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System of National Accounts: Developments since 2008

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Preface

A strength of the System of National Accounts is its capacity to be updated to reflect new economic developments and broaden its user community. The last major revision, the 2008 System of National Accounts (2008 SNA), has its 10-year anniversary this year. When it was finalized, there were several outstanding issues requiring further consideration (either in concept or related to practical implementation). Other issues, such as increasing globalization and digitalization, have gained further prominence.

In response, the Intersecretariat Working Group on National Accounts, working with subject matter specific Task Forces (TF) and the Advisory Expert Group on National Accounts (AEG) has clarified and/or resolved some issues and good progress has been made on others.

The 'System of National Accounts: Development since 2008' provides information on all issues that have been discussed and agreed upon since the SNA 2008 was released, as well as issues that are currently under deliberation.

The document has been prepared for the World Bank by Mr. Brent Moulton (consultant), but relies on the work of national accountants all over the world who have actively participated in task forces and the AEG, as well as colleagues in the international organizations of the Intersecretariat Working Group on National Accounts (Eurostat, International Monetary Fund, Organization for Cooperation and Development, United Nations and World Bank).

System of National Accounts: Developments since 2008

I. Introduction

1. The *System of National Accounts 2008* (SNA) was designed to provide a realistic and compact view of the economy that is suitable for policy and analytical use. Recognizing that economic circumstances constantly evolve and that the statistics must adapt to address new policy and analytical needs, the Intersecretariat Working Group on National Accounts (ISWGNA) oversees an on-going SNA research agenda. The Advisory Expert Group (AEG) was established to assist the ISWGNA in identifying emerging research issues and in resolving outstanding issues by reviewing evidence and providing expert guidance. The ISWGNA, working with the AEG and with task forces organized to deal with specific subject matter, has clarified or resolved a number of research issues and made substantial progress on others.

2. This paper aims to describe the progress that has been made since 2008 in addressing the SNA research agenda. For some issues, this work has led to issuance by the ISWGNA of clarifications or interpretations of the SNA, which are published in *SNA News and Notes* and may be referenced in SNA-related handbooks and manuals. For other issues, the AEG has made recommendations or provided guidance to data compilers that does not rise to the level of a formal clarification of the SNA, but nevertheless serves as expert guidance that may be incorporated in handbooks or manuals. For several issues, the research is still on-going. This information has been presented in various meeting documents, research papers and handbooks. This paper aims to provide an overview of all this research and its major findings and conclusions, as well as to provide references to the papers that provide more detailed discussion and to the handbooks that communicate methods for implementing this guidance.

Background

3. The first comprehensive set of international standards for national accounting was released in 1953, and major updates were released in 1968, 1993, and 2008. The work of preparing the most recent update took place from 2003 to 2008 in a process that was notable for its transparency and the wide involvement of the international statistical community. In February 2008, the United Nations Statistical Commission (UNSC) approved the first 17 chapters (then referred to as “volume 1”) of *System of National Accounts 2008*. In August 2008, following a global review, the volume was formally adopted by the Bureau of the UNSC, and in February 2009, the UNSC adopted the remaining 12 chapters and four annexes (“volume 2”) and recommended that the entire 2008 SNA be published as one document. The English printed version was released in December 2009.¹

¹ For a description of the 2008 update of the SNA, see the “Preface” (pp. xvii–lii) of Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and the World Bank, *System of National Accounts 2008*, Brussels/Luxembourg, New York, Paris, and Washington DC, 2009 (2008 SNA), <https://unstats.un.org/unsd/nationalaccount/sna2008.asp>.

The UN website has other background information such as discussion papers, <https://unstats.un.org/unsd/nationalaccount/hist2008.asp>.

4. After the 2008 SNA was adopted, attention for the next several years turned to the implementation of the new standards. The ISWGNA developed an SNA implementation strategy, which was based on three principles and five modalities.² The principles of the implementation strategy were:

- a. strategic planning to mobilize political and financial support for investment in statistics;
- b. coordination, monitoring, and reporting to ensure that the roles of international and regional organizations, donors, and country statistical offices are clear and their actions are complementary and effective; and
- c. statistical system improvement, which uses a coordinated national, regional, and international programme for the implementation of the 2008 SNA and to produce better official economic statistics.

5. The five modalities of the 2008 SNA implementation strategy were:

- a. training, provided through seminars and workshops that developed knowledge of national accounting and related economic statistics at the country level;
- b. technical cooperation, provided through advisory missions working directly with the staff of national statistical offices;
- c. handbooks, including the preparation of new compilation guides and the revision of previously existing ones, to set out best practices on collecting, compiling and disseminating data in a practical, integrated framework;
- d. research conducted to maintain the relevance of SNA recommendations in a changing economic environment; and
- e. advocacy aiming to support the demand for national accounts data and to encourage the use of the accounts.

Research agenda – an overview

6. The 2008 SNA noted that new developments in national accounting emerge through a combination of the evolution of the economic environment and institutions, combined with advances in statistical estimation, measurement techniques, and data collection. It noted that some issues that were considered during the SNA update process were contentious, but that decisions were reached based on the best information and techniques available at the time. But in some cases, research was still underway when the SNA update had to be concluded, so the ISWGNA identified a research agenda, which was specified in Annex 4 for the 2008 SNA.³

7. The 2008 SNA noted that “it is not possible to expect to capture all the issues that will arise even in the near future” (*paragraph A4.4*). Rather, it listed the issues that had emerged during the

² Information on the SNA implementation programme and activities is available from the UN website, <https://unstats.un.org/unsd/nationalaccount/imp.asp>, and ISWGNA, “Strategy for the 2008 SNA Implementation”, *SNA News and Notes* 28 (May 2009): 2–5, <https://unstats.un.org/unsd/nationalaccount/sna/nn28-en.pdf>.

³ “Preface” and “Annex 4”, *2008 SNA*, pp. xlix, 603–609.

update, but which required more extensive consideration than was possible at the time. Annex 4 of the 2008 SNA organizes these research topics in four broad categories:

- a. basic accounting rules;
- b. the concept of income;
- c. issues concerning financial instruments; and
- d. issues involving non-financial assets.

8. Just as the 2008 SNA was being completed and approved, a global financial crisis and recession occurred. In its aftermath, new research issues came to the fore and several commissions or high-level groups undertook reviews of macroeconomic statistics.

9. The High-Level Forum on the Long-Term Development of the System of National Accounts met in Washington in November 2008 and issued a report endorsing the full implementation of the 2008 SNA, as well as recommending further research on topics such as financial classifications, subsectoring of the institutional sectors, new risk and liquidity management practices, full articulation of the drivers of growth, and multiple measures of wellbeing and poverty.⁴

10. In March 2009, the International Monetary Fund (IMF) and the Financial Stability Board were asked by the G-20 Working Group on Reinforcing International Cooperation and Promoting Integrity in Financial Markets to identify data gaps and develop proposals for strengthening data collection. This effort led to a report identifying information gaps and recommendations for closing them, which were implemented through the G-20 Data Gaps Initiative. The report emphasized the importance of compiling balance sheet data and sectoral accounts following international standards.⁵ That effort was subsequently extended to a second phase, which focuses on regular collection and dissemination of reliable and timely statistics and includes new recommendations to reflect evolving policymaker needs.⁶

11. In February 2008, the President of the French Republic, Nicholas Sarkozy, asked Joseph Stiglitz, Amartya Sen, and Jean Paul Fitoussi to create a commission to identify the limits of GDP as an indicator of economic performance and social progress and to consider the production of alternative indicators of social progress. The commission's report provides a critique of classical GDP issues and includes recommendations for assessing current wellbeing and sustainability. The report recommends giving more prominence to household income, consumption, and wealth, including their distribution across household groups, and a broadening of income measures, in a satellite type of accounting framework, to include unpaid household services. It also recommends taking a multi-

⁴ "Report of the High-Level Forum on the Long-Term Development of the System of National Accounts", Washington, 17–18 November 2008, <https://unstats.un.org/unsd/statcom/doc09/BG-SNA2008-3.pdf>.

⁵ Financial Stability Board and International Monetary Fund, "The Financial Crisis and Information Gaps: Report to the G-20 Finance Ministers and Central Bank Governors", October 29, 2009, http://www.fsb.org/2009/10/r_091029/

⁶ Financial Stability Board and International Monetary Fund, "The Financial Crisis and Information Gaps: Second Phase of the G-20 Data Gaps Initiative (DGI-2), Second Progress Report", September 2017, <http://www.fsb.org/2017/09/second-phase-of-the-g20-data-gaps-initiative-dgi-2-second-progress-report/>.

dimensional approach to assessing wellbeing, including both objective and subjective measures. Assessment of sustainability requires a dashboard of indicators, which include physical indicators of the environmental aspects of sustainability.⁷

12. The AEG, which had initially been formed in 2002 to assist the ISWGNA with the update of the 1993 SNA, was re-established by the UNSC in 2010 to assist the ISWGNA in resolving issues on the research agenda and emerging research agenda, and to assist the ISWGNA in the review of the SNA implementation programme. Since 2012, the AEG has met roughly annually, has reviewed and provided guidance on research issues, giving high priority to practical issues that would facilitate the implementation of the SNA, and has assisted the ISWGNA in its review and assessment of SNA implementation. The agenda has also taken on some of the issues identified by the various reviews of national accounting statistics that have taken place in the aftermath of the financial crisis.⁸

13. The remainder of this paper examines, firstly, the SNA research agenda issues that have been resolved by the ISWGNA with the assistance of the AEG. The resolution may have taken the form of a formal interpretation or clarification of the SNA or, less formally, as recommendations from the AEG which are intended to be useful guidance to SNA compilers on best practices in collecting, compiling, and disseminating national accounts data. Secondly, the paper discusses SNA research agenda issues that are currently being studied, or that have not yet been addressed by the ISWGNA or the AEG. Thirdly, the paper describes some of the handbooks and manuals that have been prepared to provide internationally comparable guidance to national accounts compilers and which may also address some issues on the research agenda. The paper concludes with a brief look at emerging issues and future plans for the research agenda.

II. Issues that have been resolved with guidance issued

Financial services

Treatment of negative interest rates

14. In recent years, several economies have introduced negative interest rates on deposits. In some cases, negative deposit rates are applied to the excess reserves held by commercial banks in the country's central bank, and in a few cases, negative interest rates have been passed on to the customers holding deposits at commercial banks. With negative interest rates, deposit holders are required to pay banks for holding and safe keeping of their funds.

