed in per cent of the corresponding country's GDP.

10 These calculations follow the approach of projected benefit obligations (PBO). For a detailed description of the differences between PBO and accumulated benefit obligations (ABO) see Heidler et al. (2009).

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Chart 3 Cross-country comparison ADL in 2006



Source: Own calculations.

As shown in Chart 3, the largest pension liabilities in per cent of GDP can be found in France (362.2), Poland (361.1) and Austria (359.9), followed by Germany (338.6) and Italy (323.1). It might be a coincidence that all these countries possess a special pension scheme for civil servants but even without these schemes they rank among the highest figures observed. Most of the other countries show pension liabilities in the range of 200 to about 300 per cent of GDP. These are Finland (301.4), Portugal (298.3) and Sweden (284.5) followed by Malta (269.0), Hungary (257.5), the Netherlands (236.2) and Greece (230.7). Slovakia (210.5), Spain (204.2), Bulgaria (201.8) and the Czech Republic (201.4) can be regarded as having a medium level of pension liabilities. The lowest liabilities have been calculated for the United Kingdom (91.2) followed by Latvia (124.8) and Lithuania (179.9).

In a further step we examined the main determining factors for the different results shown above.[11] Table 1 summarizes our findings.

Three points (•••) indicate that the respective factor will considerably increase pension liabilities. One point (•) on the contrary implies the opposite and two points (••) a degree in between. This approach shall be illustrated by an example: Finland shows relatively high (•••) initial pension expenditures as well as a relatively high (•••) increase in the development of elderly people. Furthermore, the Finnish indexation of pensions can be regarded as quite low (•/••) but not very low (•) and it has introduced modest pension reforms (••) in recent years.[12] Overall, Finland features the 6th highest pension liabilities in terms of GDP.

11 For an extensive description of these determining factors see Müller et al. (2009).
12 Since we compare pension liabilities at the end of 2006 only pension reforms legislated up to this point have been considered in Table 1.

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Table 1 Main determining factors of pension liabilities in the EU

	Initial level of pension expenditures in % of GDP	Development of elderly persons (60+)	Pension Indexation	Profound (•), Moderate (••), No (•••) recent pension reforms	Ranking of pension liabilities
AT (Austria)	•••	••	•	•	3
BG (Bulgaria)	••	•	••	••	15
CZ (Czech Republic)	••	••	••	•	16
DE (Germany)	•••	••	•••	•/••	4
ES (Spain)	••	••	•	•••	14
FI (Finland)	•••	•••	•/••	••	6
FR (France)	•••	•••	•	••	1
GR (Greece)	••	•/••	•	••	12
HU (Hungary)	••	•	••	••	10
IT (Italy)	•••	••	•	•	5
LT (Lithuania)	•	•	•••	••	17
LV (Latvia)	•	•	•/••	•	18
MT (Malta)	••	•••	•••	•	9
NL (Netherlands)	•	•••	•••	•••	11
PL (Poland)	•••	•••	•/••	•	2
PT (Portugal)	•••	••	•	•/••	7
SE (Sweden)	••	••	•	•	8
SK (Slovakia)	••	•••	••	••	13
UK (United Kingdom)	•	••	•	•/••	19

Hence, it can be stated that the fewer points a country shows in total, the smaller are its pension liabilities in terms of GDP. However, it should be kept in mind in this context that the initial level of pensions apparently is the main determining factor for the level of pension liabilities.

5 LIMITATIONS AND POSSIBLE EXTENSIONS

To understand the outcomes of our model it is essential to grasp the channels which lead to the respective results. In this context it is of interest how the outcomes change if one varies the assumptions taken. Sensitivity analyses which assess the robustness of a model are useful tools for this purpose. They give an indication to which extent the model is driven by the taken assumptions.

Table 2 illustrates the respective sensitivity analysis for the ADL of the German public pension system (base year 2006). Looking at these results a significant limitation of the Freiburg model becomes obvious. Given a small alteration

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Table 2 Sensitivity analysis of the German social security pension scheme (ADL)

(percentages)

Parameters		Amount of ADL (relative deviation to standard scenario)
r	g	
2.0	1.0	9.6
2.0	1.5	21.0
2.0	2.0	34.2
3.0	1.0	-8.5
3.0	**1.5**	**0.0**
3.0	2.0	9.8
4.0	1.0	-22.1
4.0	1.5	-15.6
4.0	2.0	-8.2

Source: Own calculations.

of the assumed interest rate (r) from three to two percent the outcome changes considerably by 21 percent (using the PBO approach). The level of the growth rate (g) also has a considerable impact on the results of the Freiburg model – as shown in Table 2. Since the future is uncertain by nature, this constraint of the model cannot be overcome. Nevertheless, the sensitivity analysis demonstrates once again the importance of choosing appropriate assumptions.

A further limitation to mention is straightforward and counts for every model: the model can only be as accurate as the given input data. This aspect represents a constraint especially for the calculation of pension reforms and of cohort-specific pension levels.[13]

There is also another significant limitation to be mentioned: The introduced model does not take into account future behavioural changes. So far we suppose that future pensioners will take retirement decisions similar to those of their present counterparts.[14] But what happens if future pensioners will change their behaviour and retire significantly later (earlier) than today? The answer to this question depends on the respective pension scheme examined. If the pension increments (decrements) for late (early) retirement can be considered actuarial neutral the behavioural changes should have no impact on our results.[15] However, as Queisser

13 For a detailed description of the limitations and possible extensions of the Freiburg model see Heidler et al. (2009).

14 In addition, in case of pension reforms which lead to an increase of the statutory retirement age we assume that the pension behaviour is unaltered, effective retirement age stays constant and the respective retirees put up with resulting pension decrements. However, an exemption is made when the minimum retirement age is increased within the framework of a pension reform – for example in Austria (with the reforms of 2000 and 2003) or in the UK (with the reform of 2007). In such cases we increase in our calculations also the effective retirement age by the respective years.

15 Actuarial neutrality in the context of pension systems means that the present value of accrued pension benefits does not change due to an earlier or later pension start date. For a detailed description of this concept see Queisser and Whitehouse (2006).

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Table 3 Impact of a change in retirement behaviour on ADL (here: German social security pension scheme)

(percentages)

Behavioural change	Amount of ADL (relative deviation to standard scenario)
Postponed retirement by one year	-2.7
Postponed retirement by two years	-5.2

Source: Own calculations.

and Whitehouse (2006) indicate, numerous pension systems in the OECD cannot be considered actuarial neutral. A substantial number of countries does subsidize early retirement and penalize late retirement since pension decrements as well as increments are lower than an actuarial neutral rate. As a consequence, we will overestimate (underestimate) pension liabilities if future pensioners decide to retire later (earlier) than today. In Table 3 we demonstrate the impact of a change in pension behaviour for the case of Germany. As illustrated, a postponement of the retirement by one (two) year(s) lowers the ADL for Germany by 2.7 (5.2) per cent.[16] Consequently, a possible extension of the Freiburg model could take into account predictions of future pension behaviour – similar to Berkel and Börsch-Supan (2004). However, the data basis to forecast pension behaviour within a large cross-country comparison is presently not available.

6 SUMMARY AND OUTLOOK

With the demographic challenges ahead, the calculation of ADL offers a valuable tool to evaluate pension systems under various perspectives. First of all, this approach helps to assess the costs of terminating unfunded public pension schemes. The concept of ADL also represents a useful tool to examine various pension reforms – such as changes in pension indexations or minimum retirement ages – and their impact on pension entitlements. Moreover, measuring ADL can give a further insight when looking on the impact of PAYG pension schemes on national savings. In this context, ADL quantifies the social security wealth which represents a significant determinant on saving rates – as has been pointed out first by Feldstein (1974). With the current revision of the SNA93 and the resulting implementation of ADL in national accounts a further impetus has been given to pay attention to the concept of ADL.

This paper introduces the approach of the Freiburg model to quantify ADL. The presented model has been applied to carry out benchmark calculations of 19 EU member states on behalf of the Eurostat/ECB Contact Group on Pensions. After a short introduction, in chapter 2 we outlined the calculation procedure

16 For the calculation of these figures we assumed that from the year 2010 onwards all future new retirees aged 60 to 67 will postpone their retirement by one (two) year(s). The outcome greatly depends on the country-specific pension regulations – namely the pension increments and decrements – as well as the country-specific life expectancies.

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of the Freiburg model step by step. Chapter 3 gave an overview of the general assumptions and the data supply necessary for the application of the model, while in chapter 4 the main results of our calculations were presented. The following chapter 5 revealed that the Freiburg model entails a large degree of simplification using a limited set of input factors. However, this leads to a major strength of the model: It fits very well when only a limited amount of data can be provided – as it is mostly the case when undertaking large country comparisons.

Several interesting issues could be raised for future research in connection with the Freiburg model. One concerns the field of application. So far the concept of ADL has only been carried out for calculating entitlements of pension systems. But one may argue that entitlements also exist in other fields of unfunded social security systems as for example long term care insurance. Therefore, future research could extend the concept of ADL to other social security systems which are based on a PAYG principle.

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IMPLICIT LIABILITIES AND SUSTAINABILITY OF PUBLIC FINANCES IN THE EUROPEAN UNION

BY MICHEL ENGLERT[1]

1 INTRODUCTION

At the end of April 2009, the Economic Policy Committee and the European Commission published a bulky report presenting new long-term projections for public spending in the field of social security [5]. This report is the result of several years of work accomplished by the "Working Group on Ageing" (AWG) of the Economic Policy Committee. This group, chaired by Mr Henri Bogaert, Head of the (Belgian) Federal Planning Bureau, is made up of experts in budgetary forecasts who represent various public offices in the 27 EU Member States, as well as of several international organisations, among which the European Commission, which is in charge of the AWG's technical secretariat.

This paper is of particular interest in the context of the discussions on the implicit liabilities of pensions, as it focuses on a forecast of future pension expenditure in each of the 27 EU Member States, which is then used as a basis to evaluate the sustainability of public finances in each of those States. This evaluation rests on a concept of implicit liabilities which is very different from the one used in the work currently carried out in order to introduce the implicit liabilities of pensions into the national accounts. Both this concept of implicit liabilities and AWG's forecasting methods are an integral part of the budgetary surveillance mechanisms that have been installed at the EU level.

Section 2, which deals with the institutional framework, covers the provisions that have been made in the light of the budgetary surveillance mechanisms and which have led to the creation of the AWG and to the definition of its missions. Section 3 aims at defining both the budgetary cost of ageing and the concept of budgetary sustainability, on the basis of which the AWG's forecasts are converted into operational indicators aimed at evaluating budgetary sustainability. Sections 4 and 5 present a brief summary of the methods and results of the last forecasts, firstly as a whole, and then, more specifically those which are relevant to pensions.

2 INSTITUTIONAL FRAMEWORK

The budgetary surveillance mechanism that was set up at the EU level is an original response to a fundamental inconsistency which is built in the design of responsibilities as regards economic policy within the European Union. This inconsistency is the result of the compromise that lies at the foundation of

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the Economic and Monetary Union, i.e. the coexistence of a monetary policy managed at a supranational level (for the countries which take part in the single currency, i.e. currently 16 out of the 27 Member States) alongside with budgetary policies which have remained a national competence.

The founding texts of this mechanism are article 104c of the Maastricht Treaty (1992) and the Protocol on the excessive deficit procedure, which sets the reference values for budgetary deficit (3% of GDP) and public debt (60% of GDP). These threshold values act as triggers for starting the excessive deficit procedure. However, the actual development of surveillance mechanisms dates from 1997, with the Stability and Growth Pact, which consists of two Council regulations [7] [8]. The first one, which acts as the "preventive arm" of this mechanism [7], sets an obligation for the Member States to draw up yearly stability and convergence programmes (SCP) with medium-term objectives (MTO) to reach a budgetary position "close to balance or in surplus (CTBOIS)". The second one acts as the "corrective arm" [8]: it specifies how to recognize, correct and possibly penalize an excessive deficit situation. This second regulation will not be further discussed in this paper, as it is the first of these two regulations, i.e. the "preventive arm", which lies at the basis of the AWG and of its missions.

The 1997 version of the "preventive arm" in the Stability and Growth Pact basically aims at helping the Member States to progress towards (at least) budgetary balance in order to prevent them from slipping over the fateful deficit threshold (3% of GDP), without having to act against the variations of the budgetary balance due to cyclical fluctuations, while promoting a budgetary position that progressively reduces the load of public debt. No reference was made to the possible future impact of ageing on the deficit and on public debt. However, as soon as the evaluation procedure of the EU Member States' public finances (on the basis of their stability and growth programmes) was set up, the Economic Policy Committee established the Working Group on Ageing Populations (AWG) in order to examine the economic and budgetary consequences of ageing. On the basis of the first age-related public expenditure projections prepared by the AWG in 2001 and 2003, the Commission enriched its evaluation of the budgetary position of the Member States by using these projections in order to assess the long-term sustainability of their public finances.

The 2005 reform of the Stability Pact refined and reinforced its preventive arm via a new version of the former regulation [9][2] by introducing the principle of "differentiated MTO for individual Member States, taking into account the diversity of economic and budgetary positions and developments as well as of fiscal risk to the sustainability of public finances, also in face of prospective demographic changes" (cf. [9], [11]).

A so-called "Code of Conduct" [11] was established in 2005 in order to precisely specify all rules and procedures for both the corrective and the preventive arm of the Stability and Growth Pact. Among other things, this "Code of Conduct" specifies the format and content of the Stability and Convergence Programmes,

2 The "corrective arm" was also revised at the same time [10].

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which must include the long-term projections carried out by the Working Group on Ageing. The Code of Conduct also states that these projections cover five age-related public expenditure items, namely: pensions, health care, long-term care, education and unemployment benefits. It refers to these projections by stating that the so-called "implicit liabilities" [11] ought to be taken into account in order to set the Member States' medium-term budgetary objectives (MTO).

The current procedure through which these projections are taken into account in the Commission's evaluation of the long-term budgetary sustainability of the Member States is indeed based on this concept of implicit liabilities, which is presented in the next section.

3 IMPLICIT DEBT AND SUSTAINABILITY

The intertemporal budgetary constraint dictates the sustainability condition: the discounted value of the total future primary surpluses should be (at least) equal to the public debt at the starting point (see Box 1).

Now what is happening if the sustainability condition is not satisfied? In that case, it is possible to assess the permanent (and constant) budgetary adjustment required to restore sustainability – a budgetary consolidation effort evenly spread over time. This required adjustment is called the "sustainability gap" (see Box 2).

Of course, ageing implies that the future variations of the primary balance are negative, reflecting the increase in age-related public expenditures if all other public finance items are assumed to be constant in GDP terms. This increase – or budgetary cost of ageing – tends to inflate over time.

Box 1 The sustainability condition

current public debt D_{t_0} + discounted value of all future expenditure = discounted value of all future revenues.

If $revenue_t$ – $primary\ expenditure_t$ = $primary\ balance\ PB_t$

the sustainability condition is

$$D_{t_0} - \sum_{t=t_0+1}^{\infty} \frac{PB_t}{(1+r)^{t-t_0}} = 0 \qquad (i)$$

where all variables are expressed in GDP terms (D, PB in % of GDP; r is the differential between the nominal interest rate i and the nominal GDP growth rate y, *i.e.* $1+r = (1+i)/(1+y)$)

Source: [6], [13].

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Box 2 The sustainability gap

If $\sum_{t=t_0+1}^{\infty} \frac{PB_t}{(1+r)^{t-t_0}}$ is too small to satisfy equation (*i*) – *see box* 1 – to ensure sustainability, by how much (=S_2) should PB_t be permanently increased to restore sustainability?

$$D_{t_0} = \sum_{t=t_0+1}^{\infty} \frac{PB_t + S_2}{(1+r)^{t-t_0}} \qquad (note: \sum_{t=t_0+1}^{\infty} \frac{1}{(1+r)^{t-t_0}} = \frac{1}{r})$$

$$\longrightarrow S_2 = r D_{t_0} - r \sum_{t=t_0+1}^{\infty} \frac{PB_t}{(1+r)^{t+t_0}}$$

$$\longrightarrow S_2 = r D_{t_0} - PB_{t_0} - r \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}} \quad \text{where } \Delta PB_t = PB_t - PB_{t_0}$$

S_2 is the sustainability gap.

Source: [2], [6], [13].

In this approach, the total discounted value of the future expected increase in age-related expenditures is referred as "implicit liabilities" (see Box 3).

The development presented in Box 2 clearly shows two components of the 'sustainability gap'. The first one represents the required permanent adjustment of the primary surplus, leaving aside the future expected variations in the primary surplus. The second one is the additional permanent adjustment that is required due to the expected deterioration of the primary surplus resulting from the budgetary cost of ageing.

Box 3 Budgetary cost of ageing and implicit liabilities

ΔPB_t is generally negative, reflecting the decrease in the primary balance due to the future increase of age-related expenditure.

– ΔPB_t is the budgetary cost of ageing, assessed on the basis of the impact of ageing on social expenditure (pensions (+) + health care (+) + long-term care (+) + education (-) + unemployment (-)) – assuming constant tax pressure and constant non-age related primary expenditure in GDP terms.

$$-\sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}$$

is the total discounted value of the contribution of the future expected increase in social expenditure to future deficits, referred to as "implicit liabilities" in EC/ECOFIN Council documents.

Source: [2], [6], [13].

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It is worth underlining the main specificities of the above-mentioned implicit liabilities.

Firstly, the traditional budgetary principles (unity, universality) apply here to public finances as a whole. In particular, financing public pensions is dealt here in the context of financing total public expenditures using total public revenues, without taking into account the specific financing sources of public pension schemes. This approach either corresponds to a situation where pensions are indeed directly or indirectly financed by the general government budget or translates the fact that even when financing public pension schemes is theoretically clearly specific and independent, the general budget will be, in practice, the financing source in the last resort.

Secondly, the level of economic activity plays a major role for implicit liabilities as indicator for the 'carrying capacity' of an economy to finance public expenditures, in particular social expenditures. In the approach developed here (Boxes 1, 2 and 3), all the aggregates are expressed as a percentage of GDP.

Thirdly and as a consequence, implicit liabilities and the sustainability gap will be influenced by the choice of the scenario concerning future economic growth, population outlooks and social policy. The economic growth will impact the financial weight of future age-related public expenditures; furthermore these expenditures will themselves be influenced by the evolution of employment and incomes as well as by population outlooks (and by the population health which is an important determining factor of acute health care and long-term care expenditures).

Fourthly, the implicit liabilities are estimated without making a distinction between accrued rights at the starting point and future rights. As far as pensions are concerned, such a distinction is not useful to assess the sustainability of public finances. Moreover, it is sometimes difficult to make such a distinction in certain 'Pay As You Go' (PAYG) public defined-benefit (DB) pension schemes where even the 'accrued rights' depend partly on parameters which are influenced by the profile of the whole career or by the situation when retiring.

The assumptions and methodologies at the basis of projections of age-related public expenditures therefore play an important role in the calculation of parameters of budgetary sustainability. The present article is not aimed at presenting those assumptions and methodologies in detail. Section 4 describes them briefly. For any further detail, we refer to the related publications (cf. [5], [12]).

Section 4 also presents briefly the results of the last projections of AWG (2009) and hints at the various scenarios selected as sensitivity tests.

4 PROJECTING AGE-RELATED EXPENDITURES

The common methodological framework and assumptions are aimed at producing comparable projections across the 27 Member States (2007-2060) [5]. The preparation phase included a literature survey, the consultation of invited experts, notably via workshops and, of course, the contribution of AWG members

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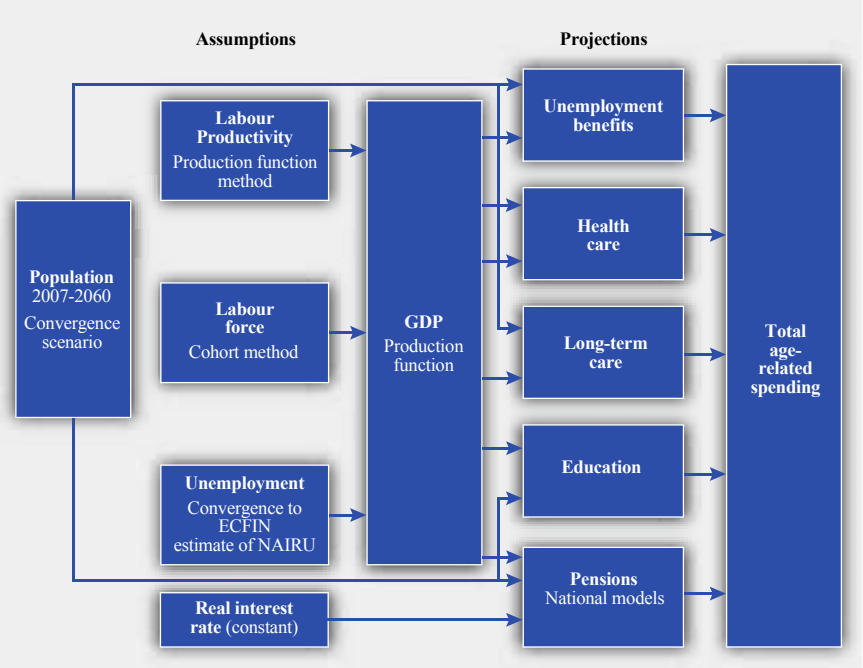
(27 Member States + Norway + ECB + OECD + IMF + Chairman Henri Bogaert from the Belgian Federal Planning Bureau). The demographic projections were prepared by EUROSTAT.

The main features of the demographic and macroeconomic projections can be very roughly summarized as follows [5]:

- a convergence approach for the demographic projection;
- a cohort approach for the participation rates used in the labour force projection;
- an assumption of unchanged structural unemployment rates combined with an assumed fall to the EU15 average for those with initially high structural unemployment rates;
- a production function approach for the potential GDP projection; an assumption of a constant real interest rate.

In practice, calculations are performed by the EC for four out of five age-related expenditure items; for pensions, national models are used (see Section 5). The idea is to capture the detailed specific national pension legislation and retirement behaviours, in given and agreed demographic and macroeconomic scenarios (see Chart 1).

Chart 1 A common methodological framework



Source: [5].

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The baseline is a no-policy change scenario and therefore should not be interpreted as a forecast, in particular when projected evolutions are clearly unsustainable and will necessary lead to changes in policy, in other words to changes in the legislation. In addition, 26 alternative scenarios have been simulated, from which 6 are policy variants. All the others are sensitivity tests concerning assumptions surrounded by huge uncertainties (see Table 1).

Table 1 Sensitivity tests and policy scenarios

	Demographic variants	Macroeconomic variants	Health care variants
Testing macroeconomic uncertainty (6 (7) variants) and uncertainty of demographic drivers (7 variants)	- higher life expectancy - zero migration	Higher - employment rate - participation rate older workers - labour productivity 3 crisis scenarios (higher interest rate)	3 "health status" scenarios: - pure demographic - constant health - death-related costs
Testing uncertainty of non-demographic drivers for health and long-term care: 6 variants			- income elasticity = 1 - EU 12 cost convergence - labour cost
Testing policy changes: 6 variants			

Table 1 Sensitivity tests and policy scenarios (cont'd)

	Long-term care variants	Education variants
Testing macroeconomic uncertainty (6 (7) variants) and uncertainty of demographic drivers (7 variants)	2 "disability status" scenarios: - pure demographic - constant disability	
Testing uncertainty of non-demographic drivers for health and long-term care: 6 variants	3 cost scenarios: - in line with GDP per capita - fast/slow growth in unit cost	
Testing policy changes: 6 variants	- 3 scenarios with shift from informal to formal care	- higher teacher/students ratio - higher compensation - "Lisbon target" for tertiary level

Source: on the basis of [5].

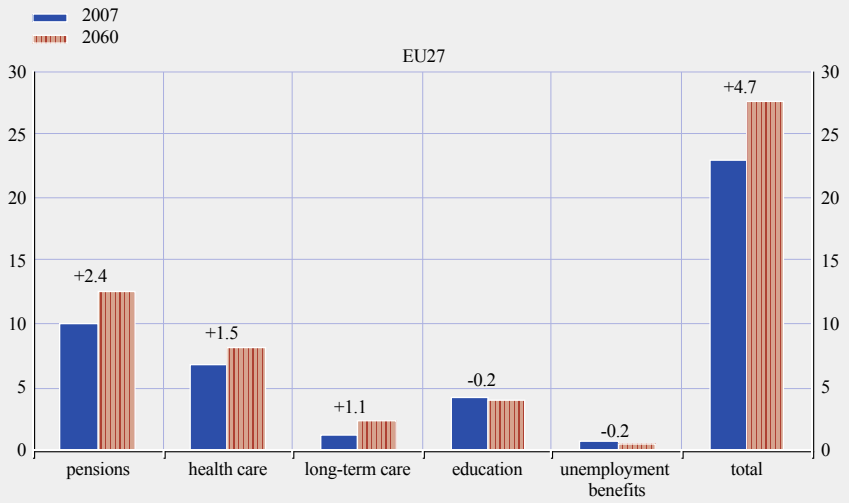
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An example of the baseline results of the 2009 AWG projections is presented in Chart 2 for the EU as a whole and in Table 2 for selected Member States.

The sensitivity tests show that the results are relatively robust. The alternative scenarios give more or less important differences when considering the items separately, but the differences – although significant – are not that impressive compared to the total budgetary cost of ageing in the baseline, except for the zero

Chart 2 The Cost of Ageing in EU 27

(percentage of GDP; 2009 AWG projections)



Source: [5].

Table 2 Age-related government expenditures, 2007-2060, for selected Member States

(percentage point; change of GDP; 2009 AWG projection)

	Pensions	Health care	Long-term care	Unemployment benefits	Education	Total
GR	12.4	1.4	2.2	-0.1	0.0	15.9
RO	9.2	1.4	0.0	0.0	-0.5	10.1
BE	4.8	1.2	1.4	-0.4	0.0	6.9
DE	2.3	1.8	1.4	-0.3	-0.4	4.8
IT	-0.4	1.1	1.3	0.0	-0.3	1.6
PL	-2.8	1.0	0.7	-0.1	-1.2	-2.4
EU27	2.4	1.5	1.1	-0.2	-0.2	4.7

Source: [5].

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migration scenario, and to a much lesser extent for the "high life expectancy" and the "crisis" scenarios (see Table 3).

It should be noted that applying the basic principle of a "no-policy change scenario" is not always straightforward:

– policy changes are well taken into account when they are already enacted; nevertheless, this sometimes raises interpretation problems
– does "no policy change" mean "constant legislation" or are recurrent measures taken into account?

There are obvious discrepancies in the treatment of pension legislation and legislation in the other fields of social protection as far as, for age-related public expenditure other than pensions, the EC relies on standard approaches for the 27 Member States, which makes it impossible to take national legislation and policies into account.

In fact, the focus of the exercise is specifically on pension expenditures, thus on pension policy and pension reforms, but in the context of the possible impact of ageing, on public finances as a whole.

Table 3 Sensitivity tests and policy change scenarios

(2009 AWG projection)

	Change 2007-60, p.p. of GDP, difference from baseline (EU27)			
Macroeconomic variants	Higher productivity (growth rate + 0.25 p.p.)	Higher employment (rate + 1 p.p.)	Higher participation employment older workers (rate + 5 p.p.)	Crisis scenario: permanent shock (maximum impact)
- total cost of ageing	-0.5	-0.4	-0.3	+1.6
- pensions	-0.4	-0.1	-0.1	+1.1
Demographic variants	Higher life expectancy (2060: + 1y.)	Zero migrations	Health status variants	Disability status variants
- total cost of ageing	+1.1	+3.1	-0.4 to +0.6	-0.1 to +0.1
- pensions	+0.3	+1.8		
Non-demographic drivers (health and long-term care)	Health care	(Health care, EU 12 cost convergence)		Long-term care
- total cost of ageing	-0.4 to +0.3	(+2.3 for EU 12)		-0.3 to +0.3
Policy change (long-term care and education	Long-term care		Education	
- total cost of ageing	+0.2 to +0.6		+0.1 to +0.5	

Sources: [5] and own calculations.

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5 PROJECTING PENSION EXPENDITURES

Public pensions in the works carried out by the AWG have a very broad definition[5], including different forms of retirement usually not referred as "pensions" in national administrative practice. In the European System of Accounts (ESA95) and in national accounting, the corresponding schemes belong to the general government sector, namely:
– old-age benefits;
– early retirement benefits;
– disability benefits;
– survivor's benefits (by social security and by other public bodies).

They include earning-related, flat-rate, means-tested pensions. Gross pensions (no deduction of tax and social security contributions on pensions) are considered.

Thus the above-mentioned expenditure items impact the budgetary cost of ageing and the sustainability assessment.

The benefits which are not included in the AWG definition of public pensions are:
– the statutory funded part of old-age pension schemes attached to NDC schemes;
– the private pensions benefiting from a government guarantee (contingent liability);

Member States were free to provide, on a voluntary basis, projections concerning:
– net pensions and tax/social security contributions on public, occupational and private pensions;
– occupational pensions;
– private pensions.

The pension models are quite diverse in nature. All these models have been peer-reviewed in the AWG and documented. Nevertheless, no very clear general picture emerged from this peer-review process, given the heterogeneity of the numerous models: each of the 27 Member States uses its own model and sometimes different models for different pension schemes. Nevertheless, their common feature is their ability to simulate pension expenditures until 2060, within a given demographic and economic context. Most if not all of them are deterministic models (not stochastic). Large differences exist in the level of disaggregation. Some models work with highly aggregated pensioners' categories characterized by one average benefit (in general referred to as semi-aggregated models), whereas others are microsimulation models using large, sometimes very large samples of individual data (see reference [3] for a detailed overview of these models).

The cornerstone of the peer review of the pension projections is the breakdown of the results into four driving forces, namely (see Box 4 and Table 4):
– the demographic factor (ageing);
– the percentage of pensioners in the age group 65 and over;
– the employment rate;
– the benefit ratio.

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Box 4 Breakdown formula of the pension projection (2009 AWG projection)

$$\frac{\text{Pension Exp.}}{GDP} = \overbrace{\frac{\text{Population } 65+}{\text{Population } 15\text{-}64}}^{\text{Dependency Ratio}} \times \overbrace{\frac{\text{Number of pensioners}}{\text{Population } 65+}}^{\text{Coverage Ratio}} \times \overbrace{\frac{\text{Population } 15\text{-}64}{\text{Working People } 15\text{-}64}}^{\text{1/Employment Rate}} \times \overbrace{\frac{\frac{\text{Average Pension}}{GDP}}{\text{Working People } 15\text{-}64}}^{\text{Benefit Ratio}}$$

Source: [5].

Table 4 Breakdown of the public pension spending to GDP ratio over the 2007-2060 period for selected Member States and for EU

(2009 AWG projection)

	2007 level	Dependency ratio contribution	Coverage ratio contribution	Employment effect contribution	Benefit ratio contribution	Interaction effect	2060 level
RO	6.6	13.6	-4.9	0.3	1.7	-1.5	15.8
BE	10.0	7.4	-0.9	-0.5	-1.0	-0.3	14.7
DE	10.4	7.9	-1.9	-0.8	-2.2	-0.8	12.8
IT	14.0	10.4	-3.2	-1.1	-5.5	-1.0	13.6
PL	11.6	13.4	-6.3	-1.0	-7.1	-1.8	8.8
EU27	10.1	8.7	-2.6	-0.7	-2.5	-0.6	12.5
EU15	10.2	7.7	-1.8	-0.6	-2.3	-0.6	12.6
EU10	9.7	11.8	-4.9	-0.7	-3.9	-1.3	10.7

Source: [5].

Not surprisingly, it appears from Table 4 that the main driver of the increase in the public pension expenditures over the projection period is the demographic factor (summarized by the contribution of the dependency ratio to this increase). The differences across Member States have to do with the differences in the ageing challenge and in the possible – but for most Member States limited – lightening of the budgetary impact of ageing thanks to other factors.

Indeed, the coverage ratio has an important impact in countries where pension reforms tend to increase the effective retirement age significantly. The benefit ratio can also contribute to reducing the budgetary cost of ageing in reforming countries where public pension benefits are, on average, set to decrease (compared to the general living standard) either through parametric reforms affecting the pension formula or the privatization of large components of pension schemes. In both cases, the long-term social sustainability of these developments remains an open question.

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DISCUSSION ON SESSION II

BY MARSHALL B. REINSDORF[1]

1 COMMENTS ON "ACCOUNTING STANDARDS FOR PENSION SCHEMES" BY GABE DE VRIES

This paper concerns the actual and proposed accounting standards for pension obligations, which are governed by the international accounting standards board's (IASB) IAS19 in the case of private sector entities and by the international public sector accounting standards board's (IPSASB) ISAS25 in the case of government entities. These standards adopt the point of view of the employer. They distinguish between defined contribution (DC) plans, in which future events cannot affect the employer's obligation arising from employee's service in a given year, and defined benefit (DB) plans, in which future actuarial experience and future investment returns can affect the employer's obligation arising from employee service in a given year. For defined benefit plans, the accounting standards require publicly traded corporations to include the unfunded pension liability (the difference between the gross liability for future benefits and the plan assets) on their balance sheet and the pension expense on their income statement. The pension expense consists of current service cost, interest on the opening benefit liability less expected returns on plan assets, actuarial gains and losses, and other items. The current service cost should be calculated using the *projected unit credit* method. The government accounting standards for pensions (for their own employees) parallel those for the private sector, but the requirement to use the projected unit credit method is replaced by less-specific requirement to use a method that includes effects of future service in calculating current service cost.

The paper also identifies two data problems involving life insurance companies. One of them is that effects of future service are included in the PBO measure of the pension obligation reported by employers, but excluded from the accrued-to-date benefit liability reported by the life insurers who have been contracted to manage the plan and assume its obligations. (Employers sometimes contract with a life insurer to manage their plan and pay the benefits that are due, or they may purchase annuities from a life insurance company when employees retire.) The other problem is the limited availability of information on defined benefit plans that are managed by life insurance companies. Our experience in the US national accounts confirms this latter point: obtaining information on plans managed by life insurers is a problem for us in measuring DB pensions.

Finally, the paper notes that accounting rules and standards vary among the various classes of the institutions that are part of each country's pension landscape. This creates a difficult task for the national income accountant of transforming the information reported by different entities into a common standard to produce a coherent picture for the country as a whole.

1 US Bureau of Economic Analysis.

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ADDITIONAL DIFFERENCES FROM MEASURES USED IN NATIONAL ACCOUNTS

The paper discusses a proposal to broaden the definition of "contribution-based plans" in IAS19 that would shift some hybrid plans from the DB category to the DC category. If this proposal is implemented, hybrid plans where the contributions are notional rather than actual will still need to stay in the DB category for national accounts purposes. Notional contributions that do not correspond to actual contributions would have to be shown as imputed contributions in national accounts according the 2008 SNA, but imputed contributions from employers can only be shown for DB plans. Moreover, the principle that in a DC plan the employer's pension expense for service during a time period is known with certainty at the end of the period would, in some cases, be violated if hybrid plans were classified as DC plans. For example, some hybrid plans promise a rate of return on notional contributions that depends on a stock market index. A subsequent rise in the index that is not matched by an actual rise in plan assets would increase the employer's obligation. Finally, if hybrids were classified as DC plans in European national accounts, international comparability would suffer. In the US, hybrid plans with notional contributions are considered to be defined benefit plans in labor and tax law, and the US national accounts classify pension plans as DB plans or DC plans based on their legal status.

The second difference between private pension plan accounting and the accounting scheme that has been recommended for national accounts concerns the definition of employer's current pension expense. In the SNA 2008, the employer's pension expense for a DB plan equals the value of the benefit entitlements accrued through service (which is known as "current service cost" in private pension plan reporting):

The imputed contribution by the employer… must be such that the sum of the employer's actual contribution [and] any contribution by the employee [and] the imputed contribution by the employer is equal to the increase in benefit[s] due to current period employment plus the costs of operating the scheme. (SNA 2008, 7.65)

More items are included in the employer's pension expense in private plan accounting. Besides current service cost, this expense includes: cost of interest on the accrued benefit liability minus the expected return on plan assets, actuarial gains and losses, and past service cost. (Past service cost generally arises when employees receive credit for years of service before plan inception or before they entered the plan, and the resulting costs to the plan are amortized.) Some kinds of plan amendments might also be added to this list.

The 2008 SNA does not fully explain how we should account for these pension expense items. It does, of course, cover the current service cost, and its lack of discussion of actuarial gains and losses, plan amendments and past service costs does not seem to be a problem. Various treatments for actuarial gains and losses and plan amendments are possible depending on the circumstances, so it is reasonable to leave the matter up to the discretion of the individual statistical

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agencies responsible for preparing the national accounts. Also, past service costs should not arise because lump sum credit for extra years of service granted to employees when they enter the plan should count as current compensation.

Yet how to treat the difference between the interest on the accrued benefit liability and the actual property income earned on plan assets is, however, a question that requires a more complete answer than is provided in the 2008 SNA. Plan participants earn imputed interest income on the value of their previously accrued benefit entitlements. The SNA 2008 shows this imputed interest income as payable by the plan to the participating households and as contributed by the households back to the plan under the heading "household pension contribution supplements" (SNA 2008, 17.156). This is entirely appropriate, but it leaves open the question of how the plan obtains the resources to pay this imputed interest income to the households.

The most logical option for avoiding an imbalance between the plan's sources and uses of income would be to record the employer's imputed contributions as amounts that the employer borrows from the pension plan and to let imputed interest charges accrue on these borrowings. (After all, the imputed contributions represent amounts that are due to the plan in the current period but that are going to be paid with interest in some future period.) In principle, the sum of the actual property income that the plan earns on its assets and imputed interest income that the plan earns on loans to the employer arising from past imputed employer contributions should then equal the imputed interest received by households on the value of their pension entitlements. In this way, the pension plan's sources and uses of income will balance.

Nevertheless, national income accountants may prefer to account for the interest due on past imputed contributions in the same way that the private plans do. Under this approach, the difference between the actual property income received by the plan and the imputed interest payable on the households' accrued benefit entitlement would be simply be included in employer's imputed contributions along with the difference between current service cost and employer's actual contributions. Although doing this has the advantage of simplicity, it will change the interpretation of employer's imputed contributions from an item that has to be added to employer's actual contributions to obtain the correct measure of compensation to an item that measures the employer's implicit borrowing from the pension plan. This borrowing will include both a principle component (the unpaid portion of current service cost) and an interest component (the unpaid portion of the interest accruing on past borrowings.)

A third difference between private plan accounting and the SNA is that the private plans can smooth the plan's investment income, but national accounts use actual investment income excluding holding gains. The actual investment income on plan assets will generally not equal the smoothed (and perhaps optimistic) expected returns on assets that are to be reported in business accounts. However, a reasonable option for national accounts would be to include an estimate of expected holding gains on plan assets in their measure of property income, which would bring them closer to the approach of private pension plan accounting.

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2 COMMENTS ON "ESTIMATING PENSION LIABILITIES IN THE EUROPEAN UNION: THE FREIBURG MODEL" BY MATTHIAS HEIDLER, CHRISTOPH MÜLLER AND OLAF WEDDIGE

With this paper, the focus changes from pensions provided by the employer to social security (special pension schemes for government employees are also included for countries where they exist). This paper accomplishes the impressive task of estimating *accrued-to-date liabilities* (ADL) of the social security retirement benefit schemes of 19 EU countries. The Freiburg model makes these estimates by simulating the future evolution of each scheme's current benefit payments based on detailed age-sex breakdowns of the current population. For their base case, the authors assume productivity growth of 1.5 percent per year and use a real rate of interest of 3 percent.

The Freiburg model is intended as an approximation that avoids the type of data-intensive detailed calculations that would done by a pension actuary, so the accuracy of the approximation is an important question. Comparisons of the estimates of the ADL (expressed as a percent of GDP) with estimates made by the statistical agencies of Finland and Spain show that the Freiburg model estimates are not far off in these two cases. The Freiburg model is about 10 percent below a comparable estimate from Statistics Finland and about 15 percent below an estimate from INE in Spain, but a difference in assumptions concerning the real wage growth rate appears to account for about 5 percentage points of that gap in the latter case. Thus, the limited empirical evidence at our disposal suggests that the approximations from the Freiburg model are pretty good. One the other hand, the fact that both errors of approximation are negative raises a question about whether the Freiburg model may have a tendency to produce estimates that are a bit low.

The results presented in this paper show that the differences between countries in ratios of the ADL to GDP are remarkably large, ranging from 91.2 percent for the UK to over 300 percent for France and Poland excluding government employee pensions, or about 360 percent for both of these countries if those pensions are included. There are four reasons for the differences in the ADLs: differences in initial level of benefits as a percent of GDP, differences in projected growth of the retirement age population, differences in indexation, and differences in pension reforms. The initial level of benefits relative to GDP is the most important of these.

The ADL is related to another concept used in the generational accounting literature, the closed group liability. The main difference between these concepts lies how the projected value of the benefits that an employee will have accrued at the end of the career is adjusted to account for the part of the career remains to be completed. The closed group liability concept subtracts the present value of the contributions to be made in the future part of the career. The ADL concept in this paper instead assumes that the fraction of the projected length of the career that has already been completed equals the fraction of the projected benefits that have already been accrued. The closed group liability seems to be a better concept for analyzing the effects of social security reforms because the effect of

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reforms that change the relationship between lifetime contributions and lifetime benefits will be understated by the ADL. At least for the social security schemes of Italy and the US, the closed group liability has become negative at plausible rates of interest for the youngest employees as a result of social security reforms, but their ADL remains positive.[2]

In the past in the US, the average closed group liability at the start of the career was close to zero or positive, so combining the older and younger cohorts that are presently of working age may give a closed group liability for the entire working age population that is not too different from an ADL. The estimate of the closed group liability in the 2009 Trustees Report amounts to 129.5 percent of 2008 GDP based on a long run real interest rate assumption of 2.9 percent and a productivity assumption of 1.7 percent. Social security benefits in the US (including disability insurance benefits) have the same ratio to GDP as state retirement benefits in the UK. Other factors (such as growth of the older population and indexation procedures) are, of course, different, but the effects of these differences may not be too great for a comparison with the US to be interesting. The sensitivity analysis for the Freiburg model implies the assumptions used by the US social security trustees would have raised the Freiburg model estimate of the ratio of the ADL to GDP in the UK to somewhere between 95 and 100 percent of GDP, leaving it roughly 30 percentage points below the closed group liability ratio from the US social security trustees report. Differences in circumstances between the US and the UK may well account for this entire gap, but it is also possible that the Freiburg model estimate for the UK is again a bit on the low side.[3]

An alternative to the closed group liability that is closer to the ADL is the "maximum transition cost" that is calculated by office of the chief actuary of the US social security system.[4] They define this concept as "the cost of meeting the accrued benefit obligations of the old form while continuing the Social Security program in a completely different form, with all payroll taxes for work after the valuation date credited to the new benefit form." It equals the value of accrued benefit obligations less the amount of assets accumulated in the social security trust fund. In 2008 it exceeded the closed group liability by about 16.6 percent of GDP.

