



**The Implementation of the 2008 SNA and the Main Challenges for the Future Development
of National Accounts**

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Abstract

In 2009, the United Nations Statistical Commission endorsed a revised set of international standards for the compilation of national accounts: the System of National Accounts (SNA) 2008. This was followed by a revision of the European equivalent, the European System of Accounts (ESA) 2010. Countries are now in the process of implementing the new standards.

The paper will first of all discuss the impact of the main conceptual changes to the standards within the OECD. Doing so, some of the more important measurement issues will be addressed, related to, for example, the calculation of expenditures and stocks of R&D, and the calculation of Financial Intermediation Services indirectly Measured (FISIM).

Furthermore, recommendations will be made to counter the main challenges posed by the ever changing economic environment: (i) the recording and measurement of the knowledge component within the economy (possible further broadening of the scope of intangible investments, how to appropriately account for the use of intellectual property products); (ii) how to deal with the ever increasing globalization and international fragmentation of the production process; (iii) the response to the economic and financial crisis and its increased demand for data on wealth and indebtedness, including more granular information on the interconnectedness of sectors and economies; and (iv) the increasing demand coming from the ageing of societies.

* The views expressed herein are those of the author and should not be attributed to the Organisation of Economic Co-operation and Development. The author is accountable for any mistakes in this paper.

1. Introduction¹

1. In 2009, the United Nations Statistical Commission endorsed a revised set of international standards for the compilation of national accounts: the System of National Accounts (SNA) 2008, replacing the 1993 version of the SNA. This was followed by a revision of the European equivalent of the SNA, the European System of Accounts (ESA) 2010. Although more detailed and more precise in its definitions of transactions and positions, the latter standards are, with a few exceptions, fully compatible with the 2008 SNA².

2. At the time of writing this paper (July 2014), countries have implemented or are in the process of implementing the new standards. The actual implementation varies depending on country circumstances. Up to now, the following countries have published full datasets based on the SNA 2008: Australia, Canada, France, Ireland, Israel, Korea, Mexico, The Netherlands and USA. In September and early October 2014, according to EU-legislation on the implementation of the European System of Accounts (ESA) 2010, EU-countries, Iceland, Norway, and Switzerland will change over. Chile and Turkey have indicated that they will publish their results in 2015. Japan will close the ranks of OECD-countries in 2016.

3. Section 2 of this paper will discuss the main conceptual changes of the standards: enlarging the capital base with R&D and military weapon systems; the recording of pension entitlements; the classification of head offices, holding companies and Special Purpose entities (SPEs); Financial Intermediation Services Indirectly Measured (FISIM); and some of the changes related to globalisation. Doing so, issues related to the actual implementation will also be dwelt upon, including – if available – some results on the impact of the changeover. A quite distinct issue regarding the implementation of the SNA relates to the inclusion of illegal activities. The decision, at the European level, to actually include these activities in the national accounts estimates has raised some eyebrows, in the public media and the economic research community alike. Section 3 will discuss the main reasons for having illegal activities included.

4. Section 4 will subsequently deal with the main challenges posed by the ever changing economic environment: (i) the recording and measurement of the knowledge component within the economy (possible further broadening of the scope of intangible investments, how to appropriately account for the use of intellectual property products); (ii) how to deal with the ever increasing globalization and international fragmentation of production processes; (iii) the response to the economic and financial crisis and its increased demand for data on wealth and indebtedness, including more granular information on the interconnectedness of sectors and economies; and, very briefly, (iv) the increasing demand coming from the ageing of societies. Subsequently, section 5 will propose some future strands of work in relation to the further development of international standards for compiling national accounts, to address some of the mentioned issues. Section 6 closes this paper with some concluding remarks.

5. Right from the start, I would like to emphasise that this paper will not address the many questions related to capturing (material) well-being and sustainability. The paper is basically “confined” to the core system of national accounts, although in some cases satellite accounts – instead of changing the core system – are put forward as a way to deal with some of the emerging challenges. Furthermore, as the reader will notice, if he has the stomach to go through the whole paper, a couple of proposals are the result of free-floating thinking and even the writing down of these thoughts may be considered as total madness.

¹ This report heavily draws upon papers prepared by the OECD and reports prepared in the context of various (combined) Task Forces of the ECB, Eurostat, the OECD and the UNECE. References have not always been appropriately included.

² The goal has always been to have fully compatible standards. However, on some, mostly minor, issues, for example the recording of the use of central bank output, differences may exist.

2. Conceptual changes introduced by SNA 2008

6. The SNA 2008 introduced several conceptual changes to the previous standards, the SNA 1993. The most important ones, having an impact on headline indicators such as Gross Domestic Product (GDP), concern the “capitalisation” of expenditures on Research and Development (R&D) and military weapons systems. Other major conceptual changes relate to the recording of pensions, and head offices, holding companies and Special Purpose Entities (SPEs). Also the treatment of merchandising and goods for processing, now consistently being based on the change in (economic) ownership of the relevant goods (and services), may have a substantial impact on the national accounts data. In addition, it will also touch upon the heavily disputed issues of measuring financial services. A complete overview of all conceptual changes can be found in Annex 3 of the SNA 2008. This section mainly deals with the more significant changes mentioned before.

Enlarging the capital base: Research and Development (R&D) and military weapons systems

7. SNA 2008 states the following in para. A3.46: *“The output of research and development should be capitalized as “intellectual property products” except in cases where it is clear that the activity does not entail any economic benefit to its producer (and hence owner) in which case it is treated as intermediate consumption. With the inclusion of research and development in the asset boundary, the 1993 SNA asset category of patented entities as a form of non-produced assets disappears and is replaced by research and development under fixed assets”*. As a consequence of this change, GDP will increase. Preliminary estimates for OECD countries show that this increase will range from 0.5% to 3.5% of GDP, with an average of around 1.7% of GDP.

8. The information base for estimating investment expenditures on R&D generally can be considered rather satisfactory, because of substantial experience in collecting the relevant data according to the Frascati Manual. A large majority of countries have not needed to use any new surveys, although a few countries have captured the new requirements by revising existing surveys. The main data sources used are specific R&D surveys: e.g. GERD (gross domestic expenditure by government), BERD (gross domestic expenditure by business), and specific surveys for private non-profit bodies. The OECD has developed templates for transforming data according to the Frascati Manual to data needed for the compilation of national accounts in accordance with the SNA 2008 base; see OECD (2010). In applying the relevant templates, nearly all countries take account, or use approaches to minimise, any double counting, especially with respect to expenditures in developing software.

9. Developing an internationally comparable methodology for measuring capital stocks and depreciation for R&D is slightly more problematic. All countries have applied, or plan to apply, the Perpetual Inventory Method (PIM) for the calculation of capital stocks and depreciation. Furthermore, the majority of countries will use a geometric depreciation function. Mortality functions used include: delayed linear, log normal, Weibull and a double declining rate. However, service lives clearly differ across countries; see Annex 1 for a summary. These can differ based on the type and industry of R&D. For example, 13 years (basic research), 11 years (applied research), 9 years (experimental development), and for specific industries: 7 years (computer programming), 9 years (electronics), and estimates of 15, 20 and 60 years (chemical and pharmaceutical products). Also data on patent values and amortization were used. A very interesting approach for estimating service lives of R&D was developed by Li (2012), using *“... a forward-looking profit model with a gestation lag to derive both constant and time-varying industry-specific R&D depreciation rates for ten R&D intensive industries”*. Results are intuitively appealing, with relatively short service lives for ICT-related industries and relatively longer service lives for pharmaceuticals. Where service life information at national level was not available, assumptions were based on other countries, or the recommendation by the recent Eurostat Task Force on R&D which notes that *“... where such*

information is not available, a single average service life of 10 years should be retained"; see Eurostat (2013b). Some countries are still continuing research to derive estimates for service lives.

10. Another issue relates to the measurement of volume and price split. As a substantial part of R&D is produced on own account, there hardly is any adequate market-based information available to make the split, and most countries rely on some kind of input method to measure volume and price changes.

11. A final point regarding the measurement of R&D, and Intellectual Property Products (IPPs) more generally, relates to the actual use and the economic ownership of these assets, especially within multinational enterprises. Whereas the production of the relevant assets can be adequately allocated to national economies, the allocation of the actual use in production of goods and services may pose significant problems. Because of the intangible nature of IPPs, the diffusion of the entangled knowledge is rather easy. Quite often, however, one will not observe monetary transactions related to this diffusion of knowledge within the various (national) parts of the enterprises. As a consequence, it will be an implicit part of distributed income and/or reinvested earnings on foreign direct investment, and not as part of intermediate consumption and/or investments of the units actually using the knowledge. At a later stage, the paper will come back to this issue.

12. The other major extension of the asset boundary in the SNA 2008 relates to military weapons systems. The SNA 1993 treated durable goods purchased by defence as intermediate consumption, unless they are actually used in much the same way as in any other type of production. As a consequence, military weapons systems were treated as intermediate consumption, and not as fixed capital formation. SNA 2008, para. A3.55, states the following: *"The military weapons systems comprising vehicles and other equipment such as warships, submarines, military aircraft, tanks, missile carriers and launchers, etc. are used continuously in the production of defence services, even if their peacetime use is simply to provide deterrence. The 2008 SNA, therefore, recommends that military weapons systems should be classified as fixed assets and that the classification of military weapons systems as fixed assets should be based on the same criteria as for other fixed assets; that is, "produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year"*.

13. The difficulties and impact of capitalising military weapons systems will obviously depend on the size of the individual countries military. Approximately half of the countries responding to an OECD survey indicated that they would have no difficulties, whereas the other half indicated that it would be difficult to estimate. Furthermore, while some countries were unsure of the magnitude of the impact, the majority of countries indicated that the impact would be relatively small with an average impact estimate of 0.5%. More generally, it seems quite obvious that measurement issues, including the volume and price split, are less serious in the case of military weapons systems than in the case of R&D. An issue may be the sometimes confidential nature of the relevant expenditures.