15. In a forthcoming clarification by the ISWGNA, the statistical concepts and treatment of negative interest rates under the 2008 SNA is explained.⁹ The 2008 SNA defines interest as a form of

⁷ Joseph E. Stiglitz, Amartya Sen, and Jean-Paul Fitoussi, *Report by the Commission on the Measurement of Economic Performance and Social Progress*, 2009,

<http://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report>.

⁸ Advisory Expert Group (AEG) page on the UN website, <https://unstats.un.org/unsd/nationalaccount/aeg.asp>.

⁹ ISWGNA, "The Statistical Treatment of Negative Interest Rates – Clarification", *SNA News and Notes* 39 (forthcoming). See also "The Statistical Treatment of Negative Interest Rates", 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/5.2.2, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_5_2_2_NegativeIR_Statistical_Treatment.pdf.

income receivable by the owner of certain kinds of financial assets, such as deposits, debt securities, loans, and possibly other accounts receivable, for putting the financial asset at the disposal of another institutional unit (*paragraph 7.113*). In the case of negative interest, however, the direction of the payment is reversed, and income is payable by the owner of the financial asset to the debtor institutional unit. The interest transaction, however, should be recorded in the 2008 SNA as negative income receivable by the creditor and as negative income payable by the debtor.

16. When a unit borrows from a financial institution and the interest rate charged to the unit includes the provision of financial services, the SNA interest is measured net of the implicit financial service charge—that is, the charge for “financial intermediation services indirectly measured” (FISIM). An implicit charge for FISIM is also counted for depositors and is measured by the difference between the deposit interest rate and the “reference” rate of interest (*paragraphs 6.163–169*). Further research is recommended on the calculation of FISIM in the circumstances of negative interest.

Output of central banks

17. In 2013, the ISWGNA clarified that the recommendations of the 2008 SNA and of the *European System of Accounts: ESA 2010*¹⁰ are slightly different for the measurement of the output of central banks. The 2008 SNA recognizes three categories of services: (i) monetary policy services; (ii) financial intermediation services; and (iii) supervisory services (*paragraph 6.151*). Monetary policy services are collective services that can be allocated to general government, whereas financial intermediation services are individual in nature and would be treated as market production. Supervisory services are typically borderline cases and may be non-market or market, depending on the relative proportionality of fees as compared to the costs of providing these services. In contrast, the ESA 2010 recommends that all output of central banks be considered as market output, though by convention, this output is measured as the sum of costs. The ESA approach to measuring the output of central banks can be regarded as a simplified application of the more detailed guidance provided by the 2008 SNA, and thus to be broadly consistent with the SNA. In practice, the main difference between ESA 2010 and the 2008 SNA guidance is that under the former, all central bank services not covered by fees are allocated as intermediate consumption of financial intermediaries, whereas under the latter, the consumption of central bank services is split between non-market output and market output. Under the 2008 SNA, the non-market output is assigned to general government final consumption, and the market output is assigned to the intermediate consumption of financial intermediaries.¹¹

Deposit insurance and financial stability schemes

18. In the aftermath of the 2007–2008 financial crisis, several countries introduced schemes to pay for deposit insurance services and as instruments to manage financial stability. It should also be noted that several countries have maintained other types of deposit insurance schemes for many years. These schemes are financed by levies on banks, and an issue was whether these levies and fees should be treated as taxes or as payments for insurance services. The AEG agreed that the same

¹⁰ Eurostat, European Commission, *European System of Accounts: ESA 2010*. Luxembourg, 2013 (ESA 2010), <http://ec.europa.eu/eurostat/web/esa-2010>.

¹¹ ISWGNA, “Treatment of the Output of Central Banks”, *SNA News and Notes* 36 (May 2013): 2–3, <https://unstats.un.org/unsd/nationalaccount/sna/nn36-en.pdf>.

criteria should apply to the new schemes as to long-standing schemes and gave guidance on the criteria to be used in determining whether payments to these schemes should be classified as a tax or as an insurance-type transaction. It recommended that the criterion of proportionality between the payments and the provision of insurance-type of services should be examined on a case-by-case basis. The existence of an insurance fund that functions on insurance rules with a full set of accounts may be indicative of proportionality. In contrast, if payments are not put aside in a fund, or can be used for other purposes, this would be indicative that the payments should be classified as taxes.¹²

Delineation of holding companies and head offices

19. The 2008 SNA describes holding companies as units that hold the assets of subsidiary corporations but do not undertake any management activities (*paragraph 4.54*). Head offices, in contrast, undertake the oversight and management of day-to-day operations of their related units (*paragraph 4.53*). Holding companies are classified as financial corporations, whereas head offices are classified as non-financial corporations, unless all or most of their subsidiaries are financial corporations. The ECB/Eurostat/OECD Task Force on Head Offices, Holding Companies, and Special Purpose Entities (SPEs) was formed to provide guidance on internationally comparable recording of head offices and holding companies, as well as to help develop a typology and classification of SPEs. The report of the Task Force was reviewed by the AEG at its 8th meeting in 2013.¹³

20. Based on the final report of the Task Force and the AEG's recommendations, in December 2014 the ISWGNA issued a clarification on the delineation of head offices and holding companies. Because both head offices and holding companies have relations to other subsidiary entities, and business registers may not always contain the information required to delineate between the two types of units. Information on the structure of balance sheet may help to determine whether an institutional unit is a head office or holding company. Where balance sheet data are not available, other supporting information such as turnover or employment may need to be analysed. (For example, holding companies usually don't have turnover and have few if any employees, whereas head offices usually employ senior managerial and administrative staff.) Conceptually, the distinction between head offices and holding companies is clear, but classification based on self-classification or labelling of an entity is likely to be misleading. The ISWGNA recommends that the standard principles for determining whether the entity is an institutional unit should always be applied. Furthermore, it recommends the application of a strict definition of holding companies as units that do not provide any management services, with other supplementary criteria, such as employment, to be used when direct information on management control is not available.¹⁴

¹² "Stability Fees", 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/06, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8b-6.pdf>, and "Conclusions", 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, paragraphs 24–28, SNA/M1.13/01.5, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8-5.PDF>.

¹³ European Central Bank, Eurostat, and OECD, "Final Report by the Task Force on Head Offices, Holding Companies and Special Purpose Entities (SPEs)", 14 June 2013, http://ec.europa.eu/eurostat/documents/737960/738007/Final_Report_Task_Force_SPEs.pdf.

¹⁴ ISWGNA, "The Delineation of Head Offices and Holding Companies in the National Accounts: Clarification", *SNA News and Notes* 37 (December 2014): 1–3, <https://unstats.un.org/unsd/nationalaccount/sna/nn37-en.pdf>.

Pensions

Flows between a defined benefit pension fund and its sponsor

21. The 2008 SNA states that when a pension sponsor is responsible for meeting the liabilities of a defined benefit plan in case of a shortfall, the shortfall should be recorded as a claim of the fund on the sponsor (and vice versa in case of a surplus) (*paragraphs 17.163–166*). In this way, the net worth of the pension fund always remains equal to zero, with any shortfall or excess passed on to the pension sponsor. Because the resulting claim can be affected by a variety of events, the AEG examined several events that may affect the claim, including the unwinding of the discount factor, and the resulting guidance will be presented by the ISWGNA in a forthcoming clarification.¹⁵

22. Under the 2008 SNA, the increase in pension entitlements due to the unwinding of the discount factor is accounted for with an imputed property income flow from the pension fund to households (*investment income payable on pension entitlements (D442)*). The actual property income receivable during the period by the pension fund typically would not be equal to this amount, thus leaving the pension fund with a surplus or shortfall. For example, if a pension is persistently underfunded, its actual property income is likely to persistently fall short of the increase in entitlements due to the unwinding of the discount factor (and vice versa if the pension is persistently overfunded).

23. The investment income flow between the defined benefit pension fund and its sponsor should be equal to the shortfall (or excess) in property income receivable by the pension fund. In the period, the imputed investment income flow related to the claim is equal to the pension entitlements at the end of the previous recording period times the discount factor, minus the property income received in the period by the pension fund on its accumulated assets. By ensuring that the income flows for the pension fund are balanced via an imputed investment income flow, this approach ensures that the sponsors end up with equivalent results as if they had run the scheme themselves. It is thus also consistent with the concept that the sponsor is responsible for any shortfalls or surpluses of the fund. This imputed income flow should be classified as “imputed investment income attributed to a surplus/shortfall in defined benefit pension funds”.

24. The claim between the sponsor and the pension fund can also be affected by holding gains or losses on the assets held by the pension fund. The impact of these holding gains and losses should be reflected in the revaluation of the claim between the pension fund and the sponsor. Any holding gains or losses by the pension fund will directly feed into a revaluation of the claim. When the accumulated assets of the pension have holding gains, they will lower the claim of the fund on the sponsor, and holding losses will have the opposite effect. This means that the revaluation of the claim of the pension fund on the sponsor is equal to holding gains and losses of the pension fund on its accumulated assets, albeit with the opposite sign.

25. The claim between the pension fund and its sponsor can also be affected by various other events, such as changes in life expectancy, differences between assumed and actual retirement dates,

¹⁵ ISWGNA, “Recording of Flows Between a Defined Benefit Pension Fund and Its Sponsor”, *SNA News and Notes* 39 (forthcoming).

changes in the discount factor, or changes in the indexation of pension entitlements. The impact of these types of changes should be recorded as “other changes in the volume of assets”.

Valuation, classification, and timing of transactions

Treatment of freight and insurance

26. Both the 2008 SNA and the 6th edition of the *Balance of Payments and International Investment Position Manual* (BPM6)¹⁶ recommend recording imports and exports at free on board (FOB) value—that is, at the exporter’s customs frontier. The value includes the cost of freight transport and insurance from the exporter’s premises to the border of the exporting economy, but not the cost of freight transport and insurance to the importing economy. The 2008 SNA, however, also recommends the general principle of valuing output at basic prices, with the accrual recording of transactions occurring and valued at market prices when goods experience a change of ownership. The 2008 SNA notes that there may be cases in which border crossing/FOB accrual may differ from the change in ownership principle (*paragraph 14.70*), but several paragraphs in chapter 14 of the 2008 SNA could create ambiguity by giving the impression that transactions for goods in international trade are to be valued at transaction prices at the time of the change in ownership.¹⁷

27. The AEG agreed that the recommendations of the 2008 SNA and BPM6 on the principle of FOB valuation of cross-border trade should be implemented, notwithstanding the deviation from the general principles associated with valuing output at transaction prices at the time of the change in ownership. In the longer term, the AEG agreed that further research is needed in eventually applying the change of ownership principle across the SNA, BPM, and Foreign Trade Statistics with full involvement of all these partners.¹⁸

Recording of emission permits issued under cap-and-trade schemes

28. As part of policy to control emissions, many governments have started issuing tradable permits that allow the holder to emit a limited amount of pollutants. Because the 2008 SNA does not recognize ownership rights on the atmosphere, it recommends that payments for emission permits should be recorded as taxes on production (*paragraph 17.363*). The taxes are recorded on an accrual basis at the time of emission as payments by the emitters. Because the permits are tradable and active markets exist, during the period between their issuance and the time of emission, the permits are assets that should be valued at the market price for which they could be sold.

