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Why do we need this compilation guide?

Introduction

1.1. At its thirty-ninth and fortieth sessions in February 2008 and February 2009, the United Nations Statistical Commission (UNSC) adopted the System of National Accounts 2008 (SNA 2008) as the international statistical standard for national accounts and encouraged Member States, regional and sub-regional organisations to implement the standard and support all aspects of the implementation of the updated SNA 2008. The SNA 2008 guidelines were produced under the joint responsibility of the United Nations (UN), the International Monetary Fund (IMF), the statistical office of the European Union (Eurostat), the Organisation for Economic Co-operation and Development (OECD) and the World Bank (WB). Countries are encouraged to use the SNA 2008 as the framework for compiling and integrating economic and related statistics, as well as for national and international reporting of national accounts statistics.

1.2. To achieve the objectives set by the Treaty on the Functioning of the European Union (EU), and more specifically on economic and monetary union, high-quality statistical instruments are needed which provide the Union institutions, governments, economic and social operators, and analysts with a set of harmonised and reliable statistics on which to base their decisions and policy advice. The European System of National and Regional Accounts (ESA 2010) is an internationally compatible accounting framework — broadly consistent with SNA 2008, but adapted to the circumstances and needs of the EU — for a systematic and detailed statistical description of an economy. To ensure that the concepts, methodologies and accounting rules set out in ESA 2010 are strictly applied, it has been decided, following a proposal from the Commission, to give it a solid legal basis. ESA 2010 was thus adopted in the form of a regulation of the European Parliament and of the Council dated 21 May 2013. This regulation comprises binding methodological rules to secure comparability of national accounts aggregates, and a compulsory data transmission programme.

1.3. The fortieth session of the UNSC also requested a coordinated effort by the Inter-Secretariat Working Group on National Accounts (ISWGNA) on the development of manuals, implementation guides, data collection tools and standardised training material, and in use of modern and innovative tools, such as distance learning and knowledge bases, to provide easy access on a range of information, including best practices, to facilitate the implementation of the SNA 2008. The ISWGNA subsequently also formulated a global strategy for the implementation of the SNA 2008 and supporting statistics, taking into account the different levels of implementation of existing international standards and the statistical capacity in the various countries.

1.4. The Eurostat-OECD compilation guide on land estimation is one of a number of manuals, handbooks and guidance notes under the umbrella of the ISWGNA to strengthen the statistical capacity for compiling national accounts, in accordance with the implementation programme for the SNA 2008 and the ESA 2010 in the EU. The concepts are described and defined in line with the SNA 2008 as well as the ESA 2010.

1.5. The compilation guide also helps fulfil some of the data gaps identified by the International Monetary Fund (IMF) and the Financial Stability Board (FSB). In response to the 2007–2008 financial crisis the Group of Twenty (G-20) Finance Ministers and Central Bank Governors Working Group on Reinforcing International Co-operation and Promoting Integrity in Financial Markets called on the IMF and the FSB to explore information gaps and provide appropriate proposals for strengthening data collection. As a result, the G-20 Data Gaps Initiative (DGI) was established focusing on 20 recommendations that aim to deal with the information gaps exposed by the crisis ([1]). In particular, recommendation 15 calls for the development of 'a strategy to promote the compilation and dissemination of the balance sheet approach, flow of funds, and sectoral data more generally, starting with the G-20 economies.'

1.6. The work on recommendation 15 is being undertaken under the auspices of the Inter-Agency Group on Economic and Financial Statistics (IAG). The IAG comprises the Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat, the Financial Stability Board (FSB), the IMF (Chair), the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN), and the World Bank (WB). It was established in 2008 to coordinate statistical issues and data gaps highlighted by the global crisis and to strengthen data collection.

1.7. Recommendation 15 highlights the usefulness of balance sheet data in providing economic policy makers with information on the inter-linkages between groups of actors which may have different economic objectives, functions, and behaviour within an economy. The importance of sectoral coverage of national balance sheets provides a way for economic policy makers to better monitor the vulnerability of domestic economies to shocks.