I have three suggestions of additional measures that would be useful. First, supplementing the estimates of the ADL with estimates of the closed group

2 Mazzaferro and Toso (*Review of Income and Wealth,* Sept. 2009, p. 788) discuss the Italian case. The social security trustees report at http://www.ssa.gov/OACT/TR/2009/tr09.pdf provides estimates for the US.

3 The paper classifies the indexation procedures used in the UK as a factor holding down the relative cost of their state retirement pensions, but the UK has recently switched from indexation based on price inflation to indexation based on wage inflation. Rising productivity should cause wages to rise more than prices, so the indexation scheme now used in the UK does not seem to be below average in generosity to retirees. Even the past indexation practice was based on a measure of price inflation that tended to rise faster than the harmonized CPI.

4 See Alice Wade, Jason Schultz and Steve Goss, Unfunded Obligation and Transition Cost for the OASDI Program, Actuarial Note No. 2009.1, August 2009. Accessed at: http://www.ssa.gov/OACT/NOTES/ran1/an2009-1.pdf.

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liability for those presently in the social security scheme would be interesting, because it would show the size of the financing gap that has to be filled by assets currently on hand, contributions from future participants in the scheme, or subsidies from general revenues. Second, current year GDP is a flow, but the present value of accrued benefits is a stock. Rather than comparing the ADL to GDP, a more meaningful comparison might be to the present value of future GDP over the same years as are included in the ADL calculation. Third, it would be useful to see a ratio of the ADL to the projected present value of future compensation of employees covered by the social security scheme. The closed group liability for the US social security scheme in 2008 is estimated to be 1.4 percent of the present value of future GDP and 4.2 percent of the present value of future payroll (or 1.2 and 3.7 percent, respectively, after subtracting assets on hand).

3 COMMENTS ON "WORK ON PENSIONS BY THE EPC WORKING GROUP ON AGEING" BY MICHEL ENGLERT

This paper reports on a project by the Aging Working Group (AWG) of the Economic Policy Committee to compile estimates for administrative purposes of effects of population aging on public finances sustainability for 27 EU member countries. The results are discussed in a recent joint report the Economic Policy Committee and the European Commission. The projections of age-related public expenditures cover five items: pensions, health care, long-term care, education and unemployment benefits. (Effects of aging on education and unemployment benefits expenses are negative.) Although it appears from this list that the AWG may have overlooked disability insurance, it was included in the pension component of the study. In other words, the term "pensions" in this paper comprises all the components of what I call "social security" in my paper in this conference volume plus what I call "government employee pensions."

The concept of implicit liabilities used by the AWG is not the same as the implicit pension liabilities to be shown in national accounts. The AWG looked broadly at the financing of total public expenditures using total public revenues without taking into account the specific financing sources of public pension schemes. This means that they included pension schemes that have their owned dedicated source of funding but that are indirectly financed by the general government budget or rely on the general government budget as the financing source of last resort. Furthermore, in their report the implicit liabilities are estimated without making a distinction between accrued rights at the starting point and future rights. For the purpose of measuring sustainability of public sector finances, what matter is the gap between the present value of projected future government outlays and the present value of projected future government revenues.

Each country prepared its own estimates using common methodological framework and assumptions based on literature review, the contributions of experts or Eurostat's demographic projections. This muddies the interpretation and reduces the reliability of the results, but I have no doubt that their general message is correct. The overall cost for EU governments of aging amounts

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to about 4.7 percent of GDP, including an effect of 2.4 percent of GDP from pensions, an effect of 2.6 percent of GDP from health care and long term care, and a small negative effect from education and unemployment benefits. However, there are enormous differences between countries. These differences show that large challenges await some countries with much higher aging expenses than this overall average, but they also show that some countries have succeeded in making reforms to mitigate the costs of population aging. For example, public pension expenses as a percent of GDP are expected to fall in Italy despite a rise in the proportion of its population over 65.

Even though the concepts in the AWG report are not the same as those used in national accounts, it should be of great interest to national income accounts. Should they occur, large discrepancies between national accounts estimates for pensions and the administrative estimates may indicate a problem that needs to be investigated. For these reasons, I would have liked to have seen results for all the countries, or at least the same 19 countries that have Freiburg model estimates, included in the tables of results in this paper. It would be interesting to compare patterns of projected public pension spending in this paper with the predictions of the Freiburg model. Furthermore, the importance of implicit liabilities for health care expenses in this report suggests that these expenses are a good topic for future research on additions to the information included in national accounts.

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SESSION III

PANEL DISCUSSION ON THE USE OF PENSION DATA FOR POLICY-MAKING

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INTRODUCTION

Session III is organised as a panel discussion on the use of pension data for policy-making. Chaired by Ad van Riet (ECB), contributions are provided by Heikki Oksanen (European Commission, DG for Economic and Financial Affairs), Bernd Raffelhüschen (Freiburg University) and Karsten Wendorff (Deutsche Bundesbank, Chairperson of the ESCB Working Group on Public Finance).

All panellists stress the usefulness of pension entitlement data as estimated on an accrued-to-date basis. Heikki Oksanen refers in his presentation on using pension data for policy to different issues. He indicates the benefits and limitations of this new recording of pension entitlements, saying that some clarifications for using general government deficit and debt data for fiscal surveillance might become necessary, but this can be seen as normal business. New pension data will improve data quality and international comparability. He also refers to a statement from the EU Economic and Financial Committee (EFC) welcoming the cooperation between statisticians, analysts and forecasters by clearly indicating that accrued-to-date measures are useful for economic analysis; but are not per se sustainability indicators as applied in the context of the SGP. On the work ahead, close cooperation between actuaries and statisticians is needed as well as between statisticians and economists making projections and pension reform scenarios.

Bernd Raffelhüschen's paper on the use of pension data for policy making is based on estimations of accrued-to-date pension entitlements for various EU countries carried out for the ECB with the Freiburg pension model. The estimations are based on a rather highly aggregated pension model: Its strengths are its generic character which allows the results to be compared across countries and the fact that it also includes sensitivity analyses of the impact of various measures related to pension reforms. The paper however expands upon the accrued to date pension entitlement approach, moving to an open system by also including the impact of pension contributions. The results are presented for one pension scheme, the social security pension scheme in Germany, by using the accrued-to-date data as a starting point of the analysis. Finally, he uses the concept of open system net liabilities as a measure for the sustainability assessment.

Karsten Wendorff states in his paper that transparent and comparable calculations are required in the area of pension scheme data. This means that a black box should be avoided in terms of model specifications, data and underlying model assumptions. Furthermore, the importance of sensitivity analyses is stressed. The paper also outlines that it might be difficult to find robust EU-wide criteria for the distinction between the core and non-core recording of pension entitlements: However, consistency should be ensured over time. In summary, the work on the estimation of pension entitlements is appreciated as it is useful for policy-making and the analysis of the impact of pension reforms. However, extreme prudence is warranted in the context of international fiscal rules. If the data become a political target (Maastricht criteria), there is a considerable risk of creative accounting and political pressure, which may ultimately lead to a loss in the data's explanatory power, its credibility and that of the fiscal rule itself.

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USING PENSION DATA FOR POLICY MAKING – THE CASE OF THE GERMAN PENSION REFORMS

BERND RAFFELHÜSCHEN, CHRISTOPH MÜLLER AND OLAF WEDDIGE[1]

1 INTRODUCTION

In the field of pension policy, data regarding the future development of public pension schemes plays a decisive role. It allows policy makers to realise the implications of certain pension reforms and shows them how the demographic shift in most industrialised countries will influence the future situation of a pension scheme.

The accrued-to-date liabilities (ADL) of a public pension scheme represent an important indicator for the entitlements of private households earned up to a certain point in time. The ADL of a pension scheme are equal to the present value of a capital stock necessary to satisfy the claims accrued-to-date of private households. In that way, policy makers get an idea of the fiscal consequences of a pension scheme's termination. There are many other areas of application for ADL;[2] however, they do not serve as an indicator for fiscal sustainability.

For this reason we will introduce a further indicator for the future development of pension schemes in this paper: open-system net liabilities (OSNL) show if the pension scheme in question can be continued under current rules and settings or if its rules have to be adjusted in order to ensure future fiscal balance. We will apply the indicator of OSNL exemplarily to evaluate the reform process of the German statutory pension scheme in recent years. The paper proceeds as follows:

In chapter 2 we supply a definition for the different types of liabilities. Furthermore, we describe the method and input data necessary to calculate the OSNL of a pension scheme. The outcomes of our calculations are presented in chapter 3. The paper finishes with a short conclusion.

2 ASSESSING FISCAL SUSTAINABILITY – METHOD AND DATA

In the course of the current revision of the 1993 SNA, accrued-to-date liabilities (ADL) of social security pension schemes will be recorded in National Accounts. Against this background the ECB/Eurostat workshop on pensions focused on the calculation and use of these pension entitlements. It has been outlined inter alia that such figures provide valuable information regarding the timing of accumulation of ADL, the impact of pension reforms and explanation of national savings. Pension entitlements, however, are not representing an indicator to evaluate the

1 Freiburg University.
2 See for example Weddige (2009).

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Table I Definition of liabilities

Time horizon	Gross liabilities (including expenditures)	Net liabilities (including expenditures & revenues)
Infinite ⇩	Accrued-to-date liabilities (ADL)	
	Open-system gross liabilities (OSGL)	Open-system net liabilities (OSNL)

fiscal sustainability of pension systems. The following passages will outline how this aim can be achieved by a simple extension of the approach to calculate ADL. First of all the concept of ADL will be defined to illustrate the differences to a fiscal sustainability indicator. Thereafter, the method and data to model a sustainability indicator on the basis of the ADL calculations will be described.

ADL consist of the actual pension payments and the present value of pensions to be paid in the future on the basis of accrued rights. Table 1 makes clear that the concept of ADL has a relatively limited perspective in comparison to other forms of liabilities. In contrast to open-system liabilities future pension rights earned by current and future workers are not included.

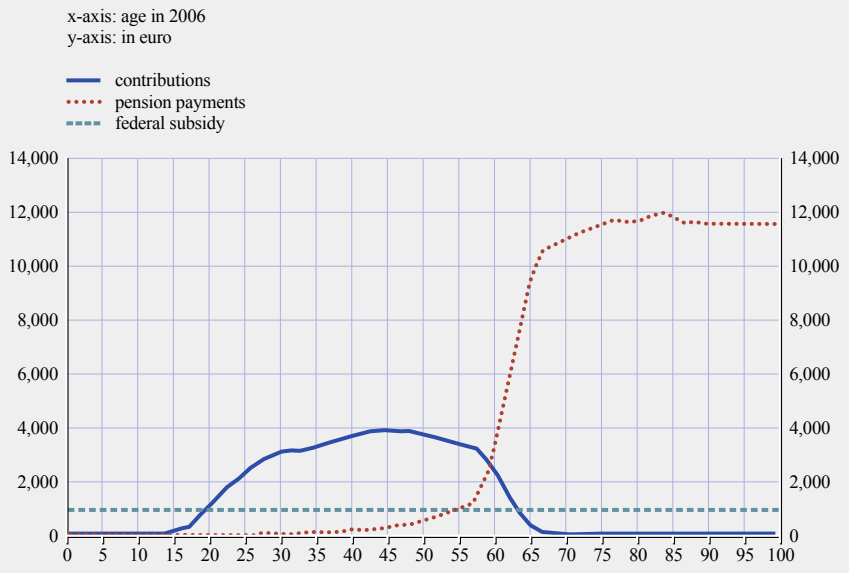
Furthermore, revenues are not taken into consideration when applying the ADL approach. By focusing on expenditures only, no statement regarding the sustainability can be made. In other words it is not analyzed to which extent future pensions can be covered by future contributions.

Only two further steps are required to calculate the sustainability of pension systems on the basis of the ADL approach.[3] In a first step the time horizon needs to be extended. While the ADL represent the cost of terminating a PAYG pension scheme, a longer perspective is naturally been taken when assessing sustainability. Therefore, pension entitlements which will be accrued in the future should also be taken into account. Of course, the level of ADL is not connected with any good or bad financial situation of the respective pension system since any financial burden could be balanced by sufficiently high contributions. Therefore, in a second step not only expenditures but also future contributions have to be considered when evaluating fiscal sustainability. As a result one arrives at the OSNL – a valuable indicator to assess fiscal sustainability. It is worth noticing that the instrument to measure this figure is generational accounting. Considering the future demographic development, generational accounting shows which effects a prolongation of a given policy will have on the tax and transfer payments of living and future generations.[4]

3 For an overview on our methodology to measure ADL see Heidler et al. (2009).
4 For a detailed description of generational accounting see Auerbach et al. (1994) or Raffelhüschen (1999).

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Chart 1 Age-specific payments and contributions of the German statutory pension scheme



Source: Own calculations based on Deutsche Rentenversicherung (2007).

The OSNL approach is based on the same data as the ADL approach: 1) age specific pension expenditure profiles and 2) demographic population projections. In addition, 3) age specific contribution profiles are needed to assess also the revenue side of the respective pension system. Chart 1 illustrates the age-specific payments and contributions for the example of the German statutory pension scheme. It shows the typical picture: While on average contributions are paid at the age of 25 to 60, pension payments are received at the age of 60 and older. Moreover, federal subsidies should not be neglected when analyzing pension systems. Since in the German statutory pension scheme this subsidy cannot be clearly assigned to specific age groups, it is evenly distributed to all cohorts.

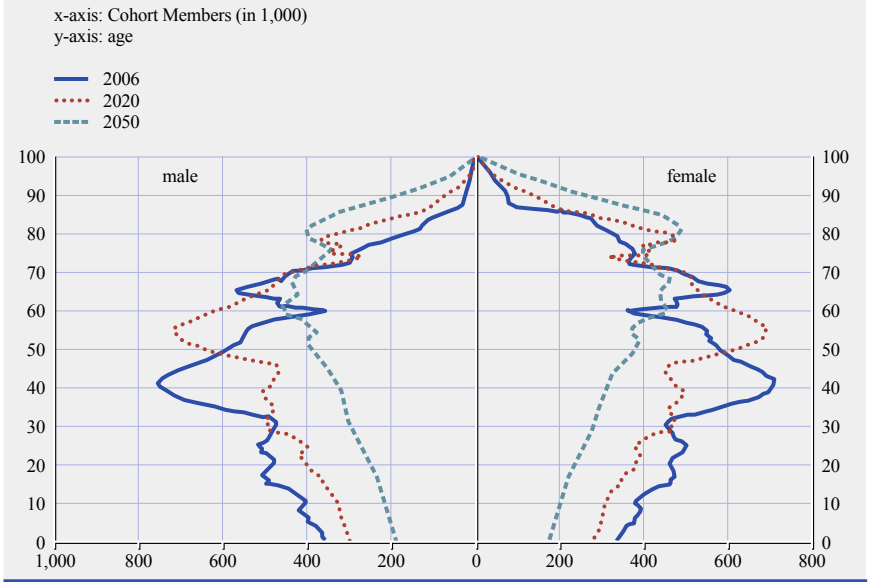
Of course, Chart 1 on its own does not provide any information about fiscal sustainability. However, when weighting the age-specific profiles with the respective cohort sizes, one can draw conclusions about the short and long term financial condition of the respective pension scheme. Cohort sizes are taken from population projections which include future age-specific population structures. Chart 2 illustrates the population structure in Germany for 2006, 2020 and 2050.

At first sight it becomes obvious that the German statutory pension scheme – as most European pension systems – will be faced by the challenge of a double aging process. On one hand life expectancy is assumed to rise considerably in the coming decades;[5] on the other hand fertility is expected to stay on its low

5 According to Europop2008 life expectancy of a male (female) born in 2006 will increase from 77.2 (82.4) to 83.6 (88.0) years until 2050. See Eurostat (2009).

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Chart 2 Population structure Germany 2006



Source: Own calculations based on Eurostat (2009).

present level.[6] As a result, the German population pyramid´s appearance will considerably change in the years to come (see Chart 2). In simple terms, this development will lead to a decreasing number of contributors paying for more and more pensioners. The question to which extent the German statutory pension scheme will be prepared to tackle this demographic challenge will be assessed in the following chapter. The German example shall illustrate how policy making can be evaluated and advised applying the indicator of OSNL.

3 THE EVALUATION OF THE PENSION REFORM PROCESS IN GERMANY

We will start by confronting the ADL of the German statutory pension scheme with its OSNL. Chart 3 illustrates our calculations.

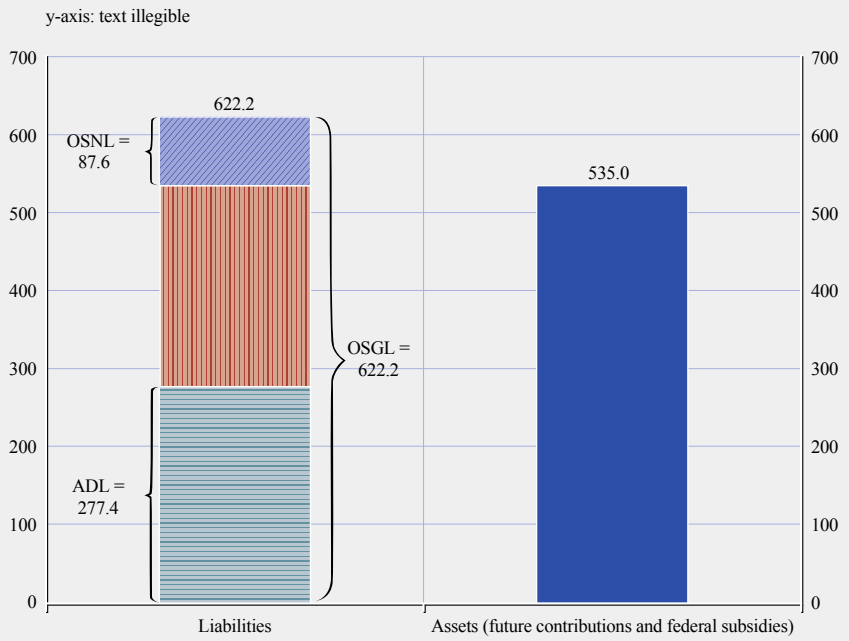
As can be seen, the ADL account for nearly half of the open-system gross liabilities (OSGL). The ADL symbolize that part of the OSGL which contributors have been earned up to the base year. The residual part of the OSGL represents the present value of all entitlements which will be earned by present and future contributors after the base year. On the right side of our image we displayed the assets of the German statutory pension scheme. These consist of future contributions and federal subsidies and sum up to a present value of 535 per cent

6 The fertility rate in Germany amounted to a level of about 1.3 in the last years. See Eurostat (2009).

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Chart 3 Liabilities and assets of the German statutory pension scheme

(in percent of GDP 2006)



Source: Own calculations.

of German GDP in 2006. The OSNL are now derived by subtracting the assets from the liabilities of the pension scheme. In the case of the German statutory pension scheme, the ONSL amount to a value of 87.6 per cent of GDP. In other words, the sum of all future deficits discounted to the base year equates to ONSL of 87.6 per cent.

In this context it has to be emphasized that the outcome presented above is the result of numerous reforms of the German statutory pension scheme in recent years. In the following part we will briefly sketch out the major reform steps. Furthermore, we will demonstrate the impact of each reform step on the OSNL of the pension scheme.

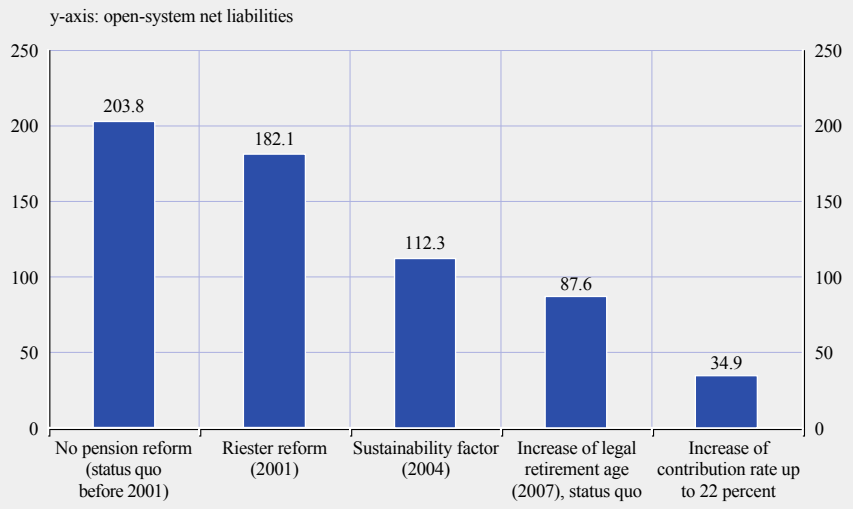
Beginning with the situation prior to any pension reform (status quo of 2001), the ONSL show a value of more than twice the German GDP of 2006.[7] The so-called Riester reform in 2001 introduced a new pension formula which changed the net wage indexation to the development of gross wages net of pension contributions (both public and private). This reform step reduced the OSNL by

7 Our analysis does not simulate a situation where none of the pension reforms has ever come into force. This is not possible due to the fact that the past impacts of the reforms are implicitly included in the budget of the base year. For this reason, we rather picture a scenario where all pension reforms are abolished in the base year 2006.

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Chart 4 Open-system net liabilities (OSNL) of the German statutory pension scheme

(in percent of GDP 2006)



Source: Own calculations.

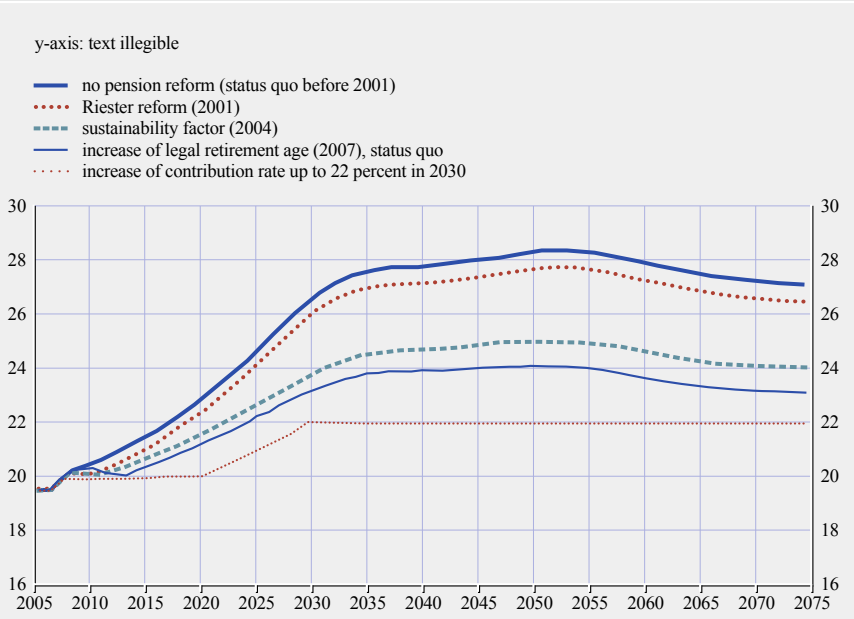
nearly 22 percentage points of GDP in 2006. The biggest cutback took place in 2004 when the sustainability factor was implemented in the pension formula. This factor connects the pension level to the development of the ratio of retirees to contributors. It reduced the OSNL by some 70 percentage points of GDP. The last major pension reform in 2007 consisted of the gradual increase of the legal retirement age from 65 to 67, starting in 2011. This reform lessened the OSNL by another 25 percentage points; hence the current status quo amounts to about 88 per cent of GDP. In other words, the sustainability gap of the German pension scheme has been more than halved thanks to numerous pension reform acts since 2001.

It is worth mentioning that the Riester reform from 2001 contains a passage regarding the future development of the contribution rate. Due to this legislation, the German government is supposed to take action in case the contribution rate will exceed a level of 20 per cent until the year 2020 and accordingly 22 per cent until the year 2030. Many pension experts regard this as a paradigm change from a defined benefit (DB) to a defined contribution (DC) scheme.

Our calculations always include the current status quo; hence, we act on the assumption of a constant pension formula and a constant contribution rate (19.5 per cent in 2006). However, Chart 4 shows how the outcome for the OSNL reacts if we assume that the contribution rate linearly increases to 20 per cent in 2020 and 22 per cent in 2030. In this case the pension scheme converges even more to a sustainable situation with OSNL amounting to about 35 per cent of GDP only.

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Chart 5 Sustainable future contribution rates of the German statutory pension scheme



Source: Own calculations.

What do we learn from the presentation of OSNL under various reform steps? It has been shown that the calculation of OSNL – one could also call it the sustainability gap of a pension scheme – represents a helpful instrument to assess the impact of certain reform steps in terms of their fiscal sustainability. In this way, ONSL can be a useful tool for policy-makers who are willing to prepare their pension schemes for future challenges. Politicians are given an indicator for the extent to which a pension reform reduces the burden for future generations.

As mentioned before, one of our main assumptions is a constant continuation of current fiscal policy. In the case of the pension sector, this inter alia implies constant contribution rates.[8] We now change this assumption by illustrating what will happen if policy makers immediately adjust the contribution rate in case of an unbalanced budget. Put differently, we calculate endogenous contribution rates which in every period ensure fiscal balance. By doing so, it can be demonstrated how future contributors will be burdened if deficits are financed by contribution boosts instead of taxes. Chart 5 illustrates the course of these contribution rates:

As shown above, the initial scenario (status quo 2001) implies a development of contribution rates up to a value of more than 28 per cent in 2045. The Riester reform slowed down this development by approximately 0.5 percentage points. Again, the

8 This is certainly not a realistic scenario since in a non-balanced situation contribution rates are often subject to change. However, please note that generational accounting is not a forecasting tool. It is rather supposed to unfold hidden debts and shows the consequences of what will happen if policy makers do not react.

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biggest decrease can be traced back to the introduction of the sustainability factor which induced a decline of the sustainable contribution rate by more than two per cent. The increase of the legal retirement age as the last major pension reform further reduced the necessary contribution rate to a value of about 24 per cent from 2035 on. For illustrative purposes, the development of the contribution rate to 20 per cent in 2020 and accordingly 2030 per cent has been included. Overall the results have shown that the recent pension reform process in Germany considerably lowered the burden for future contribution payers.

4 CONCLUSION

This paper aims to introduce an indicator which assesses the fiscal sustainability of a public pension scheme. The open-system net liabilities (OSNL) point out if the settings of a public pension scheme have to be adjusted in order to guarantee future fiscal balance or if no action has to be taken by policy makers against the background of the demographic shifts in industrialised countries.

We demonstrated that the OSNL can be a useful indicator to accompany the reform process of a pension scheme. It is not only possible to assess the consequences of a pension act *ex post* but also *ex ante*. In that way different proposals for pension reforms can be examined in regard to their impact on fiscal sustainability before they are actually enacted. In our paper we described the development of the German pension reform process and the corresponding consequences of each reform step on the ONSL of the pension scheme. As a result of the reform process, the German statutory pension scheme can be regarded as close to sustainable.

Besides the German example, rather distinct reform measures have been taken in member states of the European Union to prepare for the demographic challenges. While some countries such as France modified the pension indexation rules or – like the UK – chose to increase the legal retirement age, other states such as Italy implemented notional defined contribution (NDC) systems.[9] Future research could assess these different reform strategies in Europe using the indicator of OSNL.

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USING PENSION DATA FOR POLICY[1]

BY HEIKKI OKSANEN[2]

1 INTRODUCTION

I want to thank the organisers of this workshop for giving me an opportunity to comment on the progress made in revising the national accounting rules for measuring assets and liabilities of pension schemes, as initiated under the auspices of the United Nations Statistical Commission and followed by the work in the Eurostat/ECB Contact Group. Statistics are not produced for their own sake but to provide governments and private sector agents with data for assessing the state of the world and designing responses to various challenges. I will make my comments primarily from the point of view of shaping policies for sound public finances.

The main novelty in the revised national accounting rules will be to record the pension liabilities of general government, taking the *accrued-to-date liability concept* as the appropriate definition, with the aim of estimating this important category of government liabilities and the corresponding assets of the household sector.

This innovation will have major implications for analysis and thus potentially for policy design. There are two main reasons for this: (1) the pension liabilities of governments so defined dwarf conventionally defined public debt in most countries, and (2) these liabilities are in most cases *implicit,* meaning that their amount is not directly measurable but only estimates can be provided, with the consequence that different assumptions can be made and therefore different results can be presented, both on justifiable non-partisan grounds and, potentially, with the aim of steering policies in one or other direction serving specific interests.

However, dealing with non-definitive data is not exceptional. All statistics, not least national accounts, are only estimates, and the conceptual and practical issues involved with public pensions do not bring to the table problems that are qualitatively new, although we might have here an issue that has quantitative implications of a new and huge order of magnitude.

Due to their quantitative importance the new data on public pension liabilities may have drastic implications for monitoring fiscal developments and designing policies to comply with the EU Treaty principle of sound public finances. This is obviously the main issue here, although public pension liabilities are in various ways very significant for private sector agents too. We should also recognise

1 ECB/Eurostat workshop on pensions, 29 and 30 April 2009, Panel discussion

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that any given set of statistical data almost invariably has many users and many potential purposes. Therefore, the advisability of producing such data should probably not depend only on one sphere of application.

The state of preparations for the revised SNA and ESA is currently that *Accrued-to-date pension liabilities* will be part of the new national accounts balance sheets. For private sector employers these will be included in the core accounts, while for government, as far as social security pensions are concerned, they will be recorded in the new supplementary accounts. The treatment of the liabilities of governments vis-à-vis their own employees is still somewhat open, as the solution will depend on drawing the borderline between these and general social security pensions.

As terminology is not yet fully established, *Accrued-to-date pension entitlements* or *Pension entitlements* are here called, for simplicity, *Implicit Pension Liabilities* (IPL), being fully aware that there are alternative definitions of pension liabilities – we will leave the issue aside here.

We will recapitulate in Section 2 some statements made by the EU committees in charge of preparing policies for public finances. Sections 3 and 4 will, respectively, discuss the two arms of the Stability and Growth Pact (SGP), namely the Excessive Deficit Procedure (EDP) and the longer-term issues related to the sustainability of public finances and pension reforms. Section 5 comments on the work ahead and the division of labour between the statisticians and the pension actuaries and economists, and Section 6 draws some conclusions.

2 STATEMENTS BY THE EU COMMITTEES

The EU committees in charge of economic and fiscal developments in the EU commented last year on the plans to include public pension liabilities in the national accounts. The Economic Policy Committee (EPC) stated:

"All indications are that the application of the 2008 SNA rules in Europe (through a revised ESA, with reduced flexibility compared with the updated SNA) will not result in significant changes to general government deficit and debt data used for the purposes of the Excessive Deficit Procedure". It also said: *"Presentation of a broad range of statistical information on pension schemes will allow better international comparability; provide useful information regarding the timing of accumulation of pension entitlements and the impact of pension reforms"* (EPC document of 26/8/2008).

The Economic and Financial Committee stated:

"On pension schemes, the EFC welcomes the work of the Eurostat/ECB Task Force to improve the treatment of pensions in the national accounts. The EFC stresses the importance of an ongoing close cooperation between national accountants, statisticians, and experts preparing pensions projections, notably

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in the context of the work of the EPC Working Group on Ageing Populations and Sustainability… The EFC underlines that the accrued-to-date measures of pension entitlements are not sustainability indicators. Yet, they will be useful for economic analysis, notably they will provide useful information regarding the timing of accumulation of pension entitlements and the impact of pension reforms. Furthermore, the EFC believes that it is desirable to associate to this exercise the expertise of agencies responsible for public pension schemes" (EFC Statistics document of 25/10/2008).

We can detect a certain ambivalence in these statements. On the one hand, there clearly is some concern that the new data might confuse the Excessive Deficit Procedure (EDP), which is unquestionably the backbone of the fiscal policy rules at EU level. On the other hand, the new data is seen as a useful addition to data for analysing pension policies, which obviously affect public expenditure and thereby fiscal balances in the future, being essentially part of the assessment under the so-called preventive arm of the Stability and Growth Pact (SGP). We will now look in turn into these two dimensions of public finances.

3 EXCESSIVE DEFICIT PROCEDURE (EDP)

The EDP as included in the Maastricht Treaty in 1991 (Treaty establishing the European Community, TEC, which came into force in 2009 and is only slightly modified by the Reform Treaty under ratification in 2009) clearly concerns explicit public debt and deficit under current accounting standards. Its original purpose was to identify gross errors in public finances (Article 104 TEC), and to help comply with the principle of sound public finances (Article 4 TEC). It can be said that the purpose of the EDP was to safeguard against irresponsible policies and to prevent excessive borrowing by any Member State from the common pool to finance fiscal deficits.

To this end it is normally sufficient to look at deficit and debt ceilings as stipulated in the Treaty and under current accounting standards, as they are sufficient to identify gross errors (even though the 3% ceiling is not equally hard for every country).

One potential issue is a situation where there is significant privatisation of the public pension system by creating a mandatory fully funded second pillar providing pensions on the basis of defined contributions – the rule whereby the risk relating to the return on the accumulating assets falls on the employees. As a share of the pension contributions is shifted to the second pillar that is classified in the private sector (due to the risk allocation) and as expenditure from the public pillar falls only gradually over a long period, the 3% ceiling for public deficit may be breached. Note that this problem arises even though assets are correspondingly accumulating in the second pillar.

However, this problem could be dealt with by adding, for the purposes of the EDP, the surplus in the mandatory second pillar to the government budget balance, and deducting the second pillar assets from gross public debt. Note that even though

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the underlying question here is swapping implicit debt for explicit public debt, this remedy does not necessarily require explicit use of the new IPL data.

Another potential issue is the possible inclusion of IPL related to government employees in the core accounts (the criteria for which are still an open question). This would increase public debt in many cases by 40-60% of GDP, and the corresponding (policy-neutral) effect on the measured government deficit would be 2% of GDP. If it were decided to use such newly defined deficit and debt figures for the EDP, the reference values defined in the Protocol on EDP (3% of GDP for deficit and 60% for public debt) would obviously need to be reviewed, or it should be specifically stipulated that for the purposes of the EDP the old definitions of deficit and debt are used.

Thus, both of these problems could be dealt with – if needed and wanted – by a change to the Protocol on the EDP (by a unanimous Council decision), introducing specific provisions for EDP deficit and debt in this Protocol, and possibly in related documents.

This means that the necessary clarifications could be seen as normal business for specifying what data should be used for each policy-making purpose. Seen in this way, the EDP and the SNA/ESA revision for IPL can live in peace.

4 THE SGP PREVENTIVE ARM, LONG-TERM SUSTAINABILITY, INTERGENERATIONAL EQUITY, PENSION REFORMS

The Committees have rightly stated that an estimate of implicit pension liabilities is not a sustainability indicator. We know that one reason for emphasising this simple fact stems from the need to say that an IPL as large as even 200-300% of GDP, thus a multiple of explicit public debt in most countries, does not necessarily on its own indicate a problem of sustainability of public finances. This is true, and it is confirmed also by the fact that public finances in EU Member States have not collapsed even though the magnitude of IPL is of that order.

It has also been said that when a pure PAYG pension system is established, IPL does not immediately indicate a problem of sustainability. This is also true, but it is only valid for the IPL for the first year or years; a projection for its future value (under various alternative assumptions) would measure the increasing burden (as would also a projection of expenditure) and provide a useful indicator of the possibly looming problem of sustainability.

Let's be clear that no single variable alone is a sustainability indicator. An estimate of the IPL for now gives the starting point for a more comprehensive analysis. It would contain additional information compared to the data on current pension expenditure and a projection for aggregate pension expenditure as it contains the information on the rights accrued up until today.

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The IPL for today would also provide a basis for a *projection* for the IPL. Note, however, that it would not be produced by statistical offices, as it is not their task to make economic forecasts, but should be produced by pension actuaries and economists. Such a projection would always contain more information than a projection for aggregate pension expenditure (or open system pension liabilities) as it contains the information on when the rights are accrued and not only when the pensions are paid out. This, combined with policy rules on the revenue side of the public pension system, would give a useful and necessary basis for looking at issues of who is paying for what, i.e. the question of intergenerational equity could be tackled.

Other arguments for looking at the IPL estimates are as follows:

Implicit and explicit government debt are similar in the sense that both have come about because some groups of beneficiaries of public money cum tax payers have in the past received from the government something more than they paid in (note: this is true for net public debt and excludes borrowing for public investment). Consequently, they are similar also in the sense that current and future generations need to bear the burden of both. The IPL estimate also gives future pensions the same dimension (stock at a given point in time) as for explicit public debt.

It should also be recognised that for many reasons explicit and implicit public debt are not perfect substitutes (normally, one is traded, the other is not). But again, this is not a reason to ignore implicit debt.

Looking at future pensions accrued to date in terms of their present value (=IPL) is useful as this figure gives a basis for looking into its *change* from now onwards. This change can, under population ageing and modest pension reforms, easily be 60-100 percentage points of GDP over 30-50 years, i.e. the same order of magnitude as the current stock of explicit debt in many countries. This induced increased burden is as real as a corresponding increase in explicit public debt: taxes need to be increased or other public expenditures reduced at some stage.

Thus, this set of data helps to spell out the essential question as to when taxes should be increased and for whom. The answer leads to the question of *prefunding* for the projected increase in IPL (or part of it), to keep the total debt burden "tolerable" (in various respects that require assessing public finances at large in the context of macroeconomic developments). "Prefunding" means reduction of explicit public debt, net of assets held by the public sector. This is one essential part of the policy recommendations given by EU finance ministers meeting within the ECOFIN Council.

All this concerns "sustainability of public finances" broadly defined. Understanding the issue requires estimates for IPL for today and the future (under alternative assumptions).

Some people are critical of estimating IPL because it is not backed by explicit well-defined commitments (e.g. indexation assumption) and it is therefore hard

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to measure. They may also worry that official publication of IPL estimates may give them an explicit character and thereby make it politically more difficult to renege on (presumed and claimed) pension rights.

This is certainly true and an essential part of the problem. However, the differing views on accrued pension rights do not vanish by avoiding making estimates of their magnitude. It is a political assessment whether the pension problem can be tackled more easily with or without more comprehensive data. In this context publication policy can be refined. Publication of IPL estimates can be accompanied by a statement that figures are based on current policies and no legal rights can be derived from the figures. Also, publishing additional projections based on alternative assumptions would give baseline figures a less definitive character.

5 THE WORK AHEAD AND THE DIVISION OF LABOUR

There are many reasons for moving ahead in producing IPL estimates and publishing them in the national accounts. IPL gives data on *"timing of accumulation of pension entitlements and the impact of pension reforms"* as stated by the EFC. Note that here "timing" refers to different generations and cohorts, i.e. IPL gives benchmark data on balancing costs and benefits for each generation (or cohort) expressed as a stock of discounted values.

As governments require businesses to recognise and report their pension obligations it can be asked why the governments themselves should not comply with the same requirements. One can say that there is a difference, as businesses need to generate the required financing from their revenues, while governments have the powers to levy taxes on households and businesses. However, this difference is not necessarily so big, as someone has to bear the burden of pensions anyway. Estimating the IPL can be interesting regardless of who will finally pay for future pensions.

The public and private sectors are linked to each other in many other ways too. Neutrality in comparing the cost of labour in the public vs. the private sector would seem to require that the cost of pension rights accrued as part of the employment contract should be recorded in the same way in all sectors so that a fair comparison can be made of the relative merits in producing services. The imputed pension cost component is part of the cost of labour data for the government sector in the current national accounting rules, but looking more carefully into the estimation methods when producing IPL estimates for government under the new more coherent accounting rules will allow the data on the cost of labour to be refined.

Producing IPL estimates should be seen as producing data on the (recent) past: IPL is a stock at a given date in the past, although it is the capital value of a projected flow in future – this is, however, not unusual for statistics, as every financial stock is related to a flow in future. Thus, the IPL estimates for today should be produced by statisticians with the help of pension actuaries.

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Based on these estimates, pension economists and other experts should produce alternative projections for IPL in future to illustrate the effects of possible reforms. These alternative scenarios should also give projections for other key variables (pension expenditure, pension contributions and other taxes collected, assets held by pension schemes, etc.).

6 CONCLUSION

We know that without reforms the public pension systems are heading for crisis. IPL estimates for revised national accounts will greatly help in designing the necessary reforms and experts will have an important role to play in supporting the political processes.

Statisticians and pension actuaries should be highly praised for producing new data on pensions, including the estimated present values for accrued-to-date public pension liabilities.

Thank you for your attention.

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THE USE OF PENSION DATA FOR POLICY MAKING

BY KARSTEN WENDORFF[1]

1 INTRODUCTION

Obviously, given their professional background, the participants in the panel discussion on "The use of pension data for policy making" take three different views on and approaches to the topic under consideration. While I am not a distinguished expert on pension data I will take the perspective of a central bank's fiscal expert. Therefore, working for the Deutsche Bundesbank and the ESCB Working Group on Public Finance, I will examine the issue with both a national and an international eye. As a central banker, I am particularly concerned with aspects regarding fiscal sustainability and reliable and binding fiscal rules.

The five main messages I want to convey are as follows:

1. Demographic change will undoubtedly be one of the most important fiscal challenges in the future.

2. Pension data is very important for supporting the respective policy decisions and countering the (implicit) debt illusion in the policy process.