Accounting for pensions

14. In relation to the treatment of pension schemes, the SNA 2008 introduced two major changes. First of all, employment-related pension entitlements, that are expected or likely to be enforceable, are to be recognized as liabilities towards households, irrespectively of whether the necessary assets exist in segregated schemes or not (SNA 2008, para A3.127). However, the SNA 2008 allows for some flexibility in the case of pensions provided by government via social security. The latter flexibility may seriously hamper international comparability, reason why an additional table has been introduced which provides a full overview of all pension schemes whether or not they are recognized in the core system of national accounts (see SNA 2008, table 17.10).

15. The other important change related to the recording of pensions concerns the determination of pension contributions in the case of defined benefit pension schemes. Whereas according to the SNA 1993, actually paid contributions should be recorded, the SNA 2008 states that the level of the contributions “... *should be determined by assessing the increase in the net present value of the (actuarially calculated, addition PvdV) pension entitlement the employee has earned in the period in question ...*” (SNA 2008, para. A3.130). Any shortfall (excess) may add to (diminish) the claim of the pension fund to the employer (or other sponsors of the scheme). Because of the impact on compensation of employees, this change may actually have, usually quite minor, consequences for GDP, in the cases that it relates to employees of non-market producers for which output is estimated at the sum of costs. More importantly however, the accrual recording of the actual and imputed pension contributions could have a significant impact on the distribution of income between employers’ sectors and the household sector, thus changing, for example, the savings rate of households by several percentage points of disposable income, as is the case in the United Kingdom.

16. The estimation of entitlements related to defined benefit schemes may cause quite some measurement issues, especially - because of lack of detailed source information - for schemes provided by government via social security. More generally, important questions to be addressed concern, for example, the discount rate to be applied, the type of obligations (accrued benefit obligations, ABO, versus projected benefit obligations, PBO) to be estimated, etc. Substantial work on these and related issues has been done in the European Union context; see Eurostat (2011). Furthermore, the Australian Bureau of Statistics (ABS) and the OECD jointly organized a workshop (Canberra, 22-24 April 2013) on this topic. Regarding the estimation of pension entitlements, the latter workshop agreed that best practice was to use estimates from actuaries/supervisory authorities wherever possible, rather than statistical agencies developing their own estimates. Doing so, national accountants should disseminate appropriate metadata on national pension entitlement estimates. As in particular for government unfunded pension schemes (including social security) estimates from actuaries are often not available or suffer from inadequate assumptions, collaboration between all national institutions (e.g. social security, ministry of labour) should lead to proper modelling reflecting the fair value of pension entitlements. Where statistical agencies undertake such estimations themselves, the workshop strongly recommended periodic reviews of assumptions underlying the estimates. These reviews are necessary to keep abreast of changes in the economy. However, the assumptions (such as discount rates, wage rate movements etc.) should be based on medium to long term averages and it is not recommended that they be reviewed annually. Regarding the issue of either PBO or ABO, the workshop noted that the method used in countries for the measurement of defined benefit schemes (private or public schemes) depends on circumstances. Therefore, no specific recommendation is made, but methodological notes need to be provided to explain the choice of the method used.

17. As can be derived from the above, the measurement of pension entitlements may raise serious issues when it comes to the international comparability of the relevant data. It is clear, for example, that the choice of discount rate has a very significant impact on the valuation of the entitlements. Discount rates may however heavily depend on country specific circumstances or even legal requirements. In some countries, a fixed long-term discount rate may be used, whereas in other countries the discount rate is linked to market rates. In this respect, it will be impossible to “improve” the detailed calculations of actuaries/supervisory authorities for reasons of international comparability. Therefore the need for adequate metadata. On the other hand, when it comes to estimating implicit liabilities, for which national statistical offices take responsibility, in cooperation with social security and ministries, one could see the advantages of arriving at internationally agreed assumptions on e.g. the use of discount rates, future wage rate developments, ABO versus PBO, etc., although this may not be done in practice for understandable reasons of wanting to compare various national pension schemes.

18. The ABS-OECD workshop also proposed to develop a supplementary table on household retirement resources, in addition to the supplementary table 17.10 mentioned before. Such a table would enable countries to report all retirement related sources of households, including individual life insurance schemes which are not part of social insurance, specific saving deposits for retirement, etc. There was also discussion on whether or not to introduce certain property income imputations for underfunded and overfunded schemes, that is to record interest accruing on the loan for the unfunded part between the employer and the pension fund. Finally, it was suggested to put a high priority on the issue of recording capital gains as income which is already included on the longer term SNA research agenda. This includes the short term clarification of the exact meaning of SNA 2008, para 17.18.

19. It is to be expected that, in view of ageing societies, the topic of financial sustainability of pension arrangements will get more and more prominence on the policy agenda of many countries. The importance of having adequate and reliable data at a macro-level (and micro-level) cannot be underestimated. Also user demands for more and better internationally comparable data will most probably increase in the near future. In this respect, the completion of the supplementary tables may indeed show to be a very important step forward. In section 4 of this paper, the user demands related to ageing societies more generally will be briefly discussed.

Head offices, holding companies and Special Purpose Entities (SPEs)

20. The SNA 2008 also introduced a substantial change in the classification of holding companies. When recognized as separate institutional units, these companies are to be allocated to the financial corporations' sector, instead of being allocated to the sector of the predominant activities of the related parents/subsidiaries. Furthermore, the SNA 2008 explicitly recognizes and provides further guidance on the recording of Special Purpose Entities (SPEs); see para. 4.55-58).

21. The above change in the recording of holding companies may have a significant impact on debt levels of the various institutional sectors, at a time, in the aftermath of the financial crisis, that debt related indicators have become much more prominent. However, clarifications were needed for the distinction between holding companies and head offices, the latter still being classified according to the predominant activities of their subsidiaries. In the 2012 meeting of the Advisory Expert Group (AEG) on National Accounts, it was already decided to apply a rather restricted definition of holding companies, in the sense that holding companies would be limited to those companies that did not engage in management type of activities. Another issue related to the need for more guidance on the criteria to be applied for deciding whether or not a holding company constitutes a separate institutional unit. Finally, more guidance than provided by the SNA 2008 was sought to define and classify various types of SPEs.

22. For the above reasons, the ECB/Eurostat/OECD Task Force on Head Offices, Holding Companies and SPEs was created. The Task Force met on 26-28 February 2013, in Frankfurt. A final report has been put forward to the 2013 meeting of the AEG (28-31 May 2013, Luxembourg); see SNA (2012a). The report contains several practical recommendations for distinguishing between head offices and holding companies. It also provides criteria for defining an institutional unit in the case of these entities. A major dispute, however, relates to the conditions under which a passive holding should be consolidated or combined with its subsidiaries. In the opinion of some participants, among which the author of this paper, the rather "narrow" interpretation of what constitutes a separate institutional unit would lead to the recognition of many passive holdings as being institutional units. In my opinion, more prominence should be given to "autonomy of decision", which definitely should not fall closely together with having a distinct legal status. As a consequence of the rather narrow interpretation, debt figures, for example, may be significantly inflated, also making sector delineations much more dependent on (changes in) legal structures, and seriously hampering an economic meaningful analysis. It will also lead to the recording of foreign

direct investment as being made by financial corporations, while common sense says differently. The example par excellence relates to the classification of Royal Dutch Shell Holding.

23. The Task Force also made several recommendations on the definition and classification of SPEs. First of all, it was proposed to restrict the term “SPEs” to those units that are ultimately controlled by a non-resident parent, directly or indirectly, that have no or few employees, and whose core business consists of group financing or holding activities, i.e. channelling of funds from non-residents to other non-residents. As in some countries balance sheets and related income flows of these units can be very substantial, it was also recommended, for analytical purposes, to present certain national accounts data including and excluding SPEs. In addition, recommendations were made on the typology, classification and recording of common types of SPE-type of units, such as shell companies, units for holding and managing assets of individuals and families, securitisation companies, conduits, royalty and licensing companies, captive leasing companies, factoring and invoicing companies, etc. The measurement of output and value added of royalty and licensing SPEs is still an issue under consideration, to be discussed at the upcoming meeting of the Advisory Expert Group (AEG) on National Accounts, to be held on September 8 – 10, 2014, in Washington D.C.

Globalisation: goods for processing and merchanting

24. When it comes to the recording of international trade flows, the SNA 2008 contains two important changes, which may actually have a quite significant impact on the resulting national accounts aggregates for imports and exports of goods and services. First of all, it has been decided to always record goods for processing on the basis of a change in (economic) ownership. Only in the case of a change in ownership, the exports of goods to be processed as well as the (higher valued) imports of the processed goods are recorded on a gross basis. If no change in ownership occurs, the difference of the two flows is to be recorded as imports of processing services.

25. The other change in recording relates to merchanting. The latter activity concerns wholesale trade in which a domestic trader in country A purchases goods in country B to re-sell them in country C. The SNA 1993 did not provide specific guidance on the recording of merchanting, but most probably the imports of goods into country C, e.g. at the value of 100, were recorded as imports from country B, e.g. at the value of 80, supplemented by imports of wholesale services from country A for the difference between the selling and purchasing value (20). This resulted in an asymmetric recording at the worldwide level for goods and services. According to the SNA 2008, as in the case of goods for processing, imports and exports of goods related to merchanting have to be recorded on the basis of a change in (economic) ownership. As a consequence, the relevant goods are to be recorded as exports from country B to country A (the country in which the merchant is resident), at the value of 80, and subsequently as exports from country A to country C, at the value of 100. In addition, it has been agreed to record the imports of country A from country B not as positive imports, but as negative exports from country A to country B, to prevent imports and exports of goods to be inflated by wholesale trading.

26. The above changes to the recording of imports and exports based on change in (economic) ownership clearly are better aligned to business accounting. On the other hand, however, quite some changes need to be made to the traditional trade statistics that are usually based on flows of goods crossing the borders. Furthermore, the appropriate recording of goods for processing and merchanting, especially in these times of growing international fragmentation of production processes, requires dedicated surveying of the relevant internationally operating enterprises. More guidance is provided in the Guide on the Impact of Globalisation on National Accounts, the results of the work of the UNECE/OECD/Eurostat Expert Group on the Impact of Globalisation on National Accounts (GGNA, 2011). Additional in-depth work on the recording and measurement of global production arrangements is being pursued by the UNECE/OECD/Eurostat Task Force on Global Production. The first draft of the guidance to be provided by this Task Force will become available in

the end of 2014. The final outcome, a guide on the recording and measurement of global production arrangements, is planned in the first half of 2015.