1.8. Not only can balance sheet data be used to monitor economic activity but can also be used to monitor the change in national wealth and accordingly used to assess sustainability. Making these data more robust provides information to support analysis in line with the recommendations of the Stiglitz/Sen/Fitoussi Report (2009) that states 'while gross domestic product and production measures provide

([1]) For information on the recommendations to the G-20 Finance Ministers and Central Bank Governors see www.imf.org/external/np/g20/pdf/102909.pdf

important information on market production and employment there should also be an emphasis on well-being. In this regard, measures of well-being should be put in context with sustainability because increases in current well-being might occur at the expense of future well-being' ([2]).

1.9. The concept of compiling national balance sheets — that is, a statement of the values of assets owned and of the liabilities owed at a particular point in time — for countries is not new, but there is increasing demand, also in view of the causes of the economic and financial crisis, for complete balance sheets of countries. The compilation of financial assets and liabilities is common practice for many countries, yet data, especially data on non-financial assets, in total and by institutional sector, are often not available. Because of this, the G-20 DGI provided a template of minimum and encouraged stocks of non-financial assets by asset type and by sector ([3]). In response to interest on balance sheet data, the revised transmission programme for ESA 2010 requires additional mandatory items for Table 26 'balance sheets for non-financial assets'. The annex of this chapter reproduces Table 26 from ESA 2010 and highlights the required items. In addition, the OECD collects information related to balance sheet items and is the primary data collector and validator for non-European member countries of the OECD. OECD members agreed to Article 3 a) of the OECD Convention to 'furnish the Organisation with the information necessary for the accomplishment of its tasks', including providing short term, structural and other analytical statistics and their associated methodological information needed for adequate policy analysis and surveillance. As such, OECD members are requested to provide the balance sheet information for Table 26.

1.10. Discussions on various fronts have been undertaken to strengthen the sectoral balance sheet data ([4]). One important finding from discussions with both EU and non-EU countries was the recognition that the valuation of land and dwellings is a central issue for compiling balance sheets for non-financial assets. Central to this issue was the difficulty of most countries to separately identify the value of the land underlying the structure from the value of the structure on it.

1.11. Recognising the need for more practical guidance on the estimation of non-financial assets, in particular for land and structures, a joint Eurostat-OECD Task Force, including participation from the ECB, was created in June 2012. The Task Force on Land and other non-financial assets established an expert group from national statistical institutes (NSIs) and international organisations. The goal of the Task Force was to elaborate on the conceptual and measurement issues related to the estimation of non-financial assets. The initial focus of the Task Force was on issues related to land and the result of this effort can be seen in this compilation guide.

1.12. The Task Force developed a list of research issues and established a work plan and a division of tasks. The following countries and international organisations participated in the Task Force: Austria, Belgium, Canada, Czech Republic, Denmark, Finland, Germany, Italy, Korea, Mexico, Netherlands, Norway, Slovenia, United Kingdom, United States, the ECB, Eurostat, and the OECD. The Task Force was chaired jointly by Eurostat and the OECD and the secretariat was provided by Eurostat.

1.13. This chapter begins with a brief discussion of assets and the importance of land on the balance sheet of a country. It further describes the purpose of this compilation guide and summarises its contents.

Assets and the importance of land

1.14. According to the SNA 2008, assets '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'. (SNA 2008 paragraph 1.46) Economic assets may be either financial assets or non-financial assets.

1.15. In the SNA 2008 and ESA 2010 non-financial assets are grouped into two broad categories: produced and non-produced assets. 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 2008. Non-produced assets are non-financial assets that have come into existence in ways other than through processes of production. Non-financial assets, or capital, have a dual role in an economy as a source of capital services in production and storage of wealth. Measuring Capital (OECD, 2009) discusses the concepts and provides practical guidelines for measuring stocks and flows related to (primarily) produced non-financial assets. However because of the importance of land, the OECD manual briefly addresses the measurement challenges related to land.