3. In contrast to many other statistics, pension data depends particularly on assumptions and the results may be subject to (public) controversy. This may present a challenge for the credibility of the data and the producers.

4. The transparency of the underlying data input and the models used as well as data availability for analysts, researchers and the general public are very important.

5. Beware of policy makers: If the data becomes a political target (e.g. in the context of the Maastricht criteria), there is a considerable risk of creative accounting and political pressure, which may ultimately lead to a loss in the data's explanatory power, its credibility and that of the fiscal rule itself.

2 TYPOLOGY OF FRAMEWORKS FOR FISCAL ANALYSIS, FISCAL POLICIES AND FISCAL RULES

In general, several frameworks can be distinguished in the context of fiscal rules and the underlying statistical or analytical bases. They differ, inter alia, with regard to their complexity and their need for relying on assumptions to compile the data.

1 *Deutsche Bundesbank Chairperson of the ESCB Working Group on Public Finance*. The views expressed in this contribution are those of the author and do not necessarily reflect the views of Deutsche Bundesbank or the WGPF.

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A very common basis for national fiscal rules and national budgetary legislation are often *cash or budgetary statistics*. They primarily record cash flows and new borrowing. The respective statistical recording is not necessarily internationally harmonised. It is not very complex from the producers' perspective or from a methodological point of view.

National accounts data are (more or less) internationally harmonised (SNA 1993, ESA 1995). They form the core of the European fiscal rules, namely the EU Treaty and the Stability and Growth Pact. The methodology, the "legislation" and the recording are significantly more complex than in the case of the cash statistics. Additional assessment and interpretation by the statistics producers are necessary and the statistical recording is sometimes controversial – as can be observed currently, for example, in the context of the statistical treatment of the public support of financial markets.

In addition to national accounts data, the consideration of *transitory influences on public finances from a medium-term perspective* is an important supplementary aspect of fiscal analysis and the fiscal rules in the EU. Therefore, in a further step, the national accounts data (both budgetary outcome and projection) are adjusted for specific temporary measures and effects as well as for cyclical influences. The methodologies can be very comprehensive and demanding with regard to the data input and model complexity. There are a wide variety of definitions and methodologies which lead, in some cases, to important differences in the results depending on the underlying assumptions and conceptions. However, fiscal surveillance in the EU is based on an agreed methodology which is systematically applied by the EU Commission.

Longer-term influences on public finances and other important aspects such as implicit liabilities are additionally reflected in a broader fiscal assessment and, in some cases, are included in "softer" budgetary rules. One example are the calculations by the Working Group on Ageing, which are expected to be included in the assessment of national medium-term objectives (MTO) in the context of the preventive arm of the Stability and Growth Pact. Other examples include the new pension data, which are the main focus of this Workshop, or results calculated within "Generational Accounting" frameworks. Usually, the consideration of longer-term influences requires relatively complex models based on numerous and important assumptions. As a result, the outcomes can differ considerably and are often controversial. Achieving an international comparison and a harmonised approach is particularly challenging, not least because the national institutional setting is often very complex and varies widely.

All in all, it can be concluded that the increase in scope of the statistical frameworks and the fiscal rules is combined with an increase in complexity and the need for assumptions. The results may become less harmonised, particularly in an international environment, and increasingly controversial in public discussions.

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3 SEVERAL DOUBLE POLES OF PENSION DATA

With regard to pension data in general as well as their design and use, several double poles can be identified.

The information can reflect an *individual or a collective* perspective. The former refers to pension data of an individual and, in particular, to individual's claims against the pension system. The latter refers to aggregated data, e.g. to all participants of a system or to the entire population of a country.

The aggregated framework can be *partial or comprehensive*. It can include, for example, civil servants or the entire population. It may be based on cash statistics, national accounts or generational accounting. The focus can be restricted to public expenditure or also include the revenue side, by considering taxes paid by pensioners.

Moreover, a *national or an international* perspective can be taken. While the national approach may be relatively complex, taking many peculiarities of the system under consideration into account, an international comparison will require more harmonisation, common assumptions and less complexity.

Not least, the intended use of the data is an important aspect. In the context of *academic analysis and research*, complex models and frameworks with various assumptions and sensitivity analysis may be suitable. In the context of *rules and policy*, the frameworks may need to be designed to be more straightforward and simple. The goals of the actors involved are mixed and are not solely focused on increasing academic knowledge. Specific interest groups may play important roles and communication with the general public becomes an important issue. In the context of rules, the potential "creative accounting" tendencies of the various players have to be considered.

All in all, the various pension data sets have their own merits. There is no "one size fits all" data set.

4 THE IMPORTANCE OF PENSION DATA FOR POLICY MAKING AND ANALYSIS

Countries in the EU are facing ageing societies, and the share of old-aged persons in the population will increase considerably in the future. This is an important challenge, not least for fiscal policy analysis and fiscal policy making.

In this context, accrued pension data is of particular relevance as it sheds light on developments which are not reflected in cash flows and are therefore "invisible" in most cases in the budgetary process, which is the main focus of policy makers. Awareness of these "implicit" liabilities is being raised among politicians and

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voters. The pension data thus works against the "squared fiscal illusion",[2] because the burden on future generations is made transparent and, (backdoor) shifting of the burden is made more difficult. Increasing transparency regarding pension liabilities and their consequences for future generations may lead to reforms or at least discourage attempts to draw them back. Pension reforms may become less unpopular. Transparency may also result in changes in the behaviour of private agents if they recognise, for example, that cuts in implicit liabilities of the state (via reforms of the pension system) will, at the same time, lead to a reduction in their own "implicit" private assets.[3] Private decision making would therefore be based on more rational grounds.

5 TRANSPARENCY AND CAREFUL TREATMENT, ASSESSMENT AND INCLUSION OF NEW PENSION DATA IN POLICY FRAMEWORK IS OF THE UTMOST IMPORTANCE

While pension data is very important for analysis and policy making, its limitations should be borne in mind. For example, the new pension data discussed in this Workshop only partly reflects the aspects of the ageing-related burden and, as stressed by Heikki Oksanen, it is not a sustainability indicator. Due to its nature, it relies relatively strongly on assumptions and the specific methods for its compilation. As a result, international comparability may be limited. Not least, it should not be ignored that implicit liabilities have a different character to explicit liabilities; "defaulting" on implicit liabilities is much easier. The debtor sets the rules and the government can, for example, raise the retirement age or cut the size of individual pensions. Moreover, the government can decide on higher taxation on pensions which, incidentally, would not show up in the new pension data set either.

Against this background, transparency regarding the calculation of the pension data and the underlying (individual national) models is of utmost importance. This concerns, inter alia, the underlying assumptions, national peculiarities and national calculations. The core data and model should be made available for analysis and cross checking and should not be kept in a black box. The "black box issue" is, in my view, also an aspect that affects the calculations of the Working Group on Ageing, which are not explained and published in detail. Full transparency, however, is an important feature for the reliability of any data. It should be a precondition for the use in international comparisons and inclusion in fiscal rules.

2 "Fiscal illusion" usually describes a situation in which, in the public perception, debt financing seems to be "costless", although the burden is (merely) shifted to future generations. Implicit pension liabilities are labelled here as a "squared fiscal illusion" because, in addition to the "debt illusion", the burden does even not show up in the debt data.

3 The comparably high saving ratio in Germany in the past few years may have partly resulted from the fact that the statutory pension bubble burst. After it had become obvious that the statutory pay as you go system would not be as generous in the future as people had estimated (perceived wealth decreased considerably – the pension illusion evaporated) savings increased to partly compensate for these losses. However, the pension claims may currently be underestimated as trust in the functioning of the pension system seems to be particularly low.

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6 BEWARE OF POLICY MAKERS AND INCLUSION IN FISCAL RULES

Particular attention is warranted when statistical data becomes the basis for official fiscal targets or is included in fiscal rules. Inclusion in the policy process, use by policy makers and the potential binding character with regard to concrete fiscal policy decisions risk changing the character of the data – they may lose their "innocence". Therefore, not only will the new data have an impact on the policy makers, the policy makers will also have an impact on the data. Indeed, this is very important in the case of pension data, because the scope for shaping (or even manipulating) the data is relatively large in this context, where several assumptions are needed and the models for the calculations are very complex.

All in all, I would strongly advise against including the new pension data in the core European fiscal rules. This would require a very clear-cut ruling with regard to the calculations – no choices which may otherwise open the floor for strategic behaviour. Moreover, guaranteeing equal treatment in an international environment would be very difficult, but absolutely necessary. I would expect high pressure with regard to creative accounting, which would put the data set and its credibility under enormous stress.

In this context, it is important that the criteria for the distinction between reporting in the core and non-core national accounts should ensure consistency over time. Figures used in the excessive deficit procedure, at least, should be immune to ad-hoc wishes to change the assignment from one year to the next. For example, a country may initially choose to keep a system in the non-core accounts (as it may be at first considered not sufficiently funded), but later on (as the result of an interim accumulation of funds) shift it to the core account when the pensions are paid out and the corresponding reduction in pension claims is not recorded as expenditure (i.e. not above the line) but as redemption of government's pension liabilities. If such choices were possible, this would offer the opportunity to strategically minimise the statistical recording of deficits over time in the national accounts, which should clearly be hindered by the institutional setting.

7 CONCLUDING REMARKS

In conclusion, I very much appreciate the efforts in the statistical domain to calculate and present the new set of pension data. However, the inclusion in national accounts is challenging and the calculations complex. Therefore, a careful approach and communication should be warranted, and transparency with regard to the underlying models and assumptions is of major importance. Extreme prudence is needed regarding inclusion of the new data in international fiscal rules and I, personally, would be sceptical in that respect. The data may influence the behaviour of fiscal policy makers but one should also not underestimate the feedback from the policy process to the statistics.

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SESSION IV

COUNTRY EXPERIENCES IN COMPILING PENSION ENTITLEMENTS PART I

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INTRODUCTION

In Session IV, Lourdes Prado Ureña (Instituto Nacional de Estadística) reports on estimating social security pension entitlements in Spain. In her introduction she describes the two major government schemes in Spain, social security, with 21 million active members and 8 million pensioners and the government employer pension scheme, mainly for civil servants, with 950,000 active members and 500,000 pensioners. In the second part of the paper the modelling for the estimation of pension entitlements is described in terms of model, model assumptions and model outcome. It describes how a working group was set up in Spain in 2006 comprising the Banco de España, the Audit Office, the Ministry of Labour and Social Affairs, the Social Security Treasury, the Ministry of Finance and the Statistical Office (INE). Based on its work, the Ministry of Labour and Social Affairs carried out a pilot exercise, making first estimations of social security pension entitlements in 2007 and the Ministry of Finance made estimates for the government employer pension scheme in 2008. Preliminary results show pension entitlements under social security pension schemes of around 240% of GDP in 2005 to 2007.

Tom Dominique (Inspection Générale de la Sécurité Sociale) reports on the experience in compiling pension entitlements in Luxembourg. He explains that various old age related schemes are in place in Luxembourg: the general pension scheme which is compulsory for all employees, special pension schemes for civil servants, local authorities and public institutions and smaller schemes like supplementary schemes, private pension plans and schemes with a minimum guaranteed income. It is important to mention that the model used to compile accrued-to-date pension entitlements is identical to the model for the pension expenditure projections carried out by the AWG, insofar as the data input, the model specification and assumptions are identical. For the accrued-to-date pension entitlements, estimates show figures of 55-60% for government employer pension schemes and of about 300% for social security pension schemes. In conclusion he states that to ensure consistency it is necessary to keep the approach rather simple and apply the available methodology due to limited human resources.

Paula Koisinen- Jokiniemi (Statistics Finland) presents the main features of the social security pension scheme in Finland. She describes the Finnish pension system in brief, explains the results received for the supplementary table and compares these results with the data of the national model. The Finnish public pension system is made up of two statutory pension schemes (first pillar) and the small voluntary pension insurance sector (second and third pillar). The two statutory schemes are closely linked to each other. They are a combination of a pre-funded system and a pay-as-you-go system. The pension assets of these schemes made up about two thirds of GDP in 2007. As a result of the test exercise it was concluded that the statutory pension schemes are classified as social security pension schemes. Depending on the valuation methods (ABO or PBO) applied in the text exercise the entitlements of the two statutory schemes represent between 235% and 295% of GDP. The 5% discount rate used in the national model is in line with the rate used in the framework of the original Freiburg exercise. The national model deviates from

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the models used by the AWG and also by Freiburg University. Nevertheless, the results derived for the national model are in between the estimates made by the Freiburg model using an ABO and a PBO valuation method.

Joe Wilkinson (Statistics Canada) outlines the pension satellite account in Canada. He explains how pensions are shown in the national balance sheet, presents preliminary estimates of the pension satellite account and reports on the research agenda. There has clearly been a steady upward trend in employer sponsored pensions. Unfunded pension entitlements are recognised in the core accounts. According to preliminary estimates of the pension satellite account total pension assets exceed $2 trillion CDN in 2007. There is an increasing share of employer sponsored and individual registered plans relative to social security. Compared with most European countries social security pension entitlements are rather negligible.

Ana Almeida (Banco de Portugal) discusses these four papers of Session 4. As the discussant of this session she provides detailed comments on the contributions, highlighting the importance of starting by compiling statistical data on social security for policymakers. On the Spanish experience, the organisational procedure (via a working group) was stressed as well as the development of a national model that accommodates some assumptions from the Spanish Social Security scheme. Some questions on the interpretation of the model were raised. On Luxembourg's participation, the main point addressed was the need for statistical consistency in the national model across different institutions and data sources and the importance of detailed methodology and assumptions in national models. The Finnish experience presents the results of the national model which differ from the Freiburg results. Hence, questions regarding the assumptions and methodology used in the national model were raised. Finally, on the Canadian experience the provision of long time series was highlighted for its usefulness for analytical purposes. Some questions were raised on the interpretation of the results, the methodology and the sources used for compilation.

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ESTIMATING SOCIAL SECURITY PENSION ENTITLEMENTS IN SPAIN

BY LOURDES PRADO UREÑA

I INTRODUCTION

The Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government developed its activity between mid 2006 (mandate agreed in CMFB meeting in June) and early 2008 (Final report presented in CMFB meeting in January).

The Task Force met six times during this period. The main tasks carried out were:

i) The design and the description of a supplementary table on pension schemes in social insurance to be part of the pension section in the updated SNA.

ii) The specification and definition of concepts related to the institutional units involved and to the stocks, transactions and other flows shown in the table.

iii) The selection and assessment of criteria to distinguish between defined-benefit government-sponsored employer pension schemes to be recorded in the core accounts or only in the table.

iv) The stock-taking of the features of all government-sponsored employer pension schemes and social security pension schemes in the EU Member States based on a questionnaire.

v) The alternative estimation of pension entitlements by using national models and generic models as provided by consultants of the Research Centre for Generational Contracts of the Freiburg University and of the World Bank.

vi) The presentation of the Task Force work to the CMFB in January 2008 and to the Eurostat Working Groups on National Accounts and Financial Accounts. The EPC – via the CMFB – and its Ageing Working Group has also been informed about the outcome of the Task Force. Finally, a Workshop on Pensions is to be held in Frankfurt in April 2009.

As a member of the Task Force, Spain has taken active part in the above mentioned tasks. In particular, a specific methodology was developed for the calculations of the supplementary table.

A working group made of different institutions involved in Spanish National Accounts and pensions was set up (see section 4). The first step was to estimate the stock of pension entitlements at the beginning and the end of each year (opening and closing lines of the supplementary table). Once this was achieved,

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both stocks had to be reconciled using a set of different flows which constitute the rows of the table.

Efforts were stepped up and during 2007 a sound methodology was established for Social Security Schemes calculations firstly and for Government Employer Pension Scheme's later. This methodology has been used for the calculations of years 2005, 2006 and 2007.

The present document tries to describe the methodology followed for the estimation of Social Security pension entitlements in Spain. It is focused in Social Security calculations, as it covers a much larger group than the Government Employer pension scheme and both methods are quite similar. Anyway, a couple of lines about the estimations for the Government Employer pension scheme will be included to try to illustrate briefly its main aspects.

The document starts analysing the similarity between both schemes in Spain, as this issue was widely discussed during the different meetings of the TF. Due to this similarity, the Government Employer pension scheme is placed just in the supplementary table and not in the core accounts. In a second part, the text tackles directly the methodology mentioned in the previous paragraph.

It is worth mentioning that the concepts, definitions and methodology related to pensions are rather complex. Thus, the document tries to describe the process followed trying to keep the terminology as simple and clear as possible but without loosing its essence.

2 PENSION SCHEMES SPONSORED BY GENERAL GOVERNMENT IN SPAIN

In Spain there are two main schemes sponsored by General Government:
- The Social Security pension scheme (column H of the supplementary table).
- The Government Employer pension scheme (column G of the supplementary table).

The compromise adopted at the beginning of the Task Force was made of six principles. One of them was to keep Social Security schemes out of the core accounts; they would just be reflected in the supplementary table. For other schemes such as those Government Employer sponsored, the floor was open. The Task Force agreed on a set of criteria that would decide on these last schemes. One of these criterion was to include them in the core/non-core accounts according to their proximity to Social Security schemes.

Therefore, the similarity of this two schemes has been one of the most important points of the Task Force, as it determines the obligation of a scheme to form part of the core accounts or on the other hand, the option of appearing just in the supplementary table. This is the reason why the section Social Security versus Government Employer pension scheme has been included as part of the document.

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In the case of Spain, both schemes are almost the same. Population is obliged by law to participate and duplicity cannot exist. This means that whenever pension entitlements have been accumulated for both schemes, just one of them has to be chosen.

Both schemes are extremely close in terms of risk exposure (borne by the Government in both cases), legal framework, funding (both are unfunded) and ability of General Government to change the benefit formula (in both cases the Government has the discretion to change unilaterally the benefit formula at any point in time and thereby partially default on its pension obligations). Therefore, the modelling for estimating pension entitlements in both schemes is rather similar.

On the other hand, Social Security covers a larger group by far. It is responsible for 95% of the population, whereas the Government Employer pension scheme covers the 5%. This second scheme covers mainly civil servants (from Central Government, the Army, Justice and Law Courts, Public Universities related to the State, etc.). It also covers those civil servants that used to work for the Central Government and are currently working for the State Government after powers have been transferred (equation, health). Finally it also includes another group integrated by Ex Presidents, Vice Presidents, Ministers and others. Social Security covers some civil servants as well (those from the State Government and Local Government), but it is mainly integrated by all kind of employees (those with a contract, grants or in a training period), self-employed people, students and partners in cooperatives.

The next step is to describe the modelling of these schemes. The methodology for Social Security will be explained in detail. Due to the similarity of the two schemes, the modelling for Government Employer pension schemes will be briefly commented, and its main features will be outlined.

3 MODELLING FOR THE ESTIMATION OF FUTURE PENSION ENTITLEMENTS IN SOCIAL SECURITY

BACKGROUND

In 2006, after the first meeting of the Task Force, a working group was set up in Spain in order to fulfil the pension requirements and carry out the modelling for the estimation of pension entitlements. This group was leaded by the INE and integrated by the following institutions:

– Spanish Central Bank (Banco de España);
– Audit Office of the Ministry of Finance (IGAE);
– Ministry of Labour and Social Affairs;
– Social Security Treasury;
– Ministry of Finance;
– Statistical Office (INE).

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Two delegates, one from the Central Bank and another from the INE attended the TF meetings.

The working group met several times in the period 2006-2008, in parallel and after the TF meetings. It discussed widely about the estimation of pension entitlements and agreed on some guidelines about the modelling and assumptions to be used.

During 2007, the Ministry of Labour and Social Affairs carried out a pilot exercise; the first estimations of Social Security pension entitlements. Two experts were hired expressly for this task and worked closely to an expert from the Ministry. Following these steps, in 2008, the Ministry of Finance made the estimations for the Government Employer pension scheme. Once the estimations were ready, the flows that reconcile the stock of pensions entitlements at the beginning and the end of each period were completed. This way, Spain was able to provide data for columns G and H of the supplementary table for the first time.

MODEL

For the time being, the estimations have already been carried out for years 2005, 2006 and 2007.

It is important to underline that this calculations are related exclusively to contributory pensions. Non-contributory pensions are kept out of the modelling despite they exist in the framework of Social Security (in Spain they account for 2.7% of the total).

We talk about contributory pensions when benefits are related to contributions paid in the past. In this group the following pensions have been considered:

- Retirement pension;
- Disability allowance;
- Widow's pension;
- Orphan's pension.

On the other hand, we refer to non-contributory pensions when benefits are provided to people even if they have made no contributions at all.

In line with the Freiburg Model, the individuals considered are divided into two groups: current pensioners and current workers (active population, individuals who already pay contributions but have not generated a pension yet). Those included in the latter have not generated a pension yet, thus the estimations relate to the pension that they will generate in the future provided that the law does not change and that those who worked in the reference year will continue to do so until they generate the pension. Anyway the estimated amount for this second group does not refer to the total pension to be generated, but to that part that matches with the contributions already paid. In the Spanish system there is no direct correspondence between the contributions paid and the pension that will be generated, therefore the percentage of the future pension that correspond to

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the contributions paid has been imputed using the Unit Credit Method that will be mentioned later.

As individuals have been classified in two groups, the total pension entitlements will be the sum of the entitlements calculated for each group.

Future pension entitlements = Already existing pensions+ Future pensions of active population

In both cases, the procedure to calculate the pension entitlements is similar. Pension entitlements are obtained starting off from some preliminary data and applying actuarial techniques taking into account a bundle of assumptions. This assumptions make reference to the discount rate, revaluations, life expectancy and others and will be described later in the document. Whereas this assumptions and the actuarial techniques keep mainly the same for both groups, the starting up information varies considerably from one group to the other. The case of current pensioners is rather simple, whereas the calculations for the active population become more complicated. Lets describe how to obtain these preliminary data for each case.

Already existing pensions

For already existing pensions the starting point is the figure obtained by multiplying the average amount of contributory pensions (which exist the 31st of December of each year and classified by type of pension, sex and year of birth of the pensioner) by the number of pensions. It is important to point out that future entitlements of pensions have been calculated using the life expectancy of the holder and not until year 2050 (as done in other models).

Future pensions of active population

On the other hand, for future pensions of active population, the starting point should be the pensions generated by the whole active population (individuals who have paid contributions at any time of the year considered) classified by age and sex. This calculation entails difficulties, as the active population is such a huge group that it is impossible to go case by case. Therefore, it was agreed to use a sample of working lives and estimate the pension to be generated by each individual in the sample. The pensions that would be generated by the whole active population will then be obtained using grossing-up factors by age and sex.

As the process above is rather complex it is worth describing both the sample and the technical aspects of the procedure itself in detail. The sample of working lives constitutes a representative sample of all the people related to Social Security in a given year. It is a set of anonymous microdata obtained from different registers: Social Security, Electoral Registers/Census and Tax Agency. It refers to approximately 1 million people, which represent 4% of the population. It is updated every year, the sampling used is random simple with no stratification and the grossing up factor used is 25.

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For each individual in the sample it is necessary to establish two pieces of information in the reference year:

– The number of days paying contributions to Social Security
– The average contribution's base (salaries)

With this information a simulation process is carried out, using stochastic methods and a set of assumptions, to obtain the type, date and amount of the pension that will be generated by each individual in the sample. Some of the assumptions used in the simulation process have been the following:

– The assumptions used for future salaries are in line with the PBO method. Thus, a rate of 1.8% annual increase in real terms over the working life has been considered.
– The frequency of death, invalidity and retirement is estimated by age and gender and it is assumed to remain constant in the future.
– The Unit Credit Method is used to impute for each individual in the sample the percentage of future pension that corresponds to the contributions paid in the reference year. The value of the future pension is multiplied by a coefficient obtained as the quotient of the time the individual has paid contributions and the total expected working life of the individual.

ASSUMPTIONS

Once preliminary data for already existing pensions and future pensions of active population have been calculated, the assumptions applied are the same for both groups.

Assumptions can be divided into two groups: those related to the benefits guaranteed and those related to the financial and demographic variables used for the valuation.

Assumptions related to the benefits

– Retirement: It has been assumed that there are no retirement pensioners under the age of 50. Thus, those under this age are considered as if they were 50.
– Disability: It is supposed that disability pensioners under 16 do not exist. Thus, the cases under this age are treated as if they were 16.
– Widowhood: It is supposed that widowhood pensioners under 16 do not exist. Thus, the cases under this age are treated as if they were 16.
– Orphanage: It has been assumed that orphans ranging from cero to 21 years old are included in this group and they receive the pension until they go over this age.

Assumptions related to the valuation

– The demographic tables used have been provided by the INE (men, women and total population) and Social Security Records (invalidity pensioners).
– Assumptions related to the discount rate, salary increase and inflation (revaluations) have been provided by the Ministry of Finance and are in line with those use in the Ageing Working Group (AWG).
– The discount rate considered is 3% in real terms. The inflation rate has been assumed to be 2%.
– The salary increase considered has been 1.8% in real terms.

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– The PBO method has been followed.
– The age difference between married couples considered is 3 years.
– The marriage rate of pensioners is 92%.
– Instalments are made in 12 payments.
– The reversion in case of widowhood is considered to be 60% of the retirement pension.
– In this model, estimations have been calculated using the life expectancy of the holder and not until year 2050.

OUTCOME

The estimations made for Social Security pension entitlements account for approximately 2.4 times GDP in each of the three years (2005, 2006 and 2007).

In parallel, the same estimations carried out for the Government Employer pension scheme, mean approximately 20% of GDP also for the three mentioned years. Adding up both results the ratio of future pension entitlements in Spain will be 2.6 times GDP per year.

4 MODELLING FOR THE ESTIMATION OF FUTURE PENSION ENTITLEMENTS IN THE GOVERNMENT EMPLOYER PENSION SCHEME

Following the steps of the Social Security scheme, the Directorate for staff expenditure and public pensions of the Ministry of Finance developed the estimations for the Government Employer pension scheme. In Spain, this scheme is called Clases Pasivas.

As both models are quite similar and the methodology for Social Security has been described in detail, for Clases Pasivas the document will just underline its main features.

Actuarial projections of public pensions consist of a demographic projection and a financial projection. In both cases three different projections should be considered:
– Projection of current active contributors and pensions derived;
– Projection of new generations of active contributors that will occur in the future and pensions derived (not considered in this study);
– Projection of current pensioners and the way the disappear progressively.

As in the previous scheme, the first projection (current active contributors) is the most relevant for the calculation of future pension entitlements.

The assessment of pension entitlements in the *Régimen de Clases Pasivas* has been done according to the PBO method.

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The demographic tables used have been a combination of those considered most appropriate by the experience of Clases Pasivas and a collection of Swiss tables for pensioners. The following tables have been used:

– Mortality and survival tables for pensioners for the period 1997-1998;
– For active population, Swiss tables EVK-95 (Eidgenossische Versicherung Kasse 95). INE tables for 2004-2005 have been used also.

The discount rate used has been 3% in real terms and the revaluation rate 2%.

Based on the own experience, the incapacity rate chosen has been the same that was used in the Social Security modelling, corrected with different factors for civil servants and military personnel. For biometrical survival functions, the Swiss EVK-80 tables have been used adding some corrections for the average number of children for civil servants and military personnel.

The modelling used is based in different actuarial projections of the ILO, ranging from a first version of J-P. Tullen to the current ILOPENS model.

The basic model starts from the formulas of J-P. Picard and J-P. Tullen with some variations as:

– the use of average ages of spouses and children instead of age distribution matrixes;
– the use of average estimated pensions instead of theoretical percentages for attributing pensions;
– values of actuarial income for life have been used for current pensions, for pensions derived and for active workers' pensions.

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EXPERIENCES IN COMPILING PENSION ENTITLEMENTS IN LUXEMBOURG

TOM DOMINIQUE[1]

1 CONTEXT

The paper illustrates the methodology applied to the Luxembourg old age related schemes in order to compute implicit liabilities as defined by the European Central Bank/Eurostat Task Force of the Committee on Monetary, Financial and Balance of Payments Statistics[2] (CMFP). Special emphasizes is given on consistency matters regarding the computation of the pension entitlements with common available data and applied methodology in other fields of social protection and social budgeting.

A first section gives an overview of old age social protection schemes in Luxembourg. A second section explains the methodology used to compute implicit liabilities. A third section provides the modelling results and a final section presents concluding remarks.

2 OLD AGE RELATED SCHEMES

In Luxembourg several instruments are into place to ensure that elder people continue to receive an income.[3]

THE GENERAL PENSION SCHEME OF THE PRIVATE SECTOR

The general pension scheme is a mandatory scheme and each person having a gainful occupation in the private sector has to be affiliated to the general pension scheme. It can be characterised as a defined benefit scheme, the pension being based on a formula linked to members' wages or salaries and the length of employment. It is a contributory scheme where both the employers and the members have to pay into the scheme.

Apart from civil servants and other statutory employees of general government and two public companies (post/telecom and national railways) with statutory special schemes, all those who are covered by pension insurance in Luxembourg

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2 Final Report of the Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government to the CMFB, 2008. http://www.cmfb.org/pdf/TF%20on%20Pensions%20-%20Final%20report.pdf

3 National strategy reports: adequate and sustainable pension systems – Luxembourg, IGSS, 2005. http://ec.europa.eu/employment_social/spsi/docs/social_protection/2005/lu_en.pdf

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belong to the general pension scheme. Those people who belong to a pension scheme by virtue of working for an international body are not subject to the national scheme.

The general pension scheme in Luxembourg comprises invalidity, retirement and surviving dependants' pensions. The length of time an individual earns rights to the pension benefit is formed by two types of service periods: periods during which contributions are paid (gainful occupation, periods of compensation benefits or voluntary contributions) and additional periods (mainly related to apprenticeship, educational training or child education) for which no contributions are paid. The entire service period is referred to as "total career length" (TCL) whereas the part of the career length related to contributions is referred to as "effective career length" (ECL).

The old age pension formula consists of several components: a flat rate component, an accrual rate component, a staggered accrual rate increase and an "end of the year allowance". Flat rate related benefits are based on the total career length and are not affected by earnings. After 40 years of membership, they are equal to 23.5% of a reference amount (RA). The reference amount corresponds to 100% of the legal social minimum income from work. Flat rate benefits are reduced by 1/40 for every year of difference between 40 and the total career length. The number of years taken into account cannot exceed 40. Accrual rate related benefits (income based) are exclusively associated to the effective career length and are equal to one twelfth of 1.85% of the sum of all income from work (TIC), adjusted to price and wage evolution. Staggered accrual rate increases depend on the age and the contribution history of the beneficiary, beginning at the age of 55 with a contribution history of 38 years. Each additional unit (one per year of age and one per year of contribution) raises the accrual rate by 0.01 up to a maximum limit of 2.05. The "end of the year allowance" (EA) represents an additional flat rate component. This allowance is reduced by 1/40 for every year of difference between 40 and the total career length. The number of years taken into account cannot exceed 40.

The monthly pension formula becomes:

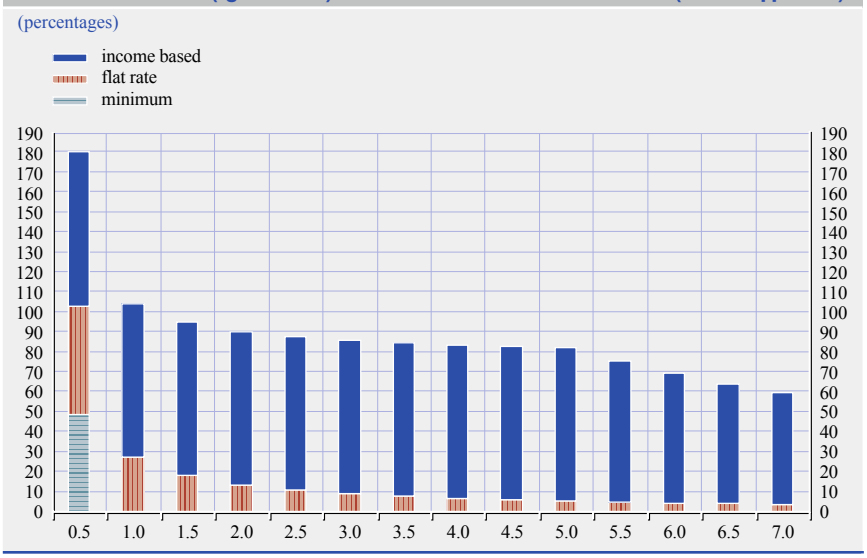
$$P = (0.235 \times RA + EA/12) \times \min[1,TCL/40] + \{0.00185 + 0.0001 \times (age - 55 + \max[38,ECL] - 38\} \times TIC/12$$

Every beneficiary is entitled to an old age pension at the age of 65, provided he has an effective career length of at least 10 years. A beneficiary is entitled to an early old age pension at the age of 60 if he has a total career length of at least 40 years. An early old age pension at the age of 57 years is granted to beneficiaries with an effective career length of at least 40 years.

Invalidity pensions are calculated in the same way as old age pensions. In order to ensure that recipients of invalidity pensions receive an adequate income, however, the period taken into account for the income based enhancement is extended to the age of 55 (special income based enhancement), the amount of the enhancement being derived from a notional salary corresponding to the average of the monthly salaries on which actual contributions have been paid.

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Chart I Gross replacement rate of pension system for a typical career of 40 years of contributions (age 20 to 59) as function of social minimum income (SPC-ISG approach[1])



1) Current and prospective theoretical pension replacement rates: Report by the Indicators Sub-Group (ISG) of the Social Protection Committee (SPC), European Commission, 2006. http://ec.europa.eu/employment_social/spsi/docs/social_protection/isg_repl_rates_en.pdf

The period on which the flat rate enhancement is based is notionally extended to the recipient's 65th birthday (special flat rate enhancement).

The surviving spouse's pension comprises three quarters of the income based enhancement, including any incremental or special enhancement, the entire flat-rate enhancement, including any special enhancement, and the entire end of year allowance to which the insured was or would have been entitled. Abatement provisions apply if the surviving spouse's total income exceeds a fixed ceiling.

The surviving child's pension comprises one quarter of the income based enhancement, including any incremental or special enhancement, one third of the flat-rate enhancement, including any special enhancement, and one third of the end-of-year allowance.

The general pension scheme guarantees its members a minimum personal pension equal to 90% of the reference amount provided that they have belonged to the scheme for at least 40 years (total career length). It is reduced by one fortieth of the amount of the personal pension for each missing year, down to an eligibility threshold of 20 years.

SPECIAL PENSION SCHEMES FOR CIVIL SERVANTS AND STATUTORY EMPLOYEES

Special schemes comprise the civil servants and other statutory employees of central government, local government, social security funds and two public non

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financial companies (post/telecom and national railways) that differ from the general scheme as defined in the Social Insurance Code. Non statutory employees of general government however are included in the general pension scheme.

Special schemes have two distinct pension regimes: the original regime, now known as the transitional special pension scheme, which has undergone numerous amendments, and the new special pension scheme, which, apart from a few specific procedural and funding features, essentially corresponds to the general pension scheme.

In the transitional scheme for civil servants and persons treated as such who were in post on 31 December 1998 or had been appointed by that date, the features of the old scheme have been preserved. In other words, the pension is calculated on the basis of the final salary earned by the public servant (gross replacement rate equal to 83.33%). For years of service after 1 January 1999, the reference replacement rate is lowered in stages from 83.33% to 72%. However, public servants who have completed a full service career of 35 or 40 years when they become eligible for early retirement at the age of 55 or 60 can enhance the value of their pension by 2.31% of their pensionable pay for each year of service beyond that age. In this way, they can obtain, at the age of 60 or 65 as appropriate, a pension corresponding to the maximum pension available under the old scheme.

Applying to civil servants and other statutory employees who entered the public service after 31 December 1998, the new scheme retains the status of a special scheme, but it is based on the same principles as the general pension scheme, with the exception of the income ceiling for the assessment of contributions.

INDEXATION OF PENSIONS

Pensions are automatically adjusted to price evolution each time prices increase by more than 2.5%. In addition, pensions are adjusted every two years to the real wage evolution. Whereas price indexation is automatic, the decision on indexing pensions to wage evolution is the responsibility of government and has to be approved by the parliament.

3 MODEL APPROACH

MODEL DESCRIPTION

A data-processing tool (SOBULUX, Social budget simulating software for Luxembourg) was implemented by the General inspectorate of social security (Inspection Générale de la Sécurité Sociale, IGSS) in order to perform long term financial projections of receipts and expenditures of the pension system. SOBULUX is a cohort-based standard simulation model, based on previous International Labour Organisation (ILO) macro projections.[4] The model covers

4 *Évaluation actuarielle et financière du régime général d'assurance pension du Grand-Duché de Luxembourg*, BIT, 2001. http://www.ilo.org/public/english/protection/socsec/tc/luxemb/lureport.htm

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the general pension scheme of the private sector and the special statutory pension schemes. A detailed description of the model structure is given on the web site of the national statistical institute.[5]

Basic dimensions of the model are age, sex and origin. Additional dimensions allow differentiating employment status (blue collar, white collar or civil servants) and pension type (disability, old age, early old age or survivor pension). In order to take account of peculiarities of the Luxembourg labour market (high proportion of migrant and cross border workers), the instrument was designed to include dimension of residency.

Pension expenditure is calculated on the basis of average pension (differentiated by sex, age, origin, employment status and pension type). New pensions to be granted are computed on the basis of the available career elements and the pension formula. The model applies a specific module to compute the acquisition of pension accruals. Cohort career elements (aggregate life time salary and aggregate compulsory insurance periods) are established from data available in the IGSS Data Warehouse for the reference year (2002). The model is calibrated in order to reproduce observed figures over the period 2003-2007.

Survivor pension are computed in several steps. In a first step the number of eligible survivors is computed on the basis of known information of married couples. In a second step, survivor age is determined by applying an average age difference between married partners. In a last step the average survivor pension is computed on the basis of legal dispositions.

Pension entitlements are computed on an accrued to date pension liabilities basis. Only the current values of entitlements, arising from the already accrued pension rights, are compiled. Ex-post pension entitlements rely on a number of assumptions which are taken in line with the Economic Policy Committee agreed common set of assumptions and methodologies on long term old age expenditure projections (see section below).

The model applies the accumulated benefit obligation approach so that it does not need to introduce assumptions on future evolution of individual wages over the life cycle in regard of expected promotions and other nominal wage growth factors. Pension elements are determined on the basis of actually known wage histories of the scheme members and pension benefits are adjusted to the global wage growth in the economy.

COVERAGE OF OLD AGE PROVISION

Pension projections include pension provisions from the general pension scheme of the private sector and from special statutory schemes. Expenditure items include all types of old age benefit granted by the schemes, including disability and

5 The Luxembourg pension model – Pension projection exercise: Peer review on pension models and results, IGSS, 2005. http://www.statec.public.lu/fr/agenda/2009/20090220/modele/LuxPension_IGSS/01Luxembourgpensionmodel.pdf

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survivor pensions for people aged less than 65. In addition, projections do include minimum pension provision guaranteed in the context the pension schemes.

The high level of pension provision from public pensions leaves only a limited need for supplementary schemes. In addition, until now, no detailed information is available not on occupational (0.6% GDP as provisions) pension schemes, nor on individual private pensions (0.2% of GDP as provisions). For both reasons supplementary pensions are excluded from the projections. Social assistance expenditure to people in retirement age (0.055% of GDP in 2007) is not included in the projections.

The coverage of the pension projection model is close to 100%. A detailed list of the schemes include in the projection, based on the standardized classification framework of the European System of integrated Social PROtection Statistics[6] (ESSPROS), is given in the table below. Qualitative information on the schemes is available at the European Commission web site.[7]

In the context of the possible criteria for core or non-core recording as outlined in the report to the CMFB, all schemes are unfunded general government pension schemes and only recorded in the supplementary table as foreseen in the international compromise on the treatment of pension schemes in the updated System of National Accounts (SNA). Scheme 3 is classified as social security pension scheme (column I of the questionnaire on the statistical measurement of the assets and liabilities of pension schemes in general government of EU countries by the contact group on the statistical measurement of the assets and liabilities of pension schemes in general government) whereas

Table I Classification of pension schemes applying Esspros methodology

Scheme 3	Pension scheme (Assurance pension)
Scheme 17	Special pension scheme – civil servants and assimilated employees of central government (Pensions statutaires – Administration centrale)
Scheme 18	Special pension scheme – civil servants and assimilated employees of local government (Pensions statutaires – Administrations locales)
Scheme 19	Special pension scheme – civil servants and assimilated employees of social security funds (Pensions statutaires – Administrations de Sécurité Sociale)
Scheme 20	Special pension scheme – civile servants and statutary employees of 2 public corporations, i.e. the public postage and telecommunication company and the national railway company (Pensions statutaires – Sociétés publiques)

6 ESSPROS manual, European Commission, 2008 http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-027/EN/KS-RA-07-027-EN.PDF

7 EUROSTAT – ESSPROS database, qualitative information by scheme http://circa.europa.eu/Public/irc/dsis/esspros/info/data/esspros_public_data/Qualitative/base_qualitative.htm

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schemes 17 to 20 are classified as defined benefit schemes for general government employees classified in general government (column H in the questionnaire).

The model does not make a distinction between the special pension schemes 17, 18, 19 and 20 and for the purpose of the projection these schemes are grouped to an overarching special scheme so that some minor classification differences arise in comparison to the classification in the SNA. Scheme 18 is classified as social security pension scheme in the SNA as it is organised by a pension fund classified in social security and financed mostly by employer's actual social contributions. Scheme 20 is classified in the sector of public non financial companies in the SNA as the correspondent companies are classified in the sector of public non financial companies.

ECONOMIC POLICY COMMITTEE AGREED COMMON SET OF ASSUMPTIONS AND METHODOLOGIES ON LONG TERM OLD AGE EXPENDITURE

In 2006, the ECOFIN Council gave a mandate to the Economic Policy Committee (EPC) to update and further deepen its common exercise of age related expenditure projections. The work has been carried out by the EPC Working Group on Ageing Populations (AWG) gathering experts from 27 Member States and Norway and the European Commission (represented by the Directorate-General for Economic and Financial Affairs). The starting point is the population projection EUROPOP2008, produced by Eurostat. In a next step, the EPC agreed a common set of assumptions and methodologies to make projections for exogenous macroeconomic assumptions: the labour force (participation, employment and unemployment rates), labour productivity and the real interest rate. GDP is calculated combining these assumptions. On this basis of these common assumptions, Member States run the projections for pensions using their own national models. A peer review process validated the national pension model on the compliance with agreed assumptions and methodology. A report on the EPC projection procedure is available on the European Commission web site.[8]

Pension entitlements in the case of Luxembourg are computed using the same projection method as used in the context of the EPC projections so that assumptions and methodology applied in EPC and CMPF computations are compliant.