27. One of the results of the work of the Task Force on Global Production is a recommendation to change the recording of so-called “factoryless goods producers” (FGPs). FGPs are producers that outsource the manufacturing transformation activities but own the underlying intellectual property products (IPPs) and control the outcome of the production process. A strict interpretation of the ISIC.Rev4 guidelines on the classification into activities would mean that an FGP is classified as a distributor, if the FGP does not provide (own) the material inputs subject to processing even though the FGP provides the technical specifications of the output, and owns and supplies other critical inputs. The opinion of the Task Force is that ownership of material inputs should not be the sole determining factor in classifying an FGP. An FGP that controls the outcome of the production process and provides (owns) either the IPP inputs or other inputs (goods and services) to a contract processor should be classified to manufacturing as a separate and new subset of existing classifications that highlights the factoryless characteristic of the firm.

Financial Intermediation Services Indirectly Measured

28. In addition to explicitly charged fees, financial intermediaries receive compensation for the provision of services by charging higher interest rates to borrowers and lower interest rates to depositors, usually referred to as Financial Intermediation Services Indirectly Measured, in short FISIM. The relevant services for loans are estimated as the difference between the borrowing rate and a certain reference rate, and those for deposits as the difference between the reference rate and the relevant deposit rates. However, in the aftermath of the financial crisis, showing quickly increasing margins on both loans and deposits, questions were posed in relation to the inclusion/exclusion of maturity risk and credit default risk in the calculation of FISIM. These issues have been extensively discussed in two closely related FISIM Task Forces, one at the European level and one at the worldwide level; see e.g. SNA (2012b).

29. In the run-up to the revision of the international standards for national accounts, the issue of defining financial services was already explicitly addressed in an OECD Task Force reporting to the Advisory Expert Group (AEG) on National Accounts; see SNA (2004). This Task Force recommended that, instead of making reference to “financial intermediation”, “risk management” and “liquidity transformation” should be considered as the defining characteristics of financial services, thus better reflecting the nature of the output, and not the activities, of financial corporations. After further discussion, this recommendation has been included in SNA 2008, see e.g. para. 6.157: “... *Financial intermediation involves financial risk management and liquidity transformation, activities in which an institutional unit incurs financial liabilities for the purpose of acquiring mainly financial assets. Corporations engaged in these activities obtain funds, not only by taking deposits but also by issuing bills, bonds or other securities. They use these funds as well as own funds to acquire mainly financial assets not only by making advances or loans to others but also by purchasing bills, bonds or other securities*”. One can indeed argue that managing differences in maturities of loans and deposits, and managing credit default risks by assessing and monitoring debtors constitute typical parts of normal business of banks.

30. The issue of maturity risk in the end came down to whether or not to apply multiple reference rates in calculating FISIM, e.g., one for short term loans and deposits, and another one for the long term market, thereby effectively excluding that part of the interest margins that is related to liquidity transformation. Several tests have been performed, and the emerging consensus is that a term premium should be reflected in FISIM. This means that the SNA should continue to calculate FISIM on the basis of a single reference rate. Doing so, the basis for the single reference rate in the SNA most probably will be a weighted average of a mix of maturities. Eurostat, in their simulation exercise, to which 22 countries responded, provided results based on a unique single reference rate reflecting short-term interbank lending rates (such as LIBOR, EURIBOR) and a single reference rate

based on a weighted average of underlying short-term and longer term reference rates. As the results showed no over-riding material difference in FISIM results, FISIM volatility, or occurrences of negative FISIM, it was decided to retain the past method for defining the single reference rate based on interbank short-term lending rates.

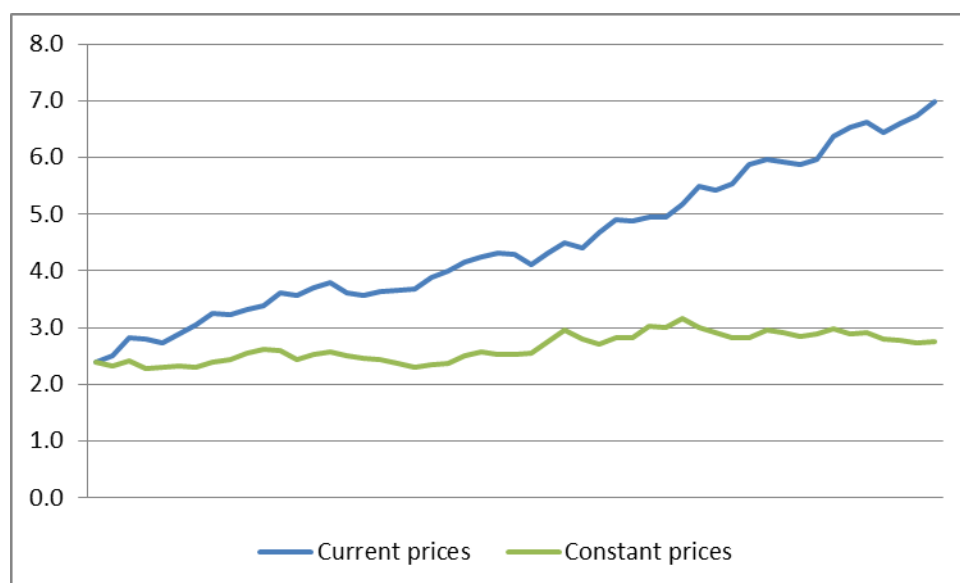
31. However, from a more conceptual point of view, a reference rate based on a mix of maturities seems to be preferable. Why would the service component of, for example, a certain portfolio of loans change over time because of developments in a reference rate which is set by interbank short-term lending rates. In this respect, one could also argue that the service component on a long-term fixed interest rate loan is struck at the moment the loan is agreed upon, and the most appropriate reference rate for each loan (or deposit) is the rate prevailing at exactly that time. However, in that case one would need to calculate FISIM on the basis of the various vintages of loans and deposits, and this may not be possible in practice because of lack of granularity of source data needed for such a calculation. On the other hand, it may be possible to approximate such a reference rate by using information, if available, on the maturity structure of the portfolio of loans and deposits.

32. The above mentioned two FISIM Task Forces also concluded that, whilst there may be conceptual merit in excluding credit default risk from FISIM, in practice it does not seem feasible, at least in a way that can ensure reasonable comparability across countries. Therefore, it was recommended that credit default risk should remain part of FISIM, in order to facilitate international comparability. Some countries however have demonstrated that it is feasible, in their cases, to produce meaningful results and these countries have developed plans to estimate FISIM on this basis. Given the Task Force's majority recognition that the conceptual rationale for this is sound and compelling, countries should not be discouraged from creating such estimates for national audiences. But in the interest of international comparability the recommendation is that countries should continue to produce FISIM estimates that do not exclude credit default risk from FISIM. In section 5, I will come back to this issue, when discussing accounting for risk in the context of the future research agenda of the international standards for national accounts.

33. More generally, one can observe widespread criticism, or scepticism to say the least, when it comes to the way output and value added of financial services are measured. Both representatives from the media and the research community have criticised national accounts for exaggerating the value added generated by banks, by including various forms of risk management and/or risk taking. Doing so, usually reference is made to the increasing share of value added of financial corporations in GDP, or the fact that value added has not decreased (substantially) in the aftermath of the financial crisis. Some of the criticism may be justified, as has also been shown in the above discussion on the methodology to estimate FISIM. Other arguments however are simply misplaced, such as the ones which seem to be based on what I would call "moralistic" standpoints, either implicitly or explicitly. In this respect, one can sometimes note a complete ignorance of the split between the impact of volume changes and the impact of price developments, when showing the increasing share of financial services over time. A simple analysis of the share of financial services in current and constant prices shows that the main reason for the increasing share of financial services is related to price changes. Figure 1 below presents this, by way of example, for the USA in the period 1947 - 1997³. Whereas the share in current prices increases from 2.4 in 1947 to 7.0 percentage points in 1997, the share in constant prices changes for the same period changes from 2.4 to 2.8 percentage points, with a maximum of 3.2 points in 1982. So, if the value added of financial corporations has been exaggerated, it certainly did not substantially affect the measurement of economic growth, the change in the volume of GDP.

³ Data after 1997 do not have a classification consistent with the one for the period 1947 - 1997, as a consequence of which it was not possible to arrive at an analysis for the full period up to more recent years including the financial crisis period. However, the main issue related to the need to look at volumes and prices is quite apparent from the analysed period.

Figure 1. Financial services, as % of GDP, in current process and in constant prices



3. Illegal activities

34. The SNA 2008 and its European equivalent, the ESA 2010, both recommend that hidden and illegal productive activities should be accounted for in Gross Domestic Product (GDP), as did the earlier standards the SNA 1993 and the ESA 1995. But despite these longstanding recommendations, in the recent period, some commentators have begun to question whether illegal activities should actually be included in GDP and, indeed, other macro-economic indicators that can be derived from the system of national accounts. What appears to have triggered these views now is the increase in the number of countries that are able to compile estimates of illegal activities, particularly within the European Union. This section discusses the main reasons for including illegal activities.

35. Right from the start, it is important to address a source of confusion that appears to underpin many of the criticisms concerning the inclusion of illegal activities, namely what GDP is and in particular what it is not designed to measure. In recent years there has been a growing attention on measuring the concept of well-being; see e.g. Stiglitz, Sen and Fitoussi (2010). This growing attention has also led to a number of statistical developments on this front, for example the OECD Better Life Index. Prior to these developments, and in the absence of more appropriate metrics, GDP was often viewed and used as a proxy for well-being or at least “material well-being”. Despite its common use however, GDP has never been intended to measure well-being. Whilst this is becoming better understood amongst users, in no small part thanks to the work of national statisticians to develop complementary measures such as those that focus on income inequalities for example, some confusion remains. GDP is primarily designed to measure economic activity, making no judgement on whether the activity is seen as “good” - for example building a school or hospital - or “bad” - for example selling tobacco or products that are harmful to the environment. Indeed this was well understood by the Stiglitz-Sen-Fitoussi Commission who considered the inclusion of complementary indicators to GDP, and not adjusting GDP, when trying to measure (material) well-being. In this respect, the Commission also noted that more attention should be paid to alternative indicators from the system of national accounts, such as those related to income, consumption and wealth of households.