¹⁶ International Monetary Fund, *Balance of Payments and International Investment Position Manual*, Sixth Edition, Washington DC, 2009, <https://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm>.

¹⁷ “The Treatment of Freight and Insurance in International Trade”, 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/08, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8b-8.pdf>.

¹⁸ “Conclusions”, 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, paragraphs 32–34, SNA/M1.13/01.5, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8-5.PDF>.

29. The ISWGNA, in consultation with the AEG, issued an interpretation of the 2008 SNA treatment of these emissions permits in the national accounts.¹⁹ At the time the permit is issued, a financial asset is created valued at the price of purchase from the government, which has the nature of a pre-paid tax. For the holder, this financial asset is classified as accounts receivable, and for the government, the financial liability is classified as accounts payable. The difference between the pre-paid tax value of the permit and the market value of the permit represents a marketable contract (non-produced nonfinancial asset) for the holder. The creation and disappearance of this non-produced non-financial asset are recorded as an “other change in volume of assets”.

30. Some emission permit schemes are multinational in nature, which makes the recording more complex, as the number of permits surrendered in any one country may differ from the number that was originally allocated by the country. The recommended treatment is to first record the accrual of taxes in the same way as in the pure national case until the total number of permits surrendered reaches the number that have been allocated. Thereafter, taxes on production to the rest of the world should be recorded for any surrendered permit, taking account that the permits are assigned to the stock of accounts payable in other countries that issue the permits. In practice, the stock of permits issued in a country is likely to be broadly sufficient for its needs, so it may be simpler to ignore this imbalance. In countries that issue more permits than are surrendered, in principle a tax on production from the rest of the world should be recorded for these permits, though again in practice it may be easier to ignore these flows or record them as “other changes in volume of assets”.

Issues involving non-financial assets

Research and development

31. The 2008 SNA introduced the capitalization of the output of research and development (R&D) as an intellectual property product (IPP). An EU task force was established to investigate implementation issues that may affect the international comparability of R&D estimates in the national accounts. The AEG discussed the findings of the Task Force at its 7th and 8th meetings.²⁰

32. Guidance on the implementation of R&D as gross fixed capital formation has been published in the Organisation for Economic Co-operation and Development (OECD) *Handbook on Deriving Capital Measures of Intellectual Property Products* and in the *Eurostat Manual on Measuring Research*

¹⁹ “The Recording of Emission Permits Issued Under Cap and Trade Schemes in the National Accounts: Update to SNA News and Notes, Number 30/31 (February 2011)”, *SNA News and Notes* 32/33 (March 2012): 1–4, <https://unstats.un.org/unsd/nationalaccount/sna/nn32-33-En.pdf>; see also, “The Recording of Emission Permits Issued Under Cap and Trade Schemes in the National Accounts: Clarification by the ISWGNA”, *SNA News and Notes* 30/31 (February 2011): 1–4, <https://unstats.un.org/unsd/nationalaccount/sna/nn30-31-En.pdf>.

²⁰ “Practical Implementation Issues Related to the Capitalisation of Research and Development: Provisional Recommendations of the EU Task Force”, 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, SNA/M1.12/2.2, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-22.pdf>; and “Research and development”, 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/11, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8b-11.pdf>.

and Development in ESA 2010.²¹ The guidance included recommendations that compilers should prepare tables to bridge between R&D data sources and the national accounts estimates, that the input method should be used for the volume measures of R&D (reflecting the lack of a clearly defined unit of output), and that expenditures by government on freely available R&D should be recorded as gross fixed capital formation if it is intended for use in production of more than one year.

Economic ownership of intellectual property products

33. Within a multinational enterprise (MNE) group, various entities may be involved in the creation, use, and ownership of IPPs. Determining which entity acts as the economic owner of an IPP asset has important implications for assigning the associated national accounts flows and stocks to the economy in which the entity is resident. The Task Force on Global Production proposed a decision tree to assist in determining the economic ownership of IPPs, which was reviewed and approved by the AEG at its 9th meeting.²² The decision tree appears in the United Nations Economic Commission for Europe (UNECE) *Guide to Measuring Global Production* (paragraphs 4.26–47 and Figure 4.1).²³

34. The decision tree depends on the answers to four questions:

- a. Is the unit a member of an MNE?
- b. Is the unit the producer of the IPP?
- c. What is the main kind of activity, in terms of the International Standard Industrial Classification of All Economic Activities (ISIC), of the unit, or, is the unit expected to use the IPP in its production process?
- d. Does the unit receive income related to IPPs, or, does the unit pay for the use of IPPs (royalties and licenses)?

35. According to the decision tree, the unit within an MNE that produces the IPP is assigned economic ownership if there are no other transactions, such as sales of originals, or sales of copies or licenses to use, indicating that the economic ownership has been assigned to another unit. The receipt of royalties and license fees would be evidence that the unit is acting as the economic owner. More details on various possible arrangements and aspects of the decision tree are available from the UNECE *Guide*. However, in view of recent developments, such as large revisions in the Irish national accounts, there appears to be interest in updating the guidance. The Eurostat-OECD Task Force on Land and Other Non-financial Assets is researching this issue.

²¹ OECD, *Handbook on Deriving Capital Measures of Intellectual Property Products*, OECD, 2010, <http://www.oecd.org/std/na/44312350.pdf>; and Eurostat, *Manual on Measuring Research and Development in ESA 2010*, Publications Office of the European Union, Luxembourg, 2014, <http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/KS-GQ-14-004>.

²² See “Conclusions”, 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, paragraph 20, SNA/M1.14/03, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-5.PDF>; and “Global Production – Economic Ownership of Intellectual Property Products (IPPs) by SPEs”, 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, SNA/M1.14/3.1, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-311.pdf>.

²³ UNECE, *Guide to Measuring Global Production*, United Nations, New York and Geneva, 2015, <http://www.unece.org/index.php?id=42106>.

Definition of catastrophes

36. According to the 2008 SNA, although non-life insurance claims are generally recorded as current transfers, exceptionally large claims associated with a catastrophe may be recorded as capital transfers, as the recording of such large claims as current transfers could distort measures such as disposable income and saving (*paragraphs 17.40–42*). The 2008 SNA, however, did not provide a clear definition of a major catastrophe. Furthermore, the treatment raises the possibility that cross-border transactions in non-life insurance claims may lead to inconsistent recording. For example, one country might record the receipt of certain claims related to a catastrophe as capital transfers, while the country where the counter-party non-life insurance corporation resides might record the payment of the same claims as current transfers. The AEG agreed that a catastrophe should be defined as an exceptional event at the national level. It also recognized that this approach could lead to inconsistencies in the recording of international transfers and recommended that the inconsistencies should be resolved on a case-by-case basis if possible.²⁴

Service lives of military weapon systems

37. The 2008 SNA recognized expenditures on military weapons systems as gross fixed capital formation; under the 1993 SNA, expenditures on weapons systems had been treated as intermediate consumption. For losses of weapon systems due to their use in military operations, including wartime, however, the delineation between other changes in the volume of assets and consumption of fixed capital was unclear. Paragraph 12.9 of the 2008 SNA says that other changes in the volume of assets include "... the effects of exceptional, unexpected events... such as natural disaster or war". Furthermore, to estimate consumption of fixed capital, information is needed on service lives and depreciation rates.²⁵

38. The AEG agreed that the depreciation profiles of military weapon systems should reflect the expected service lives taking account of expected losses and noted that service lives may need to be reviewed in times of conflict. Losses in military operations should generally be recorded as "other changes in volume of assets".²⁶

Treatment of land

39. A joint Eurostat-OECD Task Force on Land and Other Non-financial Assets, in the course of preparing a compilation guide on land estimation, could not find clear guidance on how to record changes in the value of land that occur when there are changes in the surrounding amenities of the land, such as nearby road, parks, and schools. Should changes in such amenities be recorded as an "other changes in volume of assets" or as revaluations? The ISWGNA undertook a written

²⁴ "Issues Note: Consumption of Fixed Capital on Military Expenditures and the Definition of Catastrophes in the Measurement of Non-Life Insurance", 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-263.pdf>, and "Summary Conclusions", 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, SNA/M1.12/05, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-5.PDF>.

²⁵ "Issues Note: Consumption of Fixed Capital on Military Expenditures and the Definition of Catastrophes in the Measurement of Non-Life Insurance", 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-263.pdf>.

²⁶ "Summary Conclusions", 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, paragraphs 26–28, SNA/M1.12/05, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-5.PDF>.

consultation with the AEG on this issue, and the AEG considered the outcome of the consultation at its 9th meeting.²⁷

40. The AEG agreed that from a purely conceptual point of view, changes in the value of land that reflect changes in the surrounding amenities should be recorded as volume changes. For example, if the value of a residential property falls because a nearby park is rezoned to another use, the nearby park is considered an amenity that is part of the quality characteristics of the land. The reduction in value of the land is therefore due to a reduction in its quality, which is recorded a change in volume of assets. However, the AEG also recognized that in practice it may be difficult to clearly distinguish changes in value associated with changes in amenities from other changes in value, and that in such cases the changes in value may be included as revaluations. The AEG's guidance on this issue is included in the *Eurostat-OECD Compilation Guide on Land Estimation*.²⁸

III. On-going research issues

41. The section lists research issues that are currently under consideration by the ISWGNA and the AEG. The SNA research agenda is reflected on the SNA research agenda website, hosted by the Statistics Division, available at: <http://unstats.un.org/unsd/nationalaccount/research.asp>

Globalization

Accounting for global value chains

42. The United Nations Expert Group on International Trade and Economic Globalization is advancing the research on globalization and global production arrangements and is preparing the *Handbook on Accounting for Global Value Chains: Extended System of National Accounts and Integrated Business Statistics*. The *Handbook* is designed to use extended national accounts and integrated business statistics to provide data on issues such as growth and productivity, domestic and foreign shares of value added in trade, and foreign labour and capital used in the trade of goods and services. It will help national statistical offices provide data from a national perspective on globalization based on a global value chains model, which describes the role of industries participating in multi-country supply chains from an integrated perspective, with transactions broken down by partner country.²⁹

²⁷ See "Distinction between Volumes and Prices when Measuring the Value of Land Changes", 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, SNA/M1.14/5.1, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-511.pdf> and <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-512.pdf>; and "Conclusions", 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, paragraphs 26–27, SNA/M1.14/03, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-5.PDF>.