COMPLIANCE OF THE MODEL WITH AWG COMMON ASSUMPTIONS

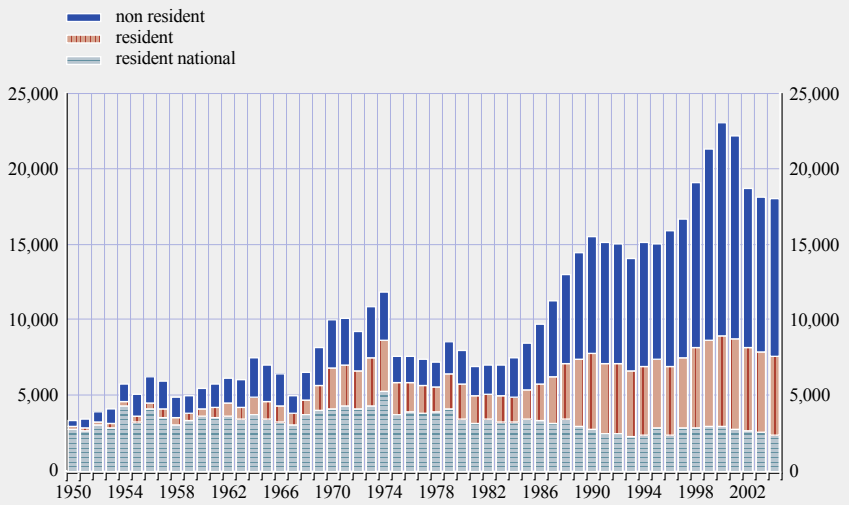
A constant policy scenario is strictly applied. Indexation of pension is fully aligned to price and wage evolutions.

Fertility rate, life expectancy and migration are in line with EUROPOP2008 base scenario (AWG baseline).

8 The 2009 Ageing report: Underlying assumptions and projection methodologies, European Commission, 2008. http://ec.europa.eu/economy_finance/publications/publication13782_en.pdf

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Chart 2 Absolute number of new members of the general pension scheme as a function of residency over the period 1960-2004



Source: IGSS.

Labour force participation rates are computed by applying entry probabilities to inactive population or exit probabilities to active population. In the long run it is assumed that exit probabilities of the various socio-economic agents converge to those currently observed for the resident male white collar workers by the year 2060. Exit probabilities are calibrated in order to proxy the AWG assumptions on labour force participation rates.

AWG employment growth assumptions are used for the projections. Due to the specific situation of the composition of the labour market characterised by a high participation of non resident labour force, labour supply cannot be proxied by applying participation rates to resident population.

The approach used by the Commission to compute cross border employment growth is based on a comprehensive approach. It focuses on the peculiarity specific to Luxembourg – that of a huge number of cross border workers – rather than on the 'top-down' approach to make GDP projections – first fixing GDP on the demand side and subsequently 'filling the gap' with the required labour input externally – in order to exclusively address the Luxembourg-specific situation. The Commission methodology involves the following steps:

– Cross border workers are proxied by the difference between the total number of persons employed according to the National accounts and the total number of employed persons according to the Labour force survey.

– The ratio of cross border workers to total employment ('foreigner ratio') has risen over time, but the growth rate of this ratio has been on a downward trend over time.

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– A regression function of the growth rate of the foreigner ratio, using a constant and a linear time-trend as explanatory variables (over the full period available: 1983-2007) is estimated.

– The trend (slope) was extrapolated linearly from 2008 onwards and hence the foreigner ratio was allowed to increase until the growth rate would turn negative; at this point, we fixed the foreigner ratio (at about 0.5).

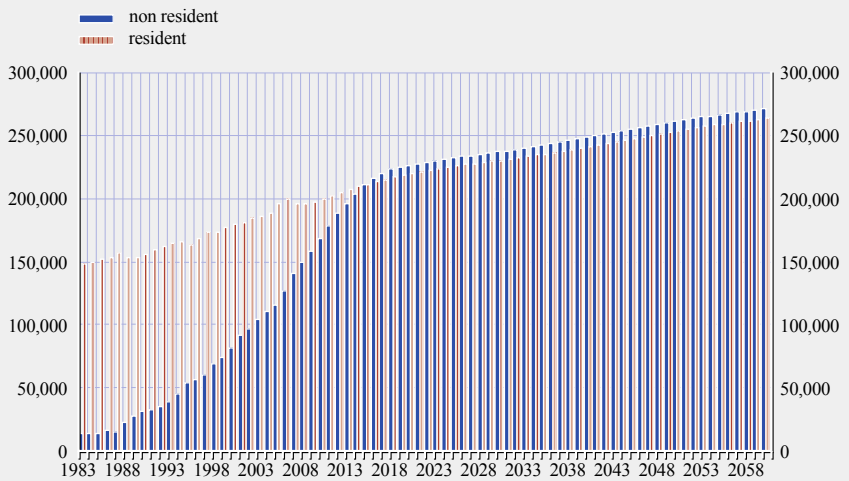
– This would result in an excess growth of cross border workers (over the growth of domestic employment) until 2018 and from then onwards, both cross border workers and resident workers evolve at the same pace.

Standard exit probabilities as observed for residents are applied to non resident pension scheme members. In addition, global life expectancy as for residents is applied to cross border workers.

The total number of civil servants is supposed to increase at the rate of 0.5% per year. Due to the fact that civil servants schemes apply the same pension formula as the general pension scheme from 1999 onwards, the relative share of civil servants within the employed does not have a major impact on pension expenditure in the medium and long run.

Age specific earning profiles are used to compute total economic wage levels. AWG labour productivity assumptions are applied to model real wage growth.

Chart 3 Historical and projected number of contributors to the pension system by residency between 1980 and 2060



Source: IGSS.

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COMPARISON OF MAIN INPUT DATA FOR THE MODEL WITH AVAILABLE DATA SOURCES

The statistical Data Warehouse (DWH) implemented by the IGSS centralizes all relevant statistical data in the framework of social protection in an exploitable form. During the past years the IGSS put huge resources in developing the DWH project. Systematic identification procedures concerning administrative data sources at the level of social security institutions and rigorous documentation of procedures on transformation and migration of administrative data from the operational files to the statistical data files in the DWH are now available. Before being integrated in the DWH, raw individual data is checked on quality consistency. In addition, a harmonization procedure is applied in order to ensure a correct and comprehensible labelling of variables.

Today, the DWH constitutes the starting point of different research projects and is used to analyze the joint effects of direct redistribution policies by social transfers and indirect impacts of taxation and contributions on the disposable income of a household or an individual. In particular, the DWH represents the reference database for generating the input data for the pension projections in the context of the SOBULUX model. In addition, the DWH includes all relevant data for establishing national and international statistics on social protection.

CONTRIBUTORS TO THE PENSION SYSTEM

The present section compares the number of contributors to the pension system as used in the model to available data in the DWH for the month of December and in the SNA for the last quarter[9] over the period 2005-2007.

Table 2 Ratio of the number of contributors to the pension system as used in the model to available data in the DWH for the month of December and in the SNA for last quarter

(percentage)

	DWH	SNA
2005	100.6	102.2
2006	101.5	102.9
2007	99.2	100.7

The number of contributors to the pension system is close to the number of contributors as registered in the DWH. Differences are mainly due to the fact that model contributors are projected over the period 2005 to 2007, using 2002 data as base year. In general the model computes slightly more scheme contributors as are reported in the SNA. Reasons for this small discrepancy are multiple. Model reference data is based on December whereas SNA figures refer to the last

9 EUROSTAT – SNA database http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/data/database

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quarter. In addition pension system contributors include individuals which are not considered as employed in the SNA (e.g. unemployed, preretirement, …).

EMPLOYEE AND EMPLOYER CONTRIBUTIONS

In the context of the pension entitlement computation exercise, model aggregate figures to be reported in the supplementary table as foreseen in the international compromise on the treatment of pension schemes are calibrated to SNA figures [10] whereas in the context of the AWG projection exercise aggregate figures are calibrated to ESSPROS data.[11]

Table 3 Ratio of employee and employer contributions in the SNA to figures reported in ESSPROS

(percentage)

	SNA
2005	100.2
2006	100.5
2007	100.4

The comparison of employee and employer contributions in both datasets shows that differences in contribution recording are insignificant over the period 2005-2007.

SYSTEM BENEFITS

The pension model computes pension benefits on the basis of the observed figures for the reference year 2002. The present section compares the computed benefits by the model to available data in ESSPROS-Pension beneficiaries' module [12] and the DWH over the period 2005-2007.

Table 4 Ratio of the number of benefits computed by the model

(percentages)

	ESSPROS no doublecount	ESSPROS doublecount	DWH
2005	107.7	102.1	101.5
2006	108.5	101.9	102.2
2007	108.1	101.5	101.8

The model overestimates to some minor extent the number of benefits in comparison to the data available in the DWH and in ESSPROS. It has though to be reminded that the model computes pension benefits and not pension

10 Portail des statistiques du Luxembourg – Comptes nationaux http://www.statistiques.public.lu/stat/ReportFolders/ReportFolder.aspx?IF_Language=fra&MainTheme=4&FldrName=2

11 EUROSTAT – ESSPROS database, Receipts http://circa.europa.eu/Public/irc/dsis/esspros/info/data/esspros_public_data/publication/receipts.htm

12 EUROSTAT – ESSPROS database, Pension beneficiaries' module http://circa.europa.eu/Public/irc/dsis/esspros/info/data/esspros_public_data/PB/pension_beneficiaries.htm

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beneficiaries, so that the model dos not separate double counting of beneficiaries with benefits from several pension schemes.

SYSTEM EXPENDITURE

As in the case of pension system receipts, model aggregate expenditure figures are calibrated to the SNA in the CMFP projection exercise whereas in the context of the EPC projections aggregate figures are adjusted to ESSPROS [13] data.

Table 5 Ratio of system expenditure in the SNA to figures reported in ESSPROS

(percentages)

	SNA
2005	98.6
2006	98.8
2007	99.0

As for the comparison regarding the receipts of the pension system, differences on benefit expenditures are insignificant between figures reported in both databases.

PROJECTION RESULTS

Model results show that the actual pension entitlements (accrued to date pension liabilities) are close to 300% of GDP over the period 2005 to 2007.

Table 6 Projected pension entitlements[1)]

(percentage of GDP)

	2005		2006		2007	
Column	H	I	H	I	H	I
Pension entitlements	60.8	307.4	56.8	296.7	55.4	299.4

1) Column H: Defined benefit schemes for general government employees classified in general government; Column I: Social security pension schemes.

Pension entitlements computed in the context of the CMFP are not an indicator of long-term sustainability of pension systems or of public finance. Pension liabilities give an indication on the cost of closing the pension system but the figures give no indication on the sustainability of the pension system because they do not include projections, neither on new contributors, nor on expected total individual pension expenditure at the moment of retirement. For this purpose an open system approach, as it is applied in the context of long term old age expenditure projections of the EPC, has to be considered.

13 EUROSTAT – ESSPROS database, Expenditureshttp://circa.europa.eu/Public/irc/dsis/esspros/info/data/esspros_public_data/publication/expenditure.htm

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EPC based methodology expenditure projections expect the development of total social security pensions spending to GDP to increase sharply between 2007 and 2060.[14] By 2060 pension expenditure will be around 24% of GDP.

Table 7 Projected gross pension spending

(percentages of GDP)

	2000	2007	2020	2030	2040	2050	2060
Social security pensions	9.1	8.7	9.9	14.2	18.4	22.1	23.9
Old-age and early pensions	5.6	5.8	7.0	10.9	14.9	18.3	20.1
Other pensions	3.5	2.9	2.9	3.3	3.6	3.8	3.9

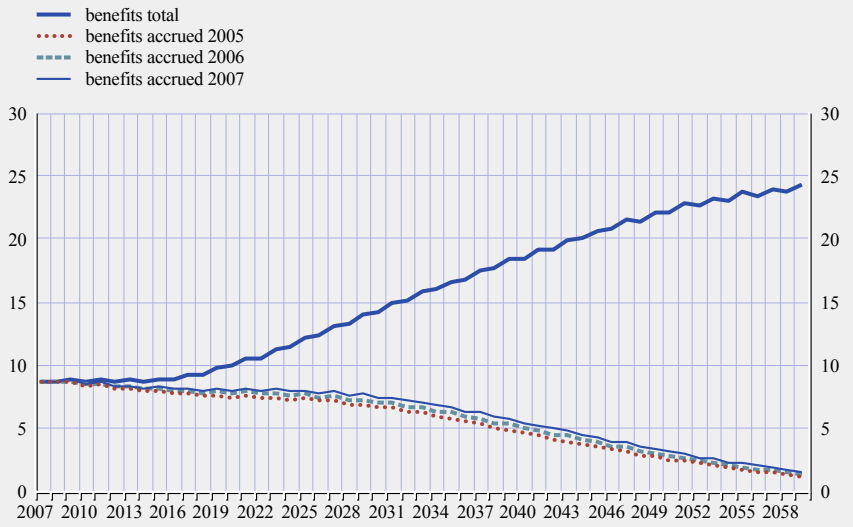
Both concepts, accrued to date liabilities and total pension expenditure, do not provide a complete picture on the sustainability of the pension system as actual assets and assumed future receipts of the system are not considered. The total expenditure approach although has the advantage of isolating future pressure on pension scheme by providing a quantified estimate of annual financial burdens to be expected over the projection period.

In Luxembourg, the pressure on public pension spending comes from changes in dependency ratio of the pension system. Over the projection period the number of

14 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060), European Commission, 2009 http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf

Chart 4 Annual pension benefit expenditure accrued to the years 2005-2007 and annual total benefit expenditure over the period 2007-2060

(as percentage of GDP)



Source:

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contributors per pensioner is sharply decreasing so that less and less contributors have to support more and more pensioners. In addition, due to the fact that the average compulsory contribution period is supposed to increase for all socio-economic agents due to complete careers of migrant and cross border in the long run and increasing participation rates of resident females, the benefit ratio is supposed to amplify in the long run.

4. CONCLUDING REMARKS

The method applied in the case of Luxembourg for computing pension entitlements is fully compliant to old age related benefit projections by the EPC. A single model is used to compile total expenditure figures as well as accrued to date liabilities for the pension system, based on equivalent input datasets, assumptions and methodology. In this way full consistency is ensured in the calculation of projected pension elements within the two different concepts. The methodology is in line with existing frameworks already developed and applied in other fields, especially regarding ESSPROS statistics and the Open Method of Coordination [15] (OMC).

A close collaboration in the context of pension expenditure projections for Luxembourg between national public authorities (national statistical institute STATEC, Ministry of Finance, Ministry of Social Security) ensures an adequate application of concepts at the national level. This strategic approach allows a comprehensive communication of the results, without running the risk of publishing divergent figures and distinct statements.

Accrued to date liabilities and total benefit expenditures are crucially depending on projection models. In order to avoid misinterpretation and to endorse the projection results, it should be made certain that statistics in the area of old age related expenditure projections produced by public authorities at national and international level are based on the similar principals, identical assumptions and harmonized methodologies.

15 A renewed commitment to social Europe: Reinforcing the Open Method of Coordination for Social Protection and Social Inclusion http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0418:FIN:EN:PDF

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THE SOCIAL SECURITY PENSION SCHEME IN FINLAND

BY PAULA KOISTINEN-JOKINIEMI [1]

This is a background document to the Finnish presentation given in the ECB/ Eurostat Workshop on Pensions in Frankfurt, 30 April 2009.

The main focus of the presentation is to summarise the first experiences of Statistics Finland in exploiting the new Supplementary Table on pension schemes outlined for the updated SNA93 and the revised ESA95. Our comments concentrate mainly on the technical implementation of the Table without trying to explain the background of the Finnish pension entitlement estimates.

1 FINNISH PENSION SYSTEM IN BRIEF

The Finnish public pension system is made up of two statutory pension schemes: the national pension scheme guaranteeing a minimum pension to all residents, and the employment-based, earnings-related pension scheme which is an insurance against loss of salaried income. Payments in statutory pensions amounted to approximately 11 per cent of GDP in 2008, of which the employment based earnings-related pensions accounted for around four fifths and the basic national pensions for the rest, though the role of the latter is diminishing.

Voluntary pension insurance has so far played a minor role in Finland due to the relatively high net replacement ratio of public pensions, the lack of pension ceilings and the full coverage of the statutory systems. The share of the voluntary pension provision of the total pension expenditure is only around five per cent.

In pension terminology pensions are generally divided into three categories, which are referred to as 'pillars'. In Finland there are two complementary first-pillar pension schemes: the national pension scheme, and the earnings-related pension scheme. Both of these are statutory schemes, which makes them both part of the country's social security system. This situation is unique in Europe, as most of the earnings-related pension schemes in other European Union countries belong to the second pillar.

The two statutory pension schemes are closely linked together, with the amount of national pension depending on the size of the earnings-related pension benefits. Increases in the earnings-related pension reduce the national pension by 50 per cent. If the earnings-related pension is above a specified level, the national pension is not paid at all.

1 Statistics Finland.

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The statutory earnings-related pension scheme covers all gainfully employed persons. It comprises different acts for private sector employees, seamen, farmers and entrepreneurs, as well as separate acts for central and local governments, the Finnish Evangelical-Lutheran Church and for some other public institutions. In the 2005 reform the pensions benefits under the different acts – both private and public – were harmonised to a large extent and the benefit and accrual rules are nowadays identical (even if their financing arrangements differ), so that the system can be considered as a collective social security system as a whole. Despite the nature of the system, the administration is decentralised and the pensions are managed by several pension institutions (private pension companies, pension funds and pension foundations, public institutions).

The financing arrangements vary from pure pay-as-you-go (PAYG) schemes to partly funding schemes, but as a general rule the financing of earnings-related pensions is a combination of a pre-funding and a pay-as-you-go system based on insurance contributions from both employers and employees. The pre-funding schemes cover approximately one quarter of corresponding pension outlays, and the rest is financed through the PAYG system.

Despite the pre-funding system in pensions, Finland's earnings-related pension scheme is entirely of defined-benefit type. The pre-funding is collective in the sense that it has no effect on the size of the pension. The sole purpose of the pre-funding is to cut the peak of pension contributions in the coming years. The financial position in the earnings-related pension schemes is fairly good; the system is running on surpluses. The annual surplus has in recent years been some three per cent in relation to GDP. The market value of the pension assets make up about two thirds of GDP (in 2007).

For more information (pension acts etc.), see the website of the Finnish Centre for Pensions at: www.etk.fi

2 SUPPLEMENTARY TABLE ON PENSIONS: FINNISH TEST EXERCISE

The following chapter of the document refers to the draft Supplementary Table on pension schemes, as included in the report of the Eurostat/ECB Contact Group on pensions to the CMFB meeting in February 2009.[2] The Table has been outlined for the updated SNA93 and the revised ESA95.

Among other countries, Finland took part into the test exercise organised by the Eurostat/ECB Contact Group on pensions in order to estimate the benchmark pension entitlements based on the pension model and on harmonised model assumptions as specified by the Research Center for Generational Contracts of the University of Freiburg. For Finnish part the exercise was assisted by Statistics Finland with the help of experts of the Finnish Centre for Pensions. The Finnish

2 Report of the Eurostat/ECB Contact Group on the statistical measurement of the assets and liabilities of pensions schemes in general government to the CMFB meeting, 5-6 February 2009

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estimations were made for the years 2006 and 2007. The required input data were mainly obtained from the employment and pension registers of the Finnish Centre for Pensions covering all relevant schemes (including civil servant schemes).

The old-age, disability, unemployment, part-time, old-age and survivors' pensions form an integrated part of the pension benefits/entitlements based on Finnish pension laws, so they were also covered by the benchmark estimates. During the exercise there was some debate on whether the national pensions should also be included in the entitlements due to the close linkage between the Finnish earnings-related pension and the national pension (as noted above). However, we concluded that the national pensions should be excluded because of two arguments. First, because no social contributions are payable in the national pension scheme, it can be seen more as a social assistance and not as a social insurance scheme. In the second place, our understanding is that because there is no proper annual pension accrual in the national pension scheme, no reasonable pension entitlement could be compiled either.

The Freiburg University's country studies in the framework of the new Supplementary Table were introduced in the CMFB February report, Finnish social security pension entitlements being shown as total (pages 87-89). Since then the Finnish version of the Supplementary Table has been further elaborated by the experts of Statistics Finland to show the split between private and public pension schemes. This split was done by making use of the separate pension entitlement estimates for the private and public schemes compiled by the Freiburg University. The table was then completed using the same patterns and totals as in the initial Freiburg calculations. To compile the so called 'Household social contribution supplement' the initial assumed five per cent discount/interest rate (in real terms) was also used – the rate being higher than in many other countries' benchmark compilations.

The completed version of the Finnish Supplementary Table for 2007 is shown in table 1 of the Finnish presentation in the Workshop.

SOME CLASSIFICATION ISSUES

At the moment all Finnish statutory earnings-related schemes – both private and public – are classified as social security schemes in ESA95 National Accounts. Our conclusion was that in the new Supplementary Table on pensions they should be shown under column 'Social security pension schemes' (column H). The public sector employer schemes (schemes for government employees) should also be reported under the same category based on the following arguments.

As noted in the previous chapter, the Finnish public sector employer schemes are very close to the nature of social security, and the statutory pension system as a whole can be seen as applicable to the population at large. From the ESA95 point of view this supports the recording of the public sector employer schemes together with other social security schemes in the Supplementary Table.

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From the standpoint of users of statistics this is probably not so obvious. On the contrary, there is clearly a need to have separate data on the public sector's own employer entitlements, even if the public schemes were classified as social security schemes in the statistics. Of course the split to private and public sector entitlements can be added for national purposes – as we have done in the test table – but we think that this kind of information should be clearly available for all users in the forthcoming Supplementary Table.

INTERPRETATION OF THE RESULTS

The representation of the annual change of pension entitlement in the Supplementary Table partly differs from the Finnish national representation. In the reports of the Finnish Centre for Pensions this change is normally comprised of three factors: annual pension accrual, annual pension benefits and a certain interest component. In the Supplementary Table the annual pension accrual is replaced by annual social contributions, and a special row called 'Other (actuarial) increase of pension entitlements' (Item 3 in case of social security scheme) is used to 'match' the change in the pension entitlement. However, in the Finnish system the employer's or employee's actual contributions are not relevant to the annual pension accrual, whereby the interpretation of the information in the Supplementary Table may be somewhat challenging to the users.[3]

The outlined Table contains a separate 'non-core' column for those public sector employer schemes that are not social security schemes (column G). The corresponding 'matching' item in column G is 'Employer imputed contributions' (Item 2.2). This item will also be shown in the 'core' national accounts but there is some concern of whether it should be recorded using the same valuation as in the Supplementary Table.

We think that there are strong reasons for not using the same valuation in the 'core' accounts. In practice the 'Employer imputed contributions' (as well as Item 3) will probably be compiled as a residual item in the Table whereby it may significantly vary from one year to another. If the same valuation were to be used also in the 'core' national accounts, this imputed item would have quite a significant and volatile impact on GDP.

3 LONG-TERM PLANNING MODEL OF THE FINNISH CENTRE FOR PENSIONS

National estimates of pension entitlements are compiled by the Finnish Centre for Pensions (FCP) and included in their public reports. The estimates are produced with the long-term planning model developed by the Centre to meet the

3 In Finnish earnings-related schemes the pension accrues based on a certain accrual rate, whilst the confirmed annual contribution rate may vary below or above the annual pension accrual. After the 2005 pension reform, the pension accrues also during some earnings-related social benefit periods when no contributions are payable (such as parenthood allowance, earnings-related unemployment benefits or periods of childhood and study).

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planning and forecasting needs of the Finnish pension system. It is an actuarial projection model by nature and there is only little economic theory built in to the model. The model simulates the operation of the pension scheme studying each pension act separately. The existing pension legislation and other stipulations are normally assumed to remain unchanged until the end of the projection period. The projections are based on an average technique by age and gender.

The core assumptions of the latest projection published by FCP are: [4]

1. Population according to 2007 forecast by Statistics Finland
2. Employment rate + 3 percentage points by 2050
3. Effective retirement age + 2.4 years from current level by 2050
4. Actual growth in earnings level 1.75% per year
5. Actual growth of return on pension assets 4.0% per year

The interest rate as such is not critical in the model, but deciding factor is the estimated actual rate of return of the pension assets. As regards the assumptions, the employment rate and the effective retirement age are near the Aging Working Group (AWG) assumptions for Finland. The others slightly differ from those used in the AWG or Freiburg benchmark estimates.

In order to compare the national pension entitlement estimates to the benchmark compilations based on the 'Freiburg' model, a test compilation was carried out by the experts of the Finnish Centre for Pensions using their national long-term projection model but changing the discount rate to 3 per cent and the growth in earnings level to 1.5 per cent, as in the Freiburg exercise. The pension entitlements were compiled separately for the private and public schemes for the years 2006 and 2007. The first results of this test compilation, as well as the 'Freiburg' benchmark estimates are shown in Tables 3 and 4 of the Finnish presentation in the Workshop.

The very first results indicate that the national (FCP) estimates for the total pension entitlement, as well as for the private schemes fall in the middle of the results based on the two 'Freiburg' methods (ABO and PBO) in both years. For example in 2007, the share of total pension entitlement of GDP was 268 per cent using the national model, while the ABO-method resulted in 235 per cent and the PBO-method in 295 per cent. Concerning the public sector schemes, in both years the national estimate was very close to the estimate based on the ABO-method. One presumption about the latter is that perhaps the model does not completely reflect the fact that the accruals of the public pension schemes were better in the history until they started to be harmonised with the private ones, starting from the year 1995. Unfortunately there has not yet been any further investigation of the results to be able to confirm this or to comment on the results any further.

However, we consider the results of this comparison as very encouraging, taking into account the deviating model, as well as somewhat differing assumptions. In that sense they can serve as a good starting point to the future work to develop the statistical measurement of pension liabilities in Finnish national accounts.

4 Statutory pensions in Finland. Long-term projections, Finnish Centre for Pensions, Reports 2008:1.

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THE PENSION SATELLITE ACCOUNT IN CANADA

BY JOE WILKINSON, STATISTICS CANADA

1 BACKGROUND

Demographic projections for Canada are characterized by an aging population. This demographic trend has generated interest regarding the impact of this trend on the economy, particularly the funding of pensions. To better understand the impact of pension stocks and flows on both economic behaviour and on the economy as a whole, both currently, and in future years, a satellite account for pensions has been constructed. This account was first envisioned by national accountants in Canada in the mid-1990s. This note summarizes progress on this initiative. The note first describes the pension system in Canada. It then moves to articulate the need for a pension satellite account. This is followed by an explanation of how pensions are treated in the Canadian System of National Accounts (CSNA). Finally the structure and data sources used in creating the Pension Satellite Account (PSA) are discussed.

2 THE PENSION SYSTEM IN CANADA

In Canada there is a range of savings vehicles and social programs designed to provide funds to retired or aged citizens – including individual plans, employer-sponsored plans and social security schemes. Individual schemes are tax-sheltered saving plans that are designed to encourage citizens to accumulate assets earmarked for use as primary or secondary sources of retirement funds. Employer-sponsored plans cover a variety of arrangements, including retirement defined-benefit and defined-contribution plans in both the public and private sectors. Social security encompasses both employee/employer funded government-sponsored saving plans and non-saving plans where disbursements are financed out of current tax revenue.

Employer sponsored schemes hold a large proportion of assets.

For the most part, the pension system as it exists today is a function of post-war developments in the economy. In Canada, the union movements of the 1950s saw the establishment of large employer sponsored defined benefit plans. In the 1960s a large pay-as-you-go plan managed by the federal government was

Table 1 Distribution of pension assets by type of scheme

	Percentage of pension assets (2007)
Employer Sponsored Plans	58
Individual Savings Plans	35
Social Security	7

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established to provide a pension plan for employees across the labour market. In the 1970s provisions were made in the income tax legislation to create individual tax sheltered pension savings vehicles. As the large employer sponsored pensions began to accumulate vast pools of funds, and legal issues arose as to "ownership" of the funds, pension legislation was introduced to regulate large pension plans (some time in the late 1970s and early 1980s). The legislation involved regulation on nomination of trustees, required levels of funding and actuarial evaluation. Subsequently, large pension plans previously in place changed structurally as a result of the legislative environment – including migration of many previously "unfunded" plans to a fully funded status. Finally, a pure social security program has existed throughout the last 50 years funded out of general tax revenues. While the "old age security" program is universal, there is a "claw back" provision in the income tax system above certain income thresholds and an income supplement for lower income individuals.

EMPLOYER-SPONSORED PENSION PLANS (ESPP)

Employer-sponsored pension plans are typically group plans, and, to a very large extent, are funded based on the invested assets criterion. As noted above, these cover both public and private sector plans.

Employer-sponsored plans in Canada are established by either employers or unions to provide retirement income to employees. These plans are registered with the federal tax department and usually a regulatory authority. Autonomous trusteed pension plans, representing employees in both the private and public sectors, hold the majority of the assets in these plans in Canada.[1]

The large defined benefit plans fall under legislation requiring that the fund be managed by an independent trustee and that actuarial evaluations are done regularly. If the pension is sponsored by the employer, actuarial surpluses are generally run down by contribution holidays for the employer while deficits are made up by large lump sum contributions to the plan. All contributions by employees are income tax deductible and no tax accrues on the pension plan investment income or capital gains. The tax accrues only when pension benefits are paid.

Defined benefit plans hold a significantly larger share of the assets of Canadian employer sponsored plans than their share of employees who are members of all pension plans in Canada. The defined benefit plans are actuarially evaluated and surpluses (over-funded plans) or deficits (under-funded plans) are identified and recorded. Recently the valuations of these plans, impacted by stock market fluctuations, have registered significant deficits. In order to restore these plans to sound financial positions, employer's additional/special contributions (which are fall under government regulation) have increased dramatically in some cases. These special contributions have notable impact on corporate cash reserves and, as a result, there has been a significant migration by employers towards defined

1 Insurance companies' contracts account for the bulk of the remainder.

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contribution plans in recent years.[2] Conversely, defined contribution plans hold a smaller share of the assets of Canadian employer sponsored plans relative to their share of employees who participate in Canadian pension plans.[3]

GOVERNMENT UNFUNDED-EMPLOYER-SPONSORED PLANS

SNA93 considers unfunded plans as those with no invested assets and are typically viewed as *pay-as-you-go* (PAYG) plans. Such plans may or may not record liabilities, but if they do SNA93 recommends that these (and the corresponding household sector assets) be treated as a memo item. CSNA goes beyond SNA93 in this regard, and has opted for one general approach for all employer-sponsored plans. The basic justification for this approach is that the obligations of the employers are the same under funded and unfunded plans, and that the economic behaviour of households is largely invariant to whether their employer-sponsored plans are funded or unfunded.

Legislation permits unfunded pension plans only in the government sector in Canada. These plans are viewed as non-autonomous, and cover the federal government as well as certain provincial government administrations.[4] Non-autonomous government plans record a pension liability (typically, at both accumulated and actuarial value) and, book interest on these liabilities. As a result, the term "unfunded" may not be the best way to describe these plans. Over time, a number of government plans have been converted from unfunded non-autonomous plans to funded autonomous plans.

INDIVIDUAL RETIREMENT PLANS

There are a number of different vehicles for retirement saving by individuals in Canada, but by far the most important is the registered retirement savings plan. Based on a percentage of their earned income in a year, Canadians are allotted an amount up to which they can contribute into their registered retirement savings plan in the subsequent year. These allotted contributions are linked to the large employer-sponsored plans such that the total allotment includes those contribution made to the large employer-sponsored funds and these individuals have less "room" to contribute to individual savings plans than those who do not participate in larger registered schemes. This contribution reduces their taxable income in the subsequent year and contributors receive a refund of tax based on the size of the contribution and their marginal tax rate. Taxpayers who do not make this contribution can carry forward their allotment to subsequent years. In 2007, 31% of eligible tax filers made contributions. Withdrawals from these plans are taxable.

2 This way employers can avoid the risk related to actuarial evaluations of their employer-sponsored pension plans.
3 Policy analysts within the Canadian government have identified the migration towards these plans as a significant risk to the financial preparedness of Canadians for retirement if the level of funding of these plans remains at their current levels.
4 Except for one province, these plans are all defined-benefit schemes.

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Contributions to individual savings plans relative to employee contributions to employer sponsored plans have increased dramatically over the past 10 years. These gains have been impacted by the substantial effects caused by the migration of employers to defined contribution plans where contributions are smaller. Increased payments to individual plans by Canada's aging population have also paid a role.

SOCIAL SECURITY

Canada and Quebec Pension Plans

The Canada Pension Plan (CPP) and the Quebec Pension Plan (QPP) are government-sponsored pension plans, and comprise one component of social security in Canada. Employers and employees contribute to these plans, initiated in the late 1960's as a social policy initiative. CPP and QPP are defined benefit plans in nature; however, employers do not bear risks related to the availability of funds for withdrawals under these plans. These government-established plans are based on a relationship between the workforce and the government, and the intention is to provide workers and their families with limited retirement earnings as well as some protection against disability and death.

Since the late 1990's, when concern was expressed about declining balances in these funds, contribution rates have been increased and more funds have been set aside in these funds which operate at arm's length from government consolidated accounts. As a result of this, and combined with increased investments in marketable securities and real estate, a significant reserve has been built up. However, these funds still do not provide for the benefits and administration of the account in its entirety and certain components of these plans continue to operate on a pay as you go basis.

Old Age Security

Old age security is the second component to social security programs in Canada. Unlike the CPP and QPP programs described above, it has no connection to employment. There are no contributions made into the plan and no reserves set aside, and benefits payments are charged to federal government expenditure. In this sense it is a pure PAYG plan. Payments under this program begin after pensioners reach the age of 65 and the program is meant to guarantee a minimal level of income.

3 THE NEED FOR A PENSION SATELLITE ACCOUNT

A satellite account is an extension of the core System of National Accounts (SNA). It is based on the accounting principles and the established framework of the SNA, thereby aiding analysis. A significant amount of pension information is currently embedded in the core SNA sector accounts; however, only a limited amount of this information is visible in these accounts. The goal of the PSA project is to articulate pension details within the accounts and present them using the structure of the SNA. In addition, the PSA includes estimates for missing pension detail such as items which are implicit with SNA aggregates.

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The need for the PSA arises out of the fact that within the current structure of the SNA it is very difficult to answer the range of policy related topics surrounding the aging of the Canadian population. These topics include, but are not limited to the following:

PERSONAL SAVING AND WEALTH EVOLUTION

The personal saving rate has been declining over the last few decades in Canada. Up to 1990, the decline was considered a return to a normal level, after having peaked at over 20% in 1981. Thereafter, the decline, which continued through the 1990s and into the current decade, has generated more interest. Despite the downward trend in personal saving since 1990, household wealth has continued to accumulate by essentially replacing saving out of current income with capital gains (price appreciation of assets). Pension saving has also been growing, taking up a sharply increasing share of the downward trending personal saving. Concurrently, pension wealth has been a significant contributor to the growth in household net worth. What remains to be understood is the impact of the increasing pension payments/withdrawals, going forward in time, on household financial positions.

FORECASTING THE ECONOMY

Personal expenditure accounts for about 60% of GDP. The ability to estimate its future growth is essential for central banks, policy-makers and analysts. As population ages, there are increasing sources of funds from other than income arising from production and transfers. Pension benefit payments and individual retirement saving plan withdrawals – dis-saving – will soon be key variables to any forecasts of personal expenditure. The PSA indicates that the propensity to spend is quite high out of retirement dis-saving.

PROJECTING TAX REVENUE

There is already a gap between reported SNA income and income taxes paid, largely because realized capital gains are excluded from SNA income, which is of concern to some analysts. Increasingly, taxes will be generated out of pension benefit payments and individual retirement plan withdrawals. The need to project tax revenues from pension dis-saving for fiscal planning purposes is clear, and the federal finance department has expressed interest in this detail of the PSA.

IMPACT ON CAPITAL MARKETS

The accumulated investments in Employee Sponsored Pension Plans (ESPP), social security and individual saving plans are a significant part of economy-wide assets. As assets in these funds grew sharply beginning in the late 1980s and continuing into the 1990s, they have had a substantial influence on capital markets – with respect to both growth and fluctuations. However, as these funds are drawn down by retirees over the years to come, the impact on these markets and on the economy is unclear. The PSA will be able to shed some light on the impact of these trends on the economy.

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SUSTAINABILITY ISSUES

This is the fundamental question of: Is there enough accumulated pension saving – by type, by composition – to meet the needs of increasing number of baby-boomer retirees over the next several years? If not, there are clear implications for the standard of living and likely also for government fiscal balances. Notably, there is a need to understand the age-income class distributions of this accumulated pension saving in order to fully address this issue. (Can we say) The actuarial requirements of this analysis go beyond the structure of the SNA but could be contained within (or based on) a satellite account structure of the PSA.

PENSION SYSTEM RISKS

There is a series of risks associated with the pension system that feedback on the sustainability question. The overall burden of pension saving has gradually shifted from government to employers and to individuals. For defined-benefit ESPP, there are financial risks for employers associated with fluctuating values for invested pension assets. A market correction implies increased business costs as any subsequent actuarial deficits must be eliminated. Clearly, significant market corrections, risky investments or sustained poor returns on pension investments can translate into an overall cost to the economy.

Partly to counteract these vulnerabilities, employers have been moving away from defined benefit schemes in favour of defined contribution schemes. This is a disadvantage for employees covered by these plans, as known benefit streams provide income security.

A further risk to households' future income security relates to the significant amounts invested in individual retirement saving plans. Increasingly, these investments have shifted from fixed income into equities. If returns are not adequate or capital loses are registered, future incomes can be eroded. With the significant amount of funds invested in pensions, it could be argued that the financial position of households is considerably more sensitive to market risk (both asset price and interest rate fluctuations) now than it was years ago, with potential impacts on the economy.

The PSA will help access this level of risk.

4 PENSION TREATMENT WITHIN THE CANADIAN SYSTEM OF NATIONAL ACCOUNTS

The CSNA has two basic architectures: The production-oriented industry-based architecture of the detailed input output tables and the current monthly measures of output by industry; and, the sector-based accounts designed to articulate economic behaviour. This latter set of accounts includes the quarterly measures of income arising and final expenditure on GDP and the underlying and detailed sequence of sector accounts. The sector accounts include: the income and outlay account; the capital account, the financial account and the balance sheet account

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(including the other changes in assets). The PSA is an articulation and extension of the stock-flow dimension to the sector accounts.

It is useful to clarify two features of the CSNA treatment of pensions that are different from a number of other countries. First, all household pension plans have a similar treatment with respect to their impact on personal saving and wealth. Whether a government ESPP is funded or unfunded (no invested assets), it is treated as a household sector asset, with corresponding saving flows. This treatment is used because the asset is recognized as a liability by the government (or the funding sector?). Second, Canada has a treatment for all ESPP that does not require the D8[5] adjustment described in SNA93 to bring personal saving and personal disposable income into line. Essentially, the incomes and outlay of pension funds are consolidated in the household sector.[6]

One challenge in the Canadian System of National Accounts (CSNA) has been to provide a consistent treatment of saving, net lending and net worth of the institutional sectors over time as the pension saving system evolved. While most of the changes in the pension system over time have either represented incentives to save for retirement or brought about mandatory participation in a pension saving plan, some of the changes have been regulatory in nature. These latter changes were intended to protect previous and future investments and not alter saving behaviour. In these cases, it has been difficult to determine the most appropriate treatment in the CSNA with respect to the SNA standard and international comparability.

INDIVIDUAL PLANS

In the CSNA, contributions to individual plans are made out of current gross income, usually originating from wages and salaries. Contributions are not explicitly recorded in the system as part of current outlays,[7] so that they are implicitly included in estimates of personal saving. Investment income, earned in the current period from these plans, also contributes to personal saving. This reconciles well with the *Financial Account*, where contributions and income earned are included in financial asset investment flows of households. Withdrawals (after tax) that are spent are also only a *Financial Account* item as they are not included in current income, and are a source of funds for expenditure. Withdrawals that are used as a source of funds for personal consumption expenditure are recorded as expenditure and thus serve to reduce personal saving in that period (i.e., represent dis-saving). Total withdrawals are taxable and as a

5 See SNA 93 section 9.16.

6 These are treated as a form of collective investment schemes. Employee contributions are in wages and salaries and employee contributions in supplementary labour income; investment income of the pension funds (excluding gains and losses are in household investment income; benefit payments to pensioners are part of dis-saving in the financial account, such that the net flows in the financial account reflect the major items contributions plus investment income less withdrawals.

7 In contrast, individual saving plan contributions are typically treated as current outlays in the Statistics Canada (?) household income and expenditure survey.

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result, create an incongruity between taxes paid and national accounts' income.[8] Household *Balance Sheet Account* estimates include both the accumulated net inflows (contributions less withdrawals plus investment income) as well as the capital gains on the investments. (and therefore provide a more complete picture of personal saving)

EMPLOYER-SPONSORED PLANS

Tax-deductible employee contributions to employer-sponsored plans are implicit, but are included in wages and salaries.[9] Employer contributions are treated as a labour cost and included in supplementary labour income of households. Autonomous pension plans are treated as collective investment schemes that are consolidated in the current account items of household sector. As a consequence, total contributions remain in the personal sector and investment income booked on the assets is counted in household income, and both are reflected in personal saving.[10] Withdrawals, while taxable,[11] are not treated as income but rather as financial flows that are mirrored in personal saving. In the *Financial* and *Balance Sheet Accounts*, the net asset flows and positions are included in a net pension asset of households. The autonomous funds themselves are included in the financial institutions' sectors, where the invested assets' detail is articulated. The net liability of the autonomous plans is the corresponding net pension asset of households.[12] Household *Balance Sheet Account* estimates include both the accumulated net inflows (contributions less withdrawals plus investment income) as well as the capital gains on the investments.