36. The system of national accounts is primarily intended to provide a framework for measuring economic activities, i.e. the production of all goods and services and the income generated by these activities. This production can take different forms: market and non-market; observed and non-

observed; legal and illegal; etc.⁴ The scope of production takes into account two important factors: (i) the purpose of GDP - including macro-economic management, measurement of the (potential) tax base, productivity and determinants of jobs in the labour market, and the description of income, saving and accumulation of assets; and (ii) the ability to measure economic activity, in an internationally comparable way. Both of these factors help explain why GDP excludes the own-account production of services by households⁵, whose inclusion, even if the various definitional and valuation issues could be resolved and measurement would be possible in a comparable way across countries, would swamp GDP numbers, rendering them almost meaningless for macro-economic management.

37. It is clear from the above that GDP does not only include those activities reported by firms or legal entities. Measurement of what is commonly referred to as non-observed activities is also to be included. In fact the most substantial part of the non-observed economy, activities related to underreporting for reasons of tax evasion, have been included in the national accounts of countries for many years now with next to no contention; see e.g. Gyomai and Van de Ven (2014). On the other hand, progress on estimating illegal activities has been slower, reflecting the greater difficulties involved in measurement. However, in recent years considerable efforts have been made by countries to improve their ability to estimate illegal activities in a meaningful and comparable way, which has led to more countries incorporating estimates in GDP, and, in turn, the recent debate. In the context of this debate it is useful to re-emphasise some of the other key arguments for the inclusion of illegal activities within GDP.

38. GDP as a concept is designed to be comparable across countries. If GDP was based on a narrow view of production that measured only legal activities, it would not be possible to compare GDP across countries, as GDP levels would be dependent upon (differences in) national law. All other things being equal, countries where prostitution and drugs production were legal, for example, would have a higher GDP than countries where they were illegal; even if prostitution and drugs activity was the same in both economies. In recent decades, this point of international comparability has become even more important, as contributions to international organisations, such as the European Union, are based on levels of Gross National Income (GNI), a concept close to GDP. Clearly, one needs to establish a level playing field, in the sense that all countries contribute on the basis of their income generating capacity and their capacity to pay. In this respect, it is useful to note that many illegal activities are probably already implicitly included in the national accounts, such as services provided by unlicensed producers, illegal sales of goods and services such as alcohol and tobacco to minors, and also parts of drugs and prostitution.

39. The argument of cross-country comparability is also true for developments over time. If at some point in time, certain activities are declared (il)legal, excluding illegal activities from national accounts will result in a sudden level shift of GDP, without there necessarily being a corresponding drop in activity. There are various examples of this happening in the past, e.g. changes in national laws on prostitution, alcohol, and soft drugs.

40. Finally, excluding monetary exchanges between two economic actors on the basis of their illegality may lead to inconsistencies in the full framework of national accounts. If, for example, income generated by production and trade in drugs is not recorded, double bookkeeping constraints would result in an inconsistency between estimates of income and assets accumulated, and also lead to misleading savings rates for producers and consumers of illegal goods and services. Different national treatments would also make it impossible to have coherence in international trade statistics

⁴ In this context, reference is often made to the criterion of “mutual agreement” for including a certain transaction in the system of national accounts. However, the only fundamental qualifying criteria that is required for a transaction to be included in GDP is that a good or service is produced and that it can be sold by mutual agreement to a third party. Illegal activities usually satisfy this criterion in precisely the same way that many legal activities do.

⁵ Except owner-occupied dwelling services, see Ahmad and Koh (2011).

as exports from a country where prostitution or drugs production was legal would not have counterpart entries as imports in a country where they are excluded.

41. To conclude, the SNA tries to capture all economic activities, whether hidden from tax authorities or not, whether legal or illegal, whether “good” or “bad”. In practice however, arriving at exhaustive estimates is not that easy. Most countries are able to make reasonable estimates for hidden activities, using a variety of tested methodologies. Similar methodologies have been developed for estimating illegal activities and many countries now start to include these estimates in their national accounts estimates. Whilst recognising that estimation of illegal activities is non-trivial, all countries are encouraged to implement the SNA in order to ensure that international comparisons of GDP remain robust, certainly when illegal activities are more substantial⁶, and reasonable estimates can be made according to an agreed methodology using emerging best practice in other countries.

4. Main challenges posed by the changing economic environment

42. The economic environment is continuously changing, as a consequence of which the international standards for compiling national accounts may also need to be adjusted, in order to keep abreast of these changes. In other cases, current standards may appropriately reflect the changing economic environment, and newly arising user demands can be met by adjusting data requirements. An example of the latter is the compilation of quarterly institutional sector accounts to meet user demands for more timely data on income and finance. Another example concerns the need for alternative classifications and/or more granular information by industry and institutional sector. As I see it, there are four main areas which need further reflection when it comes to more recent changes in the economic environment: (i) the adequate description of the knowledge economy; (ii) globalisation and international fragmentation of the production process; (iii) the economic and financial crisis and related user demands; and (iv) user demands arising from the ageing of societies. These issues will be discussed in more detail in this section. Possible consequences for the future international standards for compiling national accounts will be addressed in section 5. It should be noted however that this whole discussion is basically confined to the core set of national accounts, and does not address more generic issues related to the measurement of (material) well-being and sustainability, including the need for having more information on the distribution of income, consumption and wealth across household groups.

Knowledge economy

43. For developed economies, and more and more for developing countries as well, knowledge is a key driver for competitiveness, productivity growth, or more generally growth in the income generating capacity of an economy. This is also reflected in the international standards for national accounts. While the SNA 1993 already made a major step forward with the inclusion of (i) mineral exploration and evaluation, (ii) computer software and databases, and (iii) entertainment, literary and artistic originals in the asset boundary, the SNA 2008 extended this further with the inclusion of R&D as investments. However, there are several pleas for going beyond those categories. In Corrado e.a. (2005, 2009), for example, a call is made for including all “... *business expenditures aimed at enhancing the value of a firm and improving its products, including human capital development as well as R&D* ...”.

⁶ In this respect, it can be noted that, when looking at countries for which separate estimates are available, the extent of illegal activities are relatively modest, in the range of 1% of GDP. Furthermore, part of these activities are in fact already implicitly included in the system of national accounts.

44. In Corrado e.a. (2005, 2009), business investments are broken down into the following categories:

- computerized information, which is largely composed of business investment in computer software;
- innovative property, not only including “... innovative activity built on a scientific base of knowledge ...”, but also “... the revenues of the non-scientific commercial R&D industry, ... the costs of developing new motion picture films and other forms of entertainment, investments in new designs, and ... spending for new product development by financial services and insurance firms”.
- economic competencies, which includes “... spending on strategic planning, spending on redesigning or reconfiguring existing products in existing markets, investments to retain or gain market share, and investments in brand names”. This also entails - and as the authors recognise, maybe the largest category of this type of investments - investment in firm-specific human and structural resources of economic competency, including “... the costs of employer-provided worker training and an estimate of management time devoted to enhancing the productivity of the firm”.

45. Comparing the above with the latest asset boundary of the SNA 2008, the business expenditures considered as investments in Corrado e.a. are considerably broader. The main differences relate to the inclusion of a broader set of innovative property, going beyond R&D and entertainment, literary and artistic originals, as defined in the SNA 2008; and the inclusion of “economic competencies”. It goes without saying that estimating the latter type of investments raises considerable problems in delineating between expenditures to be considered as investments and expenditures to be recorded as current costs. Corrado e.a. also recognises this problem, for example that not all expenditures for advertising should be considered as investments with a long-lasting impact adding to the value of brands, estimating that 60% of total advertising expenditures have a long-lasting impact. Similarly, investments in firm-specific human and structural resources through strategic planning, adaptation, reorganization, and employee-skill building are even more difficult to delineate.

46. Corrado e.a. is limited to business investments. Broadening the scope to the economy at large, embodied human capital can perhaps be considered as the ultimate source of (future) income. In studies on sustainability of societal developments, this item often features as one of the most prominent ones. In OECD (1998), human capital is defined as “the knowledge, skills, competencies and attributes embodied in individuals that are relevant to economic activity”, while in OECD (2001), the definition of human capital is further broadened to include non-economic benefits: “the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being”. Here, we are dealing with the creation of knowledge as a result of education, both formal education such as education at schools or training courses, and more informal types of education such as training on the job and gathering knowledge by experience. The research agenda of the SNA 2008 also includes a reference to the need for addressing this issue (see para. A4.55-56).

47. How and to what extent the asset boundary of the international standards for compiling national accounts should be further extended beyond the categories included in the SNA 2008 will be subject of section 5. Here, I only want to say that international standards need to be more prudent in defining the various transactions and positions than what can be done in a pure research context using data of an experimental nature. Standards have to take into account the possibilities of implementing them in practice, in an internationally comparable way. That’s not to say however that nothing can be done.

Globalisation and international fragmentation of the production process

48. Production becoming more and more internationally integrated poses serious challenges to adequately account for domestic activities. To arrive at a consistent recording of all transactions of internationally operating enterprises becomes more and more complex, especially in an economic environment which is characterised by quickly changing organisational structures, also across borders. This is further complicated by having different units for describing the production process in the supply and use tables (establishments) and those used for describing income and finance in the institutional sector accounts (institutional units). Also conceptual differences in recording international trade flows, on the basis of crossing national borders, and national and business accounts, on the basis of change in ownership, is not really helpful. When in practice combining the various source data, one is faced with very significant inconsistencies, which also show up when balancing supply and demand of goods and services at the macro-level in the supply and use framework. One may also be confronted with significant differences between the transactions in the Balance of Payments statistics and the source statistics on income and finance of corporations. These consistency problems have triggered various initiatives, such as creating specific organisational units within statistical offices, which are responsible for micro-balancing the transactions and positions of the largest and most complex corporations. Another initiative is the growing international coordination of the allocation of the various parts of multinational enterprises to countries.