²⁸ Eurostat and OECD, *Eurostat-OECD Compilation Guide on Land Estimation*, Luxembourg, 2015, Publications Office of the European Union, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-14-012>.

²⁹ "Update on the Work of the UN Expert Group on International Trade and Economic Globalization Statistics", 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/3.1.1, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_3_1_1_Global_Value_Chain.pdf.

43. The global value chains model integrates several types of accounts: extended supply and use tables, extended productivity accounts, extended environmental-economic accounts, and extended capital and financial accounts. The *Handbook* will also discuss conceptual issues of the global enterprise perspective, and provides guidance on specific issues, such as firm heterogeneity related to globalization, approaches to developing a global groups register, and the exchange of information.

44. The work of the UN Expert Group, which comprises experts who are currently working on this issue, has built on earlier research efforts, such as the Task Force on Global Production established by the Conference of European Statisticians, which produced the UNECE *Guide to Measuring Global Production*, and the OECD and World Trade Organization, which developed worldwide Inter-country Input-Output Tables, including a database of trade in value-added indicators that are designed to improve our ability to analyse cross-border flows. Part of the latter efforts is also the development and compilation of Extended Supply of Use Tables, to further enhance the analysis of foreign trade and income flows.³⁰ The Figaro project is a joint project of Eurostat and the European Commission's DG Joint Research Centre. Goals of the Figaro project include production of annual EU Inter-country Input-Output Tables and five-year EU Inter-country Supply, Use and Input-Output Tables.

Exchange and sharing of economic data

45. Increased globalization has led national statistical offices to look toward the exchange and sharing of data as an approach for improving data quality while reducing respondent burden and producing statistics more efficiently. The Conference of European Statisticians (CES) has established a Task Force to review the exchange and sharing of economic data.³¹ In the G-20 context, the Inter-Agency Group on Economic and Financial Statistics is also monitoring this issue and has sponsored a workshop on data sharing.

46. Exchange and sharing of data can improve data quality by allowing countries to reconcile bilateral asymmetries and ensure that there is international consistency in the treatment of issues related to globalization. The CES Task Force recognizes that there are legal and confidentiality constraints that need to be satisfied to allow for the exchange of data. It noted that confidentiality concerns are being addressed with the increased availability of micro data for research and statistical analyses. Several national statistical offices have established large case units to focus on collection of data for MNEs, and the several international organisations are looking into the possibilities to develop global databases on MNEs, among which the EuroGroups register.

³⁰ UNECE, *Guide to Measuring Global Production*, New York and Geneva, 2015, United Nations, <http://www.unece.org/index.php?id=42106>; "Trade in Value Added", 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/14, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8b-14.pdf>.

³¹ "ECE Task Force on Exchange and Sharing of Economic Data", 11th Meeting of the Advisory Expert Group on National Accounts, 3–5 December 2017, New York, SNA/M1.17/3.2, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_3_2_Data_Exchange_TF.pdf.

Factoryless goods producers

47. Factoryless goods producers (FGPs) are producers of goods that outsource completely the manufacturing transformation activities (for example, they do not own the material inputs), but own the underlying IPPs and control the outcome of the production process. The Task Force on Global Production examined the delineation and classification of FGPs and the recording of transactions.³²

48. A crucial issue is the industrial classification of FGPs. Although a strict interpretation of ISIC, revision 4, suggests that FGPs should be classified as distributors in wholesale or retail trade, the opinion of the TFGP was that ownership of material inputs should not be the determining factor in classifying an FGP. Unlike most distributors, FGPs add value to the manufacturing transformation process by supplying technology, know-how, and product design. By controlling technical specifications and requirements, FGPs also maintain control over the outcome of the production process that is generally regarded as part of the management of material transformation.

49. The AEG, at its 9th meeting, discussed FGPs and recognized the difficulties in determining the recording of the transactions between FGPs and the contract manufacturers. It recommended that more practical experience was needed on the collection and recording of these transactions, and that the Balance of Payments Committee and the Expert Group on International Statistical Classifications also needed to consider these issues.³³

50. At the 11th meeting of the AEG, the Expert Group on International Statistical Classifications presented its recent work on FGPs. The Expert Group's Technical Subgroup on ISIC has discussed the identification of FGPs and is developing an issues paper on considerations regarding FGPs for future revisions of ISIC. It is also considering the implications of the treatment for the choice of statistical units and is looking for more country experience on identifying FGPs. The AEG recommended that after reviewing the Technical Subgroup's forthcoming issues paper, the ISWGNA and the AEG should determine what additional research is needed to measure this activity appropriately in the national accounts.³⁴

Recording flows and stocks of international organizations

51. According to the 2008 SNA, international organizations that derive their authority, directly or indirectly, from member national states (such as the United Nations) are treated as units that are resident in the rest of the world (*paragraphs 4.173–175*). This treatment implies that their output, financial assets, and liabilities are treated as non-residents in country national accounts, residing in

³² See "Global Production – Factoryless Goods Producers", 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, SNA/M1.14/3.2, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-32.pdf>.

³³ "Conclusions", 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, SNA/M1.14/03, paragraphs 22–24, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-5.PDF>.

³⁴ See Vysaul Nyiorongo, "Classification of Factoryless Goods Producers (FGPs): Discussions of the Expert Group on International Statistical Classifications", 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_3_3_Factoryless_Goods.pptx; and "Conclusions", 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, paragraphs 26–27, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_Conclusions.pdf.

“international economic territory”. The implications of this treatment were explored in the 9th meeting of the AEG. In principle, for example, international financial institutions such as the IMF, World Bank, and the Bank for International Settlements produce FISIM. A possible methodology for calculating equity claims on international organizations was also presented. The AEG decided that the measurement of the output of international institutions needed further work and added this issue to the research agenda.³⁵

Digital economy

52. Developments in information technology have resulted in the introduction of many new products, new ways of interacting with sellers, and new channels for distribution. Many of these new goods and services utilize the Internet to facilitate transactions and may use open source and cloud-based IT software. Some of the services available are provided free of direct charges and are instead financed by the provider by receiving payment from advertising or through the collection and analysis of data about users. These recent technologies include some that have become known as the “sharing economy”, which rely on part-time workers who may utilize their own assets, such as their car or their dwelling, to provide web-mediated peer-to-peer transactions. Uber’s ride-sharing service and Airbnb’s provision of short-term lodging are prominent examples of these services. These new goods and services have raised questions about whether the statistical system is able to adequately capture these developments, and especially whether the price and volume measures adequately take account of quality improvements associated with the changes to these goods and services.³⁶

53. The OECD recently created an Advisory Group on Measuring GDP in a Digitalised Economy. Some of the measurement challenges that this group plans to examine are getting information on the value of goods and services intermediated by digital intermediary platforms, understanding the technologies that enable the use of digital tools in production, and developing imputations of the value of free services and data. The analysis includes activities that may be outside the SNA production boundary, such as the production of free goods and services or household production of digitally enabled services for its own use. The Advisory Group proposes a satellite account to facilitate this analysis.³⁷

54. A Eurostat Task Force on Price and Volume Measures for Service Activities is examining price and volume measures on a variety of services, and part of its work focuses on digital services and platforms. Among the issues that they are considering are:³⁸

³⁵ “Treatment of Output International Financial Institutions”, 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, SNA/M1.14/6.1, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-61.pdf>; “Conclusions”, 9th Meeting of the Advisory Expert Group on National Accounts, 8–10 September 2014, Washington DC, SNA/M1.14/03, <https://unstats.un.org/unsd/nationalaccount/aeg/2014/M9-5.PDF>.

³⁶ Ahmad, N. and P. Schreyer, “Measuring GDP in a Digitalised Economy”, *OECD Statistics Working Papers*, 2016/07, OECD Publishing, Paris, 2016, <http://dx.doi.org/10.1787/5jlwqd81d09r-en>.

³⁷ “Measuring the Statistical Impact of Digitalisation”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/4.1, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_4_1_Digitalisation.pdf.

³⁸ “Price and Volume Measures in Times of Digitalisation”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/4.2, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_4_2_Price_Volume_DE.pdf.

- a. online streaming of video and audio content, such as motion pictures, computer games, and music;
- b. services mediated by use of a digital platform, such as Uber;
- c. comparisons of quality in price and volume measures when a new digital good or service is introduced in relation to the previously available good or service.

55. The AEG recommended that the OECD Advisory Group, in conjunction with Eurostat’s Task Force, develop concrete examples of digital production activities and show how they fit into the SNA’s conceptual framework, alongside the broader analysis appearing in the satellite account. It recommended that the work include analysis of the impact of digitalization on employment and wages, as well as the need to involve developing countries in formulating the satellite account framework. Further work on price and volume measures was also identified as a key priority.³⁹

Economic wellbeing and sustainability

Disparities in national accounts

56. A Eurostat/OECD Expert Group on Disparities in National Accounts was established in 2011 to examine the feasibility of using existing data to produce measures of disparities between groups of households, while using concepts and definitions that are consistent with national accounts totals. The work of this Expert Group was discussed at the 8th meeting of the AEG.⁴⁰ Subsequently, work on the compilation of distributional measures has been continued by an OECD Expert Group, and its work was discussed at the 10th meetings of the AEG.⁴¹

57. The OECD Expert Group has goals of improving the methodologies for compiling distributional measures of income, consumption, and wealth across household groups that were developed by the first Expert Group and to provide a basis for regular compilation and publication of distributional statistics consistent with the national accounts definitions and totals. This exercise has revealed gaps between aggregated micro data for households and the national accounts totals, and to maintain national accounts totals, these gaps must be allocated to household subgroups. The quality of the estimates depends on the size of these gaps and the quality of the allocations.

58. Because micro data generally only become available with a time lag, the Expert Group has started exploring nowcasting techniques that may permit the compilation of more timely estimates. More generally, the Expert Group, recently re-established as a joint Eurostat/OECD group, also continues to work on methods for dealing with micro-macro gaps and on the distribution of wealth

³⁹ “Conclusions”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, paragraphs 32–36, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_Conclusions.pdf.