1.16. Although land is a non-produced asset, it is well established in the economic literature as a factor of production

([2]) Stiglitz, J., A. Sen, J.-P. Fitoussi, *'Report by the Commission on the Measurement of Economic Performance and Social Progress'*, 2009. See recommendation 3 'Consider income and consumption jointly with wealth' at http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf

([3]) International Monetary Fund, *'Templates for Minimum and Encouraged Set of Internationally Comparable Sectoral Accounts and Balance Sheets'*, July 11 2012. Available at http://www.imf.org/external/np/sta/templates/sectacct/index.htm

([4]) The OECD and IMF jointly organised a conference in March 2011 on *'Strengthening Sectoral Position and Flow Data in the Macroeconomic Accounts'*, see www.imf.org/external/np/seminars/eng/2011/sta/

and therefore as an asset that provides a flow of capital services into production.

The first and oldest recognised 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 (SNA 2008 paragraph 20.41).

1.17. Land can be considered an environmental asset as well as an economic asset, as land will typically have an economic value. This means that in practice, the valuation of land is important for compiling a complete non-financial balance sheet but also for use within the System of Environmental-Economic Accounting (SEEA, 2012).

1.18. Historically, there has been considerable discussion both in official statistics and by academics on the best approach to obtain reliable estimates of land; however, this has not led to agreement across NSIs on a common or best practice approach. One of the major difficulties in valuing land is that the valuation is often combined with the valuation of dwellings and other buildings and structures that exist on the land. Therefore, practical guidance on a wide range of issues is needed.

Purpose and structure of this compilation guide

1.19. Because the compilation of non-financial assets, especially of non-produced assets (e.g. land) is relatively new for many countries, the purpose of this compilation guide is to provide guidance on the compilation of estimates for land on the balance sheet ([5]). It is especially important for EU Member States where the total value of land in the combined sector of households and non-profit institutions serving households (S.14+S.15) is required to be transmitted to the European Commission (Eurostat) by 2017. This compilation guide includes descriptions of sources and methods, practical guidance, numerical examples, and country case studies that are meant to assist countries in compiling internationally comparable estimates of land. Compiling estimates that are comparable across countries and that are of suitable quality is especially important for EU Member States in light of the data requirements of Table 26 and the importance of the higher EU level aggregates.

1.20. The following paragraphs briefly outline the contents of this compilation guide. Chapter 2 presents the SNA 2008 and the ESA 2010 concepts and definitions that are relevant for the balance sheet item land and the related transactions and other changes in land. It also addresses the more conceptual issue of when and how to decompose changes in the value of land on the balance sheet into transactions, other changes in volume and revaluations.

1.21. The need for a coherent and consistent classification that includes all types of land is described in Chapter 3. The chapter discusses various classifications of land, including how land is to be classified under SEEA and proposes a classification structure for land to be used for national accounting purposes.

1.22. The methods used in compiling estimates of land for the balance sheet can be constrained in large part by the nature of the data available. Chapter 4 describes the types of source data that may be available to NSIs when compiling estimates on land value.

1.23. In Chapters 5 and 6 guidance is given on how to estimate land depending on what sources of information are available. Chapter 5 discusses the estimation of land using the direct approach. This may be viewed as a physical inventory method where the area of each parcel of land is multiplied by an appropriate price. Because separate price and quantity information may not be available especially when the land has a structure on it, Chapter 6 discusses estimating the value of land through an indirect method.