49. In addition to the above, more practical and source statistics related problems, the activities of multinational enterprises also raise more conceptual or analytical concerns for the compilation of national accounts for national economies. The first and perhaps most prominent issue concerns the allocation of value added to national economies. Multinationals have substantial intra-firm transactions in goods and services which cross the borders of national economies. The valuation of these transactions, often referred to as “transfer pricing”, has a direct impact on the allocation of value added and GDP to countries. If, for example, a multinational from the USA arranges the production of its goods in China, and subsequently distributes them to another subsidiary in Europe, a low price for the export from China to Europe will result in lower output, value added and profits in China, and higher values outside China, and vice-versa. Although such prices, according to most national tax legislations, have to be set at market-equivalent prices, there is obviously quite some room to manoeuvre, especially in the case the relevant goods contain high margins for reasons of knowledge content and/or brand reputation, or in the case the relevant goods are intermediate products which are not marketable as a consequence of which it is not possible to apply a true market-equivalent price.

50. Another issue may relate to the appropriate allocation of the use of services which are produced within a multinational enterprise. Especially the recording of the use of intangible assets may raise issues, but also various intermediate services of an ancillary nature may cause similar problems. Here, one can think of, for example, software that is produced in one location of the multinational but used throughout the enterprise. Another example relates to Research and Development (R&D), which according to SNA 2008 are to be treated as gross fixed capital formation. Anecdotal evidence for a number of large Dutch multinationals shows that R&D-activities are heavily concentrated, a relatively high share taking place in the home country close to the headquarters of the multinational. These R&D-assets most probably benefit the production of goods and services of the subsidiaries allocated in various countries. Nonetheless, one hardly observes any payments from the subsidiaries to the headquarters for the use, or the outright purchase, of R&D-capital, as a consequence of which value added and investments in the countries of the subsidiaries may be underestimated from an economic substance point of view.

51. Another issue is the establishment of brass plate companies, often referred to as Special Purpose Entities (SPEs), in certain countries, to reallocate the collection and distribution of royalties, license fees, or profits more generally, with the purpose of avoiding or minimising worldwide tax payments. For obvious reasons, some countries are very attractive for the establishment of such

conduits. The use of them often gets front page news coverage, once they become publicly known and relate to well-known multinational enterprises.

52. The above examples clearly have an impact on the allocation of output, value added (GDP) and profits across the world. It goes without further saying that not having an adequate description of production processes in the various national economies, but reasons related to worldwide tax minimisation, will often govern decisions at the enterprise level, thus possibly hampering the adequacy of providing a good macro-economic picture of national economies. To provide an example, table 1 from Lipsey (2010), on the next page, provides an overview of the profit allocation of multinational enterprises with their headquarters in the USA. It shows that in some countries the ratio of profits to compensation of employees of subsidiaries is as high as 35-36 (Barbados and Bermuda). The Other Western Hemisphere as a total has a ratio which is close to 12, whereas for the Other Middle East the ratio is as high as 9.4. This is strikingly different from the worldwide average equalling 0.8. For European subsidiaries, the ratio is even lower, less than 0.6, although Ireland has a particularly high level of 6.6.

53. A final point I would like to mention here concerns the diminishing validity of analysis based on gross trade flows between countries. Because of the growing international fragmentation of production processes, it may be better to look at the value added content of trade flows, by subtracting the import content from the exports and, by doing so, removing the double counting implicitly included in gross trade flows. As a consequence, a completely different picture may emerge from bilateral trade flows, especially when it relates to the flows between two countries. To disentangle these trade flows, and to arrive at estimates of the trade in value-added, the OECD-WTO project on Trade in Value Added uses a global input-output table that brings together national input-output tables for national economies, combined with bilateral trade data on goods and services. See <http://www.oecd.org/sti/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm> for more information.

54. As mentioned in section 2, in the most recent standards for the compilation of national accounts, the SNA 2008, some of the above issues related to globalisation have been addressed. In the latest standards, much more attention is paid on phenomena like merchanting and goods for processing, which are typical ways of arranging global production. Furthermore, a specific section is devoted to the existence of SPEs and other captive institutions (SNA 2008, para. 4.55 – 4.67). However, at the moment of writing this paper, one has to recognise that we are only at the verge of fully understanding the implications of globalisation for the compilation of national accounts, although much progress has been made.

55. It should also be clear that it will not be possible to solve all of the issues mentioned in the above. The allocation of value added and profits being governed by tax considerations, rather than by arriving at an accurate understanding of production processes, is a matter of fact, and from a certain perspective also reflects economic rationale. On the other hand, it is good to realise that this kind of issues does affect, at least to some extent, the measurement of the level of GDP, perhaps less so the estimation of economic growth. Multifactor productivity analysis, the analysis of changes in the volume of output as compared to changes of the volume of all inputs including services provided by e.g. intangible capital, may also need to be treated with care, especially in cases of knowledge intensive industries with high shares of foreign controlled enterprises. Clearly, the same holds, even to a larger extent, for analysis of value added and profits of foreign controlled enterprises per se.

Table 1

**RATIO OF PROFIT-TYPE RETURN TO COMPENSATION OF EMPLOYEES BY
MAJORITY-OWNED NON-BANK AFFILIATES OF U.S. NON-BANK
PARENTS, 2005**

	Ratio of Profit-Type Return to Compensation of Employees
All countries	0.840
Canada	0.848
Europe	0.579
Ireland	6.639
Netherlands	0.878
Switzerland	1.614
Latin America and Other Western Hemisphere	1.555
Central and South America	0.978
Other Western Hemisphere	11.709
Barbados	34.967
Bermuda	36.062
British Islands, Caribbean ¹	8.833
Western Hemisphere, n.e.c. ²	6.347
Middle East	1.837
Other Middle East ³	9.403
Asia Pacific	1.178
Hong Kong	0.953
Singapore	2.978

Notes:

¹British Antilles, British Virgin Islands, Cayman Islands, Montserrat.

²Anguilla, Antigua and Barbuda, Aruba, Bahamas, Cuba, Dominica, French Islands (Caribbean), Grenada, Haiti, Jamaica, Netherlands Antilles, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, British Islands (Atlantic).

³Bahrain, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Syria, Yemen.

Source: U.S. Department of Commerce, Bureau of Economic Analysis website (downloaded in November 2007).

56. Some have argued that the increasing globalisation will lead to the end of GDP as the principal indicator of economic activities for a national economy. In their opinion, it would be preferable to put more emphasis on Gross or Net National Income (GNI/NNI). It is indeed true that GNI/NNI is not affected by the allocation of value added and profits across countries, as all profits will anyhow end up in the country of residence of the multinational, via “reinvested earnings on foreign direct investment”. This view may be overly pessimistic, although it may become reality in the future with an ever increasing globalisation, and it may already be reality in smaller economies with high levels of activities by multinationals. In the next section, some more far-reaching proposals will be made to address the problems posed by the increasing globalisation, both within the context of the current international standards and going beyond the SNA 2008.

The economic and financial crisis and related user demands

57. The recent economic and financial crisis showed some gaps in the compilation and publication of statistical data. Although these data gaps probably would not have prevented the crisis, it is good to have, after such an event, a thorough reflection of the data needs for policy and research. This has been done in the context of the G20. At the initiative of the International Monetary Fund (IMF) and the Financial Stability Board (FSB), an inventory has been made of the main data gaps, the so-called G20 Data Gaps Initiative (DGI); see IMF (2009) for more detailed information. The G20 DGI puts forward 20 recommendations, grouped together into four main categories:

- better capture the build-up of risk in the financial sector;
- improve data on international financial network connections;
- monitor the vulnerability of domestic economies to shocks; and
- improve the communication of official statistics.

58. From the perspective of macro-economic statistics, the second and third categories are relevant, whilst the first category is much more related to micro-type of surveillance data. Under the second category, one can find recommendations on the enhancement of the availability and timeliness of cross-border exposures (Coordinated Portfolio Investment Survey, CPIS; International Banking Statistics, IBS; and International Investment Position, IIP). It also contains a recommendation on improving the availability of data on “shadow banking”, i.e. non-bank financial corporations excluding insurance corporations and pension funds.

59. In relation to the third category, the vulnerability of domestic economies to shocks, the document states the following: *“Data availability to monitor the behaviour and exposures of economic agents within the domestic economy needs strengthening. Such data are relevant to ascertaining (1) the vulnerabilities embedded in the balance sheet positions of financial institutions, governments, non-financial corporates, and the households sectors; (2) conditions in markets to which several of these sectors are exposed, such as the real estate markets; and, (3) the financial and real sector linkages within an economy”*. The core recommendation under this category, or perhaps even the umbrella recommendation for the G20 DGI more broadly, relates to having timelier, more detailed and high quality data on institutional sector accounts, including financial accounts and balance sheets (recommendation 15). Such data would not only make it possible to have an improved analysis of the interactions between the real economy and the financial economy, they could also provide the statistical backbone for the analysis of potential vulnerabilities at sector level, e.g. the build-up of debt levels. The ultimate goal of the G20 DGI is to have quarterly institutional sector accounts for all G20-economies, with a timelines of four months after the end of the reference quarter, a situation which actually is already almost fully achieved within the European Union.

60. In relation to financial accounts and balance sheets, one can also notice a major increase in demand for data on the interconnectedness between sectors and the rest of the world, calling for more detailed data on financial transactions and positions by counterparty sector, often referred to as “flow of funds” or “from-whom-to-whom tables”, thus also capturing potential risks related to financial claims on other domestic sectors and the rest of the world. Some countries already have available such data, others are in a process of developing them.

61. More generally, as a consequence of the economic and financial crisis, user demands for wealth data have increased considerably. First and foremost, this concerns data that appropriately capture “bubbles”, e.g. in the real estate market. New guidance has been developed for appropriately measuring price changes for residential property (see Eurostat, 2013c), while guidance for commercial property price indices is currently under development. There are also initiatives to collect internationally comparable house prices, e.g. by Eurostat and the OECD, supplementing the

price statistics collected by the Bank for International Settlements (BIS) from various national resources.