⁴⁰ “Eurostat/OECD Expert Group on Disparities in National Accounts (EGDNA)”, 8th Meeting of the Advisory Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/13, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8b-13.pdf>.

⁴¹ “Distributional Information on Households – Work of the OECD Expert Group on Disparities in National Accounts”, 10th Meeting of the Advisory Expert Group on National Accounts, 13–15 April, Paris, SNA/M1.16/8, https://unstats.un.org/unsd/nationalaccount/aeg/2016/8_Income_Distribution.pdf.

across households, in close co-operation with an ECB group that works on the distribution of wealth more specifically.

Supplementary pension table

59. Because of the differences between countries in pension arrangements and the complexity of some of those arrangements, the 2008 SNA introduced a supplementary table on pensions in social insurance. This table also recognizes the flexibility that the 2008 SNA allows for the recording of pension entitlements of unfunded pension schemes sponsored by government for its employees. The table is intended to provide an internationally comparable overview of pensions in social insurance. The *European System of Accounts 2010* (ESA 2010) establishes methodological requirements for the data compiled for this table by countries that are required to transmit to Eurostat.⁴²

60. The Eurostat table presents pension entitlements—that is, household pension assets—data which are useful for the analysis of household wealth and decisions about consumption and saving. The table clearly distinguishes between defined contribution and defined benefit pension schemes and social security pension schemes and distinguishes between schemes operated on behalf of general government and non-general government. It also clearly distinguishes schemes that are reported in the core national accounts from those that are not in the core accounts. The table presents opening and closing balance sheet positions for pension entitlements, as well as the various flows that contribute to the change in position during the period. The table does not report on the accumulated assets held by funded pension schemes.

61. The OECD intends to start collecting data for the supplementary table for non-European countries in 2018. The OECD version of the table is broadly in line with the one used by Eurostat, but includes additional information to derive total social insurance pension entitlements of resident households and on assets held by the various types of pension schemes and on the discount rate used in the calculation of the entitlements of defined benefit schemes. The AEG welcomed this work and supported annual compilation of these tables. It also recommended further research on which discount rate to use in the compilation of the supplementary tables.

62. In recognition of the differences between countries in the institutional arrangements for employer-related pension funds and social security schemes and the flexibility allowed in the recording of pension entitlements of unfunded pension schemes sponsored by government for its employees, further work is needed to assess the criteria that are being used to differentiate between the types of schemes that are included in the core national accounts and those that are excluded.

Household retirement resources

63. In many countries, households may be able to draw on a variety of resources for retirement, such as social insurance pension entitlements, social assistance pensions, annuities and other life

⁴² See “The SNA Supplementary Pension Table”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/2.2, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_2_2_Pension.pdf; and “Conclusions”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, paragraphs 12–13, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_Conclusions.pdf.

insurance policies, and tax-advantaged saving schemes. To understand and plan for the wellbeing of households in retirement, it is important to account for resources from the full range of available sources. The OECD has developed a table on household retirement resources, which has been presented at the 9th and 11th meetings of the AEG.⁴³

64. Because institutional arrangements for retirement are likely to differ between countries, there will also be differences between countries in the scope of assets that are relevant for inclusion in the proposed table on household retirement resources. The AEG suggested that providing more granularity in the presentation of the table would help to improve the international comparability of the data. The AEG also encouraged work from developing countries to help expand the relevance and applicability of this table. It would also be useful for this information to be coordinated with the work on household distribution of income, consumption and wealth to provide policy makers with relevant data on disparities in household well-being.

Financial services

Financial intermediation services indirectly measured

65. The issue of whether credit default risk should be included or excluded in the methods used for the calculation of FISIM has been controversial and research on this topic remains on-going. Additional work is also needed to consider alternative approaches to price and volume measurement, to examine an approach for determining the reference rate based on the “cost of funds”, as well as other alternative approaches, to further consider the scope of FISIM in terms of financial instruments and units, and to examine the connection between FISIM and the definition of income.

66. Notwithstanding the need for additional work on various aspects of FISIM, much progress has been made on resolving outstanding methodological issues. Based on the report of the Task Force on FISIM, the AEG agreed that liquidity transformation services should remain part of FISIM and that a single reference rate should be used to determine those services. The AEG also agreed that for imports and exports of these services, FISIM should be calculated using national and foreign currency and that reference rates for foreign providers of FISIM may differ from the reference rate for domestic providers. Guidance was also provided on the calculation of volume measures of FISIM and on methods for measuring volume and price changes of FISIM.⁴⁴

⁴³ See “Table on Household Retirement Resources”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/2.3, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_2_3_Household_Retirement.pdf; and “Conclusions”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, paragraphs 14–16, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_Conclusions.pdf.

⁴⁴ See United Nations and European Central Bank, *Financial Production, Flows and Stocks in the System of National Accounts*, Studies in Methods, Series F, No. 113, Handbook of National Accounting, United Nations, New York, 2014, paragraphs 3.23–82, <https://unstats.un.org/unsd/nationalaccount/docs/FinancialHB-wCover.pdf>; “Financial Services Indirectly Measured”, 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, SNA/M1.12/2.1, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-21.pdf>; “Summary Conclusions”, 7th Meeting of the Advisory Expert Group on National Accounts, 23–25 April 2012, New York, SNA/M1.12/05, paragraphs 8–13, <https://unstats.un.org/unsd/nationalaccount/aeg/2012/M7-5.PDF>; “FISIM”, 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/02,

67. Regarding credit default risk, the 2008 SNA recommends that the implicit service charge paid to a bank by its borrowers should be measured as the difference between the rate paid to the bank and the reference rate, while the service charge paid by depositors should be measured as the difference between the reference rate and the rate paid to depositors (*paragraph 6.163*). Because banks charge higher interest rates to risky borrowers, these measures would include a payment for risk. In 2003, Christina Wang of the Federal Reserve Bank of Boston, using a model of risk in portfolio analysis, showed that the bank's return contained in the SNA measure of FISIM includes not only compensation for the services provided, but also compensation for risk, which she argued was not part of bank output.⁴⁵ The idea that all risk should be excluded, however, turned out to be controversial, with some researchers arguing that financial services include the cost of bearing risk, and others agreeing with Wang that it should be excluded from the measure of bank output.⁴⁶ An intermediate position is that rather than excluding all risk, only the "default margin"—that is, the expected credit losses due to borrower default—should be excluded, as these represent funds that the bank does not expect to recover and hence, will not be available to pay for the provision of services. This measure would still possibly include compensation for risk aversion. At the 10th meeting of the AEG, the United States presented a practical example of the effects of excluding credit default risk from the calculation of FISIM based on estimating the default margin.⁴⁷ The AEG agreed that the Task Force on FISIM should revisit the conceptual merits of either excluding or including credit default risk and to further develop practical methods that may support such a decision.⁴⁸

Islamic finance

68. Islamic finance does not operate in the same way as the type of finance that is conventionally described in the 2008 SNA. Islamic law does not permit the receipt and payment of interest, excessive uncertainty, gambling, and short sales or financing activities that are considered harmful to society. The Statistics Division of the Economic and Social Commission for Western Asia and the UN Statistics Division established a Task Force on Islamic Finance under the auspices of the ISWGNA to better understand the statistical implications of Islamic finance for the national accounts and to help provide practical guidance on how to treat Islamic finance transactions in the SNA. Subsequently, a Workshop

<https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8b-2.pdf>; "Conclusions", 8th Meeting of the Advisory Expert Group on National Accounts, 29–31 May 2013, Luxembourg, SNA/M1.13/01.5, <https://unstats.un.org/unsd/nationalaccount/aeg/2013/M8-5.PDF>.

⁴⁵ J. Christina Wang, "Loanable Funds, Risk, and Bank Service Output", Federal Reserve Bank of Boston Working Paper No. 03-4, 2003, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=648222.

⁴⁶ For example, Dennis J. Fixler, Marshall B. Reinsdorf, and George M. Smith, "Measuring the Services of Commercial Banks in the NIPAs: Changes in Concepts and Methods", *Survey of Current Business* 83 (September 2003): 33–44, <https://www.bea.gov/scb/pdf/2003/09September/0903banking.pdf>, argued that risk should be included in the measure of FISIM, while J. Christina Wang, Susanto Basu, and John G. Fernald, "A General Equilibrium Asset-Pricing Approach to the Measurement of Nominal and Real Bank Output", in W. Erwin Diewert, John S. Greenlees, and Charles R. Hulten (editors), *Price Index Concepts and Measurement*, University of Chicago Press, Chicago and London, 2009, pp. 273–320, <http://www.nber.org/chapters/c5081.pdf>, argued that risk should be excluded.

⁴⁷ Kyle Hood, "Accounting for Credit Default Risk in FISIM", 10th Meeting of the Advisory Expert Group on National Accounts, 13–15 April 2016, Paris, SNA/M1.16/9.1,

https://unstats.un.org/unsd/nationalaccount/aeg/2016/9_1_Credit_Default_Risk_FISIM.pdf.

⁴⁸ "Conclusions", 10th Meeting of the Advisory Expert Group on National Accounts, 13–15 April 2016, Paris, <https://unstats.un.org/unsd/nationalaccount/aeg/2016/Conclusions.pdf>.

on Islamic Finance in the National Accounts was held in Beirut in October 2017, which included presentations and draft recommendation on the treatment of Islamic banks in compiling national accounts. The Workshop also discussed the sectorization of Islamic financial corporations and the classification of Islamic financial instruments and corresponding property income flows. The Workshop recognized the need for further research on whether the FISIM formula can be used in the calculation of financial intermediation services provided by Islamic financial intermediaries, and if so, how the formula should be adapted to the Islamic finance context.

69. The work of the Task Force and the Workshop was presented at the 11th meeting of the AEG, and the AEG welcomed their work and supported the Task Force's recommendations to form working groups to continue the work.⁴⁹

Other issues related to compilation of national accounts

Statistical units

70. The 2008 SNA recommends that the establishment (a unit "situated in a single location and in which a single productive activity is carried out or in which the principal productive activity accounts for most of the value added") should be used for the analysis of production activities, such as the production and generation of income accounts and the supply and use tables (*paragraphs 5.14–19, 14.3*). However, recent changes in production arrangements, brought on in part by advances in information technology, have allowed many producers to manage and account for production arrangements centrally across many physical locations. Furthermore, production processes have become increasingly fragmented, which calls into question the assumption that supply and use tables are capturing activities that can be considered roughly homogeneous. These considerations have led some statistical offices to collect more production-related data directly from enterprises and to question the efficacy of continuing to focus on the establishment as the principal unit for supply and use tables and for statistics on production.