1.24. An indirect estimation method, as the name implies, either obtains the value of land indirectly or obtains the price of the land indirectly. Based on countries' current practices, there are three different indirect estimation methods discussed in this guide: the residual approach, the land-to-structure ratio (LSR) approach, and the hedonic approach. The first two indirect approaches derive the value of the land indirectly. The residual approach obtains the value of the land by subtracting the depreciated structure value from the combined total value. This method controls to the estimated real estate value of the property. The LSR approach derives the value of the land indirectly by multiplying the depreciated structure value by the LSR. The LSR approach does not control to the total real estate value. The hedonic approach utilises a hedonic regression model to deconstruct the real estate property value (that is, the combined value of land and structures) into separate prices for the land and for the structure. The total value of land is then derived by multiplying the indirectly derived price by the area of land.

1.25. As mentioned in the introduction, it is important not only to estimate the total stock of land in a country but

([5]) While the role of land as an asset that provides a flow of capital services and the role of land as an environmental asset are important and interesting topics they will not be discussed in this compilation guide.

also to provide estimates by institutional sector. Chapter 7 addresses the issues of sectorisation and cross-classification.

1.26. Some specific estimation issues are further explored in Chapter 8. Such issues address estimations of agricultural and wooded land and how to separate the value of land improvements which are recorded as gross fixed capital formation from the value of the land. In addition, the chapter addresses some of the more conceptual issues of what land should be included within the asset boundary, such as, issues related to government owned land.

1.27. The final chapter, Chapter 9, explores land as a component of households' real estate wealth and the use of real estate wealth for macroeconomic and financial analysis.

Annex: Balance sheet for non-financial assets

Table 1A.1: Balance sheet for non-financial assets ([1])
(unit: current prices)

Code	List of variables	Sectors
AN.1	1. Produced non-financial assets ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.11+ AN.12	2. Fixed assets + Inventories ([3])	S.1, S.11 ([4]), S.12 ([4]), S.13 ([4]), S.14 + S.15 ([4])
AN.11	3. Fixed assets ([5])	S.1, S.11 ([4]), S.12 ([4]), S.13 ([4]), S.14 + S.15 ([4])
AN.111	4. Dwellings	S.1, S.11, S.12, S.13, S.14 + S.15
AN.112	5. Other buildings and structures ([5])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.1121	6. Buildings other than dwellings ([3])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.1122	7. Other structures ([3])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.113+AN.114	8. Machinery and equipment + Weapons systems ([5])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.115	9. Cultivated biological resources ([5])	S.1, S.11 ([4]), S.12 ([4]), S.13 ([4]), S.14 + S.15 ([4])
AN.117	10. Intellectual property products ([5])	S.1, S.11 ([4]), S.12 ([4]), S.13 ([4]), S.14 + S.15 ([4])
AN.1171	11. Research and development ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.1172	12. Mineral exploration and evaluation ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.1173	13. Computer software and databases ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.1174	14. Entertainment, literary or artistic originals ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.1179	15. Other intellectual property products ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.12	16. Inventories ([3])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.13	17. Valuables ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.2	18. Non-produced non-financial assets ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.21	19. Natural resources ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.211	20. Land	S.1 ([2]), S.11 ([2]), S.12 ([2]), S.13 ([2]) S.14 + S.15 ([4])
AN.212	21. Mineral and energy reserves ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.213+AN.214	22. Non-cultivated biological resources and water resources ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.215	23. Other natural resources ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.22	24. Contracts, leases and licences ([2])	S.1, S.11, S.12, S.13, S.14 + S.15
AN.23	25. Purchases less sales of goodwill and marketing assets ([2])	S.1, S.11, S.12, S.13, S.14 + S.15

([1]) Transmission requirements according to Table 26 of the ESA 2010 transmission programme.

([2]) On a voluntary basis.

([3]) Data for reference years before 2012 to be transmitted on a voluntary basis. Transmission for reference years from 2012 onwards is compulsory.

([4]) First transmission in 2017.

([5]) Data for reference years before 2000 to be transmitted on a voluntary basis. Data for reference years 2000–2011 on a compulsory basis only for total economy. Transmission is compulsory for total economy and for institutional sectors for reference years from 2012 onwards.

Source: European System of Accounts 2010, Annex B