62. In respect of the measurement of wealth, it is clear that data on non-financial assets, although an integral part of the system of national accounts, are much more sparsely available, especially where it concerns data on non-produced assets such as land and mineral resources⁷. In view of this lack of information, a Eurostat/OECD Task Force on Land and non-financial assets has been established in 2012, with the main objective of improving the measurement of non-produced assets. Doing so, the Task Force first focuses on the measurement of land. According to planning, more detailed guidance in the form of a manual is to be finalised by the end of 2014. Here, it can be noted that, if measured, two basic methods for estimating land values are currently applied. One method is to measure land by directly valuing different types of land. The other, more frequently applied method for land underlying structures is to estimate stocks of land as a residual. In this case, first the total stock of land and structures is estimated via a direct approach using market prices, from which subsequently an estimate of the stock of structures obtained through the so-called “perpetual inventory model” (PIM) is subtracted. The latter approach may however lead to implausible results for land, whereas using a direct approach for the measurement of land and subsequently adding the PIM-estimates for structures may end up with inconsistencies with the directly estimated value of land and structures. Clearly, more research and experience is needed.

63. Finally, recommendation 16 of the G20 DGI proposes to further develop the information basis on the distribution of income, consumption, savings and wealth across household groups. In this respect, the OECD, initially together with Eurostat, has created an Expert Group to develop methods for compiling distributional information consistent with national accounts. Another goal of this group is to look into possible methodologies for compiling more timely estimates on distribution of income, consumption and savings, by combining less timely structural information from micro surveys and the latest available information from macro-statistics such as national accounts, labour force surveys, etc. Although in relation to the G20 DGI, this latter recommendation may be primarily triggered by having more detailed information on the financial vulnerabilities of certain groups of households which may be masked at the macro-level, the recommendation nicely coincides with the increased interest for distributional issues, mainly from a (material) well-being perspective.

Ageing of societies

64. Especially developed countries are confronted with ageing populations, which poses some quite specific problems, the analysis of which has increased and will further increase data demands in certain areas. In this respect, the most obvious areas probably are related to (i) the financial sustainability of government finance; (ii) the future alignment of labour supply and demand; and (iii) the intergenerational distribution of income and wealth. To address these policy issues, in my opinion, the present standards are well suited, especially with the latest changes in the SNA 2008 on the recording and measurement of pensions. However, more granular data may need to be developed in the form of a satellite account. This will not be further elaborated here, the following paragraph being confined to some basic elements and directions for the future way forward.

65. To address the financial sustainability of government finance, one could think of having data on income and expenditure of government broken down by age category. In respect of the labour market, one also may want to have more granular information on labour demand by industry and age category. Information on certain skills, for which labour demand will be growing as a consequence of changing consumption patterns (more health, less education, etc.), may be useful as

⁷ Under the auspices of the OECD Task Force on the Implementation of the System of Environmental-Economic Accounting (SEEA) 2012, and in cooperation with the World Bank, new work, both conceptually and practically, is being done on the estimation of natural resources consistent with national accounts.

well. On the distribution of income and wealth, one may expect more pressure on the intergenerational aspects of distribution, calling for better information on the developments of income and wealth of various household groups, again looking for information by age category and more specifically separately distinguishing households with retired persons. Combining such information with demographic developments and forecasts, including its impact on labour supply, may certainly support the quality of present analysis and research into the (future) consequences of an ageing society.

5. Addressing arising challenges: the future research agenda of the SNA-standards

66. Although the new standards for the compilation of national accounts have quite recently been agreed upon, and their implementation is now on its way, I think it is appropriate to start thinking about issues that need to be addressed and possibly included in the revised or updated international standards of let's say 2023. An update of the standards, including all discussions and deliberations, takes quite some time. The discussions on the SNA 2008, replacing the SNA 1993, for example, started 6 – 7 years in advance of its endorsement in 2009. The minutes of the meeting of the Inter Secretariat Working group on National Accounts (ISWGNA), held on October 14 – 15, 2002 in Paris, state the following: *“At the 29th session of the Statistical Commission on 11-14 February 1997, the ISWGNA was asked by the Statistical Commission “to make concrete proposals for a process of updating the 1993 SNA, taking into account the need for a streamlined process and the need for adequate consultation.” The updating mechanism recommended by the ISWGNA was approved at the Statistical Commission’s 30th session on 1-5 March 1999”*. Some discussions, e.g. the one on the debtor versus the creditor approach for recording interest, started as soon as 1999.

67. Annex 4 of the SNA 2008 already includes proposals for a research agenda for possible consideration in the future update of the international standards. This list of issues constitutes a more than excellent starting point. In this section, I would like to put forward three more generic themes for inclusion in the research agenda: (i) issues related to globalisation (and the need for a combined analysis of income and finance), divided in two parts, one on the need to reconsider the statistical unit and related classifications, and the other one on considering having international or supranational accounts for multinational enterprises; (ii) issues related to the knowledge economy, and (iii) issues related to accounting for risk.

Globalisation and the need for a combined analysis of income and finance: the case for reconsidering statistical units and classifications

68. The first more generic theme for the research agenda relates to the impact globalisation has on the compilation and interpretation of national accounts data. As stated before, in recent years, quite some work has been done to provide more guidance on how to deal with globalisation; see e.g. GGNA (2011) and the work underway by the UNECE/OECD/Eurostat Task Force on Global Production. The main results of this work should be considered for inclusion in the new standards. However, below I would like to put forward some ideas for further consideration which may have a more far-reaching impact on the system of national accounts, clearly going beyond the current standards.

69. First of all, and certainly not that revolutionary, it clearly becomes more and more relevant to separately distinguish foreign controlled enterprises, or more generally internationally operating enterprises, from other enterprises in the description of the national economy. This is not only true for the detailed analysis of the production process in supply and supply tables, but also for the analysis of income and finance as described in the institutional sector accounts. By separately distinguishing these corporations, one could analyse the behaviour of internationally operating enterprises, which in a national setting by definition only describe parts of (substantially) larger entities. Doing so, one would also arrive at an improved description of mainly domestically operating

enterprises. In its classification of institutional sectors, the SNA 2008 already includes a breakdown of the corporate sectors into: (i) public corporations, i.e. controlled by government; (ii) national private corporations; and (iii) foreign controlled corporations; see SNA 2008, Annex 1, section B. However, the proposal here goes further. First of all, it is suggested to consider the separate distinction of units belonging to multinational enterprises, either domestically controlled or foreign controlled. Secondly, it is proposed to also have a similar breakdown in the classifications by industry, if needed at the detriment of the granularity of the classification by activity.

70. Having data on units belonging to multinational enterprises at the national level would potentially also allow for the compilation at an aggregate level of worldwide consolidated data on multinational enterprises, consistent with the description of the national economies, and enabling a much more detailed analysis of multinationals. It may also improve the consistent recording of (international) transactions of multinationals, which countries currently predominantly survey and record at the national level, without an international exchange of data, for reasons of confidentiality, at the individual enterprise level. A first step in this direction is the construction of internationally consistent national business registers, e.g. the Eurogroups Register, an initiative at the EU-level, which will allow for an appropriate and consistent disentanglement and allocation to countries of the sometimes very complex organisational structures of multinationals.

71. More generally, the rapidly changing nature of production arrangements and in particular the ways in which producers produce goods and services has cast a spotlight on the SNA's preference for the use of the establishment as the preferred unit to compile national accounts statistics by industry, in the supply and use framework. One of the primary motivations for this preference reflected the view that establishments classified to the same industrial classification grouping shared similar characteristics in their production functions, and, so, were considered broadly "homogeneous". Even if one overlooks the underlying product heterogeneity that exists across establishments, the idea of homogeneity of production functions has generally never been true, but it was at least "truer" for establishments than it was for enterprises and, so, the preference for establishments was retained in the 2008 SNA.

72. However, the increasing international fragmentation of production, coupled with the growing emergence of new types of producers, in particular factory-less producers, processors, and the growing share of output generated by foreign affiliates (and so the impact of transfer pricing), has further weakened the underlying assumptions of homogeneity. Indeed the changes adopted in the SNA 2008 for the treatment of goods for processing have reinforced the need to consider whether establishments should remain the unit of preference in the system of national accounts. It was at least in part a consequence of these changes, and those pertaining to the ownership issue more generally, that led to the inclusion of the issue of establishments on the research agenda in the SNA 2008 (para. A4.21): *"At the present there are two reasons to have the concept of establishment within the SNA. The first of these is to provide a link to source information when this is collected on an establishment basis. In cases where basic information is collected on an enterprise basis, this reason disappears. The second reason is for use in input-output tables. Historically, the rationale was to have a unit that related as far as possible to only one activity in only one location so that the link to the physical processes of production was as clear as possible. With the change of emphasis from the physical view of input-output to an economic view, and from product-by-product matrices to industry-by-industry ones, it is less clear that it is essential to retain the concept of establishment in the SNA"*.

73. In respect of the above, it can be noted that countries increasingly collect data in the first instance on an enterprise basis (rather than establishment), so removing the preference for establishments may reduce statistical burdens for National Statistical Offices and also potentially reporting burdens for respondents. But there are further reasons, notwithstanding those described above, why a fresh look would be useful. First of all, data for establishments often require arbitrary (pro-rata) allocations of central services (and value-added and employment) provided by head

offices, various ancillary services, and also, importantly and increasingly services related to intellectual property. Recording these flows between affiliated firms across international borders is challenging enough, but within borders the exercise becomes almost purely mathematical. Given the growing importance that knowledge based assets add to the value of any product, such allocations can significantly affect meaningful comparisons of value added to production ratios of establishments in the same industrial sector. Using the enterprise as the statistical unit, overcomes, at least at the national level, this problem (and avoids arbitrary allocations).

74. Furthermore, more practically, the enterprise as a unit also provides the basis for important links to other data that are typically only available at the enterprise level, for example total R&D expenditures, total CO₂ emissions, total employment. It also provides the vehicle for creating coherent global information on and supply and use tables broken down by foreign/domestic ownership and/or broken down by units either or not belonging to a multinational – which is essential to be able to fully understand how production, investment and trade are linked –, as Foreign Affiliate Trade Statistics (FATS) and statistics on Activities of Multinational Enterprises (AMNE) are typically based on the enterprise unit. Furthermore, the enterprise is also a preferable unit for linking trade and business registers.