71. There are also significant differences across countries in the statistical units that are used for compiling institutional sector accounts, with some countries using legal units as the basic units, while others rely on enterprises, on groups filing consolidated tax returns, or even, in some cases, enterprise groups as the basic statistical units for institutional sector accounts.

72. In view of the differences in practices and in interpretation, the ISWGNA established a Task Force on Statistical Units to review the 2008 SNA recommendations on statistical units and to consider whether the recommendations may need to be adjusted in the future. The task force plans to take into consideration current country practices, needs for regional accounts and for productivity measurement, and to consult with experts on business registers, surveys, and classifications.

⁴⁹ "Islamic Finance in the National Accounts", 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/5.1, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_5_1_Islamic_Finance.pdf; "Conclusions", 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, paragraphs 37–39, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_Conclusions.pdf.

73. The work of the Task Force began with a survey on current practices in the compilation of supply and use tables, institutional sector accounts, and regional accounts. The survey confirmed divergences in country practices regarding business registers and the units used for institutional sector accounts, supply and use tables, and regional accounts. It was difficult to infer from the survey, however, the reasons for the differences in country practices, whether they reflected different interpretations of the SNA or were based on practical necessity. More work is needed to understand the reasons and to understand the potential impact of the uses of different statistical units in the national accounts.⁵⁰

Big data

74. Official statisticians are increasingly exploring the possibility of using big data to supplement traditional survey and administrative data in the compilation of official statistics. Big data offer the possibility of providing more granular and timely views of fast-changing economic circumstances. The UN Statistical Commission has created the Global Working Group on Big Data for Official Statistics, and the Third IMF Statistical Forum focused on use of micro-data, including big data.⁵¹ The 9th and 10th meetings of the AEG included presentations from Australia, Canada, and the United States on practical methods for using big data in the compilation of national accounts.

Valuation of natural resources

75. When the net present value method is used to value natural assets, the estimates rely on an assumption that the asset market is in equilibrium, so that the market value can be calculated as the sum of discounted expected future income from the asset. However, commodity prices typically show large swings in price, causing significant uncertainty about expected future income. The 10th meeting of the AEG included a paper on measuring the value of natural resources, but further research is needed to derive practical methods for dealing with volatile commodity prices in determining asset values.⁵²

New and emerging issues

76. The SNA research agenda shown on the UN website lists some new and emerging issues that have not yet been addressed by the AEG. The following paragraphs describe a couple of emerging issues that have not previously been discussed in this document.

Capital services of assets not contributing to production

77. Long-lasting capital assets may go through accounting periods when they are not contributing to production. For example, a building may remain vacant or a factory may remain closed for a significant interval. For some types of major assets, such as a ship, capital formation of the asset may

⁵⁰ “Statistical Units”, 11th Meeting of the Advisory Expert Group on National Accounts, 5–7 December 2017, New York, SNA/M1.17/6, https://unstats.un.org/unsd/nationalaccount/aeg/2017/M11_6_Statistical_Units.pdf.

⁵¹ “Report of the Global Working Group on Big Data for Official Statistics to the United Nations Statistics Commission at its Forty-Seventh Session, 8–11 March 2016, https://unstats.un.org/unsd/nationalaccount/aeg/2016/5_1_1a_GWG_Big_Data_report.pdf.

⁵² “Classification and Valuation of Natural Resources”, 10th Meeting of the Advisory Expert Group on National Accounts, 13–15 April 2016, Paris, SNA/M1.16/13, https://unstats.un.org/unsd/nationalaccount/aeg/2016/13_Natural_Resource_Valuation.pdf.

take place over several accounting periods before it is used in production. Research is needed to understand the nature of capital services that may be provided by assets that are not directly contributing to production.

Capital income of insurers' own funds

78. In the 2008 SNA, the calculation of output and value added of insurance corporations excludes the capital income derived from the investment of the own funds of these corporations. It may be useful to assess the implications of the exclusion of own funds in measuring insurance service output and understand how an alternative treatment would affect the transactions in the national accounts.

IV. Manuals and handbooks

79. This section provides a list of the manuals and handbooks that have been prepared or revised in support of the implementation of the 2008 SNA. These manuals and handbooks are intended for various audiences and purposes. Some of the manuals and handbooks provide a basic introduction to national accounts that is intended for data users and less experienced compilers. Others provide detailed guidance on compilation for specific parts of the accounts, while some others deal more broadly with the functioning of an integrated statistical system. Some of the manuals and handbooks address issues on the SNA research agenda or provide guidance on the compilation of satellite accounts.

Measuring Capital: OECD Manual, 2nd edition

80. This manual—an update of the original 2001 *Manual*—takes the SNA as its starting point and emphasizes an integrated approach to measure capital that ensures consistency between stock and flow measures. The new edition emphasizes the role of capital in productivity analysis and provides an important link between the SNA and productivity measurement.⁵³

Handbook on Deriving Capital Measures of Intellectual Property Products

81. In preparation for the implementation of the 2008 SNA, the OECD Task Force on R&D and Other Intellectual Property Products helped develop this handbook to provide clear, practical guidance on how to estimate gross fixed capital formation and consumption of fixed capital for IPPs.

82. In addition to providing general information on measuring capital in the SNA, such as demand and supply approaches, international trade, prices and volumes, and the perpetual inventory method, the *Handbook* also provides guidance on each type of IPP, along with detailed examples from country practice. The *Handbook* includes chapters on R&D, mineral exploration and evaluation, software and databases, and entertainment, literary and artistic originals, as well as nine annexes.⁵⁴

⁵³ OECD, *Measuring Capital: OECD Manual, 2nd edition*, OECD, 2009, <https://www.oecd.org/std/productivity-stats/43734711.pdf>.

⁵⁴ OECD, *Handbook on Deriving Capital Measures of Intellectual Property Products*, OECD, 2010, <http://www.oecd.org/std/na/44312350.pdf>.

The Impact of Globalization on National Accounts

83. The Working Group on the Impact of Globalisation on National Accounts was created in 2007 “to review the main distortions in the compilation of national accounts and related source statistics, as caused by globalization”. The final report was published by the Eurostat, OECD and UNECE as *The Impact of Globalization on National Accounts* and was designed to support the implementation of the 2008 SNA. It covered a broad set of issues related to globalization, including the behaviour of multinational enterprises, trade in goods and services, including the recording of goods sent for processing abroad, and household-related issues, such as international labour movements, remittances, second homes abroad, and e-commerce.⁵⁵

84. The *Globalization Guide* includes experience from many countries and provides extensive information that can help national accounts and balance of payments compilers. Several issues, however, were still unfinished as this guide was completed—especially, the measurement issues related to global manufacturing, international transactions in IPPs, implementation of the 2008 SNA recommendations for the recording of goods for processing and merchanting, and the treatment of SPEs. Guidance on these issues would be provided later by the Task Force on Global Production and in its *Guide to Measuring Global Production*.⁵⁶

Technical Compilation Guide for Pension Data in National Accounts

85. This *Compilation Guide* is a handbook for compilers and users of data on pension schemes in social insurance. Because most of the government-managed pension schemes in Europe are based on the pay-as-you-go principle, the *Compilation Guide* describes the various steps on how derive actuarial estimates.⁵⁷

The 2008 SNA – Concepts in Brief: A Complement to the System of National Accounts 2008

86. This handbook is not only strictly consistent with the full text of the 2008 SNA, but uses that text. However, by setting aside aspects of the 2008 SNA that are of limited relevance to many small developing countries, the handbook provides a concise version of the SNA that focuses on the needs of developing countries. The document enumerates what has been omitted so that the reader is aware of these topics and is able to turn to the more extended volume if required.⁵⁸

The 2008 SNA – Compilation in Brief: A Complement to the System of National Accounts 2008

87. This handbook provides simplified set of compilation practices that should be useful for developing countries and serve as a first step toward more extensive coverage of the accounts. It is

⁵⁵ United Nations Economic Commission for Europe, *The Impact of Globalization on National Accounts*, United Nations, New York and Geneva, 2011, <http://www.unece.org/index.php?id=28890>.

⁵⁶ UNECE, “Globalization and National Accounts”, *SNA New and Notes* 34 (July 2012): 5–7.

⁵⁷ Eurostat and European Central Bank, *Technical Compilation Guide for Pension Data in National Accounts*, 2011 edition, Publications Office of the European Union, Luxembourg, 2011, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-RA-11-027>.

⁵⁸ World Bank, *The 2008 SNA – Concepts in Brief: A Complement to the System of National Accounts 2008*, <https://unstats.un.org/unsd/nationalaccount/docs/2008sna-conceptsbrief.pdf>.

intended to make users aware of the potential of the complete system and give the compilers courage to build on these first steps.⁵⁹

Guidelines on Integrated Economic Statistics

88. This publication, which was developed as a collaborative effort of two Friends of the Chair groups created by the UN Statistical Commission, provides operational guidelines, case studies, and material on practical knowledge to guide countries in implementing an integrated approach to economic statistics, using the 2008 SNA as the conceptual organizing framework. The guide contains many case studies and material based on practical experience to assist countries in producing macroeconomic statistics that are consistent and coherent with short-term, annual and benchmark economic statistics. Country statistical agencies face a spectrum of conditions, with some having centralized statistical systems and others relying on decentralized systems. Countries are also at different stages of economic and statistical development, so the approach needs to be tailored to the country circumstances. The *Guidelines* cover best practices for the full spectrum of circumstances.⁶⁰

89. The *Guidelines* include chapters on policy needs, benefits, and challenges of integrated economic statistics, the general framework, including the SNA, institutional arrangements for managing integrated economic statistics, the statistical production process, and the implementation of integrated statistics in diverse types of accounts.

Handbook on Quarterly National Accounts, 2013 edition

90. This Eurostat *Handbook*, an update of the 1999 *Handbook*, is targeted at quarterly national accounts compilers, particularly newcomers, and discusses the data sources and methods used for compiling quarterly non-financial accounts for the total economy and each institutional sector. The *Handbook* expands on Chapter 12 of ESA 2010 with respect to issues that are of special significance to quarterly national accounts, including time of recording, flash estimates, balancing and benchmarking, chain-linked volume estimates, and seasonal and calendar adjustments.⁶¹

Financial Production, Flows and Stocks in the System of National Accounts

91. Jointly prepared by the UN Statistics Division and the European Central Bank (ECB), this handbook was developed to assist countries and international organizations in implementing the SNA for the financial corporations sector of the economy.⁶²

92. The handbook contains chapters on the SNA accounting framework, on the subsectors of the financial corporations sector, on the ways in which financial services are provided, charged for and

⁵⁹ World Bank, *The 2008 SNA – Compilation in Brief: A Complement to the System of National Accounts 2008*, <https://unstats.un.org/unsd/nationalaccount/docs/2008SNA-CompilationBrief.pdf>.