For defined-benefit plans, actuarial deficits are recorded as liabilities of employers.[13] Special employer contributions to eradicate actuarial deficits are not expensed by business. Rather they are adjustments to an off-balance sheet account. However, these are currently treated as supplementary labour income of households, and a business expense must be imputed (and corporate surplus lowered) when these expenses are incurred.[14] Employer actuarial deficit liabilities are treated as "other liabilities" of businesses and as "other assets" of households;

8 Since the SNA treatment of income and tax policy are not always the same, income arising from production does not always tie in fully with tax payments/receipt flows. This is a similar issue as the SNA treatment of taxable capital gains.

9 Not all employer-sponsored plans require employee contributions.

10 This avoids the SNA93 *D8 adjustment* that is required for saving rate analysis as well as for continuity of household income-saving with the *Financial Account* and *Balance Sheet Account*.

11 Like with withdrawals on individual plans (discussed above) this also drive a bit of a wedge between taxes paid and national accounts' income as there are taxes on the withdrawals which are not included in current SNA income.

12 This is seen by some as an anomaly. However, it must be understood that income arising from production does not tie in fully with tax payments/receipt flows. Of course, this is the similar issue for some as with the SNA treatment of taxable capital gains.

13 Actuarial surpluses are treated as "other assets" of employers, and are eliminated by taking contribution holidays.

14 This is not the case for actuarial surpluses, where employers take contribution holidays by reducing their regular contributions. The current CSNA treatment for actuarial deficits and surpluses is reasonably consistent.

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these are subsequently allocated to pension asset of households, when the actual funds are disbursed to the autonomous plans.[15]

The federal government unfunded employer-sponsored pension plan has been running a surplus for some time. The treatment in this case is different that in funded autonomous plans. Essentially, there is no contribution holiday booked, but the surplus is reduced in each period by way of a special adjustment. This special adjustment (i.e., the repatriation of the surplus) is treated as a capital transfer from households to government. This approach has a certain amount of appeal. (explain pros (and cons) of this approach).

SOCIAL SECURITY

For the CPP and QPP, employee contributions are reflected in wages and salaries and employer contributions in supplementary labour income of households. However, these do not figure into personal saving as both employee and employer contributions are remitted to government as part of current transfers to government from households. Investment income on the plans is part of government revenue, and the plans contribute to overall government saving and surplus/deficit. Benefit payments are treated as part of current transfers from government to households. Financial transactions and positions related to plan assets are articulated in the government sector *Financial Account* and *Balance Sheet Accounts*, respectively.

For the Old Age Security plan, benefit payments are treated as current transfers from government to households. There are no other explicit entries.

5 STRUCTURE OF THE PENSION SATELLITE ACCOUNT

While pension flows and stocks are fully accounted for within the CSNA, they are not fully articulated. This detail is at the heart of the pension satellite account. The Pension Satellite Account explicitly identifies how pension monies are treated in the CSNA; and expands the CSNA database to add specific detail on certain types of retirement saving instruments.

Many aspects of pension schemes are incorporated in the framework of the PSA, such as:
– wealth change;
– contributions;
– investment income and withdrawals;
– realized and unrealized gains and losses.

The PSA is an integrated conventional stock-flow matrix framework with data on both a book and market value basis.

15 Employer actuarial surplus assets actually decrease household sector “other assets”.

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Table 2 Basic structure of the Pension Satellite Account (condensed version)

	Opening wealth position	Inflows: contributions, Investment-income	Outlays: Withdrawals, Administration-cost	Other changes: Capital gains/losses	Closing wealth position
Individual saving plans					
Employer-sponsored saving plans					
Social security plans					

The PSA begins with an opening wealth position for a given pension regime. It then quantifies the inflows, outflows and other changes in value due to capital gains or losses to arrive at a closing wealth position.

The PSA examines the whole universe of the pension system in Canada. It reflects the diverse structure of retirement schemes such as private and public employer-sponsored plans, individual savings plans and social security schemes. These schemes generally all have institutional investors-investments dimensions to them, with the net assets of pension wealth and saving belonging in the personal sector while also representing both investments and liabilities in the other sectors of the economy.

Data for the PSA comes from a variety of sources such as:

Pension Plan Survey Data

- The Pension Plans in Canada program is an annual census of all registered pension plans (RPPs) in Canada. Information is collected on pension plan characteristics such as; the plan type (e.g. defined benefit vs defined contribution), number of members, the terms and conditions of membership, contributions made by and on behalf of members and the jurisdiction of the plan. The program is based on regulatory information compiled and standardized from provincial and federal pension supervisory authorities, in a cooperative arrangement with Statistics Canada.

- Trusteed Pension Fund surveys gather financial information on trusteed pension funds representing about 40% of all registered pension plans in Canada and covering about 70% of its members. The surveys measure the investment mix of assets over time (book and market value), rates of return and sources of income and expenditure. The Trusteed program includes a quarterly survey of the largest funds (representing 85% of fund assets) and a biennial Census.

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Household Survey Data

- The Survey of Financial Security is a household survey that collects information on the assets and debts of families and individuals in Canada. The survey provides information on the Canadian wealth distribution, including a wealth value of employer pension plans, individual retirement savings plans (RRSPs, RRIFs) and all other asset and debt instruments in the context of overall net worth at the family level.

Tax Data

- Contributions to individual savings plans are generally tax deductible and reduce the taxable income of the contributor. As a result, contributions can be aggregated from tax sources and an annual total can be calculated. Similarly, withdrawals from tax sheltered individual savings plans are subject to tax and become part of taxable income in the year of withdrawal. These withdrawals are aggregated to tabulate total annual withdrawals from plans.

Government public accounts and other administrative data

- Reporting for social security programs such as old age security and the Canada and Quebec Pension Plans are part of the regular reporting for Government through the Public Accounts. In addition, aspects of these programs represent transfers within the CSNA and these series are followed closely. The unfunded pension liabilities of government bodies are disclosed in the Public Accounts.

Surveys of financial institutions (insurance, banks and other financial intermediaries)

- Some details of pension related assets of the household sector are available from the survey sources for various financial institutions. For example, tax sheltered deposit liabilities are reported by the financial institutions as a detailed component of their overall deposit liabilities. These deposits represent part of the assets of household's individual savings plans.

Other sources

- Various associations of financial intermediaries as well as private sector data providers present components of the data used in the PSA.

- Some degree of modelling and derived data.

6 SUMMARY

The System of National Accounts provides the opportunity to present pension-related flows in a coherent framework. The PSA will provide the tools required to better analyze household consumption behaviour in light of a significant shift in the source of funds from current income to dis-saving taking the form of pension benefits or withdrawals from other pension assets such as individual savings plans. It will allow a deeper understanding of personal wealth and its distribution.

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The PSA covers the entire universe of retirement regimes in Canada which includes government sponsored social security plans, employer sponsored pension plans and voluntary individual retirement saving plans. For each of these three pillars of the Canadian pension system, the PSA provides an articulation of the stocks and flows as related to the sector accounts (i.e. the income and outlay accounts, the capital account, the financial account and the balance sheet). Total assets of the pension programs account for about $2.1 trillion at year end 2007.

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DISCUSSION ON SESSION IV

BY ANA ALMEIDA [1]

1 INTRODUCTION

In the context of the revision of the European System of National and Regional Accounts 1995 (ESA95), the compilation of pension entitlements entails a specific and growing interest as European countries face serious challenges due to Social Security deficits. The importance of these issues becomes visible in the revised ESA with the inclusion of a new chapter - chapter XVII - dedicated entirely to the recording of pension schemes. The creation of a new Supplementary Table, to be compiled on a mandatory basis, is one of the most relevant changes within the framework of the ESA95 revision. This table, which aims to record all the transactions and other economic flows, pretends to have a full coverage of pension schemes data included as social insurance.

In order to accommodate Supplementary Table proceedings and modelling pension entitlements, European and also some non-European countries were invited to give their contributions in a conference organized jointly by the ECB and Eurostat: *ECB / Eurostat workshop on pensions*, which took place on 29th – 30th April 2009.

Banco de Portugal [2] was invited as a discussant in the 4th Session of the conference: "*Country experiences in compiling pension entitlements*". The session aimed to discuss and point out the main concerns, difficulties and improvements that can be made in order to harmonize and make more effective the compilation of pension entitlements. Four countries, with very different experiences, gave their contributions during this session: Spain, Luxembourg, Finland and Canada.

This paper designs the main features and discussion issues prepared by *Banco de Portugal* in the referred workshop on pensions, reflecting the experiences of the participant countries mentioned above. It is organized as follows: section two provides an overview of the Social Security's current issues. In section three, some aspects of country experiences in the compilation of pension entitlements data are summarized and discussed. Further general issues / final remarks and future developments of recording pension entitlements are presented in section four.

2 SOCIAL SECURITY – AN OVERVIEW

Social Security has been an active area of economic and statistics research in the last years, due to the highly concern on the financial sustainability of the

1 Ana Almeida, Sérgio Branco, João Falcão, Banco de Portugal, Statistics Department.
2 Ana Almeida.

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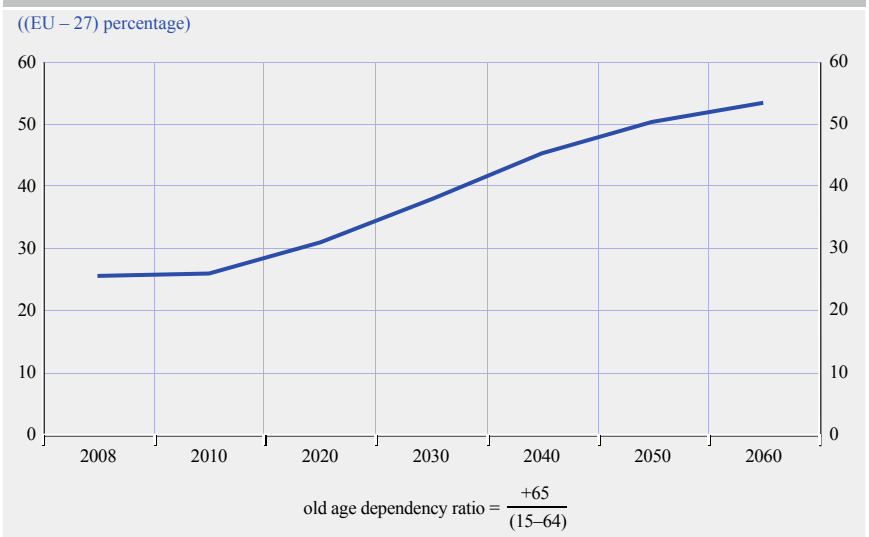
system. The ageing of population and the corresponding demographic changes are the main causes to this issue. In fact, the increase of life expectancy and the downward trend in fertility rates lead to changes of the population structure in such a way that older people outnumber younger ones. This situation creates intergenerational imbalances with increasing costs for caring for the older generations and consequently Social Security growing expenditures. The following chart plots age dependency ratio and clearly indicates the expected increase number of people aged beyond 65 years, from 25 per cent of the working age population (from 15 to 64 years old) in 2008 to 50 per cent in 2060.

The change in demographic trend jointly with the immigration phenomena turns out to be a problem to the European countries, as public expenditure on pension schemes increases. This situation pressures active workers, through the increase in contributions, especially when they belong to a pay-as-you-go system, the most common Social Security scheme in Europe.

Under this situation, policy makers have to be aware of the problems that may arise. It becomes urgent to ensure long term fiscal sustainability to avoid uncertainty and the risks associated under this scenario. In order to guarantee future benefits to active workers during their retirement period and to ensure reasonable living standards, many countries made some reforms in their Social Security regimes.

The main implemented reforms can be summarized by the following vectors: increase of pension benefits to workers that remain working beyond the retirement age (as in Spain); penalties to early retirements, with an actuarial reduction of pension benefits when the retirement is earlier than the standard legal age (as in Finland); and, finally, the increase of the second and third pillars (privately managed pensions and voluntary schemes) (as in Luxembourg and Canada).

Old age dependency ratio



Source: Eurostat EUROPOP2008.

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Statistical data can provide several contributions by shedding some light on the specific areas of Social Security where policy makers may intervene. If at a micro level, accounting practice recognizes pension liabilities of employers and pension funds, national accounts should also be important to raise, at a macro level, the main specific areas where Social Security problems exist and which can be improved. The possibility of making realistic economic projections will also become more effective with a good compilation procedure of the statistical data. Finally, statistical data have other important advantages like, for instance, allowing for cross section analysis. This is the case of the Supplementary Table, as it provides the basis for compiling comparable stock and flow data of all pension entitlements from a debtor/creditor point of view across countries.

3 COUNTRY EXPERIENCES

3.1 SPAIN

Statistics Spain[3] described the Spanish experience on the subject, in the paper *"Estimating Social Security Pension Entitlements in Spain"*.

As we can infer from this presentation, Spain is an example of a country that made some efforts to prepare the measurement of pension entitlements under the Supplementary Table. There are three interesting aspects in the presentation that we would like to focus on.

The organizational procedure, with the creation of a working group composed by the national institutions concerned and the definition of the responsibilities for the compilation, is clearly a good starting point to this exercise. Another main aspect of the Spanish Social Security system is the existence of two parallel pension schemes sponsored by General government: the Social Security and the Government employer pension schemes. A third important and interesting feature from this presentation is the development of a national model that accommodates specific assumptions of the Spanish Social Security scheme. In fact, this model can be used as a benchmark for future comparisons with the model from the University of Freiburg.

Some issues can, however, raise a deeper discussion on the presentation made by this country.

One question that can be brought up deals with the interpretation of the "total amount of contributions" estimated by the national model. As it was mentioned before there exists a breakdown between Social Security and the General government employer pension schemes but, apparently, no distinction in the final estimates is done. How can we split pension entitlements between these two regimes?

The description of the national model would also gain with the identification of certain assumptions. It would be very useful to have a better clarification of the

3 Lourdes Prado.

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sources of data and on the methodology definition and sample criteria used in the estimation of future pensions of active population.

A final remark concerns the interpretation and comparison between the national model estimates and the University of Freiburg model. Pension entitlements under the Freiburg model represent 204 per cent and 207 per cent of GDP in 2006 and 2007, respectively (according to the Contact Group on Pensions Report, CMFB, 2009), whereas, in the national model, pensions entitlements are 240 per cent and 242 per cent of the GDP in the same years. Can we interpret these differences solely due to the different wage growth rate assumptions, or are there any other reasons that explain these differences?

3.2 LUXEMBOURG

Luxembourg's participation was made by *Inspection Générale de la Securité Sociale*[4] through the paper "*Experiences in compiling pension entitlements in Luxembourg: 'Ensuring consistency*'", which focuses the main concerns that arise from the compilation of pension entitlements data in Luxembourg. The main aspect addressed by Luxembourg relates to the consistency that needs to be ensured in national data among different institutions and data sources. Other difficulties mentioned by this country rely on the heterogeneous definitions of benefit schemes and Social Security regimes across countries. An additional issue is also referred by Luxembourg: the problems that are raised by the existence of different data sources.

The presentation provides the estimates of a national model that was developed by Luxembourg. However, we are not able to compare them with the estimates provided by the Freiburg model, as this country did not compile data for the fulfilment of the Supplementary Table.

The first issue we would like to bring up into the discussion is the importance of having a more detailed methodology and assumptions used in the national model. This could facilitate the interpretation of the estimations, for example, the motion of pension entitlements in percentage of GDP and replacement rate, both decreasing until 2007.

The chart "Entitlements and expenditure" deserves also, in our opinion, a better clarification, namely the path of differences between "percentage of GDP all" and "percentage of GDP by years".

Finally, difficulties stressed by Luxembourg concerning the statistical consistency and harmonization to be ensured across countries that experience different and complex structures of pension schemes and retirement regimes, motivate also a discussion on this topic. It would be useful to have the participant's opinion on how this process could be improved.

4 Tom Dominique.

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3.3 FINLAND

The paper *"The social security pension scheme in Finland"* presented by Statistics Finland[5] provides a very good overview of the Finnish pension system. One of the main features of this system is the fact that it is a three-pillar pension regime. It includes two statutory pension schemes (first pillar) and voluntary pension insurance (second and third pillars). An explanation for this classification should be given since, according to the multi-pillar approach (World Bank), the second pillar is mandatory and not voluntary as it is stated in the paper.

The paper presents the results of the compilation of the Supplementary Table for Finland. This output, calculated with the University of Freiburg methodology, is compared with the results of the national model estimated by the Finnish Centre for Pensions. The total amount of pension entitlements computed by this institution (268 per cent of GDP in 2007) is higher than the amount computed in the Supplementary Table via the accumulated benefit obligations (ABO) approach (235 per cent) but lower as compared with the projected benefit obligations (PBO) approach (295 per cent). The analysis of these differences should be investigated. Attention should be given to the possible factors behind the different results: different databases, different assumptions?

In the Supplementary Table, the method for computing the item "Household social contribution supplements" should be explained. In principle, according to the methodology defined by the CMFB task force on the Statistical Measurement of the Assets and Liabilities of Pension Schemes in General Government, it should be equal to the start of year pension entitlements times the discount rate. In this case, a discount rate of 5 per cent was apparently used, which is different from the hypothesis of 3 per cent discount rate of the Freiburg model.

Some doubts were raised about the significance of the item "Other (actuarial) increase of pension entitlements". In our view, this item can be seen in two different (non- mutually exclusive) ways:

(i) This amount could mean that the social insurance scheme is under or over financed if the values are positive or negative, respectively. This conclusion may have important economic policy implications.

(ii) The existence of important amounts in this item of the Supplementary Table may indicate there are shortfalls in the model due to, e.g., wrong estimation procedures and or assumptions.

In the paper, a doubt is also raised in relation to the inclusion of "Employer imputed social contributions" in the core and non-core accounts. In this respect,

5 Paula Koistinen-Jokiniemi.

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our interpretation is that this item should be included both in the core and non-core accounts but with different values:

(i) "In cases where pension entitlements of schemes for government employees are not recorded in the core accounts, by convention the employers' imputed contributions are calculated as equal to the difference between current benefits payable and actual contributions payable (by both employees and government as employer)." (ESA Rev § 4.10).

(ii) In the Supplementary Table, "Employer imputed social contributions" is a balancing item to match the differences between the change in entitlements and the transactions (equivalent to item 3. for Social security).

3.4 CANADA

The paper *"The pension satellite account in Canada"* presented by Statistics Canada[6] is a good example of estimating pension entitlements in national accounts through a satellite account. The provision of a long time series allows for a deeper analysis of results and for a better interpretation of the data, which is useful for analytical purposes.

One of the most striking features of the information presented for the Canadian pension system is the level and stability of the unfunded pension plans liabilities as compared with the average European reality. In Canada this amounts to 15 per cent of GDP while in Europe it ranges between 200 and 300 per cent of GDP.

Some issues can be raised by the analysis of the data shown in the presentation. The most relevant are the fact that changes in the Social Security strategy resulted in the accumulation of assets after 2000 and the upward trend in "Other individual registered saving plans" after 2002. Both issues could be further discussed.

Additionally, some details on the methodology and sources used for the compilation of data (e.g. transactions and other flows) could be given. In particular, the main assumptions used in the estimates of the pension satellite account (discount rate, wage increases (ABO/PBO), GDP growth) could be explained.

Finally, valuation issues and data gaps for individual registered savings plans are mentioned. A description of these issues and of the solutions found would be of great interest.

4 CONCLUSIONS

The subject of estimating pension entitlements is still in an initial phase, thus still being subject to future discussion and, therefore, many issues are somewhat grey areas. We suggest then several issues to further reflect on.

6 Joe Wilkinson.

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The quantitative work of the models, even though concerning ex-post observations ("accrued-to-date liabilities") relies on future assumptions of variables such as the discount rate, demographic projections, etc. To which extent these assumptions used within the national accounts framework are coordinated with the bodies responsible for the sustainability analysis, such as the Working Group on Ageing?

These assumptions, which are used to estimate pension entitlements across countries, like GDP growth and discount rates, are sometimes harmonized between countries. Is this a reasonable hypothesis? Does "one fit all"? Could these estimations be improved in order to take into account specific national differences, incorporating country-specific assumptions?

Since there may exist practical difficulties to separating concepts other than pensions (e.g. health related), shouldn't these future benefits be also recorded as General government liabilities? So far, they are potential, but they are as well clearly a responsibility of governments towards their citizens.

Most European countries face challenges due to the migration phenomenon. The existence of strong migration flows to Europe changes the demography of these countries. Migration means a younger population and, therefore, an increase of Social Security sustainability. Should the assumptions used to estimate pension entitlements (e.g., demographic assumptions) be modified? Do these assumptions take into account migration trends?

The publication of consistent and comparable data for pension entitlements will clearly show differences across countries. These differences are already evident in the results obtained through the University of Freiburg methodology. What could be the reaction of financial markets to these results? What could be the reaction of policy makers under these results?

Several organizational issues must still be debated, e.g., the responsibility for the compilation of these aggregates, the publication policy, etc.

The process of revising ESA is still ongoing. In particular, the new ESA will include a specific chapter on pensions. The current version of this chapter proposes that all government sponsored unfunded employer defined benefit schemes are recorded only on the noncore accounts. This leads us to the following practical suggestions:

(i) An operational definition of "unfunded" should be given, especially when schemes have reserves with large assets (introduction of a threshold?)

(ii) How to define a government sponsored scheme? A clear definition of sponsor should be provided.

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SESSION V

COUNTRY EXPERIENCES IN COMPILING PENSION ENTITLEMENTS PART II

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INTRODUCTION

In Session V, Marshall Reinsdorf considers actuarial measures of defined benefit (DB) pension plan wealth and income of US Households. The author describes in detail the organisation of the US pension system. The National Income and Product Accounts (NIPAs) provide a full picture of the operations of defined contribution (DC) pension plans, in which the level of benefits depends on the balance in the DC plan account. However, in DB pension plans, the level of benefits is determined by a formula that typically takes into account the length of service and some measure of final or average pay, so that the appropriate wealth concept is be the expected net present value of the benefit entitlements. The author discusses two alternative calculations: the "cash accounting approach", which records household income as being equal to the contributions from the employer to the DB pension plan plus the returns on plan assets, and the "accrual approach", which records household income when rights to DB pension benefits are accrued. The advantage of the latter is the reduction in volatility of the measure of household income. The estimates are presented using ABO for the private plans and the PBO approach for the government plans in relation to the benefit formula.

Janusz Jablonowski (Narodowy Bank Polski) considers pension entitlements under social insurance schemes in Poland. The author starts with a detailed definition of the structure and main features of the pension system in Poland, composed of the Social Insurance Fund (FUS), which was reformed in 1999, the Pension and Disability Fund for farmers (FER), the State budget pensions and the private pension schemes. The second part of the papers focuses on modelling issues. The Central Bank of Poland has used the PROST model and the Freiburg model. Thus, the author compares the results of the Freiburg model with the models from the Ageing Working Group. The differences are mainly explained by differences in the type of system covered (closed system versus open system), the outcomes of projections (accrued-to-date liabilities versus revenues) and the values for wage growth (fixed at 1.5% versus varying across the Member States).

Albert Braakmann and Jens Grütz (Destatis) present their results on the pension entitlements of civil servants in Germany, which amounted to 44% of GDP if compiled on an actuarial basis. Regarding the idea of higher frequency data, the authors say that the calculation of labour costs of civil servants on an actuarial basis is not feasible with quarterly data. The calculations are strongly dependent on the assumptions made. The authors stress that the supplementary table provides a rather complete picture of pension insurance by showing the effect on the entitlements of changes in the actuarial assumptions or pension reforms. The assumptions regarding the discount rate and the wage growth rate should be harmonised, according to the authors. A detailed documentation of the procedures and parameters used in the compilation of the supplementary table is also recommended. Nevertheless, the supplementary table does not substitute for the comprehensive analysis of old-age insurance systems like the open system liabilities.

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The three papers of Session V are discussed by *Dominique Durant* (Banque de France). In relation to the first paper, the discussant makes a very didactic and useful simulation by summarising the information on US household wealth and income from the BD plans in a partial supplementary table. With regard to the Polish experience, the discussant makes an attempt to use the aggregated Freiburg model with the AWG assumption in order to estimate pension entitlements in line with the sustainability work of the European Commission while avoiding the building of a costly model for social security. Finally, in connection with the German experience, the discussant attempts to build up a semi-aggregated (by group) model for the civil servant scheme, which is part of social security.

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ACTUARIAL MEASURES OF DEFINED BENEFIT PENSION PLAN

WEALTH AND INCOME OF US HOUSEHOLDS[1]

BY MARSHALL REINSDORF[2]

In the US National Income and Product Accounts (NIPAs) pension plan assets are classified as belonging to persons. This makes employers' contributions to pension plans and the interest and dividends earned on the plans' assets part of personal income. Benefit payments to retirees and contributions made by employees to pension funds have no effect on the NIPA measures of personal income and saving because they are regarded as financial transactions, i.e. a change the form in which households hold their wealth. For this reason, benefits and employee contributions are reported in addendum section rather than the main section of the NIPA table that provides details on pension plan operations, table 6.11.

The current NIPA treatment provides a full picture of the operations of the pension plans that are structured as defined contribution (DC) plans. These plans can be regarded as analogous to bank accounts owned by the plan participants, as the level of benefits in retirement depends on the balance in the DC plan account. In contrast, in a defined benefit (DB) pension plan, the level of benefits is determined by a formula that typically considers length of service and some measure of final or average pay. If the assets of the plan are insufficient to pay the promised benefits, the employer who sponsors the plan must cover the shortfall by making additional contributions. This obligation of the employer represents an additional source of pension wealth for the participants in an underfunded plan besides the assets of the plan. Thus, for DB plans, the wealth concept that is appropriate for many important questions is the expected present value of the benefits to which the plan participants are entitled. The measure of investment income must then be the theoretical amount of interest accruing on this actuarial wealth, and the measure of pension-related compensation must be the expected present value of the benefits that the plan participants earn through service to the employer over the year, less any contributions that employees themselves make to fund those benefits.

Recording as income of households the amounts that a DB pension plan receives from employer contributions and returns on assets may be termed the "cash accounting approach" (though it is not cash accounting in a literal sense, as contributions that are declared but not yet disbursed are still counted). The alternative "accrual approach" records household income when entitlements to

1 Marshall Reinsdorf, US Bureau of Economic Analysis, 1441 L St., NW, Mail stop BE-40, Washington, DC 20230, Marshall.Reinsdorf@BEA.gov.

2 The estimates in this draft paper are preliminary estimates for research purposes and are subject to revision. I am grateful to David Lenze for assistance with this project.

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pension benefits are accrued. One of the important advantages of the accrual approach is a reduction in volatility of the measure of household income. Employers sometimes make no contribution or a reduced contribution for a period of several years, but then make a large "catch up" contribution to bring the gap between the plan's assets and its accrued benefit liability back into the acceptable range. Such lumpy behavior of employer contributions can cause sharp swings in the cash accounting measure of households' income from DB plans, particularly if the analysis is done at the state level rather than at the national level.

I POSSIBLE APPROACHES TO MEASURING BENEFIT ACCRUALS

Though the accrual approach avoids the timing distortions in the recording of pension income that arise under the cash accounting approach when employers skip contributions and then catch up later, the accrual approach has its own disadvantage. We do not need to make assumptions to measure transactions that have actually occurred. In contrast, the accrual approach is sensitive to assumptions about interest rates, mortality rates, separation rates and retirement ages used to calculate the expected present value of benefits and decisions about how to account for effects of future pay increases and future years of service.

Dependence on assumptions creates an inherent source of imprecision that is not present in cash accounting estimates. Furthermore, actuarial estimates made by different plans are likely to use different assumptions, so if we add them up to get a national total in the same way that we add up employer's actual contributions to pension plans, we will be combining estimates based on inconsistent assumptions. Indeed, the totals in this paper of households' accrued pension income or pension wealth generally do not incorporate adjustments for differences in assumptions across plans or over time, except for an adjustment of reported actuarial values for differences in the assumed rate of interest.

If the assumptions used in the actuarial calculations are exactly realized and if plan features and other key variables never change, annual contributions that are equal to the actuarial measure of participants' income will make the assets held by the plan match the actuarial value of the participants' wealth and exactly fund the benefits due. Yet despite the theoretical correspondence between cash and accrual accounting measures of pension wealth and income under ideal circumstances, they are unlikely to coincide in practice.

Actuarial estimates for employees who are not going to retire in the current year also depend on the decision about how to treat future pay increases. The "accrued benefit obligation" (ABO) approach considers only the present value of the benefits earned to date, meaning the benefits that would be due if the employee were to separate from the employer or otherwise lose the opportunity to accrue benefits under the plan. For a typical DB plan with a benefits formula based on years of service multiplied by a measure of average or final pay, the ABO measure of benefits earned during the plan year includes both

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the effects of an extra year of service and the effects of the salary increase received during the plan year.[3]

An advantage of the ABO approach is that the benefits to which the employee has legally become entitled is a concept that fits the usual definition of a liability well. Yet a scenario in which the employee ceases to accrue benefits under the plan seems to be of questionable relevance if the probability of such an event occurring is remote. If there is little chance that the plan will be subject to a termination or freeze or that the employee will separate from the employer in mid-career, an approach that spreads the build-up of pension wealth over the career more smoothly may correspond better to the incentives that are perceived by plan sponsors and participants than benefits accrued-to-date, whose growth typically accelerates rapidly near the end of the career. To do this, the estimates must reflect the pension benefits that the employee would receive at the projected retirement date taking into account projected future pay increases.

Several methods exist for spreading the accretion of the pension wealth that is the employee is ultimately expected to enjoy, or "projected benefit obligation" (PBO), over the course of the career. In the financial statements of private business, the projected unit credit (PUC) method is generally used for the estimates of pension expenses that are labeled as "PBO". This method resembles the ABO approach except in the way that it adjusts for expected future pay increases. Assuming that the benefit formula is some percent of final pay for each year worked, the PUC valuation of the current service cost (i.e. benefits that employees have accrued in the current year) will be based not on the current pay level but on the projected level of pay in the final year of the career. In contrast, current service cost under the ABO approach will include the effect of any raise received during the current year on the value of benefits accrued in past years. (See the example in the appendix.)

A few state and local government pension plans also use the PUC method in their actuarial reports, but most of these plans instead use the level percent of pay version of the "entry age normal" method (Novy-Marx and Rauh, 2009). The entry age normal method attributes the value of the projected benefit obligation to service in any year in proportion to the fraction of the total projected earnings over the course of the career that come from that year. This yields estimates of the employer's "normal cost" for service in each year that are a constant percent of pay, as shown in the example in the appendix. Although to avoid confusion, the term "PBO" ought to be reserved for the project unit credit method, the entry age normal method also uses the projected benefits at the time of retirement as the basis for its estimates.

Assuming that pay rises over the course of the career, both the projected unit credit and the entry age normal method give higher estimates of pension plan income in the early and middle years of the career than does the ABO approach. Because they reflect anticipated future salary growth in their valuation of the

3 If the salary increase component were omitted, the cumulative total at the time of retirement of benefits earned and interest on the current liability would fall short of the current liability at the time of retirement.

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pension benefits earned in the current year, they tend to yield smoother, more uniform profiles of pension plan income over a typical career. Indeed, the objective of the entry age normal method is to maximize smoothness.

A rationale for smoothing comes from the option value model of pension earnings proposed by Lazear and Moore (1988) and used by Stock and Wise (1990) and Lumsdaine, Stock and Wise (1990.) In the option value model, an employee's pension wealth includes both the ABO entitlement and the value of the option to raise the present value of future benefits via future service. To induce an employee to retire early and accept pension benefits whose present value equals the ABO, an employer will generally have to offer a "buy-out" that compensates the employee first, for foregone future pay net of the opportunity cost of the employee's time and second, for the foregone opportunity to earn higher pension benefits. If the ABO valuation of the pension entitlement is too low because it ignores the option value to increase the pension by future employment, a reasonable alternative is simply to let the present value of the projected pension benefits build up in some smooth fashion over the course of the career.

To measure wealth and income from private sector pension plans, I use an ABO approach. For private sector plans, loss of the opportunity to earn further benefits due to a plan freeze or plan modification (such as a conversion to a cash balance plan) must be regarded as a realistic possibility. In 2006, about 900,000 employees were in private plans that had been frozen. Employees in the private sector can also lose the opportunity to earn additional benefits from a bankruptcy, or even an acquisition, of the plan sponsor.[4] Finally, changing jobs is likely to mean changing employers for employees of small or medium size businesses (though some private industries have multi-employer plans).

In contrast, changes to government pension plan provisions that affect current participants are unusual, and the risk of losing the opportunity to earn future benefits is generally small for most government employees. An approach that spreads the build-up of the projected pension wealth at retirement in over the career is therefore a reasonable alternative for government plans.

The use of different approaches for private sector and government sector plans is also convenient because, whereas ABO information is more available in a usable form for private plans, PBO information is more available for government plans. Most government plans make actuarial estimates of their benefit liability with a level percent of pay formula, where the percent is chosen so that contributions equal to the percent of pay over the course of the career will fully fund the liability for pension benefits at the time of retirement.

Nevertheless, reporting ABO approach estimates for government plans would also have some advantages. Obligations that are explicit and that cannot be escaped fit the usual definition of a liability more precisely than a concept that includes

4 As discussed below, in the event of bankruptcy of the plan sponsor, benefits worth approximately the ABO level of pension wealth are covered by insurance from the Pension Benefit Guarantee Corporation.

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obligations that are expected to arise from future events if pay raises continue their historical pattern and no changes are made to the plan's features. And even though state and local governments have rarely made changes that affect those already enrolled in a plan, proposals to do so have at least been considered by governments not in financial distress, and would likely be implemented by a government that was in financial distress.[5] Presenting ABO estimates for state and local DB plans would allow them to be compared with private DB plans on a uniform basis. Finally, a practical consequence of the use of a PBO is that more of employee's growth in pension wealth will be attributed to imputed interest income on their already-accrued pension wealth and less will be attributed to current service cost. In the 2008 SNA, the employer's imputed contributions include only the current service cost, so the use of the PBO approach is likely to result in comparatively low estimates of the compensation component of pension income. Imputed contributions may even tend to be negative under the PBO approach, and for mature plans the estimates from the ABO approach are likely to be, on average, nearer to actual contributions.

2 ORGANIZATION OF THE US PENSION SYSTEM

Both DB and DC pension plans play key roles in financing retirement for US households, but in the private sector, newly established plans are almost invariably DC plans. Even at older firms with DB plans, these plans may be closed to new hires. As a result, a significant fraction of private sector DB plans have matured, in the sense of having reached the point where contributions no longer exceed benefit payouts to retired participants. Nevertheless, the number of private sector DB plans in existence is declining very slowly and remains above 40,000.

The US also has over 2500 DB pension plans for employees of state and local governments. DB plans remain predominate in the state and local government sector, though some state and local government employees also have access to a supplementary DC plan or have just a DC plan. Finally, Federal government agencies and Federal government enterprises (such as the Post Office and the Tennessee Valley Authority) sponsor about 40 DB plans for their employees. The Federal government also makes DC plans available to its employees, and for civilian Federal employees hired after 1984, employer contributions to the DC plan help to compensate for a reduction in the generosity of the DB plan.

Besides DB and DC pension plans, many US households have self-funded retirement accounts (such as IRAs, or "individual retirement arrangements") and almost everyone is covered by social security. Social security is a government social insurance program rather than a pension plan because entitlements to benefits do not arise from an explicit or implicit contract with an employer. The classification of social security as a social insurance program in the NIPAs means

5 For example, although the government of Virginia is not in financial distress, a recent report to the Virginia House of Delegates included a proposal that state employees should start contributing 2 percent of their pay to their pension plan. At the other extreme, a bankruptcy judge has recently ruled that union contracts requiring the city of Vallejo in California to preserve its current pension plans are subject to modification by the bankruptcy court.

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that household income from social security is measured by benefit payments. Neither social security nor the self-funded retirement accounts will be discussed in this paper, but the presence of social security has influenced the design of the pension plans that are the focus of this paper.

3 ESTIMATES FOR PRIVATE DB PENSION PLANS

To estimate households' income and wealth from private DB plans, I obtained data sets from the Pension Benefit Guarantee Corporation (PBGC) of IRS Form 5500 tax returns for the years from 2000 to 2006. These tax returns report actuarial estimates of benefit expenses for DB plans, and they also report contributions, benefits and investment income. The PBGC constructs data sets covering virtually all of the information on the Form 5500 for DB plans. The Department of Labor also constructs data sets covering Form 5500, but those data sets omit the actuarial information. The PBGC classifies returns into years based on the starting date of the period that they cover, so that plans whose fiscal year starts before December 31, 2006 are included in the 2006 data set. In contrast, the Pension Bulletins published by the Labor Department classify returns into years based on ending dates. In this paper I use the PBGC's plan year definition, which causes my figures for employer contributions to differ significantly from the Labor Department figures in some years. The number of returns filed each year ranges from 43,000 to 46,000.

The Form 5500 data sets are supposed to contain a census of private DB plans, except for a small number of plans whose benefits are provided through group annuities purchased from life insurers. Nevertheless, estimating national totals is not simply a matter of adding up the relevant variables on pension plan assets, income, actuarial liability, and benefits accrued. Comparisons across years of ending and beginning assets, numbers of plan participants, and plan identification numbers imply that significant numbers of plans are missing from the data sets for 2000 to 2002. Using overlapping estimates of ending and beginning assets adjusted for revisions to previously reported values, I estimate that about 15 percent of plans are missing in 2000, falling to 8.7 in 2001 and 5.6 in 2002. Furthermore, screening for erroneous data entries by comparing variables that are supposed to agree (such as ending balances from one year and beginning balances from the following year) or at least be in the same range, reveals many data entry mistakes. Finally, values are often missing for key variables, particularly for smaller plans, which do not have to provide complete information. To fill in missing value and to replace erroneous values that I could not correct, I use predicted values from regression models. For example, the various measures of plans' actuarial liability reported on the actuarial information schedule of Form 5500 are generally highly correlated with each other, so if the current liability or the benefits accrued through service is missing, related actuarial variables can often be used to predict the missing value. Even if all of the actuarial variables are missing, reasonably good predictions can still be constructed using counts of active and retired participants and benefit levels.

A baseline for comparison with the actuarial measures of pensions is a cash accounting approach that uses private pension plan assets to measure pension

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wealth of households. The income to households from employer contributions recorded under this approach is quite variable, rising from about $33 billion in 2000 to about $100 billion in 2002-3 (table 1.) Large holding gains during the bull market that lasted from 1995 to early 2000 left many plans overfunded, allowing their sponsors to take contribution holidays in 2000 and 2001. Holding losses followed in 2000-2002 with the bursting of the dot-com bubble, obliging employers to increase contributions to restore funding levels. Yet despite the increase in contributions, the holding losses left the plans with $400 billion less in assets at the end of 2002 than the $2 trillion they had at the beginning of 2000. These losses were then reversed by a four year string of holding gains, leaving the plans with $2.5 trillion in assets at the end of 2006.

Saving by the plans played almost no role in their growth of assets. Plan saving was close to zero from 2002 to 2006 because benefits net of employee contributions were high and rising, reaching $150 billion in 2006.[6] The high benefit payments and lack of saving reflect the maturing of these plans as their participants increasingly move into the retirement phase of the life cycle.

Actuarial measures of private DB pension plan income of households are more stable than the cash accounting measures. The actuarial value of benefits earned rises smoothly from around $67 billion in 2000 to about $79 billion in 2006 (table 2), with an average level over the seven years of $73.5 billion, close to the $79 .6 average of the employer contributions. On the other hand, the imputed interest cost of the actuarial current liability of the plans is, on average, almost twice as high as the actual investment income shown in table 1. The actuarial liability of the plans is lower than their assets in 2000 and 2001, and only 10 to 25 percent higher in later years, so the main reason why the imputed interest on this liability is higher than the actual investment income from the plan assets is that the assumed interest rate is higher than the realized rate of return on assets excluding holding gains. The low level of actual investment income reflects the reliance of the plans on holding gains as a source of funding for benefits, so by including the imputed interest in household income we are, in effect, including expecting holding gains in income. This makes the actuarial measures of household income and saving in table 2 higher than the cash accounting measures in table 1. Table 2 also shows that estimates of plan actuarial liabilities are sensitive to assumptions about interest rates and other factors.

4 FEDERAL GOVERNMENT PROGRAMS FOR PRIVATE SECTOR RETIREES

Although the US generally eschews a Bismarkian approach to pensions, the Federal government does have two programs that provide pension benefits to

6 The benefits in table 1 include lump sums paid at retirement to retirees in lieu of benefits during retirement or to life insurers for annuity contracts to provide benefits during retirement. Furthermore, investment income on life insurance reserves for group annuity contracts purchased by employers or DB plans are excluded from the investment income shown in table 1. The Labor Department's *Private Pension Plan Bulletin* for 2005 estimates the value of the group annuity contracts at 10 to 15 percent of the total for plan assets.

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private sector retirees. These programs are easily overlooked, as they are classified as social protection provided by government in the US national accounts and they are comparatively small. Nevertheless, they are important to include if one wishes to have a complete picture of DB pension benefits in the US.

A THE PBGC

Terminated plans that enter into trusteeship with the PBGC because they are unable to pay promised benefits cease to be included in the Form 5500 data sets, but the rights of their participants to benefits do not vanish. The PBGC insures the benefits that have been accrued in private DB plans up to a statutory maximum (currently $4500 per month for a 65 year old without survivor's benefits, or $4050 with a survivor annuity). The insurance coverage is financed with premiums paid by the plans. Besides the premium income, the assets of terminated plans are used by the PBGC to pay promised benefits. In 2008, for example, plans that were terminated had an average funding ratio of 59 percent (PBGC 2008 Annual Report, p. 13.) In 2007, the PBGC disbursed $4.3 billion in benefits and assistance to multiemployer plans, which are typically assisted rather than terminated (table 3.) Insurance bridges the gap between a terminated plan's assets and its accrued benefit obligation, so of this amount, only $2.6 billion is included in the government social benefits portion of personal income in the NIPAs.