75. Using the enterprise as a unit would also allow for a far better integration of the description of producing goods and services in supply and use tables, and the description of income and finance in institutional sector accounts. Considering the increasing role of income and finance in recent decades, in particular showing up during the economic and financial crisis, and the interaction between the “real” economy and the financial economy, such integration could significantly benefit research and policy. Also, for example, the part of domestic value added generated by foreign controlled enterprises, that in the end actually adds to the disposable income of residents could be analysed in more detail, thus adding to the analysis of Trade in Value Added.

76. Another related discussion regarding statistical units concerns the interpretation of the SNA-definition of an “institutional unit” for the compilation of institutional sector accounts. Criteria such as autonomy of decision or the ability to take economic decisions, and even the availability of a complete set of accounts, are interpreted in quite different ways, leading to significant international comparability issues. In some cases, this may be caused by the availability of source data, in other cases however it is clearly a matter of differences in the interpretation of the SNA 2008. In practice, one can notice, for example, differences in the delineation of institutional sectors when it comes to the recognition of quasi-corporations. In other cases, one can observe the use of legal units, enterprises or even enterprise groups as being equivalent to institutional units, as a consequence of which, for example, unconsolidated data on debt differ substantially across countries. Another issue where this issue popped up was the discussion, in the ECB/Eurostat/OECD Task Force on Head Offices, Holding Companies and SPEs, on the recognition of captive units as institutional units or not. Personally, I would prefer to look at the defining characteristics of an institutional unit from a pure economic substance point of view, giving far less consideration to, often rather quickly changing, legal and organisational arrangements. But that would mean having a much clearer understanding of the concept of “autonomy of decision”, with reference to the units running the risks and receiving the rewards for performing a certain economic activity.

Globalisation: considering international or supranational accounts

77. As noted before, the allocation of value added generated by multinational enterprises is, for an important part, governed by tax considerations. Typical routes of minimising the world wide tax burden consist of transfer pricing and the allocation of (the use of) intellectual property products and various services within the enterprise (group). The use of various Special Purpose Entities (SPEs) further complicates the picture. In this respect, one can question the economic validity of attributing operating surplus, and consequently value added, to countries. Of course, minimisation of tax payments can also be perceived as an economic rationale. But, as in the compilation of regional

accounts, the allocation of value added to regional parts in which a corporation is operating, is a kind of illusion from the perspective of economic substance. As such, it is very similar to imputing profits, in this case on the basis of tax considerations by the relevant enterprises. It says little, if anything at all, about for example the economic competitiveness of a certain country or the productivity of a certain part of a multinational enterprise. As according to the SNA 2008, all profits, both distributed and retained earnings of subsidiaries of multinational enterprises, are allocated to the home country of the multinational, this problem regarding the allocation of value added does however not affect primary income of domestic sectors and Gross National Income (GNI).

78. More generally, looking at the national part of a globally operating enterprise with internationally fragmented production processes may be somewhat similar to looking at the trunk or the left leg of an elephant, and analysing these parts as if one is dealing with a complete animal. One starts to question whether national accounts data shouldn't be much more targeted at trying to create an image of the complete animal. Together with the "illusionary" character of attributing operating surplus of truly global enterprises, even when it comes to primary income, one starts to wonder how one can adequately describe the output and all the inputs into the production process, and what part of income can and should be allocated to countries, what part of income can really be considered as being received by the residents of a country.

79. In respect of the above, we may need to think about compiling international or supranational accounts for multinational enterprises, in which all the national parts are consolidated, both for describing the process of producing goods and services, and for transactions and positions related to income and finance. Initially, this could be done as a set of supplementary tables, in addition to the standard core set of national accounts. One may however also need to think about ways to further integrate this line of reasoning, and consider recording multinational enterprises as truly supranational entities, in some respects similar to international organisations. Doing so, multinationals may be treated as a separate "country", exporting their outputs to and importing intermediate goods and services from the various "real" countries. Compensation of employees, payments and receipts of primary income and taxes would also be considered as transactions with the rest of the world. Either way, one would thus arrive at a more complete and much clearer picture and consequently analysis of the economic behaviour of multinationals. However, it also needs to be emphasised that such a recording would basically mean the end of GDP, as a major part of value added will be allocated to the supranational "country" of multinationals, and consequently not to the "real" countries. GDP of national economies would thus only include the value added created by domestically operating enterprises (and government). GNI would be less affected though, as this aggregate will keep on including compensation of employees paid by multinationals, but it would still exclude operating surplus generated by multinationals. Further down, national savings would still be affected by the exclusion of retained earnings of multinationals.

80. The latter element, the exclusion of retained earnings of multinationals from national savings, but also the "illusionary" nature of allocating profits of multinationals to countries more generally, leads to the consideration of extending the treatment of reinvested earnings to the owners of the corporations. This idea, put forward in a more general context of accounting on an accrual basis, is also included in the research agenda; see SNA 2008, para. A4.28-29. As stated in para. A4.29: *"This would mean that distribution of earnings from corporations was measured on a strict accrual basis but would also mean that the saving of corporations would always be zero. Such a change would have serious implications for interpretation of the accounts since it would be built on a different paradigm from the current treatment of dividends and corporate saving"*.

81. Probably, all of this is much too far-fetched. It certainly is not yet well thought through in all its consequences. There may also be alternative ways to integrate international accounts for multinationals in the system of national accounts. Practical considerations, such as who would assume responsibility for the compilation of these data, also need to be considered more carefully.

That being said however, creating worldwide accounts for multinational enterprises would certainly support the analysis of multinationals' behaviour and indirectly also research and policy for national economies. For the time being, it seems more realistic to compile supplementary tables with integrated data for multinational enterprises on the basis of national breakdowns of units belonging to multinationals, as previously suggested.

The knowledge economy

82. The research agenda of the SNA 2008 includes a special subsection on broadening the fixed asset boundary to include other intellectual property assets; see para. A4.52-55. Three possible extensions are explicitly mentioned:

- Innovation, referring to the exclusion from R&D-assets, as defined in the SNA 2008, of expenditures made by production and engineering departments in identifying new products, and also expenditures related to market research to determine the demand for a new product, and marketing expenditures to promote the new product;
- Marketing assets, referring to brand names, mastheads, trademarks, logos and domain names;
- Human capital.

83. It is important to note that the relevant subsection of the SNA 2008 makes reference to broadening the "fixed" asset boundary, meaning that the relevant assets could potentially be recorded as being the result of a production process, and the expenditures made to build up the assets are to be treated as investment expenditures. This notion is especially relevant for marketing assets which, at least partly, are already recognised in the SNA 2008 as an asset, but as a "non-produced" asset; see para. 13.53. Para A4.53 addresses this more explicitly: *"The SNA treats marketing assets as being non-produced and the expenditures incurred in their creation as intermediate consumption. They appear in the balance sheet only when they are sold (as the case for goodwill, addition PvdV). The major reason for not treating marketing assets as fixed assets is due to the difficulty of measuring their value"*.

84. Investments as defined in Corrado e.a. (2005, 2009) are limited to business investments. However, quite recently an EU-financed project, the so-called "SPINTAN-project", has started to extend the work of Corrado e.a. to the measurement of investments in intangible assets by the public sector. Doing so, various government expenditures, e.g. on education, would also qualify as investments. Compared to the research agenda of the SNA 2008, it is obvious that a potential inclusion of the above mentioned three categories would go considerably in the direction as proposed by Corrado e.a. However, it is also clear that the definition used by the latter goes further, their general definition for delineating investments being as follows: *"any use of resources that reduces current consumption in order to increase it in the future qualifies as an investment. This result argues for symmetric treatment of all types of capital and that business expenditures aimed at enhancing the value of a firm and improving its products, including human capital development as well as R&D, be accorded the same treatment as tangible capital in national accounting systems"* (Corrado e.a., 2009). All kinds of expenditures related to reorganisation, restructuring, etc. would thus qualify as investments, while in the SNA research agenda no reference is made to this type of expenditures.

85. It is probably fair to say that in an accounting framework one would like to apply a more prudent approach, in the sense that future economic benefits linked to certain expenditures made today are highly probable. Furthermore, one should also be able to estimate the relevant assets and expenditures in a reliable way. Finally, the resulting asset should be (economically) owned by the entity making the expenses, meaning that the benefits are accruing to the economic owner by holding or using the asset over a period of time. The latter criterion should however not be interpreted too strictly. As extensively discussed during the process of updating the SNA, freely available R&D-assets produced by government should still be recognised as assets generating

benefits for the society as a whole, although the (economic) ownership of such assets is questionable, to say the least.

86. Looking at a possible extension of the (fixed) asset boundary, the measurement issue is probably the most problematic one. Leaving apart human capital which will be dealt with further below, including marketing assets seems to be more feasible than including other types of intangible assets such as those related to reorganisations and restructurings. However, even in the case of marketing assets, delineating relevant expenditures between those that have a long-lasting impact and those which are to be considered as current expenditures is far from easy. More complexities add into the process when trying to capture the asset value, where using the Perpetual Inventory Method (PIM) requires reasonable assumptions on service lives, depreciation patterns and mortality functions. Here, one could possibly use, as a way of testing the reliability of the PIM-values, information on the difference of the stock market value and the intrinsic value of an enterprise as being an approximation of the brand name (and other expenditures made to increase future profits), but it is highly likely that, disregarding the volatility of the resulting value, this difference includes various other elements. Brand names, for example, may well be related to a consistent production of high quality products in the past, which are not directly related to expenditures on advertising.

87. One wonders whether extending the asset boundary, in the core system, will further enhance the usability of the system of national accounts. Surely, we will start to drift away from business accounting standards in a very substantial way. However, it is also clear that “knowledge” is of primary importance for the future income generating potential of an economy and the economic actors constituting this economy, certainly for developed economies which derive their competitive edge from creating new products and new technologies. A possible alternative for getting a better grip on the knowledge economy may be to have a closer look at the product classifications in the supply and use framework, to clearly distinguish products with a large “intangible investment” content. This however would not solve the high share of own account production of the relevant services. Here, one would need to extend the production boundary by including the own-account production of these services for intermediate use. This could be done in a satellite account type of setting.