⁶⁰ United Nations, Department of Economic and Social Affairs, Statistics Division, *Guidelines on Integrated Economic Statistics*, Studies in Methods, Series F, No. 108, United Nations, New York, 2013, <https://unstats.un.org/unsd/nationalaccount/docs/ies-guidelines-e.pdf>.

⁶¹ Eurostat, *Handbook on Quarterly National Accounts*, 2013 edition, Luxembourg, Publications Office of the European Union, 2013, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-13-004>.

⁶² United Nations Statistics Division and European Central Bank Directorate General Statistics, *Financial Production, Flows and Stocks in the System of National Accounts*, Studies in Methods, Series F, No. 113, Handbook of National Accounting, United Nations, New York, 2014, <https://unstats.un.org/unsd/nationalaccount/docs/FinancialHB.pdf>

allocated (including FISIM), on the classification of financial assets and liabilities, and on the valuation and revaluations of these assets and liabilities. There are also chapters on from-whom-to-whom financial accounts and balance sheets, on data sources for financial accounts and balance sheets, on presentation and dissemination of the accounts, on the uses of financial accounts and balance sheets for institutional sectors, and on the compilation of financial accounts and balance sheets within monetary and economic unions. The handbook includes several illustrative worked examples.

External Debt Statistics: Guide for Compilers and Users

93. This IMF *Guide*, an update of the 2003 *Guide*, provides comprehensive guidance for the measurement and presentation of external debt statistics that can be applied consistently across the different sectors of the economy and across the different debt instruments used for borrowing. The concepts set out in the *Guide* are harmonized with those of the 2008 SNA and BPM6.⁶³

Government Finance Statistics Manual 2014

94. This IMF *Manual*, an update of the 2001 *Manual*, is designed for compilers of government finance statistics, fiscal analysts, and other users of fiscal data. It is harmonized with the 2008 SNA and is informative to compilers of national accounts who may depend on government finance statistics as an input to their work. The *Manual* strengthens the worldwide effort to improve public sector reporting and transparency.⁶⁴

BPM6 Compilation Guide: Companion Document to the Sixth Edition of the Balance of Payments and International Investment Position Manual

95. This IMF *Guide* is a companion document to BPM6. It provides practical advice on source data and methodologies for compiling balance of payments and international investment position statistics that are consistent with BPM6. The guidance it provides is applicable for different economies—from the smallest and least developed to the most advanced and complex.⁶⁵

Manual on Measuring Research and Development in ESA 2010

96. This Eurostat *Manual* provides clear guidance on how to collect data from reliable statistical sources and use the data to produce estimates of R&D that are consistent across Europe. The *Manual* includes worked numerical examples of changes from the previous standard and sets out how the introduction of R&D as capital formation affects the various accounts and balance sheets in the national accounts.⁶⁶

⁶³ International Monetary Fund, *External Debt Statistics: Guide for Compilers and Users*, International Monetary Fund, Washington DC, 2014, <http://www.tffs.org/edsguide.htm>.

⁶⁴ International Monetary Fund, *Government Finance Statistics Manual 2014*, International Monetary Fund, Washington DC, 2014, <https://www.imf.org/external/np/sta/gfsm/>.

⁶⁵ International Monetary Fund, *BPM6 Compilation Guide: Companion Document to the Sixth Edition of the Balance of Payments and International Investment Position Manual*, International Monetary Fund, Washington DC, 2014, <http://www.imf.org/external/pubs/ft/bop/2014/pdf/guide.pdf>.

⁶⁶ Eurostat, *Manual on Measuring Research and Development in ESA 2010*, 2014 edition, Publications Office of the European Union, Luxembourg, 2014, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-QQ-14-004>.

Essential SNA: Building the Basics

97. This Eurostat handbook is intended as a practical tool for the implementation and improvements of a country's System of National Accounts. It proposes an approach to the implementation of the SNA in developing countries and illustrates the gradual compilation of the accounts and tables that are most relevant for policy needs.⁶⁷

Manual on the Changes between ESA 95 and ESA 2010

98. This Eurostat *Manual* sets out how the changes in the update of ESA affect the various accounts and balance sheets in the national accounts. The changes are described, with references to ESA 95 and ESA 2010, the consequences in terms of estimates are described, numerical examples are provided, and a set of accounts is presented. A summary table shows which changes affect GDP and GNI, together with the output, expenditure, and income components of GDP.⁶⁸

Manual on Goods Sent Abroad for Processing

99. The treatment of goods sent abroad for processing is one of the changes introduced in the 2008 SNA, BPM6, and ESA 2010 that has the most significant impact on national accounts and balance of payments compilation. This Eurostat *Manual* sets out the implementation issues facing national accounts and balance of payments compilers regarding the new treatment of goods sent abroad for processing, providing the guidance necessary to compile data in a reliable and comparable way.⁶⁹

Understanding National Accounts – Second Edition

100. This OECD publication, an update of the previous edition published in 2006, aims to inform users of the richness of information contained in the national accounts, while ensuring that they fully grasp the complex concepts that underpin the accounts, as well as their limitations. It also explains the issues around their international comparability. The new edition highlights how the financial crisis was reflected in national accounts and incorporates the effects of the 2008 update of the SNA. It also adds emphasis on how national accounts can be used to track households' material well-being and discusses how new data on trade in value added can be used to understand the increased interconnectedness of global economies.⁷⁰

Guide on Measuring Global Production

101. The Conference of European Statisticians identified global manufacturing arrangements as a major priority for research and established a Task Force on Global Production to review and develop guidance on issues of practical implementation related to the 2008 SNA and BPM6. The Task Force reviewed country practice and examined several unresolved conceptual issues, including the treatment of FGPs and the economic ownership of IPPs. It also examined practical issues, such as

⁶⁷ Eurostat, *Essential SNA: Building the Basics*, 2014 edition, Publications Office of the European Union, Luxembourg, 2014, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-14-008>.

⁶⁸ Eurostat, *Manual on the Changes between ESA 95 and ESA 2010*, 2014 edition, Publications Office of the European Union, Luxembourg, 2014, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-14-002>.

⁶⁹ Eurostat, *Manual on Goods Sent Abroad for Processing*, 2014 edition, Publications Office of the European Union, Luxembourg, 2014, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-14-003>.

⁷⁰ Lequiller, F. and D. Blades, *Understanding National Accounts: Second Edition*, OECD Publishing, 2014, <http://dx.doi.org/10.1787/9789264214637-en>.

measuring global production chains and the recording of imports and exports on the basis of change of ownership. The resulting guidance was published as the UNECE *Guide to Measuring Global Production*.⁷¹

102. The *Guide* contains chapters on a typology of global production arrangements, on principles of economic ownership inside a multinational enterprise, on ownership of intellectual property products inside global production, on data sources and compilation challenges, on large and complex enterprise units, on measuring trade in value added, on multi-territory enterprises, on quasi-transit trade, and on merchanting of services. The *Guide* draws heavily on country case studies that are presented in several chapters.

Guidelines on Statistical Business Registers

103. The statistical business register plays a vital role in the production of economic statistics, both in the way the statistics are produced and in terms of their content and quality. The UNECE *Guidelines* provide descriptions and recommendations of good practices in developing and maintaining statistical business registers.⁷²

Handbook on Economic Tendency Surveys

104. This UN *Handbook* was prepared as part of an international programme of work on short-term economic statistics which was developed in response to the 2007–2009 global financial and economic crisis. The *Handbook* aims at providing best practices and harmonized principles on tendency survey sample selection, questionnaire design, survey questions, survey execution, data processing, dissemination of results, and use of indicators.⁷³

Eurostat-OECD Compilation Guide on Land Estimation

105. This *Guide* provides conceptual and practical guidance on the estimation and valuation of land on the national accounts balance sheet. It clarifies theoretical concepts and proposes a breakdown of land into categories so that international comparisons can be more easily made. It also discusses data sources, direct and indirect estimation methods, and special estimation cases.⁷⁴

⁷¹ UNECE, *Guide to Measuring Global Production*, United Nations, New York and Geneva, 2015, <http://www.unece.org/index.php?id=42106>.

⁷² United Nations Economic Commission for Europe, *Guidelines on Statistical Business Registers*, United Nations, New York and Geneva, 2015, https://www.unece.org/fileadmin/DAM/stats/publications/2015/ECE_CES_39_WEB.pdf.

⁷³ United Nations, *Handbook on Economic Tendency Surveys*, Statistical Papers, Series M, No. 96, United Nations, New York, 2015, https://unstats.un.org/unsd/nationalaccount/docs/ETS_Handbook_wCover.pdf.

⁷⁴ Eurostat and OECD, *Eurostat-OECD Compilation Guide on Land Estimation*, 2015 edition, Publications Office of the European Union, Luxembourg, 2015, <http://ec.europa.eu/eurostat/documents/3859598/6893405/KS-GQ-14-012-EN-N.pdf>.

Foreign Trade Reported by Non-Residents: Recommendations for Compilers of National Accounts and Balance of Payment Statistics

106. This Eurostat methodological note provides recommendations for following the principle of change on economic ownership in the case of foreign trade reported by non-residents.⁷⁵

Manual on Government Deficit and Debt: Implementation of ESA 2010

107. This Eurostat *Manual*, an update of the *Manual* first published in 1999, provides guidance on the appropriate treatment of statistical issues raised in the European Union regarding government finance statistics.⁷⁶

Handbook on Data Template and Metadata for Short-Term Statistics

108. This new UN *Handbook* was prepared as part of an international programme of work on short-term economic statistics which was developed in response to the 2007–2009 global financial and economic crisis. The *Handbook* explains the statistical and analytical properties of short-term statistics, why they are relevant in explaining economic activity, and how they related to quarterly national accounts and component data.⁷⁷

Handbook on Price and Volume Measures, 2016 edition

109. This Eurostat *Handbook*, an update of the 2001 *Handbook*, uses an A/B/C classification for price and volume measurement methods, identifying those methods that are, broadly, good (A), acceptable (B), and unacceptable (C). It aims to provide detailed guidelines for price and volume measures that are both theoretically sound and practically useful, incorporating best practice from within the EU and from other experienced countries.⁷⁸

Guide on Measuring Human Capital

110. Statistics on human capital may help policymakers to understand the drivers of economic growth and the functioning of the labour market, as well as to assess the long-term sustainability of a country's development path. This UNECE *Guide* aims to pursue the conceptual development of human capital measurement, with priority on developing experimental human capital satellite accounts.⁷⁹

⁷⁵ Eurostat, *Foreign Trade Reported by Non-Residents*, ESA 2010 Methodological Note, 2015, <http://ec.europa.eu/eurostat/documents/4187653/7102126/ESA-2010-note/3474d0b4-c358-41ed-8aa0-d13b6b828c99>.