Under a cash accounting approach to measuring pension plans, the households' pension wealth is lost when plan assets are appropriated by the PBGC. In contrast, under an accrual accounting approach, only a tiny change in pension wealth due to forfeited benefits over the maximum and revisions to certain assumptions should be recorded when a plan is terminated. (In a termination situation, appropriate assumptions about things like when participants will file for benefits are different from the appropriate assumptions for calculating the ABO of an ongoing plan.)

The PBGC's estimate of the present value future benefits from trusteed plans rises from under $10 billion in 2000 to $65.1 billion in 2007 (table 2, line 13, or table 3, line 5.) Yet this rapid rise is partly a reflection of a decline in the assumed interest rate from 7 percent to 5.3 percent. Measured at the 2008 interest rate assumption of 6.6 percent, the present value of future benefits fell to $56.6 billion. On the other hand, the PBGC's estimate of the interest cost of its benefit liability, which represents interest income to households under the accrual accounting approach, rose to $3.4 billion in 2008 from $3.3 billion in the previous year. To provide additional background on the operations of the PBGC, table 3 also shows its investment income. This investment income could be seen as income that would have been included in household income had the pension plan that owned the underlying assets not failed.

B THE RAILROAD RETIREMENT BOARD

The second Federal government program that provides pensions to private sector employees covers the railroad industry. The Railroad Retirement Board receives payroll taxes levied on wages and salaries in the railroad industry and

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pays benefits to railroad retirees and their survivors. Railroad employees neither pay social security taxes nor receive social security benefits, but Tier I of the railroad retirement pension is integrated with social security and has equivalent taxes and benefits. Tier II of railroad retirement provides additional benefits similar to those of a DB pension plan. In the NIPAs, personal income from both Tier I and Tier II is recorded when benefits are disbursed, just as occurs with social security.[7]

In 2007, the benefits paid by the Tier II retirement account amounted to about $4 billion. The payroll tax receipts were $2.6 billion dollars, of which about $2 billion were paid by the employers, with the balance paid by employees. The payroll taxes are flat or falling over the years from 2000 because the combined employer and employee tax rate declined from 21 percent in 2000 to 16 percent in 2008. This rate is automatically adjusted to maintain a balance between plan assets and the current expenses for benefits and administration.

I do not yet have actuarial estimates for Tier II of railroad retirement (but in any event the amounts involved are relatively small.) A reasonable estimate of the plan sponsor's normal cost would be some fraction of the employer's payroll tax, and a reasonable estimate of present value of future benefits would be substantially larger than the plan assets. An actuarial valuation report from December 2004 estimates a liability for future benefits and administrative expenses under Tier II for current and former employees of $49 billion, approximately $47.5 billion of which appears to be for future benefits (US Railroad Retirement Board Twenty-Third Actuarial Valuation of the Assets and Liabilities under the Railroad Retirement Acts as of December 31, 2004.) Assets on hand were $27.3 billion, implying an unfunded accrued liability for benefits of about $20 billion. Nevertheless, projections of the required payroll tax rate in future years are relatively stable, suggesting that the payroll tax rate already is at least high enough to cover the interest on the unfunded accrued liability. (Railroad employment is falling, a trend that has continued since the late 1940s, so if the tax rate were only sufficient to cover current service costs, a substantial tax rate increase would eventually be needed as the unfunded benefit liability became large relative to the payroll base.) Indeed, the employer's Tier II payroll tax rate, which was 13.1 percent in 2004 and 12.1 percent in 2007, is substantially higher than the 2004 Report's estimate of employer's normal cost, which was 6 percent of payroll.

5 STATE AND LOCAL GOVERNMENT PLANS

DB pension plans are an important component of the compensation of the employees of most state and local governments and, unlike private DB plans, they are not in decline. Indeed, a DB pension is the only source of monthly retirement benefits that retirees from some of these governments receive, because some state and local governments have opted not to participate in social security.

7 The Flow of Funds Accounts of the Federal Reserve Board treat Tier II like other DB pension plans, however.

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For almost all private sector employees and for Federal government civilian employees hired after 1984 social security is a key source of financial resources during retirement, so much larger contributions to the pension plan are needed if the participants are not covered by social security. State and local government plans also tend to escalate their benefit payments based on a measure of inflation, which increases the amount of contributions that they need. On the other hand, to reduce the cost to the employer, many of these plans require the employees themselves to make a portion of these contributions.

State and local government plans remain less important than private plans in terms of total numbers of participants, with just over 14 million active participants in 2006, compared to around 20 million active participants in private DB plans (table 5.) They are also less important when measured by employer contributions, with $67.8 billion in 2006 compared with $87.9 billion for private plans. Nevertheless, the cash accounting measure of the income that they generate for households is about the same as for the private DB plans, rising from $141 to $161 billion in 2004-2006, compared to a rise from $149 to $155 billion for the private plans. One reason for this is the higher investment income of state and local plans.

State and local plans have higher investment income than private plans because they have more assets, $3.1 trillion at the end of 2006, for example, compared with $2.5 trillion for private plans. The assets of state and local government plans reflect the fact that their total contributions, including employee contributions, are generally higher than total contributions to private DB plans, and they had lower holding losses in the bear market of 2000-2002. Also, around 55 percent of their participants are still in their working years, compared to around 45 percent for the private plans. State and local government plans therefore have a higher average saving level (around $22 billion per year over 2000-2006, compared with a negative average for the private plans) and smaller net benefit disbursements (an average of $100.6 billion per year compared with $134.2 billion for private plans.)

Lenze (2009) uses a BEA data set covering 124 plans or plan families to make actuarial estimates of household income and wealth from state and local government pension plans. (Due to the high right skew of the plan size distribution, this data set captures most of national total for the measures of interest.) The Census Bureau collects cash accounting data on state and local government pension plans, but not actuarial data. BEA has therefore collected actuarial information directly from the financial reports of the larger state and local plans and from a sample of smaller plans.

Most state and local government plans calculate the actuarial value of benefits earned with a PBO approach using a level percent of pay formula. One of the key objectives that funding schemes for pension plans seek to achieve is avoidance of rapid increases in costs, such as those that occur under a pay-as-you-go scheme when the covered population ages. The level-percent-of-pay approach goes furthest in accomplishing the cost-smoothing objective, because over an employee's career the benefit cost grows at the rate of growth of the salary. In contrast, assuming a final pay benefit formula, the growth rate of ABO benefits accrued is usually greater than or equal to the sum of the salary growth rate,

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the interest rate, and the average mortality rate of active participants, so sharp increases in costs as employees near the end of their career can cause overall pension costs for an aging workforce to rise quickly. In the early and middle years of the career, the PBO approach used by state and local government plans gives much higher cost estimates than the ABO approach, a relationship that is reversed in the final few years.

Despite the tendency of the PBO approach to frontload pension costs, the PBO measure of benefits earned net of employee contributions, labelled "employer's normal cost" in table 6, is lower than the employer contributions in 2003-2006. In 2006, for example, it is about $52 billion, compared to cash contributions of $68 billion. The plans' estimates of employer's normal costs are held down by the high rates of interest that they assume (which average about 8 percent) when discounting the future benefit payments. At these rates, the interest on the actuarial liability ($262 billion in 2006) is much greater than the actual investment income ($93 billion in 2006 according to table 5), and even after combining holding gains and investment income, the realized returns on average fall short of the actuarial interest cost. (Average realized gains are $180 billion over 2000-2006, while the average interest cost of the actuarial liability is $219 billion.) As a result of the accumulated interest costs at the assumed rates, the plans' PBO actuarial liability exceeds their assets by $179 billion in 2006.

Switching to an ABO approach and adjusting the interest rate assumptions to 6 percent raises the measure of benefits earned in 2006 from $52 billion to $71 billion (table 7).[8] Thus, the positive effect on the estimate of benefits earned of reducing the interest rate assumption dominates the negative effect of changing to the ABO approach. On the other hand, for total household income and for household wealth, the effect of changing to the ABO approach is greater than the effect of changing the interest rate assumption. Factoring in the reduced interest cost of the plans' accrued liability, overall household income in 2006 falls from $313.6 billion under the PBO approach with an average discount rate near 8 percent to $242.9 billion under the ABO approach with a 6 percent discount rate. On an ABO basis, the plans' funded ratio rises from 92 percent in 2002 to 102.6 percent in 2006, while on a PBO basis their funded ratio is just 84 in 2002, rising to around 95 percent in 2006.

Lenze (2009) also considers the effect of further reducing the interest rate assumption to the risk-free rate on a 20 year Treasury bond. In 2006, this rate is 4.9 percent, which raises the estimate of benefits earned to nearly $80 billion (table 8.) The plans' surplus of assets over the accrued liability of 12.6 percent of payroll in 2006 at the 6 percent rate used in table 7 becomes a deficit of 24.3 percent of payroll, about the same as the 28.7 percent of payroll seen in table 4 under the PBO approach.

8 To change the interest rate assumption, Lenze (2009) uses the formula that the PBGC uses to find the effects of changing the interest rate on plans' termination liability. The PBGC's termination liability formula multiplies the liability for retired participants, by exp(-0.0538(i*-i)), where i* is the desired rate and i is the rate used by the plan. For active and separated participants, the adjustment factor is exp(-0.1502(i*-i)).

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6 FEDERAL GOVERNMENT PENSION PLANS

DB pension plans for Federal government employees have less than one-third the number of active participants as state and local government plans, and about a fifth as many as private DB plans. Nonetheless, these plans have much larger saving than the state and local government plans, and in 2006, they had almost the same employer contributions as the private plans, about $91 billion (table 9.) In other words, under the cash accounting approach, in 2006 DB plan-related compensation for a group of 4 million Federal employees is as large as it is for a group of 20 million private sector employees.

Why might this be? Plan freezes, and high income and holding gains from investments help to reduce required contribution levels in the private sector. Moreover, military plans have very early retirement dates and they, along with the pre-1983 Federal civilian plan, have relatively high benefits because their participants do not receive social security. Yet differences in investment returns and average benefit levels explain only a fraction of the gap in average contributions per active participant. (The Federal net benefits total about $100 billion in 2006, compared to about $150 billion for private benefits.) The other reason is that the Federal plans are deliberately building asset levels in order to make up for past underfunding via employer contributions that exceed the employer's normal cost. Around half of the Federal employer contributions are designated as "catch up" contributions. The Federal plans are therefore an example of the potential for distortions in the timing of measured pension-related compensation under the cash accounting approach.

Despite the rapid growth in Federal plans' assets since the catch up contributions began, in 2007 their assets remained under $1 trillion, far less than their benefit liability of $2.6 trillion (table 10.) Thus, whereas state and local government plans and private sector plans have funding ratios of over 90 percent, the assets of Federal plans amount to only about 40 percent of their actuarial liability. The Federal plans are disadvantaged in this comparison, however, by their assumptions of low rates of interest together with a PBO approach that includes projected inflation in pay and benefits.[9]

Even using their conservative approach to actuarial measurement, the normal cost for Federal plans is only about $40 billion in 2007, less than half the level of benefits accrued or normal cost for the private or the state and local government plans. Even after adding in the interest cost of the accrued benefit liability, the actuarial measure of the household income generated by Federal DB pension plans is much lower than for the private sector or for state and local governments. Thus the cash accounting and accrual accounting approaches give very different pictures of the relative amounts of pension-related compensation that Federal government employees receive.

9 The low rates of interest are a reflection of the fact that these plans invest almost entirely in Treasury securities, which yield low rates of interest. Thus, in a strict sense, the plans are almost entirely unfunded, as Treasury securities are a liability of the employer.

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7 ESTIMATES OF TOTAL HOUSEHOLD INCOME AND WEALTH UNDER THE TWO APPROACHES

Combining the employer contributions and investment income of private, state and local government and Federal plans, the cash accounting measure of DB pension plan income received by US households ranges from 4.5 percent of disposable person income (DPI) in 2001 (a year when contributions had not yet responded to the holding losses of the dot-com stock market crash) to 4.9 percent in 2002-2003 (table 11).The accrual accounting measures of benefits earned and interest accruing on the benefit liability reported by the plans yield much higher estimates of household pension plan income, however. These estimates range from 7.3 percent of DPI in 2006 to 7.6 percent in 2001 and 2002. Adopting the actuarial approach to measure DB pension income would therefore add about 2 percentage points to the estimate of the personal saving rate.

The gap between the actuarial and cash accounting measures of pension-related income is entirely due to the excess of the theoretical interest on the actuarial liability over the investment income that is actually generated by the plan assets – indeed, the actuarial value of benefits earned is lower than the employer contributions. One reason for this is that the private and state and local pension plans rely on expected holding gains to help fund benefits. On the assumption that investment income plus expected holding gains produce a 7 percent return on assets, including expected holding gains on plan assets in the cash accounting measure of investment income would close about two-thirds of the gap between it and the interest on the actuarial liability. The shortfall in investment income also reflects the fact that the plans' assets are smaller than the plans' actuarial liability for benefits by amounts that range between 15 and 25 percent of DPI. Thus, US households appear wealthier and thriftier when their pension plan wealth and saving are measured on an accrual basis.

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Table I Household wealth and income from private defined benefit plans: cash accounting approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Opening balance	2,011.7 [1)]	1,918.4	1,755.0	1,657.6
2	Household income	96.1	106.6	148.9	149.3
3	Employer contributions	32.8	48.6	99.8	100.4
4	Investment income from plan assets	63.3	58.0	49.1	48.9
5	Plan administrative expenses	7.3	7.2	6.9	7.4
6	Net benefits	117.4	123.8	133.7	134.8
7	Household saving (2–5–6)	-28.6	-24.5	8.3	7.1
8	Holding gains/losses on plan assets	-74.1	-139.4	-130.9	277.2
9	Net transfers, and other sources of difference between plans' reported beginning-of-year and end-of-year assets [2)]	-0.5	-0.8	-6.6	-2.1
10	Reported end-of-year assets (1+7+8+9)	1,908.5	1,753.8	1,625.9	1,939.7
11	Other changes in value of assets [3)]	9.9	1.3	31.7	5.0
12	Change in wealth (7+8+9+11)	-93.3	-163.4	-97.4	287.1
Addendum					
13	Active participants (millions)	22.4	22.4	22.2	21.6
14	Total participants (millions)	41.7	42.1	42.9	42.8
15	Employer contributions, National Income and Product Accounts (Table 6.11d, 2008 revision)	34.3	36.0	91.9	100.1
16	Disposable personal income	7,194.0	7,486.8	7,830.1	8,162.5

		2004	2005	2006
1	Opening balance	1,944.7	2,105.8	2,224.9
2	Household income	148.9	149.5	154.5
3	Employer contributions	95.1	92.4	87.9
4	Investment income from plan assets	53.8	57.1	66.6
5	Plan administrative expenses	8.3	8.6	9.4
6	Net benefits	141.1	138.8	149.6
7	Household saving (2–5–6)	-0.5	2.2	-4.5
8	Holding gains/losses on plan assets	167.3	126.5	230.6
9	Net transfers, and other sources of difference between plans' reported beginning-of-year and end-of-year assets [2)]	10.3	-7.0	32.1
10	Reported end-of-year assets (1+7+8+9)	2,121.8	2,227.4	2,483.1
11	Other changes in value of assets [3)]	-16.0	-2.5	N.A.
12	Change in wealth (7+8+9+11)	161.1	119.1	258.2

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Table 1 Household wealth and income from private defined benefit plans: cash accounting approach (cont'd)

(billions of current year dollars)

Addendum				
13	Active participants (millions)	21.0	20.4 [4]	19.9 [5]
14	Total participants (millions)	42.7	42.5	42.2
15	Employer contributions, National Income and Product Accounts (Table 6.11d, 2008 revision)	92.8	89.7	93.3
16	Disposable personal income	8,680.9	9,062.0	9,640.7

1) Totals for 2000, 2001 and 2002 include imputations for missing observations. The reported totals have been adjusted up by 15.7 percent, 9.2 percent, and 5.3 percent in 2000, 2001 and 2002, respectively.
2) Consists of data discrepancies as measured by comparing opening and closing balance sheets reported by the plans to the income and holding gains reported by the plans.
3) Difference between reported assets at year end and the assets that the tax returns for the following year show as present at the beginning of that year, after adjustments for missing tax returns.
4) Includes 0.7 million participants in frozen plans. (Frozen plans cannot be identified before 2005).
5) Includes 0.9 million participants in frozen plans.

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Table 2 Household wealth and income from private defined benefit plans: ABO accrual accounting approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Opening ABO current liability, at interest rates used by plans	1,761.1 [1)]	1,852.2	1,932.8	2,080.7
2	Effect of changing to 6 percent interest rate	12.9	-7.6	21.6	-9.3
3	Opening ABO current liability, at 6 percent rate	1,773.9	1,844.6	1,954.4	2,071.3
4	Benefits accrued (compensation of employees)	66.6	70.5	76.1	75.3
5	Interest cost of current liability, at 6 percent rate	106.4	110.7	117.3	124.3
6	Employee contributions	0.8	0.7	1.1	0.9
7	Household income, ABO approach (4+5–6)	172.3	180.5	192.3	198.7
8	Net benefits paid	117.4	123.8	133.7	134.8
9	Household saving, at 6 percent rate (7–8)	54.8	56.7	58.6	63.9
10	Other factors [2)]	15.8	53.1	58.3	-4.3
11	Change in current liability, at 6 percent rate (9+10)	70.7	109.8	116.9	59.5
12	Effect of changing interest rate assumptions	20.5	-29.2	30.9	-74.0
13	Change in current liability, at rates used by plans (11+12)	91.2	80.6	147.8	-14.5
Addendum					
14	Present value of future benefits payable by the PBGC for terminated single employer plans [3)]	9.4	12.7	21.7	38.9
15	Interest cost of PBGC liability for future benefits of single employer plans [4)]	0.7	0.8	1.1	1.8
16	Household income, actuarial approach, at rates used by plans	173.1	181.2	193.3	199.6
17	Household saving, actuarial approach, at rates used by plans	55.7	57.4	59.6	64.7
18	Assets as percent of current liability, at rates used by plans	114.2	103.6	90.8	79.7
19	Assets as percent of current liability, 6 percent rate	113.4	104.0	89.8	80.0
20	Assets as percent of current liability, excluding plans w. missing values, at rates used by plans	116.3	103.9	92.8	81.4

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Table 2 Household wealth and income from private defined benefit plans: ABO accrual accounting approach (cont'd)

(billions of current year dollars)

		2004	2005	2006
1	Opening ABO current liability, at interest rates used by plans	2,066.2	2,278.7	2,343.5
2	Effect of Changing to 6 percent interest rate	64.7	3.3	-58.9
3	Opening ABO current liability, at 6 percent rate	2,130.9	2,282.0	2,284.6
4	Benefits accrued (compensation of employees)	71.3	75.3	79.3
5	Interest cost of current liability, at 6 percent rate	127.9	136.9	137.1
6	Employee contributions	0.8	1.0	0.9
7	Household income, ABO approach (4+5–6)	198.4	211.3	215.4
8	Net benefits paid	141.1	138.8	149.6
9	Household saving, at 6 percent rate (7–8)	57.3	72.5	65.9
10	Other factors [2)]	93.9	-69.9	N.A.
11	Change in current liability, at 6 percent rate (9+10)	151.1	2.6	N.A.
12	Effect of changing interest rate assumptions	61.4	62.2	N.A.
13	Change in current liability, at rates used by plans (11+12)	212.6	64.8	N.A.
Addendum				
14	Present value of future benefits payable by the PBGC for terminated single employer plans [3)]	43.3	57.3	63.9
15	Interest cost of PBGC liability for future benefits of single employer plans [4)]	1.9	2.6	3.2
16	Household income, actuarial approach, at rates used by plans	199.2	212.3	216.4
17	Household saving, actuarial approach, at rates used by plans	58.1	73.5	66.8
18	Assets as percent of current liability, at rates used by plans	94.1	92.4	94.9
19	Assets as percent of current liability, 6 percent rate	91.3	92.3	97.4
20	Assets as percent of current liability, excluding plans w. missing values, at rates used by plans	96.3	96.4	93.8

1) Totals for 2000, 2001 and 2002 include imputations for missing observations. The reported totals have been adjusted up by 15.7 percent, 9.2 percent, and 5.3 percent in 2000, 2001 and 2002, respectively.
2) Includes effects of experience, changes in assumptions other than the interest rate, and plan amendments.
3) As of end of PBGC fiscal year.
4) Assumes 5 percent interest rate.

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Table 3 Benefit disbursements and entitlements from the pension benefit guarantee corporation

(billions of current year dollars)

		2000	2001	2002	2003	2004
Income or expense						
1	Total benefits and assistance to plans	1.0	1.2	1.9	2.5	3.0
2	Government social benefits, NIPAs	0.9	1.1	1.7	2.3	2.4
3	Investment income from assets	0.9	0.9	1.0	1.0	1.0
4	Interest cost of PBGC liability for future benefits of single employer plans	0.7	0.8	1.1	1.8	1.9
5	Administrative expenses	0.2	0.2	0.2	0.2	0.3
PBGC's benefit liability and assets						
5	Present value of future benefits, trusteed plans	9.4	12.7	21.7	38.9	43.3
6	Including net cost of probable terminations	10.6	13.5	28.6	44.6	60.8
7	Net assets, before benefit liability	20.3	21.2	25.0	33.4	37.5
8	PBGC net position (7–6)	9.7	7.7	-3.6	-11.2	-23.3
9	Total participants receiving benefits (millions)	0.23	0.27	0.34	0.46	0.52
10	Interest rate assumption (for first 20 years)	7.00	6.70	5.70	4.40	4.80

		2005	2006	2007	2008
Income or expense					
1	Total benefits and assistance to plans	3.7	4.2	4.3	4.4
2	Government social benefits, NIPAs	2.6	2.5	2.6	N.A.
3	Investment income from assets	1.4	1.9	2.2	2.3
4	Interest cost of PBGC liability for future benefits of single employer plans	2.6	3.2	3.3	3.4
5	Administrative expenses	0.3	0.3	0.4	0.4
PBGC's benefit liability and assets					
5	Present value of future benefits, trusteed plans	57.3	63.9	65.1	56.6
6	Including net cost of probable terminations	69.7	69.1	69.2	60.0
7	Net assets, before benefit liability	47.0	51.0	56.1	49.3
8	PBGC net position (7–6)	-22.8	-18.1	-13.1	-10.7
9	Total participants receiving benefits (millions)	0.68	0.61	0.63	0.64
10	Interest rate assumption (for first 20 years)	5.20	4.85	5.31	6.60

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Table 4 Railroad retirement taxes and benefits excluding social security equivalent portions

(billions of current year dollars)

	2000	2001	2002	2003
Receipts from payroll taxes [1)]	2.93	2.82	2.74	2.65
Employer portion of payroll taxes	2.25	2.16	2.09	1.97
Investment income and transfers from national RR investment trust	1.30	2.03	1.88	0.59
Benefits	2.96	2.97	3.24	3.50
Net of employee portion of payroll tax	2.28	2.31	2.59	2.82
Railroad retirement account balance	17.03	18.91	18.64	0.50
National RR investment trust balance	0.00	0.00	1.42	23.02
Beneficiaries (millions)	0.76	0.74	0.72	0.70

	2004	2005	2006	2007
Receipts from payroll taxes [1)]	2.61	2.61	2.67	2.64
Employer portion of payroll taxes	1.90	1.93	1.98	1.99
Investment income and transfers from National RR investment trust	1.58	0.82	0.97	1.41
Benefits	3.60	3.68	3.81	4.07
Net of employee portion of payroll tax	2.89	3.00	2.12	3.43
Railroad retirement account balance	0.63	0.59	0.48	0.62
National RR investment trust balance	25.02	27.64	29.33	32.63
Beneficiaries (millions)	0.68	0.66	0.64	0.64

1) In 2007 employer's tax rate for non-social security portion of railroad pension was about 12 percent and the employee's tax rate was about 4 percent.

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Table 5 Household wealth and income from state and local government defined benefit plans: cash accounting approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Household income	122.6	109.5	110.6	128.6
2	Employer contributions	39.5	38.8	42.1	53.1
3	Investment income from plan assets	83.1	70.6	68.5	75.5
4	Plan administrative expenses	6.0	7.5	7.6	7.6
5	Benefits, net of employee contributions	74.7	82.6	91.7	101.1
6	Benefits and withdrawals	100.4	109.6	119.6	130.5
7	Employee contributions	25.7	27.0	27.9	29.4
8	Household saving (1–4–5)	42.0	19.3	11.3	19.8
9	Holding gains/losses on plan assets	61.8	-77.9	-69.6	113.6
10	Net transfers and OCVA	22.0	53.2	47.4	24.7
11	Change in assets (8+9+10)	125.8	-5.3	-10.9	158.1
12	Closing assets	2,163.1	2,157.8	2,146.9	2,305.0
Addendum					
13	Active participants (millions)	13.5	13.8	14.1	14.1
14	Total participants (millions)	22.4	23.2	23.9	24.3
15	Employer contributions,Table 6.11d, National Income and Product Accounts (2008 revision)	39.6	38.8	41.8	56.1
16	Benefits,Table 6.11d, NIPAs	100.3	109.6	120.6	131.9
17	Employee contributions,Table 6.11d, NIPAs	25.8	27.1	28.6	30.1
18	MEMO: Disposable personal income	7,194.0	7,486.8	7,830.1	8,162.5

		2004	2005	2006
1	Household income	141.0	147.8	161.2
2	Employer contributions	59.8	60.9	67.8
3	Investment income from plan assets	81.3	86.9	93.4
4	Plan administrative expenses	9.0	10.0	12.5
5	Benefits, net of employee contributions	109.3	117.4	127.5
6	Benefits and withdrawals	140.1	149.0	160.5
7	Employee contributions	30.8	31.6	33.0
8	Household saving (1–4–5)	22.7	20.4	21.2
9	Holding gains/losses on plan assets	201.8	187.7	288.0
10	Net transfers and OCVA	29.2	-9.9	50.7
11	Change in assets (8+9+10)	253.8	198.2	359.9
12	Closing assets	2,558.8	2,757.0	3,116.9
Addendum				
13	Active participants (millions)	14.1	14.2	14.4
14	Total participants (millions)	24.8	25.4	26.1
15	Employer contributions,Table 6.11d, National Income and Product Accounts (2008 revision)	55.4	61.9	65.3
16	Benefits,Table 6.11d, NIPAs	140.6	149.7	161.6
17	Employee contributions,Table 6.11d, NIPAs	31.1	32.3	34.0
18	MEMO: Disposable personal income	8,680.9	9,062.0	9,640.7

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Table 6 Household wealth and income from state and local government defined benefit plans: PBO approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Employer's normal cost for benefits (net of administrative expense)	41.0	43.9	46.1	46.9
2	Imputed interest on actuarial liability	178.3	192.3	205.7	218.3
3	Actuarial income of households (1+2)	219.3	236.2	251.8	265.2
4	Benefits net of employee contributions	74.7	82.6	91.7	101.1
5	Actuarial saving of households (3–4)	144.6	153.6	160.1	164.1
6	Actuarial liability of plans	2,218.1	2,393.3	2,560.7	2,730.6
7	Assets of plans (market value)	2,163.1	2,157.8	2,146.9	2,305.0
8	Unfunded actuarial liability	55.0	235.5	413.8	425.6
9	Funded ratio (percent)	97.5	90.2	83.8	84.4
Addendum					
10	Covered payroll	493.6	521.6	542.7	556.9
11	Unfunded actuarial liability as a percent of payroll	11.1	45.2	76.3	76.4
12	Employer's normal cost per active participant (dollars)	3,034	3171	3,276	3,334
13	Employer's normal cost as a percent of payroll	8.3	8.4	8.5	8.4
14	Investment rate of return assumption (percent)	8.04	8.04	8.03	7.99

		2004	2005	2006
1	Employer's normal cost for benefits (net of administrative expense)	47.4	49.0	51.7
2	Imputed interest on actuarial liability	231.2	245.7	261.9
3	Actuarial income of households (1+2)	278.6	294.7	313.6
4	Benefits net of employee contributions	109.3	117.4	127.5
5	Actuarial saving of households (3–4)	169.2	177.3	186.2
6	Actuarial liability of plans	2,902.4	3,088.3	3,296.3
7	Assets of plans (market value)	2,558.8	2,757.0	3,116.9
8	Unfunded actuarial liability	343.6	331.2	179.3
9	Funded ratio (percent)	88.2	89.3	94.6
Addendum				
10	Covered payroll	573.3	596.0	625.7
11	Unfunded actuarial liability as a percent of payroll	59.9	55.6	28.7
12	Employer's normal cost per active participant (dollars)	3,362	3,440	3,582
13	Employer's normal cost as a percent of payroll	8.3	8.2	8.3
14	Investment rate of return assumption (percent)	7.96	7.95	7.95

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Table 7 Household wealth and income from state and local government defined benefit plans: ABO approach with interest rate of 6 percent

(billions of current year dollars)

		2000	2001	2002	2003
1	Benefit accruals (net of employee contributions and administrative expenses)	58.3	62.3	64.9	65.7
2	Imputed interest on accrued liability	120.5	130.6	140.1	149.7
3	Accrued income of households (1+2)	174.2	187.0	199.1	209.5
4	Benefits net of employee contributions	74.7	82.6	91.7	101.1
5	Equals: Accrued saving in DB pension plans	99.6	104.4	107.4	108.3
6	Accrued liability	2,008.3	2,177.1	2,335.0	2,495.0
7	Assets (market value)	2,163.1	2,157.8	2,146.9	2,305.0
8	Unfunded actuarial liability	-154.8	19.3	188.0	190.0
9	Funded ratio (%)	107.7	99.1	92.0	92.4
Addendum					
10	Covered payroll	493.6	521.6	542.7	556.9
11	Unfunded actuarial liability as a percentage of payroll	-31.4	3.7	34.7	34.1
12	Benefit accruals per active participant (dollars)	4,313	4,500	4,615	4,665
13	Benefit accruals as a percent of payroll	11.8	11.9	12.0	11.8

		2005	2006	2007
1	Benefit accruals (net of employee contributions and administrative expenses)	65.8	67.6	71.2
2	Imputed interest on accrued liability	159.6	170.8	182.3
3	Accrued income of households (1+2)	218.1	230.3	242.9
4	Benefits net of employee contributions	109.3	117.4	127.5
5	Equals: Accrued saving in DB pension plans	108.8	112.8	115.4
6	Accrued liability	2,660.1	2,846.8	3,038.1
7	Assets (market value)	2,558.8	2,757.0	3,116.9
8	Unfunded actuarial liability	101.3	89.8	-78.8
9	Funded ratio (%)	96.2	96.9	102.6
Addendum				
10	Covered payroll	573.3	596.0	625.7
11	Unfunded actuarial liability as a percentage of payroll	17.7	15.1	-12.6
12	Benefit accruals per active participant (dollars)	4,664	4,743	4,928
13	Benefit accruals as a percent of payroll	11.5	11.3	11.4

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Table 8 Household wealth and income from state and local government defined benefit plans: ABO approach with 20 year treasury bond interest rate

(billions of current year dollars)

		2000	2001	2002	2003
1	Benefit accruals (net of employee contributions and administrative expenses)	58.8	64.9	74.8	76.3
2	Imputed interest on accrued liability	112.8	130.0	126.0	138.3
4	Accrued income of households (1+2)	167.0	189.0	194.9	208.7
5	Benefits net of employee contributions	74.7	82.6	91.7	101.1
6	Household saving in DB pension plans	92.4	106.4	103.2	107.5
7	Accrued liability	2,021.9	2,238.2	2,567.1	2,749.1
8	Assets (market value)	2,163.1	2,157.8	2,146.9	2,305.0
9	Unfunded actuarial liability	-141.3	80.4	420.1	444.0
10	Funded ratio (%)	107.0	96.4	83.6	83.9
Addendum					
11	Covered payroll	493.6	521.6	542.7	556.9
12	Unfunded actuarial liability as a percent of payroll	-28.6	15.4	77.4	79.7
13	Benefit accruals per active member (dollars)	4,348.0	4,687.0	5,320.0	5,420.0
14	Benefit accruals as a percent of payroll	11.9	12.4	13.8	13.7
15	Investment rate of return assumption (%)	5.6	5.8	4.9	5.0

		2004	2005	2006
1	Benefit accruals (net of employee contributions and administrative expenses)	77.2	79.9	79.7
2	Imputed interest on accrued liability	145.2	146.0	159.5
4	Accrued income of households (1+2)	215.1	217.8	228.6
5	Benefits net of employee contributions	109.3	117.4	127.5
6	Household saving in DB pension plans	105.9	100.3	101.2
7	Accrued liability	2,951.7	3,173.8	3,269.1
8	Assets (market value)	2,558.8	2,757.0	3,116.9
9	Unfunded actuarial liability	392.9	416.8	152.2
10	Funded ratio (%)	86.7	86.9	95.3
Addendum				
11	Covered payroll	573.3	596.0	625.7
12	Unfunded actuarial liability as a percent of payroll	68.5	69.9	24.3
13	Benefit accruals per active member (dollars)	5,475.0	5,607.0	5,518.0
14	Benefit accruals as a percent of payroll	13.5	13.4	12.7
15	Investment rate of return assumption (%)	4.9	4.6	4.9

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Table 9 Household income and wealth from federal government defined benefit plans: cash accounting approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Household income	114.6	117.8	121.4	118.6
2	Employer contributions	66.6	68.6	72.2	70.4
3	Investment income from plan assets	48.1	49.2	49.1	48.2
4	Plan administrative expenses	0.1	0.1	0.1	0.1
5	Benefits, net of employee contributions	75.2	78.9	81.3	83.1
6	Benefits and withdrawals	79.9	83.6	85.9	87.8
7	Employee contributions	4.8	4.7	4.6	4.6
8	Household saving (1–5–6)	39.3	38.8	40.0	35.3
Addendum					
9	Assets, end of calendar year	691.4	751.0	789.0	826.2
10	Active participants (millions)	4.1	4.1	4.1	4.1
11	Total participants (millions)	8.6	8.6	8.7	8.7

		2004	2005	2006	2007
1	Household income	128.3	134.7	139.1	147.4
2	Employer contributions	81.3	85.1	91.2	98.0
3	Investment income from plan assets	47.0	49.6	47.9	49.4
4	Plan administrative expenses	0.1	0.1	0.1	0.1
5	Benefits, net of employee contributions	87.2	92.4	98.3	104.1
6	Benefits and withdrawals	91.8	96.8	102.7	108.3
7	Employee contributions	4.6	4.5	4.4	4.2
8	Household saving (1–5–6)	41.0	42.2	40.9	43.2
Addendum					
9	Assets, end of calendar year	868.2	895.4	931.9	965.6
10	Active participants (millions)	4.2	4.1	4.1	4.1
11	Total participants (millions)	8.7	8.7	8.7	8.7

Note: Change in assets differs from saving because assets are measured at the end of the calendar year, while saving is measured for fiscal years that end in September.

Para verificar as assinaturas, acesse www.tcu.gov.br/autenticidade, informando o código 57399319.

Table 10 Household wealth and income from federal government defined benefit plans: PBO approach

(billions of current year dollars)

		2000	2001	2002	2003	2004
1	Normal cost for benefits, net of employee contributions	29.3	33.0	37.1	33.9	33.7
2	Imputed interest on actuarial liability	113.3	116.7	116.9	114.8	118.4
3	Actuarial income of households (1+2)	142.6	149.7	154.0	148.7	152.1
4	Benefits, net of employee contributions	75.2	78.9	81.3	83.1	87.2
5	Actuarial saving of households (3–4)	67.5	70.8	72.7	65.5	64.9
6	Actuarial liability of plans	1,762.3	1,821.2	1,859.8	1,929.4	2,067.9
7	Assets of plans (end of calendar year)	691.4	751.0	789.0	826.2	868.2
8	Unfunded actuarial liability	1,070.9	1,070.2	1,070.8	1,103.2	1,199.7
9	Funded ratio (%)	39.2	41.2	42.4	42.8	42.0
10	Average normal cost per active employee	8,352	9,231	10,201	9,322	9,229
11	Normal cost as percent of NIPA total compensation	14.6	15.5	15.5	12.9	11.8
12	Actuarial saving less cash accounting saving	28.1	32.0	32.7	30.2	23.9
Assumptions for actuarial estimates: civilian plans						
13	Interest rate	7.00	6.75	6.75	6.25	6.25
14	Inflation rate	4.00	3.75	3.75	3.25	3.25
15	Projected salary increase rate	4.25	4.25	4.25	4.00	4.00
Assumptions for actuarial estimates: military plans						
16	Interest rate	6.25	6.25	6.25	6.25	6.25
17	Inflation rate	3.00	3.50	3.00	3.00	3.00
18	Projected salary increase rate	3.50	3.50	3.50	3.75	3.75

		2005	2006	2007	2008
1	Normal cost for benefits, net of employee contributions	37.1	38.0	40.9	42.0
2	Imputed interest on actuarial liability	126.9	133.0	139.6	145.6
3	Actuarial income of households (1+2)	164.0	171.0	180.5	187.6
4	Benefits, net of employee contributions	92.4	98.3	104.1	109.0
5	Actuarial saving of households (3–4)	71.7	72.7	76.4	78.6
6	Actuarial liability of plans	2,169.2	2,316.1	2,415.1	2,608.9
7	Assets of plans (end of calendar year)	895.4	931.9	965.6	1,029.7
8	Unfunded actuarial liability	1,273.8	1,384.2	1,449.5	1,579.2
9	Funded ratio (%)	41.3	40.2	40.0	39.5
10	Average normal cost per active employee	10,100	10,324	11,043	11,074
11	Normal cost as percent of NIPA total compensation	12.1	11.8	11.9	11.4
12	Actuarial saving less cash accounting saving	29.4	32.1	33.2	N.A.
Assumptions for actuarial estimates: civilian plans					
13	Interest rate	6.25	6.25	6.25	6.25
14	Inflation rate	3.25	3.50	3.50	3.50
15	Projected salary increase rate	4.00	4.25	4.25	4.25
Assumptions for actuarial estimates: military plans					
16	Interest rate	6.25	6.00	6.00	5.75
17	Inflation rate	3.00	3.00	3.00	3.00
18	Projected salary increase rate	3.75	3.75	3.75	3.75

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Table 11 Comparison of cash accounting and actuarial measures of pension income and wealth of US households

(percents of disposable personal income)

		2000	2001	2002	2003
1	Household income, cash accounting approach	4.6	4.5	4.9	4.9
2	Household income, actuarial approach	7.4	7.6	7.6	7.5
3	Compensation, cash accounting approach	1.9	2.1	2.7	2.7
4	Compensation, actuarial approach	1.9	2.0	2.0	1.9
5	Interest & dividend income, cash accounting	2.7	2.4	2.1	2.1
6	Interest income, actuarial approach	5.5	5.6	5.6	5.6
7	Household saving, cash accounting approach	0.7	0.4	0.8	0.8
8	Household saving, actuarial approach	2.7	2.8	2.8	2.8
9	Household pension wealth, cash accounting	66.2	62.3	58.3	62.1
10	Household pension wealth, actuarial approach	81.4	82.5	83.6	83.2

		2004	2005	2006
1	Household income, cash accounting approach	4.8	4.8	4.7
2	Household income, actuarial approach	7.2	7.4	7.3
3	Compensation, cash accounting approach	2.7	2.6	2.6
4	Compensation, actuarial approach	1.8	1.8	1.8
5	Interest & dividend income, cash accounting	2.1	2.1	2.2
6	Interest income, actuarial approach	5.5	5.6	5.5
7	Household saving, cash accounting approach	0.7	0.7	0.6
8	Household saving, actuarial approach	2.7	2.9	2.8
9	Household pension wealth, cash accounting	63.9	64.9	67.8
10	Household pension wealth, actuarial approach	84.3	84.8	83.5

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APPENDIX

An Illustration of the ABO Approach, the Projected Unit Credit Method and the Entry Age Normal Method

A simple hypothetical pension plan illustrates some of the differences between three possible ways of calculating pension benefit liabilities. These are the accrued benefit obligation (ABO) approach, and the projected unit credit (PUC) method, which is often labeled the projected benefit obligation (PBO) approach in corporate financial reports, and the constant percent of pay version of the entry age normal (EAN) method (which is also sometimes called a PBO approach).

Participants in the pension plan work for 3 years, retire in the 4th year, and die in the 5th year. Their salary grows 5 percent per period from a starting level of $25,000. Vesting is immediate, there are no breaks in service, and there is no early retirement. The accrued retirement benefit equals 10 percent of salary times the number of periods worked times final salary. The interest rate is 15 percent.

Table A follows a single participant through the career and retirement. It shows that the PUC and EAN measures of the future benefit liability are higher than the ABO liability except at retirement, when all measures are equal. The PUC and EAN service cost measures are higher than the ABO one at first, but are much lower in the last year of the career. As a result, based on averages over the entire career, the largest measure of service cost is the ABO one.

Table I Illustration of different approaches to measuring benefit liability and service cost for a single employee

	Assumptions			Liability for future benefits		
Age	Salary	Benefits paid	Accrued benefits	ABO	Projected unit credit	Entry age normal
1	25,000	0	0	0	0	…
2	26,250	0	2,500	1,890	2,084	2,276
3	27,563	0	5,250	4,565	4,793	5,008
4	0	8,269	8,269	8,269	8,269	8,269
5	0	0	0	0	0	0

Service cost			Service cost as a percentage of salary		
ABO	Projected unit credit	Entry age normal	ABO	Projected unit credit	Entry age normal
1,644	1,812	1,979	6.58	7.25	7.92
2,079	2,084	2,078	7.92	7.94	7.92
2,625	2,397	2,182	9.52	8.70	7.92
0	0	0	N.A.	N.A.	N.A.
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

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Table B follows a plan that starts with 10 newly hired participants, and adds 10 new hires in each of the next two years. Hiring then ceases. As the workforce ages, the ABO measure of service cost rises faster than the PUC measure. The EAN measure using the level percent of pay version of the entry age normal method does not rise at all. If the distribution of ages in the workforce is uniform, the ABO measure of service cost is higher than the PUC and EAN ones, so on the whole the ABO approach tends to attribute the growth of pension wealth more to compensation in the form of imputed contributions (and the other methods tend to it attribute it more to property income in the form of imputed interest earned on the plan's benefit liability).