⁷⁶ Eurostat, *Manual on Government Deficit and Debt: Implementation of ESA 2010*, 2016 edition, Publications Office of the European Union, Luxembourg, 2016, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-16-001>.

⁷⁷ United Nations, *Data Template and Metadata for Short-Term Statistics*, Studies in Methods, Series F, No. 117, United Nations, New York, 2016, https://unstats.un.org/unsd/nationalaccount/docs/Data_Template.pdf.

⁷⁸ Eurostat, *Handbook on Prices and Volume Measures in National Accounts*, 2016 edition, Publications Office of the European Union, Luxembourg, 2016, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-14-005>.

⁷⁹ UNECE Task Force on Measuring Human Capital, *Guide on Measuring Human Capital*, United Nations, New York and Geneva, 2016, <https://www.unece.org/index.php?id=44704>.

Overview of GDP Flash Estimation Methods

111. This Eurostat statistical working paper provides an overview of methods and techniques that national accountants can use to estimate GDP soon after the end of the reference period. It aims to inform compilers and users of early GDP estimates about the characteristics and quality of these estimates.⁸⁰

Monetary and Financial Statistics Manual and Compilation Guide

112. This IMF *Manual and Compilation Guide* is aimed at compilers and users of monetary data and offers guidance on the collection and analytical presentation of monetary and financial statistics. It combines and updates the concepts, definitions, and recommendations contained in the 2000 *Monetary and Financial Statistics Manual* and the 2008 *Monetary and Financial Statistics Compilation Guide*. It is updated and harmonized with the 2008 SNA, BPM6, and the *Government Finance Statistics Manual 2014*.⁸¹

Handbook on Rapid Estimates

113. This new Eurostat/UN *Handbook* was prepared as part of an international programme of work on high frequency macroeconomic statistics and indicators which was developed in response to the 2007–2009 global financial and economic crisis. It aims to provide methodological overview of statistical and econometric techniques useful to foster timeliness of macroeconomic statistics and provides a glossary of rapid estimates to provide a common terminology associated with various kinds of estimates.⁸²

Handbook on Cyclical Composite Indicators

114. This new Eurostat/UN *Handbook* was prepared as part of an international programme of work on high frequency macroeconomic statistics and indicators which was developed in response to the 2007–2009 global financial and economic crisis. It provides statistical and econometric guidance on harmonized principles and methods for the compilation, monitoring, and dissemination of cyclical composite indicators. It is written for both producers and users of cyclical composite indicators and provides recommendations on the choice of the reference cycle and on many other appropriate methodologies to be used.⁸³

Understanding Financial Accounts

115. This OECD publication aims to demonstrate the usefulness of financial accounts and balance sheets for economic research, analysis, and policy formulation. It explains the concepts and statistical

⁸⁰ Eurostat, *Overview of GDP Flash Estimation Methods*, 2016 edition, Publications Office of the European Union, Luxembourg, 2016, <http://ec.europa.eu/eurostat/web/products-statistical-working-papers/-/KS-TC-16-006-EN-N>.

⁸¹ Cartas Jose and Harutyunyan Artak, *Monetary and Financial Statistics Manual and Compilation Guide*, International Monetary Fund, Washington DC, 2017, <https://unstats.un.org/unsd/nationalaccount/docs/mfsmcg.pdf>.

⁸² Eurostat and United Nations, *Handbook on Rapid Estimates*, 2017 edition, Publications Office of the European Union, Luxembourg, 2017, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-17-008>.

⁸³ Eurostat and United Nations, *Handbook on Cyclical Composite Indicators: For Business Cycle Analysis*, in collaboration with the Conference Board, Inc., 2017 edition, Publications Office of the European Union, Luxembourg, 2017, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-17-003>.

sources underpinning the financial accounts and balance sheets and the complexities involved in compiling a fully consistent set of statistics on finance and wealth. It places special emphasis on the links between the financial accounts and the balance sheets and the non-financial accounts section of the system of national accounts which deals with the “real” economy.⁸⁴

[Eurostat-OECD Compilation Guide on Inventories](#)

116. The aim of this *Compilation Guide* is to provide conceptual and practical guidance to statisticians on the estimation and valuation of inventories in mutual coherence with the transaction changes in inventories, and by doing so, to increase international comparability for these items. The guide clarifies theoretical concepts and possible data sources. It elaborates several estimation methods and addresses special estimation cases. It presents the results of a questionnaire on country practices regarding the estimation of inventories.⁸⁵

[Handbook on Supply, Use and Input-Output Tables with Extensions and Applications](#)

117. This new UN handbook provides practical guidance on compilation of supply and use and input-output tables and is designed to help countries compile these tables as part of their core national accounts, thereby contributing to advancing of the 2008 SNA implementation. Supply and use tables generate an integrated and coherent estimate of GDP that can be used for all components of the production, income, and expenditure approaches. The supply and use tables therefore serve as the ideal framework for balancing the supply and use of products and ensuring the consistency of the GDP estimates. The handbook was completed in 2017 and its publication is forthcoming.⁸⁶

[Compilation Guide to Analyze Natural Resources in the National Accounts](#)

118. This IMF *Guide* presents a set of template tables that show national accounts statistics on natural resources in a standard format. The template tables will guide compilation of national accounts for natural resources and provide indicators for understanding the macroeconomic impact of changes in natural resource output and prices.⁸⁷

[Handbook on Satellite Account on Nonprofit and Related Institutions and Volunteer Work](#)

119. This UN *Handbook*, an update of the 2003 *Handbook*, provides a methodology for identifying all non-profit institutions included in the SNA framework regardless of the institutional sector to which they are allocated and recommends an approach for creating satellite accounts depicting all

⁸⁴ OECD, *Understanding Financial Accounts*, OECD Publishing, Paris, 2017, http://www.oecd-ilibrary.org/economics/understanding-financial-accounts_9789264281288-en.

⁸⁵ Eurostat and OECD, *Eurostat-OECD Compilation Guide on Inventories*, 2017 edition, Publications Office of the European Union, Luxembourg, 2017, <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-Q-17-005>.

⁸⁶ *Handbook on Supply, Use and Input-Output Tables with Extensions and Applications*, Draft for Global Consultation, 4 August 2017, https://unstats.un.org/unsd/nationalaccount/consultationDocs/Handbook_IO_draft.pdf.

⁸⁷ International Monetary Fund, *Guide to Analyze Natural Resources in National Accounts*, January 17, 2017, <http://www.imf.org/external/pubs/ft/gna/na.htm>.

non-profit institutions not controlled by government, as well as certain related institutions, such as cooperatives, mutual societies, and social enterprises, and unpaid volunteer work.⁸⁸

Quarterly National Accounts Manual

120. This IMF *Manual*, an update of the 2001 *Manual*, provides conceptual and practical guidance for compiling quarterly national accounts statistics. The primary target audience is compilers of quarterly national accounts statistics. It presents data sources, recommendations on statistical methods used in the quarterly national accounts compilation process, and advice on specific compilation issues such as early estimates and revisions. It is fully consistent with the 2008 SNA.⁸⁹

Manuals that are planned or in progress

121. In addition to the completed manuals shown above, several additional manuals are planned or in progress, including the following:

- a. *Handbook on National Accounting Backcasting Methodology* – will provide guidelines and advice on backcasting (UN).
- b. *Compilation of European Annual and Quarterly Accounts including Flash Estimates* – will present an update of the estimation methodology of the GDP flash estimates for the European Union and for the euro area (Eurostat).
- c. *Handbook on the Recording of Illegal Economic Activities in National Accounts and Balance of Payments Statistics* – will provide conceptual and practical guidance to national compilers on the recording of illegal economic activities (Eurostat).
- d. *Accounting for Global Value Chains: A System of Extended National Accounts and Integrated Business Statistics* – will focus on the concepts, accounting rules, classifications, and accounts which facilitate the compilation of a set of regional (multi-economic territory) or global accounts (UN).
- e. *Handbook on Culture Satellite Accounts* – will provide guidance on measuring the economic dimension of culture using the 2008 SNA as an overarching framework (UNESCO).
- f. *Aviation Satellite Accounts* – will provide guidance on measuring the impact of the aviation industry on the economy, including the contribution to GDP, jobs, taxes, and on the balance of payments, using the 2008 SNA as an overarching framework (ICAO).
- g. *Manual on the Compilation of Information on the Distribution of Income, Consumption and Saving Across Households Consistent with National Accounts* – will discuss methodologies to adjust household distributional data with national accounts statistics to bring the concepts and totals into coherence (OECD).

⁸⁸ United Nations, *Satellite Account on Nonprofit and Related Institutions and Volunteer Work*, Studies in Methods, Series F, No. 91, Rev. 1, forthcoming,

https://unstats.un.org/unsd/nationalaccount/consultationDocs/Handbook_SA_NP_Vol.pdf.

⁸⁹ International Monetary Fund, *Quarterly National Accounts*, 2017 edition, forthcoming,

<http://www.imf.org/external/pubs/ft/qna/pdf/2017/QNAManual2017.pdf>.

- h. *Satellite Account for Education and Training* – will provide estimates of total expenditures on education and training, distinguish various expenditures, and identify financing arrangements (UNECE).

V. Plans for the research agenda

122. The most recent (11th) meeting of the AEG included a discussion of the SNA research agenda. The AEG confirmed that the current governance structure continues to provide a useful framework for advancing the research agenda and to accommodate the involvement of various stakeholders, such as users, practitioners, and data producers. The AEG reconfirmed that at present there is no desire for an update of the SNA, It also recognized, however, the need to continue to advance research on issues that may go beyond the 2008 SNA, in addition to providing practical guidance on SNA implementation issues.

123. The AEG agreed that the highest priority topics for further research are (i) globalization, (ii) the digital economy, and (iii) economic wellbeing and sustainability. The AEG recommended the establishment of a Task Force for advancing the research agenda through the drafting of discussion notes on relevant research issues. Recognizing that there are still a large number of countries that need to improve the scope, detail and quality of the national accounts, it also recommended the establishment of a Task Force on SNA implementation to prepare guidance to support the implementation of the SNA in countries that are lagging.