Table 2 Illustration of different approaches to measuring benefit liability and service cost for the plan from inception to termination

(dollar amounts in thousands)

	Assumptions			Future benefit liability		
Year	Payroll	Benefits paid	Accrued benefits	ABO	Projected unit credit	Entry age normal
1	250	0	0	0	0	…
2	513	0	25	18.9	20.8	22.8
3	788	0	78	64.6	68.8	72.8
4	788	83	160	147.2	151.5	155.5
5	788	83	160	147.2	151.5	155.5
6	538	83	160	147.2	151.5	155.5
7	276	83	135	128.3	130.6	132.8
8	0	83	83	82.7	82.7	82.7

Service cost			Service costs as a percentage of payroll			No. of participants	
ABO	Projected unit credit	Entry age normal	ABO	Projected unit credit	Entry age normal	Active	Retired
16.4	18.1	19.8	6.6	7.3	7.9	10	0
37.2	39.0	40.6	7.3	7.6	7.9	20	0
63.5	62.9	62.4	8.1	8.0	7.9	30	0
63.5	62.9	62.4	8.1	8.0	7.9	30	10
63.5	62.9	62.4	8.1	8.0	7.9	30	10
47.0	44.8	42.6	8.7	8.3	7.9	20	10
26.3	24.0	21.8	9.5	8.7	7.9	10	10
0	0	0	N.A.	N.A.	N.A.	0	10

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GENERAL GOVERNMENT PENSION LIABILITIES IN POLAND

BY JANUSZ JABLONOWSKI [1]

I STRUCTURE AND MAIN FEATURES OF THE PENSION SYSTEM IN POLAND:

A SOCIAL INSURANCE FUND – FUS

The standard retirement age for women is 60, and for men 65. There is a possibility to retire earlier, at age 55 and 60 respectively, when certain conditions are met.

During the pension reform from 1999, an individual notional account was created for each member born after 1969, and also for those members who have decided to enter to the new system, and were born between 1949 and 1969. For the latter group the virtual amount of contributions were assigned to the account to reflect the up-to-date amount of collected contributions. Persons born before 1949 stayed in the old PAYG system, where the pension depends on 10 years of all contributory periods chosen by the scheme member.

In the new system pension entitlement is based on total amount of indexed notional contributions collected on members' individual accounts. There is no minimum insurance period that is required to receive the old-age pension. **The amount of pension is calculated just before the retirement by dividing the total amount of indexed contributions, collected during contributory period on individual account, by life expectancy expressed in months, published by the National Statistical Institute.** In addition to this part paid from "new" FUS, the other one, coming from funded mandatory pension schemes (so called OFE) is added. The first, very few payments of the new pensions, consisting of both above mentioned parts starts in 2009.

Life expectancy tables are unified for both genders – so there are no separate life expectancy tables for women and men.

Pension entitlements are indexed on basis of CPI plus 20% of real increase in salaries on annual basis.

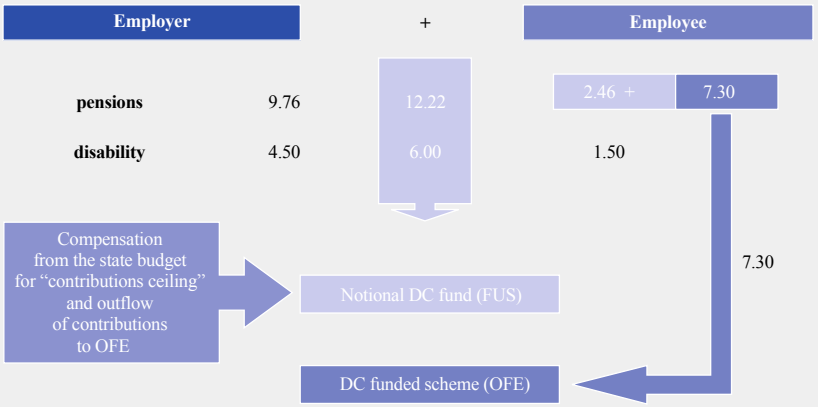
There is a ceiling for maximum amount of annual contributions – once the amount of gross income (which is the basis for calculation of the contributions) reaches the amount equal to 30 times average annual salary in the economy (or 250% of monthly average salary), the contributions are not collected until the end of the year. This "ceiling" mechanism was to promote other forms of private pension schemes.

1 Narodowy Bank Polski.

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Chart I Flows of pension and disability contributions in FUS

(percentages up to date for 2009)



Source:

The FUS is an unfunded system – there are almost no assets, but only small annual book reserves for uncollected amounts of contributions.

To prevent possible future liquidity constraints in FUS pension payments, resulting from unexpected losses, a buffer fund (Demographic Reserve Fund) was created. Up to now its assets are not very significant, since they amounted to PLN 3,5bln in 2007, which stands for less than 5% of the annual FUS pension expenditures.

In case of default of the FUS, the state budget guarantees the payment of social benefits.

Additionally, to cover the losses resulting from the outflow of part of contribution to the open pension funds the state budget supports FUS with significant transfers.

In Polish pension system there are no separate rules for civil servants.

B PENSION AND DISABILITY FUND – FER (FARMERS)

The standard retirement age is the same as in the FUS system: women retire at age of 60, men retire at age of 65, with possibility to retire earlier, at age of 55 and 60 respectively.

Pensions depend on the length of contributory period, independently from amounts of collected contributions.

Contributions are much lower than in the FUS system, and are paid quarterly, calculated as 30% of basic pension for farmers (equivalent of around 30€/q).

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This is an unfunded defined benefit scheme, where the amount of pension depends on the sum of contributory and non-contributory periods.

Low amounts of contributions are sufficient to cover only 8% of FER pension and disability expenditures. The remaining 92% of expenditures are paid from state budget transfers.

C STATE BUDGET PENSIONS

Benefits paid from the state budget.

Two groups of beneficiaries:
- Judges and prosecutors,
- Professional soldiers, police, officers of Government Protection Bureau, Internal Security Agency, Intelligence Agency, Central Anti-corruption Bureau, Polish Border Guard, custom duties services, prison services, firemen.

No pension & disability contributions.

Pension amount reflects the final salary (e.g. last 3 soldier's pays before the retirement) – usually they are higher than average pensions from the FUS.

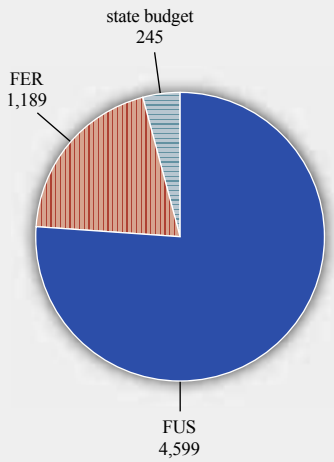
Pension can not exceed 75% of the last salary.

Possible retirement with pension limited to 40% of the last salary, but already after 15 years of duty, regardless of age (e.g. possible 38 year old pensioners!).

Pension entitlements indexed on common basis of CPI plus 20% of real increase in salaries.

Chart 2 Average monthly number of pensioners in general government schemes

(2007; in thousands)



Source:

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D PRIVATE PENSIONS SCHEMES

Mandatory funded pension schemes (OFE)

Employee pension programmes (PPE) created by individual employers:
- Employee pension fund,
- Agreement on contributing employee contributions to an investment fund by the employer,
- Group investment employee life insurance agreement conducted with an insurance company in the term of a group life insurance linked to capital investment funds.

Individual Pension Accounts (IKE) provided by banks, insurance companies, investment funds societies and brokerage businesses.

2 THE MODELING ISSUES

A UP-TO-DATE EXPERIENCES

PROST: the ECB offered the NBP a training course in 2007 on PROST, a model developed by the World Bank, which simulates the effect of the pension reform. Results obtained with use of that model were very difficult to interpret because after modeling of the reform from 1999 it was uneasy to adjust the model parameters in such a way, that the projected data suited the actual data between 1999 and 2007. Due to large number of errors in outcomes the model is not in use anymore.

Freiburg model: actually the only model which was capable to project more predictable levels of pension liabilities for Poland. The initial results obtained in 2007 were promising, though too volatile. Further fine-tuning of assumptions and additional data were required to achieve more stable outcomes.

B CURRENT DEVELOPMENTS

In the 2008 update of pension liabilities calculations only the Freiburg model was used for Poland. Because the simulations of very long term forecasts of pension liabilities, covering around 50 years in the future were prepared for the very first time for Poland in 2007, there was still high degree of uncertainty if currently available data and modeling solutions were matching all necessary components, which properly reflected the economic reality of the Polish pension system. The only reliable model, which could serve as a benchmark for the Freiburg model, the AWG model from ZUS,[2] could not be adjusted to project the methodologically similar outcomes. Therefore, after two years of efforts there were still unanswered questions: 1) whether the pension liabilities projected by the Freiburg model were reliable and, 2) whether to build own, country specific and expensive model to simulate the up-to-date liabilities of the pension system or rely on existing general model of Freiburg University? In 2009 the idea

2 Social Insurance Institution – a central government independent body that manages FUS, part of social security funds subsector in ESA95.

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arose to adjust the Freiburg model to adapt its output to pension expenditures prepared by the AWG in the 2009 Ageing Report.[3] The table below sums up the differences and similarities between two types of simulations:

Table I Comparison between AWG model and Freiburg model

	Freiburg	AWG
Type of the system covered	Closed (no entrance for new workers)	Open (entrance for new workers allowed)
Outcome	Accrued-to-date liabilities	Revenues and expenditures
Coverage of the systems	General government	General government
Coverage of types of benefits	Gross pension benefits, early retirement, disability, survivors	Gross pension benefits, early retirement, disability, survivors
Wage growth	Fixed (real) 1,5%	Varying (real)
Demographics	EUROPOP	EUROPOP
Time horizon	2007 – Infinity (?)	2007-2060
Currency	Euro/National	Euro

Source: European Commission for each MS.

As it can be seen in the table above, there are few, but important, differences between these two types of simulations:

1. Type of the system covered:
   – AWG: for each next year of the forecast (t+1, t+2, … , t+n) allows the entrance of new workers, who are for the first time starting their carriers, to increase the total number of employees in the model, which can be called "open" system.
   – Freiburg model: as in other similar types of calculations of the up-to-date liabilities, the number of employees/contributors is fixed and the system is "closed" for the entrance of the new ones.

2. The outcomes of projections:
   – AWG: pension systems expenditures, prepared with use of many country specific models, individually by each MS.
   – Freiburg model: accrued-to-date liabilities, either ABO or PBO[4], one model with country specific adjustments.

3. Wage growth:
   – AWG: different, individual rates for each MS. For EU27 the growth for whole period of the projection was stable and close to 1.7% in real terms.

3 http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf
4 ABO = Accrued Benefit Obligation; PBO = Projected Benefit Obligation or Projected Unit Credit Method

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The growth rate for Poland was much higher especially until 2030, which can be followed on Chart 4.

– Freiburg model: for all countries participating in the "benchmark" exercise supervised by the ECB/Eurostat, the flat 1.5% growth rate in real terms was used for better comparability between countries.

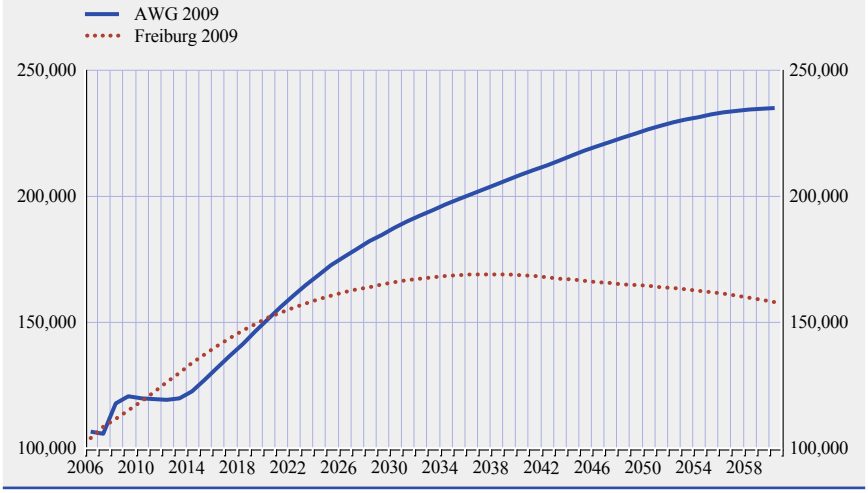
For Poland the pension expenditure projections for FUS presented in 2009 Ageing Report, were prepared with use of the country specific model developed in the Social Insurance Office (ZUS). For the practical reasons, and during current stage of analyses, it was possible only to adjust the outcome of the Freiburg model to AWG–related model, in practice to obtain open system expenditures with use of the Freiburg model, rather than accrued-to-date liabilities with use of ZUS model, which would probably require very deep and time-consuming reconstruction of the ZUS model.

C OUTCOMES OF THE EXERCISE

On the Chart 3 there are two curves presenting diverging open system expenditures of FUS in the time horizon until 2060.

When analyzing the 3 major differences between two models listed above, one can easily spot that two first have been made consistent, but there's a remaining difference in terms of wage growth assumptions. The chart below presents difference between Freiburg model flat 1,5% real growth rate and varying across AWG projection real wage growth rate for Poland.

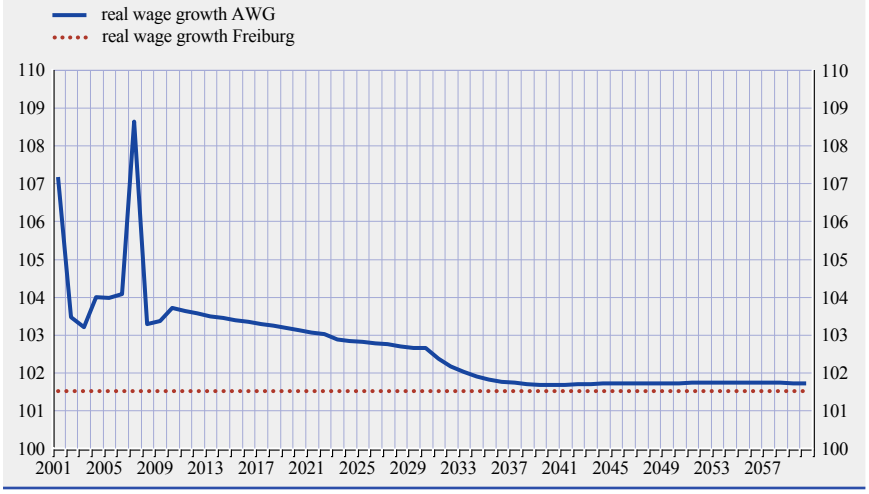
Chart 3 Open system expenditures with different wage growth rate assumptions, PLN mln



Source:

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Chart 4 Comparison between Freiburg model and AWG wage growth assumptions for Poland

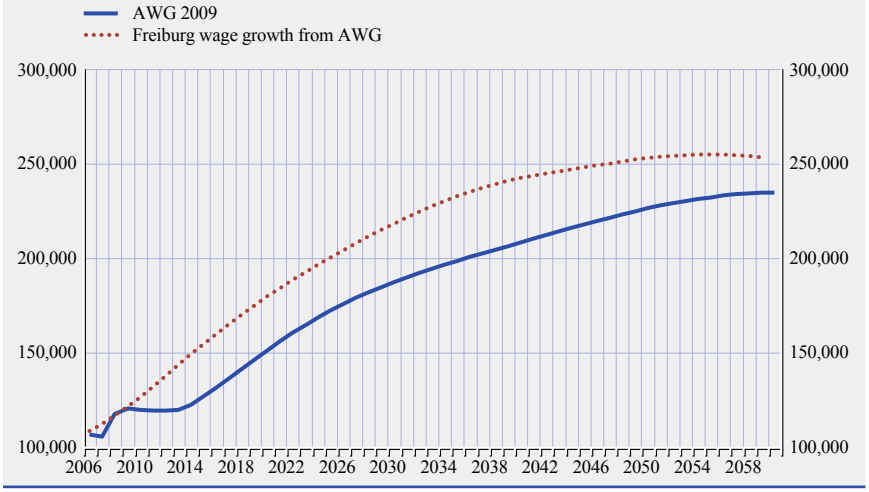


Source:

After replacing the flat 1,5% rate model used in the Freiburg model with the one used in the AWG projections (Chart 4), the convergence between open system expenditures projected by two models became more apparent, as it can be seen on the Chart 5:

Chart 5 Open system expenditures with the unified wage growth rate assumptions

(PLN million)



Source:

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3 CONCLUSIONS

The sharp rise in open system expenditures observed between Chart 3 and 5, resulting in significant increase in pension entitlements, was the effect of simple replacement of the wage growth rates. When comparing wage growth rate curves from Chart 4 a following conclusion can be suggested: significant and quick accumulation of pension contributions in the first 2 decades of the projection, coming from fast growing wages (despite contributions' ceiling), caused significant increase in pension entitlements starting from 2nd decade until the end of projection. That might mean the significant sensitivity of the pension entitlements forecasts on wage growth progress in countries, which experience fast economic development, and are converging slowly towards EU27 average 1,7% wage growth rate assumed in 2009 Ageing Report.

After obtaining more consistent paths of open system expenditures, the checking of levels of pension liabilities of the closed system with new, higher wage growth assumptions followed. With 1,5% real wage growth the level of pension liabilities measured with a PBO method and 3,0% real discount rate amounted to 330% of GDP in 2007. After switching to varying wage growth used in AWG projections the level of pension liabilities in 2007 increased to 382% of GDP.

To check the plausibility of the projection the additional switch was proposed: having open pension system expenditures from AWG, it is possible, though not maybe in all cases, to close the system for entrance of newcomers and let survive the existing cohorts, then calculate the annual stocks on the basis of projected flows (i.e. closed system expenditures), and then discount the stocks with the given discount rate to obtain present value of expected payments. So far, the project has not started yet.

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PENSION ENTITLEMENTS OF CIVIL SERVANTS IN GERMANY – LEVEL AND THEIR CHANGE OVER TIME

BY ALBERT BRAAKMANN, JENS GRÜTZ AND THORSTEN HAUG,[1]

1 INTRODUCTION

Foreseeable demographic changes in the future put the issue of old-age insurance in the spotlight of public interest. At the European level as well, sustainability is an important matter. Particularly since the Stability and Growth Pact came into effect, the development of the deficit and debt of general government are attentively observed. In response to the growing information requirements, concepts for a new, comparable and more comprehensive presentation of old-age insurance in National Accounts are being developed. This paper presents first results for the pension entitlements of Federal civil servants in Germany.

2 PENSION ENTITLEMENTS AND THEIR INFLUENCE ON LABOUR COSTS

To allow for international comparisons, the amount of pension entitlements is often put into relation to the gross domestic product (GDP). The question if a single value, like pension entitlements as share of GDP, can be interpreted as an indicator for a sustainable development is not paramount here. This article rather focuses on the development of labour costs and how the level of labour costs is influenced through the method of calculation of the pension entitlements and its underlying parameters. The calculation method will only be described as extensive as necessary for the understanding. A detailed description of the methods can be found in our publications on the pension entitlements of the statutory pension insurance[2] and on those of the civil servants.[3] The calculation of pension entitlements is a new field of activity for national accountants in Germany. All results are preliminary and are based on the 2005 pension report of the Federal Government.[4] The data basis used for the report (and

1 Federal Statistical Office, Wiesbaden (Germany). The views expressed in this paper are the views of the authors and do not necessarily reflect the views of the Federal Statistical Office.

2 cf. Albert Braakmann, Jens Grütz, Thorsten Haug: Das Renten- und Pensionsvermögen in den Volkswirt-schaftlichen Gesamtrechnungen. Methodik und erste Ergebnisse. Wirtschaft und Statistik 12/2007, Wiesbaden.

3 cf. Albert Braakmann, Jens Grütz, Thorsten Haug: Civil servant pensions in National Accounts. Methodology and preliminary results. Paper prepared for the 30th General Conference of the International Association for Research in Income and Wealth. Portoroz, Slovenia, 2008.

4 Dritter Versorgungsbericht der Bundesregierung, Berlin 25.05.2005; http://www.bpb.de/files/OSOGI5.pdf

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our calculations) is the statistics of active civil servants and pensioners for 2003. Mortality rates are derived from the pension report. All calculations have been carried out using the Projected Benefit Obligation (PBO) Method. Future (universal) pay rises and expected promotions are incorporated into the calculations under this method. Promotions are simulated based on current data. The level of pay rises is consistent with the assumptions of the Federal Government in the reports of the statutory pension insurance[5] of the respective years. The discount rate of the base calculations equals the return of Federal bonds with a duration of 15 years.

3 RECORDING OF PENSION ENTITLEMENTS IN THE REVISED SNA

The newly introduced supplementary table on pension schemes in the SNA 2008 addresses an important purpose. It provides comparable information on pension entitlements for all systems of old-age insurance in a comprehensible form. Problems like the transfer of pension entitlements from systems booked within the core system to systems outside of the core systems do not occur. Furthermore the structure of the supplementary table presents the transition from the opening balance to the closing balance through inclusion of social contributions, social benefits, revaluations and other changes in volume.

The entitlements of the civil servants (including soldiers) in Germany amount to 950.63 billions EUR[6] at the end of 2003, equal to 44 per cent of GDP. The following simulations are restricted to include Federal civil servants for ease of calculation. The pension entitlements of this group of civil servants totals to 57.62 billions € at the 1st of January 2003. With the acquisition of entitlements through another year of service and capital income (household social contribution supplements) the pension entitlements grew, whereas pension benefits paid and revaluations reduced the pension entitlements (revaluations were negative due to a slight increase in the discount rate, and decrease in wage expectations). At the end of 2003 the pension entitlements reached a level of 58.90 billions €, which is a net increase of 1.28 billions €, or 2.2%.

The change in pension entitlements[7] corresponds to the development of labour costs and therefore equals employer social contributions.[8] If this figure is set in relation to the salaries and wages paid, an implicit contribution rate can be calculated for the civil servants pension scheme. Table 1 shows an increase in pension entitlements

5 [Rentenversicherungsbericht 2003]: „Bericht der Bundesregierung über die gesetzliche Rentenversicherung, insbesondere über die Entwicklung der Einnahmen und Ausgaben, der Schwankungsreserve sowie des jeweils erforderlichen Beitragssatzes in den künftigen 15 Kalenderjahren gemäß §154 SGB VI (Rentenversicherungs-bericht 2003)“, Bundestagsdrucksache 15/2144, 04.12.2003.

6 Not including the entitlements of the few civil servants in the so called indirect government service (mainly social insurance carriers).

7 In the context of occupational pension schemes the term used is ‘current service cost’. This economically significant factor, that represents the increase in claims for another year of service, is determined as a residual in our calculations.

8 If the employees provide own contributions, those have to be deducted from employers social contributions.

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Table 1	Supplementary table 2003 for federal civil servants (excluding soldiers)	
(EUR millions)		
1	Pension entitlements 01/01/2003	57,621
2.1-2.3	+ Increase in pension entitlements due to social contributions	1,345
2.4	+ Household social contributions supplements	2,881
4	- Reduction in pension entitlements due to payment of pensions	-2,025
7-9	+/- Revaluations	-926
10	Pension entitlements 31/12/2003	58,896

for civil servants of 1.35 bn in 2003. If related to paid remuneration, the implicit contribution rate can be determined to be at a level of 33.9%.

For comparison: for public service employees, who are no civil servants, old-age insurance contributions of 19.5% for the statutory pension insurance and 8.45% for the supplementary old-age insurance for government employees have been set aside. In total, contribution payments amount to just fewer than 28%, up to the assessment ceiling. Under the conditions of the model framework, expenditures for public service employees are somewhat lower than those for civil servants.[9]

4 THE INFLUENCE OF MODEL ASSUMPTIONS ON THE LEVEL OF PENSION ENTITLEMENTS

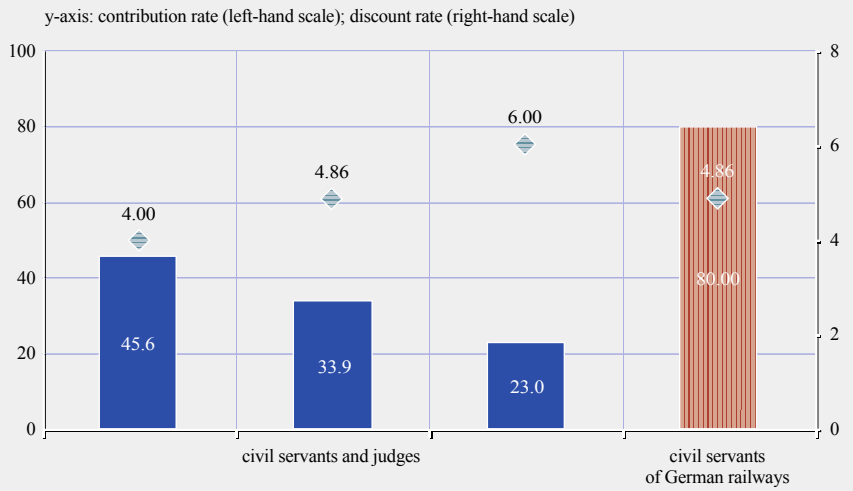
The level of pension entitlements and the level of the implicit contribution rate are determined to a large extent by the parameters of the calculation. The most important factor is the discount rate. Chart 1 displays the interrelation of discount rate and contribution rate. It clearly illustrates that the shift of the discount rate from 4% to 6% reduces the contribution rate almost by half. At a discount rate of 4.86% (interest rate of 2003 for Federal government bonds with a duration of 15 years) one obtains the aforementioned contribution rate of 33.9%. A completely different situation is represented by the contribution rate calculated at the same discount rate for civil servants of German Railways, which reaches a level of 80%. This shows that additional factors may have a significant impact on the results. In this case the age structure of the civil servants differs significantly. Whereas the civil servants and judges are on average 42 years old, the civil servants of German railways show a mean age of 47 years. This substantial difference is due to the privatization in 1994, which ceased the recruitment of new civil servants in the railway sector, resulting in a steady increase of the average age of the remaining active civil servants. Since older civil servants redeem their entitlements earlier than young ones, the present value of their entitlements is larger, resulting in a comparatively high contribution rate of 80%.

9 A complete comparison of the labour costs of civil servants and workers is not feasible in the framework of this article. For this purpose, further factors, such as the lower gross wages of civil servants or the more extensive financial support in case of illness would have to be considered.

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Chart I Contribution rates of civil servants in 2003 with varying discount rates

(percentages)



Source:

The considerable variation in results shows that the assumptions of the actuarial calculations have to be carefully determined and documented. Within the Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government (Task Force), a framework for the most important parameters has been agreed upon.[10] The Task Force proposal, and the implementation of the parameters in Germany are shown in Table 2.

A fundamental decision is made with choosing the PBO-method. It requires far-reaching assumptions about future economic growth, yet provides information which fulfils best the requirements set by national accounting. Whereas for

10 Eurostat/ECB Task Force on the statistical measurement of the assets and liabilities of pension schemes in general government: Final Report, p. 41 ff, Luxembourg, 2008.

Table 2 Economic assumptions regarding calculation of pension entitlements

		Task Force proposal	Germany, implementation
Discount rate		Government bonds at end of period date	Moving average of government bonds, past seven years
Maturity		Matching duration of pension payment	Use of average maturity of 15 years according to BilMoG
Demography		According to Eurostat's EUROPOP projections	According to projections derived from national statistics
Wage	Growth	According to the projections of the Ageing Working Group	According to the projections of the Annual Pension Report
	Valuation	Projected Benefit Obligation (PBO)	

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instance under the ABO-method (accumulated benefit obligation) a pension reform that changes indexation rules from wage indexation to price indexation does not change pension entitlements, a valuation using PBO results in lower pension entitlements facing the same reform. The higher informational value of PBO results improves international comparability of the calculations, though at the cost of requiring more assumptions. This fair-value accounting is consistent with the International Accounting Standards (IAS) and the accounting law reform in Germany. In income tax law however, Germany continues to use ABO-valuation, possibly for fiscal reasons. Thus, pay raises can only be considered while determining fiscally relevant pension entitlements if they are unquestionable. Even pay raises that are highly likely but not finalized cannot be considered here. In the framework of the supplementary table, Germany calculates pension entitlements according to the fair value principle (PBO). These are not comparable with the figure currently published in the core accounts under D.8, the change in occupational pension entitlements, which is determined according to the ABO-method.

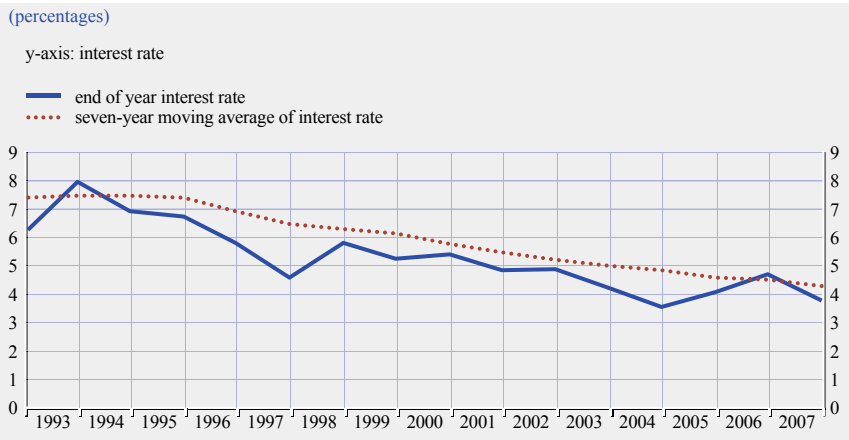
In the Task Force it was discussed to use exclusively the economic assumptions of the European Commissions Report on Ageing[11] for most of the model parameters described above. For several reasons, however, one should deviate from this proposal. The EC Report on Ageing is only updated in multiannual periods. In Germany however, annually updated projections of the Federal Government are available which are used of the report on the statutory pension insurance. In using these assumptions, consistency can be guaranteed between the national report on the statutory pension insurance and the international supplementary table. Similar reasoning applies to the assumptions on mortality. The Europop mortality tables provides a sound data basis, the use of national figures however assures coherence in the framework of various national model calculations. This is especially important, if, in the course of the model calculations, repercussions of population- or labour market developments have to be considered.

With the Accounting Law Modernisation Act (BilMoG) the assessment of pension entitlements in Germany was simplified to some extent. According to IAS (and BilMoG) a discount rate has to be used with a duration matching the duration of each pension entitlement. BilMoG though allows as well the use of a discount rate based on a 15-year duration. This period of time reflects the long-term nature of pension liabilities, offers a comprehensible basis for the calculation of pension entitlements and was therefore implemented into our model. The second simplification based on BilMoG regulation included in our model refers to the way the discount rate is derived from the return of the underlying asset. As agreed upon in the Task Force, the return of Federal bonds is used. According to IAS, the cut-off date value at the end of the year is to be used. In German national accounts, however, BilMoG prescribes the use of the moving average of the last seven years. Hence, a wild fluctuation in results, as can be seen in Chart 2, is avoided.

11 The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050), Economic Policy Committee and the European Commission (DG ECFIN), http://europa.eu.int/comm/economy_finance/epc/epc_publications_en.htm

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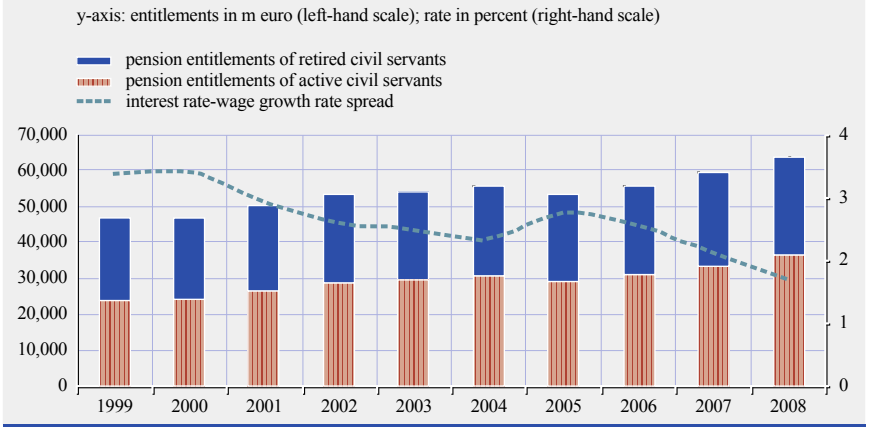
Chart 2 Development of interest rates in Germany



Source:

A persistent change in inflation expectations will realize in the model only with a certain delay, on the other hand one can assume that the counterpart to the discount rate, the assumptions on expected wage increases will be adjusted with a time lag as well. Since the level of pension entitlements is determined by the interest rate-wage growth rate spread, a smoothed average wage makes a good benchmark for the calculation of pension entitlements in practice. The unsmoothed interest rate-wage growth rate spread is problematic from a statistical view. A frequent use of the end of period interest rate will lead to significant fluctuations in the interest rate-wage growth rate spread, since this differential comprises one variable volatile for the short term – the market interest rate, and one variable that is stable in the long term – the productivity growth and accordingly the expected wage increases. The significance of the interest rate-wage growth rate spread for the calculation of pension entitlements is shown in Chart 3.

Chart 3 Development of pension entitlements – base 2003 due to changes in the interest rate–wage growth rate spread



Source:

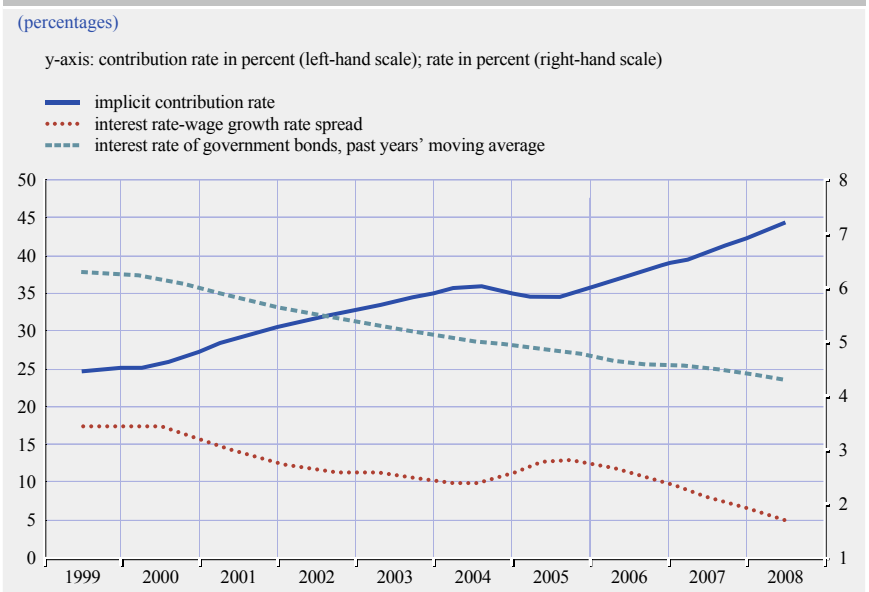
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The graph depicts a synthetic time series of pension entitlements from 1999 to 2008. The calculations are based on the same base data for the civil servants and their entitlements from the year 2003, while the parameters interest rate and wage growth vary. Wage growth rates are taken from the Federal government's report on the statutory pension insurance of the respective year, while the interest rate are determined as the seven-year moving average of Federal bonds with a duration of 15 years. The difference in level of pension entitlements therefore is solely caused by the variation of the assumptions. An actual increase or decrease of entitlements does not happen in this model calculation.

The interest rate–wage growth rate spread started at a level of around 3 percentage points at the beginning of the decade and decreased to around 2 percentage points at present. As expected, the decreased interest rate–wage growth rate spread results in higher pension entitlements. Chart 4 displays the connectivity of the interest rate- wage growth rate spread with the implicit contribution rate. Corresponding to the decreasing interest rate–wage growth rate spread, the implicit contribution rate (and with it labour costs) increases. It starts at a moderate level of 25% in 1999 and reaches 45% in 2008. What's more, the elasticity of pension entitlements varies with the level of the interest rate–wage growth rate spread. The lower the interest rate–wage growth rate spread, the lower is the relative change in pension entitlements for a given change in the spread.

Our analysis of the time series of pension entitlement and labour costs was based on a steady number of civil servants. The strong increase in pension entitlements and of the implicit contribution rate show that they cannot be easily interpreted

Chart 4 Development of the implicit contribution rate



Source:

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as sustainability indicators. The supplementary table as a whole provides an important source of information. With its help, it can be observed how changes on actuarial assumptions, pension reforms or changes in the personnel structure affect the level of pension entitlements. The supplementary table has to be complemented by a compulsory appendix, as usual for annual reports. It should contain all necessary actuarial information, to guarantee the comparability of the different calculations.

5 EFFECTS ON GDP

ESA 1995 prescribes to determine imputed social contributions for civil servants pensions on the basis of actuarial calculations. In case these are to complex or time-consuming, or lack necessary data to be derived, ESA 1995 suggests to use pensions paid as a proxy. This fallback procedure is only considered to be applicable as long as the ratio of active civil servants to pensioners remains stable. Otherwise labour costs would be clearly underestimated if more civil servants would be hired than leaving, or significantly overestimated if many civil servants retire in a short period of time. ESA 1995 proposes the wage share method under such circumstances that is a ratio of implicit social contributions is applied to the current sum of wages paid. With this method, not only labour costs are determined, the absolute level of the GDP is affected as well, as far as the added value of the public sector is calculated using the input method.

Table 3 shows how current calculations using the wage share method as well as actuarial calculations would influence the level of GDP. In our current calculation of labour costs and value added in non-market shares of the public sector, a surcharge rate of 26.9% is used. This surcharge rate only varies if the contribution rate for the statutory pension insurance is changed. GDP amounts to € 2,492 billions at the current rate. If the implicit contribution rate for the year 2003 (37.9%[12]) is used instead of that, then GDP increases by 0.2 percent to € 2,496 billions. If the much lower interest rate- wage growth rate spread of the year 2008, with a corresponding

12 This figure includes pensioners' healthcare allowance; the contribution rate of the original calculation (33.9%) only includes direct pension payments.

Table 3 Methodical changes – Effects on GDP

Calculation of the compensation of employees using…	…the current method	…an implicit contribution rate	
		2003	2008
Surcharge/contribution rate (including pensioners healthcare allowance)	26.9	37.9	50.0
Share of compensation of employees of GDP in percent	3.85	4.01	4.35
Gross domestic product (in € billions)	2,492	2,496	2,504
Relative change in GDP	-	+0.2	+0.5

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contribution rate of 50% is used, GDP would rise by 0.5 percent and reach a level of € 2,504 billions. These results show that the move to actuarially calculated contribution rates affects the level of nominal GDP and its rate of change. This effect however is rather limited to nominal GDP. If price-adjusted GDP is used, the change in labour costs will normally not affect the level and growth rate of the GDP, since the change in labour costs is a price effect. Therefore, business cycle analyses are not affected. If however nominal gross national income is employed, such as in the core of the gross national income own resources to finance the EU-budget, the effect can be quite significant.

6 CONCLUSIONS

If compiled on an actuarial basis, the pension entitlements of civil servants in Germany in 2003 amounted to a level of 44 percent of GDP. The level of pension entitlements and labour costs is strongly influenced by the assumptions made. A more complete picture of the systems of old-age insurance is provided by the supplementary table, which shows the effect of changes in the actuarial assumptions or of pension reforms on the level of entitlements. The supplementary table however does not replace a comprehensive analysis of systems of old-age insurance, e.g. based on open system liabilities.

The assumptions of the different member-states have to reflect the specific national circumstances yet accommodate the usual international accounting standards. Uniform assumptions for all EU or EMU member states do not guarantee comparable results, since they may not apply for some member states. Comparability can be better achieved if data from national data bases can be included as well. Model parameters with a very big influence, e.g. the discount rate, could however follow a coordinated approach. A detailed documentation of the procedures and parameters used, shown in the appendix to the supplementary table, could possibly be an alternative to uniform assumptions to improve transparency and traceability.

Calculation of labour costs of civil servants and other public service employees on an actuarial basis is not feasible for quarterly data. As a comparable method, the wage share method is considered as appropriate. The level of the surcharge rate can be determined using actuarial calculations from the supplementary table. It is questionable however, if the calculation of the imputed social contributions could be conducted on the base of pensions paid, since the development of pension payments can differ from the development of the remuneration of active civil servants for several reasons. One should also consider if the labour costs of civil servants could be determined with a comparable method, both in the core system and the supplementary table.

Separate calculations for comparatively small groups of civil servants, like the civil servants of German railways, are not considered meaningful. In national accounts, only one contribution rate should be calculated for a scheme. The entitlements of civil servants of different levels of the public sector should be calculated using uniform methods and assumptions.

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The actuarial calculation of pension entitlements affects nominal GDP by changing imputed social contributions, even at steady numbers of employees. Therefore, the crucial assumptions discount rate and wage growth rate should be harmonized. The assumptions on the wage growth rate are determined for a long-term horizon. Hence, the discount rate should be transformed to reflect long-term expectations as well. For this, the smoothened seven-year average is considered appropriate.

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DISCUSSION ON SESSION V

BY DOMINIQUE DURANT[1]

This written presentation of the session is based on large extracts from the presented papers plus some remarks from the discussant.

I THREE DIFFERENT COUNTRY EXPERIENCES AND THREE DIFFERENT ESTIMATION WORKS:

I.I ESTIMATING PENSION WEALTH AND INCOME OF US HOUSEHOLDS

Marshall Reinsdorf, U.S. Bureau of Economic Analysis

Table I Household Wealth and Income from Private Defined Benefit Plans – ABO Accrual Accounting Approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Opening ABO current liability, at interest rates used by plans	1,761.1[1)]	1,852.2	1,932.8	2,080.7
2	Effect of changing to 6 percent interest rate	12.9	-7.6	21.6	-9.3
3	Opening ABO current liability, at 6 percent rate	1,773.9	1,844.6	1,954.4	2,071.3
4	Benefits accrued (compensation of employees)	66.6	70.5	76.1	75.3
5	Interest cost of current liability, at 6 percent rate	106.4	110.7	117.3	124.3
6	Employee contributions	0.8	0.7	1.1	0.9
7	Household income, ABO approach (4+5–6)	172.3	180.5	192.3	198.7
8	Net benefits paid	117.4	123.8	133.7	134.8
9	Household saving, at 6 percent rate (7–8)	54.8	56.7	58.6	63.9
10	Other factors[2)]	15.8	53.1	58.3	-4.3
11	Change in current liability, at 6 percent rate (9+10)	70.7	109.8	116.9	59.5
12	Effect of changing interest rate assumptions	20.5	-29.2	30.9	-74.0
13	Change in current liability, at rates used by plans (11+12)	91.2	80.6	147.8	-14.5

1 Banque de France.

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Table I Household Wealth and Income from Private Defined Benefit Plans – ABO Accrual Accounting Approach (Contd[1])

(billions of current year dollars)

		2004	2005	2006
1	Opening ABO current liability, at interest rates used by plans	2066.2	2278.7	2343.5
2	Effect of changing to 6 percent interest rate	64.7	3.3	-58.9
3	Opening ABO current liability, at 6 percent rate	2130.9	2282.0	2284.6
4	Benefits accrued (compensation of employees)	71.3	75.3	79.3
5	Interest cost of current liability, at 6 percent rate	127.9	136.9	137.1
6	Employee contributions	0.8	1.0	0.9
7	Household income, ABO approach (4+5–6)	198.4	211.3	215.4
8	Net benefits paid	141.1	138.8	149.6
9	Household saving, at 6 percent rate (7–8)	57.3	72.5	65.9
10	Other factors[2)]	93.9	-69.9	NA
11	Change in current liability, at 6 percent rate (9+10)	151.1	2.6	NA
12	Effect of changing interest rate assumptions	61.4	62.2	NA
13	Change in current liability, at rates used by plans (11+12)	212.6	64.8	NA

Analysing and compiling accounting reports from about 45,000 private employer define benefit schemes, from 125 government sponsored schemes, and thus using cash accounting information to build actuarial estimates for contributions and pension entitlements with several scenarios for discount rate and valuation methods (cash accounting, actuarial accounting with ABO or PBO).

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Table 2 Household Wealth and Income from State and Local Government – Defined Benefit Plans: PBO Approach

(billions of current year dollars)

		2000	2001	2002	2003
1	Employer's normal cost for benefits (net of administrative expense)	41.0	43.9	46.1	46.9
2	Imputed interest on actuarial liability	178.3	192.3	205.7	218.3
3	Actuarial income of households (1+2)	219.3	236.2	251.8	265.2
4	Benefits net of employee contributions	74.7	82.6	91.7	101.1
5	Actuarial saving of households (3–4)	144.6	153.6	160.1	164.1
6	Actuarial liability of plans	2,218.1	2,393.3	2,560.7	2,730.6
7	Assets of plans (market value)	2,163.1	2,157.8	2,146.9	2,305.0
8	Unfunded actuarial liability	55.0	235.5	413.8	425.6
9	Funded ratio (percent)	97.5	90.2	83.8	84.4

		2004	2005	2006
1	Employer's normal cost for benefits (net of administrative expense)	47.4	49.0	51.7
2	Imputed interest on actuarial liability	231.2	245.7	261.9
3	Actuarial income of households (1+2)	278.6	294.7	313.6
4	Benefits net of employee contributions	109.3	117.4	127.5
5	Actuarial saving of households (3–4)	169.2	177.3	186.2
6	Actuarial liability of plans	2,902.4	3,088.3	3,296.3
7	Assets of plans (market value)	2,558.8	2,757.0	3,116.9
8	Unfunded actuarial liability	343.6	331.2	179.3
9	Funded ratio (percent)	88.2	89.3	94.6

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Table 3 Household Wealth and Income from Federal Government – Defined Benefit Plans: PBO Approach

(billions of current year dollars)

		2000	2001	2002	2003	2004
1	Normal cost for benefits, net of employee contributions	29.3	33.0	37.1	33.9	33.7
2	Imputed interest on actuarial liability	113.3	116.7	116.9	114.8	118.4
3	Actuarial income of households (1+2)	142.6	149.7	154.0	148.7	152.1
4	Benefits, net of employee contributions	75.2	78.9	81.3	83.1	87.2
5	Actuarial saving of households (3–4)	67.5	70.8	72.7	65.5	64.9
6	Actuarial liability of plans	1,762.3	1,821.2	1,859.8	1,929.4	2,067.9
7	Assets of plans (end of calendar year)	691.4	751.0	789.0	826.2	868.2
8	Unfunded actuarial liability	1,070.9	1,070.2	1,070.8	1,103.2	1,199.7
9	Funded ratio (%)	39.2	41.2	42.4	42.8	42.0
10	Average normal cost per active employee	8,352	9,231	10,201	9,322	9,229
11	Normal cost as percent of NIPA total compensation	14.6	15.5	15.5	12.9	11.8
12	Actuarial saving less cash accounting saving	28.1	32.0	32.7	30.2	23.9

		2005	2006	2007	2008
1	Normal cost for benefits, net of employee contributions	37.1	38.0	40.9	42.0
2	Imputed interest on actuarial liability	126.9	133.0	139.6	145.6
3	Actuarial income of households (1+2)	164.0	171.0	180.5	187.6
4	Benefits, net of employee contributions	92.4	98.3	104.1	109.0
5	Actuarial saving of households (3–4)	71.7	72.7	76.4	78.6
6	Actuarial liability of plans	2,169.2	2,316.1	2,415.1	2,608.9
7	Assets of plans (end of calendar year)	895.4	931.9	965.6	1,029.7
8	Unfunded actuarial liability	1,273.8	1,384.2	1,449.5	1,579.2
9	Funded ratio (%)	41.3	40.2	40.0	39.5
10	Average normal cost per active employee	10,100.0	10,324.0	11,043.0	11,074.0
11	Normal cost as percent of NIPA total compensation	12.1	11.8	11.9	11.4
12	Actuarial saving less cash accounting saving	29.4	32.1	33.2	N.A.

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All may be summarised in a partial supplementary table:

Table 4

	2005	2006	2006
	Non gal gvt DB scheme	General government employer DB schemes	
	ABO	In core account – PBO	
		Class. in fin. corp	Class. in gl gvt
Pension entitlements	2,329	3,088.3	2,169.2
Transactions			
Social contributions relating to pension schemes			
Employer actual social contributions	94.3	367.8	91.2
Employer imputed social contributions	60.8	123.6	106.1
Employee actual social contributions	1.68	33	4.4
Employee imputed social contributions/ property income	57.1	93.4	47.9
Self employed and non-employed social contributions			
Other (actuarial) accumulation of pension entitlements in social security pension schemes			
Pension benefits	142.48	160.5	102.7
Change in pension entitlements (rows 2+3−4)			
Changes in pension entitlements due to transfers of entitlements			
Other economic flows			
Revaluations	-69.9		
Other changes in volume		50.7	
	Schemes railroad	Local gvts	Federal gvt
Closing balance sheet			
Pension entitlements (rows 1+5+6+7+8)	2,284.6	3,296.3	2,316.1

PBGC is supposed to be out of employment related schemes.

1.2 PENSION ENTITLEMENTS OF SOCIAL INSURANCE SCHEMES IN POLAND

Janusz Jablonowski, Narodowy Bank Polski

An attempt to use the aggregated Freiburg model with AWG assumptions in order to estimate pension entitlements consistently with European commission work on sustainability while avoiding to build a costly model for social security.

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Table 5 Freiburg model estimates

(2007; billion PLN)

		Sponsor	General Government	
			State budget pensions	Notional DC & farmers
		Type of the scheme	General government employee defined benefit schemes	Social security pension schemes
		Method of calculation	PBO	
	1	**Pension entitlements**	**290**	**3,538**
Σ 2.1 to 2.5	2	Increase in pension entitlements due to social contributions	27	178
	2.1	Employer actual social contributions		
	2.2	Employer imputed social contributions	12	
	2.3	Household actual social contributions		
	2.4	Household social contributions supplements	15	178
	3	Other (actuarial) increase in pension entitlements		-21
	4	Reduction in pension entitlements due to payment of pension liabilities	10	121
2+3−4	5	Change in pension entitlements due to social contributions and pension benefits	17	36
	6	Change in pension entitlements due to transfers of entitlements between schemes	0	0
	7	Changes in pension entitlements due to other transactions (e.g. arising from negotiated changes in scheme structure)	0	0
	8	Revaluations	0	0
	9	Other changes in the volume of assets	0	0
1+5+6 +7+8	10.1	**Pension entitlements**	**306**	**3,574 (Σ 330% of GDP)**
	10.2	**Pension entitlements (in % of GDP)**	**26**	**304**

Source: Freiburg.

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Table 6		
	Freiburg	**AWG**
Type of the system covered	Closed (no entrance for new workers)	Open (entrance for new workers allowed)
Outcome	Accrued-to-date liabilities	Revenues and expenditures
Coverage of the systems	General government	General government [1)]
Coverage of types of benefits	Gross pension benefits, early retirement, disability, survivors.	Gross pension benefits, early retirement, disability, survivors.
Wage growth	Fixed (real) 1.5%	Varying (real), source: European Commission for each MS.
Demographics	EUROPOP	EUROPOP
Time horizon	2007-Infinity (?)	2007-2060
Currency	Euro/National	Euro

Is it possible to use the assumption of AWG for revenue and expenditures in the Freiburg model in order to obtain accrued to date liability? One major difference though: closed group/open group.

1.3 PENSION ENTITLEMENTS OF CIVIL SERVANTS IN GERMANY

Albert Braakmann and Jens Grütz, Destatis

Building a semi-aggregated (by group) model for the civil servant scheme, which is part of social security.

An effort to rely on a consistent methodology, to guarantee comparability with national models for private sector

Table 7			
		Task Force proposal	**Germany, implementation**
Discount rate		Government bonds at end of period date	Moving average of government bonds, past seven years
Maturity		Matching duration of pension payment	Use of average maturity of 15 years according to BilMoG
Demography		According to Eurostat's EUROPOP projections	According to projections derived from national statistics
Wage	Growth	According to the projections of the Ageing Working Group	According to the projections of the Annual Pension Report
	Valuation	Projected Benefit Obligation (PBO)	

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Leads to the calculation of imputed social contributions in the supplementary table

Supplementary table 2003 for federal civil servants (excluding soldiers)		€ millions
1	Pension entitlements 01/01/03	57,621
2.1-2.3	Increase in pension entitlements due to social contributions	1,345
2.4	+ household social contributions supplements	2,881
4	Reduction in pension entitlements due to payment of pensions	2,025
7-9	Revaluations	-926
10	Pension entitlements 31/12/03	58,896



Wages/salaries
+
Social contributions
———————
= Compensation of employees
↓
Implicit contribution rate

By the way, they have to take place in the same supplementary table and have faced some similar issues

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Table 9

Core/non-core national accounts		Core		
Sponsor		Non-general government		
				US 2005 Billion USD ABO
Scheme Position/transaction/other flow		Total	DC schemes	DB schemes and other non-DC schemes
Row number/column number		B	C	D
Number of active members (in million)				21.7
Numer of pensioners (in million)				
1	Pension entitlements			2,392.9
2	Social contributions relating to pension schemes			
	Employer actual social contributions			96,8
	Employer imputed social contributions			-19.3
	Employee actual social contributions			1.7
	Employee imputed social contributions/ property income			140.1
	Self employed and non-employed social contributions			
3	Other (actuarial) accumulation of pension entitlements in social security pension schemes			
4	Pension benefits			146.7
5	Change in pension entitlements (rows 2+3−4)			
6	Changes in pension entitlements due to transfers of entitlements			
7	Revaluations			-69.9
8	Other changes in volume			
9	Pension entitlements (rows 1+5+6+7+8)			2,349.7

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			Non-core	
	General government			
	General government employer DB schemes			
	US 2006 Billion USD PBO	US 2006 Billion USD PBO	Germany Federal civil servant 2003 € Billion PBO	Poland 2007 Billion PLN
DC schemes	O/w: Classified in financial corporations	O/w: Classified in general government		Social security pension schemes
E	F	G	H (part of)	I
	14.4	4.1	2	15.7
			1.5	5.9
	3,088.3	2,169.2	57.6	
	67.8	91.2		
	-44.9	21.0	1.5	
	33	4.4		
	261.9	133.0	2.9	
	160.5	102.7	2.2	121
			-0.9	
	50.7			
	3,296.3	2,316.1	58.9	4,137

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2.1 DISCOUNT RATE AND/OR WAGE GROWTH RATES ARE KEY PARAMETERS IN THE LEVEL OF PENSION LIABILITIES AND EXPENDITURES:

- *Accordingly, in American employer schemes, a higher discount rate increases the imputed property income and reduces the employer's contribution (employer normal cost). Does such a high discount rate (8% in US local Gvt plan) include a risk premium -if not holding gains- in the contribution supplement?*

"Despite the tendency of the PBO approach to frontload pension costs, the PBO measure of benefits earned net of employee contributions, labelled "employer's normal cost" in table 6, is lower than the employer contributions in 2003-2006. In 2006, for example, it is about $52 billion, compared to cash contributions of $68 billion. The plans' estimates of employer's normal cost are held down by the high rates of interest that they assume (which average about 8 percent) when discounting the future benefit payments. At these rates, the interest on the actuarial liability ($262 billion in 2006) is much greater than the actual investment income ($93 billion in 2006 according to table 5), and even after combining holding gains and investment income, the realized returns on average fall short of the actuarial interest cost."

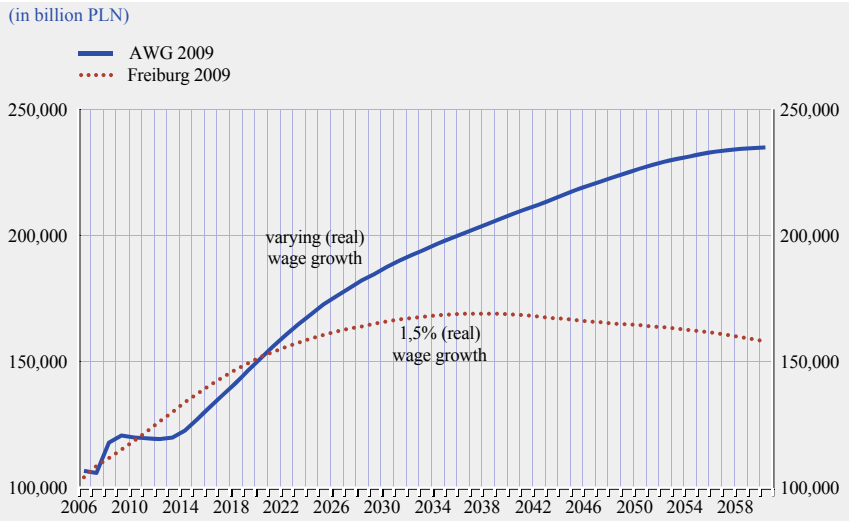
Table 10 Household Wealth and Income from State and Local Government DB Plans (US)

	Cash accounting	2000	2001	2002	2003	2004	2005	2006
1	**Household Income**	122.6	109.5	110.6	128.6	141.0	147.8	161.2
2	Employer contributions	39.5	38.8	42.1	53.1	59.8	60.9	67.8
3	Investment income from Plan Assets	83.1	70.6	68.5	75.5	81.3	86.9	93.4
	Accrual accounting (PBO)							
4	Employer's normal cost for benefits (net of administrative expense)	41.0	43.9	46.1	46.9	47.4	49.0	51.7
5	Imputed interest on actuarial liability	178.3	192.3	205.7	218.3	231.2	245.7	261.9
6	Actuarial income of households (1+2)	219.3	236.2	251.8	265.2	278.6	294.7	313.6

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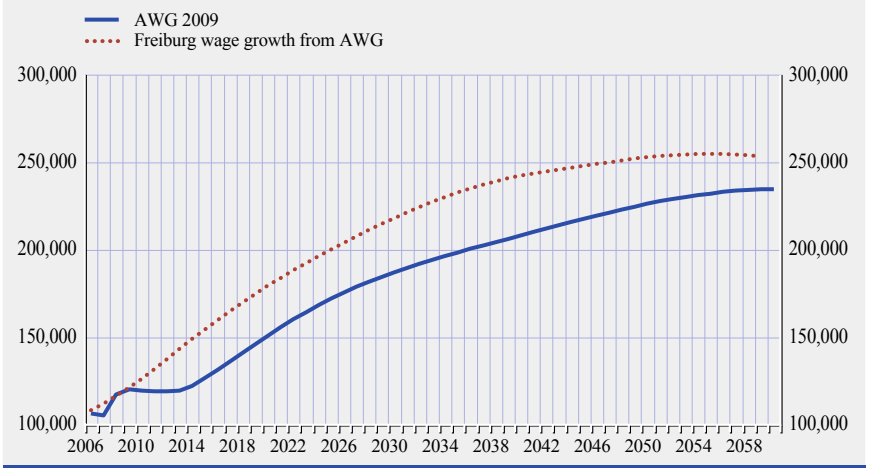
In the Polish benchmarking of Freiburg estimates on AWG estimates, the wage growth rate is the key parameter in the variation of future expenditures: the open system expenditure grow at the same pace when wage growth rates are the same... and same expenditures should lead to same pension entitlements.

Chart 1 Open system expenditure with own real wage growth rate



Source:

Chart 2 Open system expenditure with common real wage growth rate



Source:

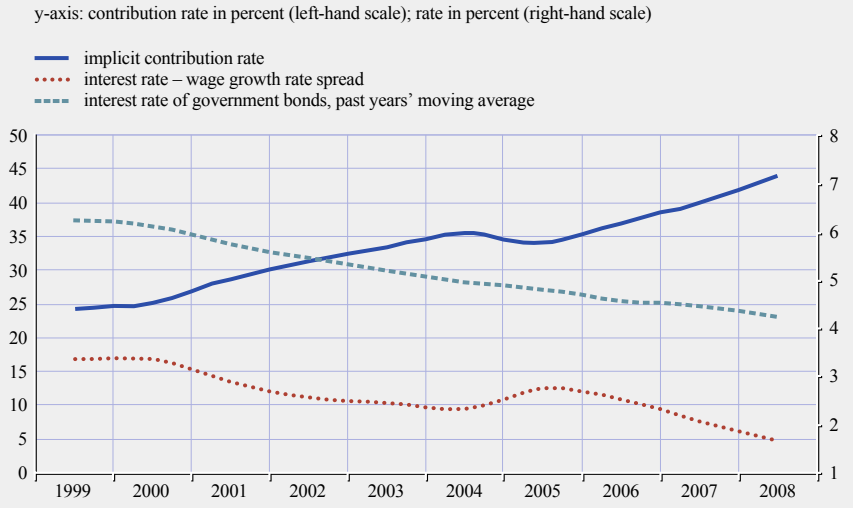
"Using a 3% discount rate and the Freiburg model, pension liabilities for 2007 amount to 330% of GDP if estimated with a 1.5% real wage growth rate and 382% of GDP if estimated with the AWG varying wage growth rate."

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"Possible calculation of the liabilities using discounted stocks of the AWG expenditures, if the system can be closed" in other words, is it possible to use AWG assumption for the indexation of already accrued entitlements and to exclude entitlements to new comers?

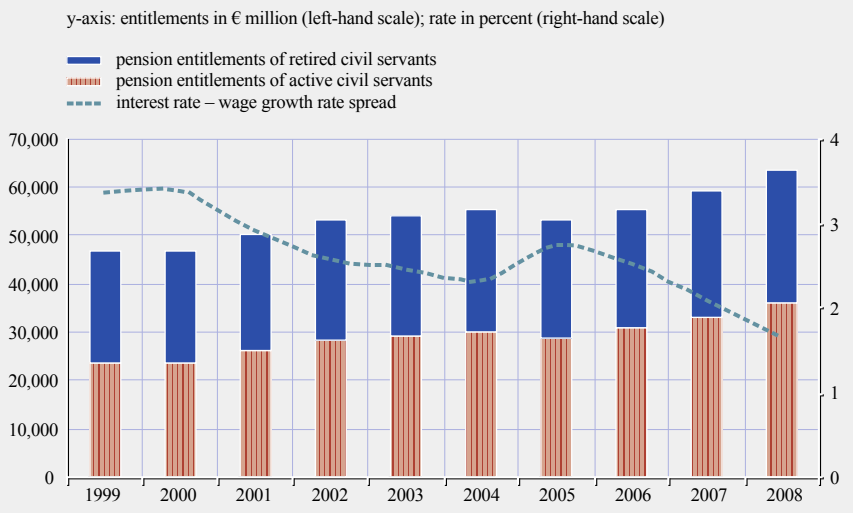
In the **German model for civil servant**, a lower discount rate-wage growth rate spread increases strongly the pension entitlements and the implicit contribution rate.

Chart 3 Development of the implicit contribution rate



Source:

Chart 4 Development of pension entitlements – Base 2003 due to changes in interest rate – wage growth rate spread



Source:

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- *In the three cases, an attempt for a minimum stability and homogeneity through schemes in the choice of the discount rate.*
- *Changing to a unique 6% for US estimates.*
- *7 years moving average 15 years Govt bond rate in Germany.*
- *3% real discount rate in Poland.*
- *Do high discount rates used by reporting agents (such as 8% in US local Gvt plan) and as a consequence by statisticians include a risk premium -if not holding gains- in the contribution supplement?*

2.2 ABO/PBO

- *In social security schemes, pensions are frequently indexed fully or partially on wage growth (Poland: 20% of real wage growth, Germany. PBO is recommended in new ESA when the benefit formula includes a factor for real wage increase before and after retirement.*
- *But, the choice between ABO and PBO may also depend on the probability to terminate the plan before the end of career:*

"For private sector plans, loss of the opportunity to earn further benefits due to a plan freeze or modification (such as a conversion to a cash balance plan) must be regarded as a realistic possibility. (In 2006, about 900,000 employees were in private plans that had been frozen.) Employees in the private sector can also lose the opportunity to earn additional benefits from a bankruptcy, or even an acquisition, of the plan sponsor.[2] Finally, changing jobs is likely to mean changing employers for employees of small or medium size businesses (though some private industries have multi-employer plans).

In contrast, changes to government pension plan provisions that affect current participants remain unusual, and the risk of losing the opportunity to earn future benefits is generally small for most government employees. A PBO approach, which spreads the build-up of the projected pension wealth at retirement in over the career, is therefore a reasonable alternative for government plans".

Nonetheless, international accounting standards for private companies recommend PBO accounting.

- *In the US, PBO is preferred by public schemes for its smoothing effect on employer's contributions.*

"Most state and local government plans calculate the actuarial value of benefits earned with a PBO approach using a level percent of pay formula. One of the key objectives that funding schemes for pension plans seek to achieve is avoidance of rapid increases in costs, such as those that occur under a pay-as-you-go scheme

2 As discussed below, in the event of bankruptcy of the plan sponsor, benefits worth approximately the ABO level of pension wealth are covered by insurance from the Pension Benefit Guarantee Corporation.

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when the covered population ages. The level-percent-of-pay approach goes furthest in accomplishing the cost-smoothing objective, because over an employee's career the benefit cost grows at the rate of growth of the salary. In contrast, assuming a final pay benefit formula, the growth rate of ABO benefits accrued is usually greater than or equal to the sum of the salary growth rate, the interest rate, and the average mortality rate of active participants, so sharp increases in costs as employees near the end of their career can cause overall pension costs for an aging workforce to rise quickly. In the early and middle years of the career, the PBO approach used by state and local government plans gives much higher cost estimates than the ABO approach, a relationship that is reversed in the final few years."

- *The ABO/PBO definition has to be clarified further:*
  - *In Germany, use of PBO changes the present value of future pensions owed to present retirees because the future pension depend on wage growth.*
  - *In US employer schemes, changes in ABO depend not only on wage growth but also on mortality rate and interest rate.*

2.3 FROM CASH ACCOUNTING TO ACTUARIAL ACCOUNTING

- Cash employer contributions are much more variable than actuarial employer contributions because they compensate for holding gains or losses on assets.

Table 11 Household Wealth and Income from Private Defined Benefit Plans (US)

	Cash accounting	2000	2001	2002	2003	2004	2005	2006
1	**Household income**	96.1	106.6	148.9	149.3	148.9	149.5	154.5
2	Employer contributions	32.8	48.6	99.8	100.4	95.1	92.4	87.9
3	Investment income from Plan Assets	63.3	58.0	49.1	48.9	53.8	57.1	66.6
	Accrual accounting (ABO)							
4	**Household income**	172.3	180.5	192.3	198.7	198.4	211.3	215.4
5	Benefits accrued (compensation of employees)	66.6	70.5	76.1	75.3	71.3	75.3	79.3
6	Interest cost of current liability, at 6 percent rate	106.4	110.7	117.3	124.3	127.9	136.9	137.1
7	Employee contributions	0.8	0.7	1.1	0.9	0.8	1.0	0.9

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- *Actuarial accounting increases the households savings because it now relies on employer contributions instead on pensions.*

Table 12 Comparison of cash accounting and actuarial measures of pension income and wealth of US households

(percents of disposable personal income)

		2000	2001	2002	2003	2004	2005	2006
1	Household income, cash accounting approach	4.6	4.5	4.9	4.9	4.8	4.8	4.7
2	Household income, actuarial approach	7.4	7.6	7.6	7.5	7.2	7.4	7.3
4	Compensation, cash accounting approach	1.9	2.1	2.7	2.7	2.7	2.6	2.6
5	Compensation, actuarial approach	1.9	2.0	2.0	1.9	1.8	1.8	1.8
6	Interest & dividend income, cash accounting	2.7	2.4	2.1	2.1	2.1	2.1	2.2
7	Interest income, actuarial approach	5.5	5.6	5.6	5.6	5.5	5.6	5.5
8	Household saving, cash accounting approach	0.7	0.4	0.8	0.8	0.7	0.7	0.6
9	Household saving, actuarial approach	2.7	2.8	2.8	2.8	2.7	2.9	2.8
10	Household pension wealth, cash accounting	66.2	62.3	58 .3	62.1	63.9	64.9	67.8
11	Household pension wealth, actuarial approach	81.4	82.5	83.6	83.2	84.3	84.8	83.5

- Should new methods regarding German civil servants' labour costs be applied in core accounts….
  - *….The compensation of civil servants would be 0.5% of GDP higher due to a higher implicit employer contribution rate.*
  - *….The GDP would consequently increase from 0.5% in 2008.*

Table 13

(percentages)

Calculation of the compensation of employees using …	… the current method	… an implicit contribution	
		2003 rate	2008
Surcharge/contribution rate (including pensioners healthcare allowance)	26.9	37.9	50.0
Share of compensation of employees of GDP in percent	3.85	4.01	4.35
Gross domestic product (in € billion)	2,492	2,496	2,504
Relative change in GDP	-	+0.2	+0.5

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- Only the amount of pension paid is the same in both cases:
  - It is the only observed data, others being subject to actuarial estimates.
  - It may be used as a benchmark to estimate pension entitlements: the Polish paper aims at using the planed expenditures of social security by AWG in order to estimate the present value of pension entitlement (but open group expenditures are higher than close group expenditures).

Thank you to the authors, which papers were so interesting to read and comment!

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CONCLUSIONS

The concluding remarks and the follow-up of the Workshop were made by Werner Bier (ECB), Eduardo Barredo (Eurostat) and Reimund Mink. The main concluding remarks of the meeting were presented as two headings: messages of a technical nature and those with a policy dimension.

A) TECHNICAL CONCLUSIONS

1. Accrued-to-date data on pension entitlements are part of the national accounts balance sheets.

2. Actuarial estimations to be made transparent.

3. Sensitivity analyses may be presented on an expert level.

4. Ensuring consistency of inputs for projections of pension modellers.

5. Accrued-to-date entitlements are not sustainability indicators.

From the presentations and discussions it was clear that accrued-to-date data on pension entitlements are part of the national accounts balance sheets. This is a statistical concept which is useful for analysis (all pension schemes are included, so providing a comprehensive picture).

Turning to implementation needs, these actuarial estimations are to be made transparent. In this vein, the supplementary table (2008 SNA and revised ESA 95) will foster the transparency required for this purpose. It was made clear that these additional data have no impact on EDP debt.

Another point addressed was to increase the transparency of the model assumptions and of the sensitivity analyses, which may be presented on an expert level. The scope of the work is limited to pensions – no other types of ageing expenditure are under consideration.

A further finding to arise from the discussion is the need to ensure consistency of the input used for the projections of pension modellers. The harmonisation of national models would be desirable, given the different nature of the models in Europe.

Finally, it was made clear that the accrued-to-date entitlements are not sustainability indicators. However, estimates on accrued-to-date entitlements can be used as an input for sustainability indicators (expansion to open systems and generational accounting).

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B) POLICY CONCLUSIONS

1. The future development of pension entitlements is politically a very sensitive subject.

2. A proper communication strategy is of the essence.

3. The supplementary table as part of the new ESA transmission programme:
   - Estimation of data on pension entitlements; and
   - Increase in data coverage (of countries, types of flow, types of pension scheme).

4. Joint Eurostat/ECB Contact Group on Pensions will continue to work (all EU countries are represented, together with Switzerland and Norway), and in close cooperation with the Ageing Working Group (AWG).

The first remark with policy implications is that the future developments in the estimation of pension entitlements are politically a very sensitive subject.

Another aspect emphasised in the concluding remarks is that a proper communication strategy is of the essence.

The third comment is reiteration of the fact that a supplementary table, as part of the new ESA transmission programme, will be of utmost importance in order to estimate data on pension entitlements on a systematic basis. The expected increase in data coverage (of countries, types of flow and types of pension scheme) will contribute to the quality of these estimates.

Finally, the joint Eurostat/ECB Contact Group on Pensions will continue to work on the development of the quantitative analysis to prepare the grounds for the revised ESA transmission programme (expected for 2014). The Contact Group is composed of all EU countries, together with Switzerland and Norway. Ideally, this work should be undertaken in close cooperation with the sustainability work undertaken by the AWG.

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CHAIRPERSONS, PRESENTERS, PANELISTS, DISCUSSANTS AND ORGANISERS OF THE WORKSHOP

Ana Almeida has been appointed to Deputy Head of the Statistics Department of the *Banco de Portugal*. Previously she was the Head of the National Financial Accounts and Securities Statistics Division of the Statistics Department and also the representative of the *Banco de Portugal* in the Euro Area Accounts Working Group of the ECB and in the Financial Accounts Working Group of Eurostat. Formerly, she was the Head of the Risk Control Unit of the Pension Fund of the *Banco de Portugal*. More recently, she has also been the representative of the *Banco de Portugal* in the Eurostat/ECB Contact Group on Pensions, contributing actively to the provision of Portuguese data to the objective of compiling statistics on pensions at the European level according to the new ESA.

Eduardo Barredo is Head of Unit G1 (Business Statistics: coordination and registers) in Directorate G (Business statistics). Until recently he was the Head of Unit C5 in Directorate C (National Accounts) and Co-chair of the Eurostat/ECB Contact Group and Task Force on Pensions.

Werner Bier is Deputy Director General Statistics of the European Central Bank.

Albert Braakmann is head of division in the national accounts department of the German Federal Statistical Office. He is responsible for national income, general government data, external economic transactions but also in charge of the German contributions to the revision of the SNA-93 and the ESA-95. Previously he worked a couple of years in the national accounts directorate of Eurostat.

Robert Dippelsman has been appointed to Deputy Division Chief of the Government Finance Statistics Division of the IMF's Statistics Department. Previously he was involved in the review of the 1993 SNA and of the Balance of Payments Manual.

Thomas Dominique works at the Ministry of Social affairs / General inspectorate of social security (IGSS) – Division of statistics, actuarial studies and social programming, vice-head of division. In charge of the social programming on improving the efficiency of the legislation in the area of people affected by incapacity for work. Responsible for the socio-economic projections in the context of the financial sustainability of the pension system. Member of the Ageing working group of the Economic Policy Committee of the European Commission. Member of the Indicator sub-group of the Social Protection Committee of the European Commission.

Dominique Durant is currently head of the statistics on non-banking financial institutions division in the Banque de France. Dominique Durant was head of

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the financial account division between 2005 and 2008. She joined the Banque de France in 1991 and operated in banking supervision (1994-1998) and in monetary and financial statistics (1998-2005). In her different managing positions in statistics, she regularly leaded or published several analysis based on national accounts and financial statistics, regarding especially households' investments and savings, households pensions' entitlements, indebtedness and profitability of non financial corporations, investments and financial situation of insurance corporations and investment funds. Her background is public administration and economics (Science Po Paris post-graduate diploma in 1989) as well as financial economics (Paris I-Sorbonne University Money Banking Finance Master in 1993). She also holds a Master in Linguistics (1985). Since 2002, she teaches the basics of monetary and financial economics in the public French School for statistics and economic management (ENSAE), that provides initial training to the future managers of the national statistics institute.

Michel Englert works as Senior Economist in the Federal Planning Bureau in Belgium (FPB); he is since 1995 head of the General Directorate of the FPB. He is head of the delegations of Belgium to the Working Group on Ageing of the Economic Policy Committee of the ECOFIN Council and to the Working Group on macroeconomic and structural policies of the OECD. He is invited professor in macroeconomics at the "Facultés Universitaires Catholiques de Mons", Belgium. He is specialized in macroeconomic forecasting and scenario analysis, fiscal policy and in building socio-demographic models for assessing the long-term financial prospects for the Social Security.

Jens Grütz works in the Department of National Accounts at the Federal Statistical Office of Germany. He was a member of the Eurostat/ECB Taskforce on Pensions and member of the "Group of estimators" of the German statutory pension insurance.

Thorsten Haug is a research assistant in the department of National Accounts at the Federal Statistical Office of Germany since 2006. He works mainly on the calculation of pension entitlements in the context of the current SNA revision.

Matthias Heidler worked as a research assistant at the Research Center for Generational Contracts (RCG) in Freiburg, Germany. His research interests include the field of pension policy and pension modeling. He was involved in the benchmark calculations of public pension entitlements for 19 EU member states carried out by the RCG.

Janusz Jabłonowski works as Chief Specialist in the Department of Statistics of the National Bank of Poland. He has coordinated the work over the preparation of the Supplementary Table in Poland for the Task Force on Pensions. He is also a country representative in the Working Group for Government Finance Statistics.

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Steven Keuning is Director General Statistics of the European Central Bank.

Paula Koistinen-Jokiniemi works as Head of Financial Statistics Unit in the Statistics Finland.

Reimund Mink works as a Senior Adviser in the Directorate General Statistics of the European Central Bank. He was Co-chair of the Eurostat/ECB Task Force on Pension and is now Co-chair of the Contact Group on the same subject. He also contributed to the drafting of the new SNA chapter 17 on pensions, co-drafted the new ESA chapter 17 on pensions and drafted several ESA chapters on units and on financial sectors, financial transactions, flows and balance sheets.

Christoph Müller works as a research assistant at the Research Center for Generational Contracts (RCG) in Freiburg, Germany. His research interests include the field of pension policy and pension modeling. He was involved in the benchmark calculations of public pension entitlements for 19 EU member states carried out by the RCG.

Heikki Oksanen works as an Adviser in the Research Directorate of the Directorate-General for Economic and Financial Affairs of the European Commission since 1998. He has published several articles on population ageing, pension reforms and sustainability of public finances with special reference to intergenerational equity.

Lourdes Prado works as Technical Advisor in the Directorate of Economic Accounts and Employment at the Instituto Nacional de Estadística (Spain). She has coordinated the working group set up in Spain for the estimation of pension entitlements and the supplementary table on pension schemes. She has represented the INE in the Task Force on Pension.

Bernd Raffelhüschen is professor for economics at the University of Freiburg, Germany and at the University of Bergen, Norway. Furthermore, he is the director of the Research Center for Generational Contracts (RCG) in Freiburg which carried out the benchmark calculations of public pension entitlements for 19 EU member states on behalf of the ECB. His current research interests include social policy and the field of fiscal sustainability analysis. Beside his contribution to international research projects – e.g. on behalf of the European commission as well as various EU countries – he is working – e.g. as a member of the so called "Rürup Kommission" (a governmental advisory commission) – on questions of applied social policy.

Marshall Reinsdorf is chief of the national economic accounts analysis and research group at the US Bureau of Economic Analysis. Before joining BEA, he researched bank failures at the Federal Deposit Insurance Corporation and price measurement US Bureau of Labor Statistics. The author of numerous published papers on economic measurement topics, he has a Ph.D. in economics from the University of Maryland.

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Ad van Riet is Head of Fiscal Policies Division in the Directorate General Economics of the European Central Bank.

Marta Rodríguez works as Senior Economist-Statistician in the Directorate General Statistics of the European Central Bank. She has coordinated the work of the Contact Group and the Task Force on Pensions, together with Eurostat, since 2006. She has been the Secretary of the ESCB Working Group on Government Finance Statistics since 2003.

Gabriele Semeraro works in the Department for Economic and Financial Statistics at the Banca d'Italia, as head of the Financial Accounts unit. He was member of several task forces studying problems of statistical recording related to pension entitlements and transfers. As a member of the Eurostat/ECB Task Force he was involved in preparing the corresponding drafts for the 2008 SNA and the new ESA chapter on pensions.

John Verrinder works with Eurostat. Recently he has been appointed to Head of Unit C5 in Directorate C (National and European Accounts). He was Secretary of the Eurostat/ECB Task Force on Pensions and is now Co-chair of the Eurostat/ ECB Contact Group on the same subject. In these functions he contributed to the drafting of the new SNA chapter 17 dealing also with pensions and also co-drafted-the new ESA chapter 17 on pensions.

Gabe de Vries has worked with Statistics Netherlands and the Dutch association of Insurers on statistics on insurance and pensions. He now works as a consultant on projects concerning pensions, insurance and government with Eurostat, OECD, IMF and World Bank. He drafted the new ESA-chapter 16 on Insurance and contributed to the drafting of several ESA-chapters on financial transactions, distributive transactions and balance sheets. He is a member of the board of a company pension fund.

Olaf Weddige works as a research assistant at the Research Center for Generational Contracts (RCG) in Freiburg, Germany. His research interests include the field of pension policy and pension modeling. He was involved in the benchmark calculations of public pension entitlements for 19 EU member states carried out by the RCG.

John Walton has worked as a consultant of the Office for National Statistics as the UK Statistics Authority and of Eurostat on business statistics for insurance and pensions. He was a member of the OECD Task Forces on the treatment of non-life insurance and of FISIM in the national accounts. For nearly twenty years, John was a Trustee of a UK Defined Benefit employer pension fund and a member of the management board of this fund. As adviser to ONS, he was a member of the Eurostat/ECB Task Force on Pensions, giving advice as an outstanding expert on pensions. In this function and also before the creation of the Task Force, John contributed already to the discussion on how to improve the recording of pension schemes in the new statistical standards, including contributions to the discussions of the IMF EDG on pensions.

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Karsten Wendorff works as Head of the Public Finance Division and Deputy Head of the Economics Department at the Deutsche Bundesbank. He is the chairperson of the ESCB Working Group on Public Finance.

Joe Wilkinson is an Assistant Director in the Income and Expenditure Accounts Division of the System of National Accounts Branch at Statistics Canada. He managed the development and implementation of the Pension Satellite Account in Canada. The data for the Pension Satellite Account was released on November 12, 2009. (http://www.statcan.gc.ca/daily-quotidien/091112/dq091112d-eng.htm) and the results are described in a paper "What does the Pension Satellite Account tell about Canada's pension system?" (http://www.statcan.gc.ca/daily-quotidien/091112/dq091112b-eng.htm).

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PROGRAMME

WEDNESDAY, 29 APRIL 2009

Welcome and introduction by Steven Keuning (ECB)

Session I
Pension schemes in international statistical standards

Chairman:
Reimund Mink (ECB)

Pension schemes in the new ESA and in the 2008 SNA
John Verrinder (Eurostat)

Recording of defined benefit pension schemes in macroeconomic statistics
Robert Dippelsman (IMF)

Pension insurance:
John Walton

Discussant:
Gabriele Semeraro (Banca d'Italia)

Session II
Experience of accounting standard setters and pension modellers

Chairman:
Bernd Raffelhüschen (Freiburg University)

Accounting standards for pension schemes
Gabe de Vries (Sigma Statistical Consultancy)

Concepts of modelling pension entitlements
Christoph Müller and Olaf Weddige (Freiburg University)

Work on pensions by the EPC Working Group on Ageing
Michel Englert (Bureau fédéral du Plan in Belgium and Member of the Working Group on Ageing)

Discussant:
Marshall Reinsdorf (U.S. Bureau of Economic Analysis)

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Session III
Panel discussion on the use of pension data for policy-making

Chairman:
Ad van Riet (ECB)

Discussants:
Bernd Raffelhüschen (Freiburg University), Heikki Oksanen (DG-ECFIN), and Karsten Wendorff (Chairperson of the ESCB Working Group on Public Finance)

THURSDAY, 30 APRIL 2009

Session IV
Country experiences in compiling pension entitlements Part I

Chairman:
Eduardo Barredo (Eurostat)

Estimating social security pension entitlements in Spain
Lourdes Prado Ureña (Instituto Nacional de Estadística)

Experiences in compiling pension entitlements for Luxembourg
Tom Dominique (Inspection Générale de la Sécurité Sociale)

The social security pension scheme in Finland
Paula Koistinen-Jokiniemi (Statistics Finland)

The pension satellite account in Canada
Joe Wilkinson (Statistics Canada)

Discussant:
Ana Margarida Almeida (Banco de Portugal)

Session V
Country experiences in compiling pension entitlements Part II

Chairman:
Werner Bier (ECB)

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Estimating Pension Wealth and Income of US Households
Marshall Reinsdorf (U.S. Bureau of Economic Analysis)

Pension entitlements of social insurance schemes in Poland
Janusz Jablonowski (Narodowy Bank Polski)

Pension entitlements of civil servants in Germany
Albert Braakmann and Jens Grütz (Destatis)

Discussant:
Dominique Durant (Banque de France)

Conclusions and follow-up by Werner Bier (ECB)

GENERAL INFORMATION

Workshop location:
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Workshop language:
English

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