88. SNA 2008, para. 1.54, states that human capital cannot be considered as a produced asset, because they “... are acquired through learning, studying and practising, activities that cannot be undertaken by anyone else on behalf of the student and thus the acquisition of knowledge is not a process of production even though the instruction conveyed by education services is”. Personally, I am slightly hesitant to apply this third party criterion so rigorously. In practice, there may be other examples of services which cannot be sold on markets or which cannot be provided from one unit to another (reference to para. 1.40, describing the production boundary). One example, I would like to refer to, is the brand name which may be fully embodied in the enterprise. Furthermore, in other parts of the SNA 2008, it is stated that human capital is not included as an asset, because they are “not capable of bringing economic benefits to their owners” (para. 2.34), because they are “not owned” (para. 3.45), and/or “it is difficult to envisage ownership rights in connection with people” (para. 3.48). Although I must admit being part and parcel of the update process of the SNA, and therefore also bear full responsibility for the final text, with the benefit of hindsight, I feel quite uncomfortable with these latter statements. It goes without saying that one would not like to see ownership of people, but if one looks upon human capital as a separate, although in a person embodied, entity, I don’t see any problems with the relevant person owning human capital which clearly brings future economic benefits to him/her.

89. As I see it, one could look upon the creation of human capital as a “production process”, for which the following inputs are being used:

- Formal education services, either paid by households or provided for free or at reduced prices by government and non-profit institutions serving households (NPISHs);
- Training and courses provided by the employer;

- Time spent on learning and studying at home;
- Other expenditures on, for example, school books and other training material;
- Etc.

Slightly problematic in this view on the “production of human capital” is the fact that most of the expenditures are actually made by other units/actors than the one embodying/owning the assets. I will come back to that, when discussing a possible integration of the concept of human capital in the core set of national accounts.

90. Looking at literature (see e.g. Liu, 2011), two methods are preferred in trying to arrive at an estimate of the value of human capital: either the “cost-based approach” or the “lifetime income approach”. The above “production process” nicely coincides with the former approach, in which past expenditures on education are aggregated using the Perpetual Inventory Method. The other approach is based on the Net Present Value of the future benefits (supposedly) earned with the input of human capital, the latter often set equal to the labour income by different categories of age and educational attainment. In respect of the latter, one could argue that the future benefits that can be attributed to human capital should be equal to the difference between actual future earnings and some base earning for people with hardly any education.

91. Usually, the estimates from the lifetime income approach are (substantially) higher than the ones using the cost-based approach. Various reasons may cause this difference, obviously one of them being that not all future labour income can actually be attributed to human capital. Another reason may be that part of human capital is actually not produced, but genetically inherited or “simply” built up by increasing working experience. In this paper, this will not be further dwelt upon. For a more detailed overview, including the various pros and cons of the different valuation techniques, reference is made to UNECE (2013).

92. If one truly wants to integrate (the production of) human capital into the core system of national accounts, several imputations need to be made. Here, I would like to give a short overview of the consequences, if one indeed goes all the way. First of all, one would need to impute income transfers from the units actually paying for the education services (provided for free or at reduced prices), to the persons/households to whom the economic benefits from human capital accrue. With this additional income, the households can pay the relevant expenditures. Actually, this is less far-reaching than one may think at first sight, as the relevant expenditures by government and NPISHs are already recorded as social transfers in kind and also as part of actual final consumption. The next step would be to consider these expenses and the education expenses which are included in household final consumption expenditure, either directly as investments in human capital, or as intermediate inputs in the production of human capital. The latter approach is more suited to also include imputations for time spent on learning and studying at home.

93. However, with the above imputations, one is not yet there. We may need to reconsider the nature of compensation of employees. In line with the lifetime income approach, compensation of employees, or the difference between the total value of labour income and some basic earnings, has become a form of compensation for putting human capital at the disposal of employers. As such the owners of human capital have become producers of human capital services which are sold to the employers. Of course, such a far-reaching proposal would constitute a complete overhaul of the present system of national accounts. A completely new interpretation of the economy would become apparent. It certainly will be very counterintuitive, having the present “economic story” in mind. But also a less far-reaching proposal, such as recording the expenditures on education as investments by the households being the economic owners of human capital would constitute a major divisive line between past and present.

94. Given the above, it may be clear that the author of this paper is not particularly thrilled about including the concept of human capital in the core system of national accounts. One could potentially add a value of human capital to the core system, as a non-produced asset. But this capital

would be totally disconnected from the rest of the system. Therefore, applying a satellite account approach seems to be the preferable option. Here, one can distinguish two basic alternatives. One could think of a more limited approach, a kind of satellite account for education, in which the various expenses, including in-house production of education services, are spelled out. Or one could try to develop a full-fledged satellite account for human capital, in which the various imputations described in the above are applied. These and other issues are being discussed in a recently established UNECE Task Force on Human Capital.

Accounting for risk

95. When addressing risk, in my opinion, four elements may need further research. First of all, the discussion on the estimation of financial services, which has already been touched upon in paragraphs 28 to 33 of this paper. Secondly, the issue of valuing assets (and liabilities) may need to be further explored, especially when it concerns loans, and in cases that the valuation of assets is based on the Net Present Value of future returns. The third item relates to accounting for contingencies. Finally, in view of the recent economic and financial crisis, calls have been made to have macro-economic data which better account for risks and vulnerabilities. Below, each of these issues will be shortly dwelt upon. Here, I would like to add that quite a number of these issues are actually already included in the research agenda of the SNA 2008; see e.g. para. A4.33, para. A4.40, and para. A4.41 – A4.43.

96. When it comes to the estimation of financial services, in my opinion, the SNA 2008 already made a major step forward in accounting for insurance services, by taking into account business models in setting the level of insurance premiums. In non-life insurance, the impact of unexpectedly high claims as a consequence of major catastrophic events, resulting in negative or very low output and value added, has been addressed by using “adjusted claims incurred” in the formula for calculating output of non-life insurance, adjusted claims being estimated from past experience or being “... *determined by using claims due plus the changes in equalization provisions and, if necessary, changes in own funds*”. Also the element of premium supplements in calculating output can be estimated on the basis of expected returns. See SNA 2008, para. 17.26 – 17.31, for a further explanation.

97. On the other hand, as stated before, a continuing debate is going on in respect of the estimation of Financial Intermediation Services Indirectly Measured (FISIM), the main discussion being related to the inclusion/exclusion of credit default risk. The answer to this question basically comes down to what one considers the core business of financial intermediation, and how these services should be valued. In the context of the SNA 2008, it has been agreed that financial risk management and liquidity transformation, in the sense of managing differences in maturities of loans and deposits, and managing credit default risks by assessing and monitoring debtors, are part of financial services provided by banks.

98. However, the above defining characteristics of financial services do not solve the problem. In Basu e.a. (2011), it is for example argued that the services on loans should not include the risk premium, the intermediation services on loans being estimated by:

- interest rate charged by the bank *minus* a risk-free interest rate *minus* a risk premium; or
- interest rate charged by the banks *minus* expected rate of return required on market securities with the same (systematic risk characteristics as the loans.

They substantiate this point of view by stating that: “... *the value added of banks lies in resolving information problems and processing transactions, not in generating returns on the resulting financial instruments. These returns are determined entirely by the instruments’ risk characteristics and market interest rates. In particular, in these models the value added of bank lending consists of screening and monitoring activities to mitigate asymmetric information problems with regard to borrowers’ creditworthiness. Bank services are analogous to other professional business services, such as legal, accounting and consulting services, and indeed analogous to all production in the*

economy: output is generated through a production process that uses primary inputs of labor and capital, as well as intermediate inputs (such as office supplies and utilities)". In this sense, they have a rather "narrow" or "limited" view on the contents of the services that can be associated with assessing and monitoring debtors. An important advantage of this position, which also corresponds to the concept of the "user cost of funds", is that the interest paid by corporations and households on the borrowing of funds is indifferent for the way in which the funds are retrieved, directly on the market or indirectly via banks.

99. Alternatively, in Hood (2013), a smoothed measure of loan charge-offs has been deducted from the difference between the interest rate charged by banks and the reference rate. He explicitly mentions that this charge-off is different from the risk premium mentioned above: *"This risk premium compensates investors for the dis-utility of bearing risk and is in addition to the component of loan interest needed to cover expected credit losses"*. With reference to Corrado e.a. (2012), he argues that *"... in equilibrium the revenue that banks receive from implicit borrower services should be equal to the total amount needed to compensate factors of production, such as labor, that produce the borrower services. If the default margin is positive, it will be included in the measured service margin (as traditionally calculated, addition PvdV) even though it is effectively earmarked to be distributed to defaulting borrowers as a replacement for the principal that they owe and is not expected to be available to pay labor and suppliers. Thus, an adjustment to exclude the default margin is needed as part of the procedure for computing the service margin"*.

100. I must admit that I have not yet fully solved the puzzle. Intuitively, I feel very much attracted to the solution proposed by Hood (2013) and implemented by the Bureau of Economic Analysis. In a certain way, it resembles the measurement of non-life insurance, in which (expected) claims due are deducted from the estimation of output. The smoothed charge-offs can indeed be considered as a kind of compensation for expected claims in relation to credit defaults. In setting the price for the intermediation service, banks will include this latter compensation, in addition to the compensation for labour and a "normal" profit. I have more problems with excluding the whole risk premium, as proposed by Basu e.a. Here, I would like to refer to Reinsdorf (2011) which includes, in section 2, a very compelling case for including maturity and credit default risk more generally, and only making an adjustment for expected credit losses. His main arguments are related to bank loans (and deposits) being different from credit market instruments, while in many cases proper alternatives for bank loans (and deposits) do not even exist for the counterparty of the banks. He also mentions the inclusion of credit default risk bearing in the measurement of FISIM as being consistent with the treatment of non-life insurance.

101. Another point that I would like to address in relation to accounting for risk concerns the valuation of assets (and liabilities). According to SNA 2008, assets usually are to be valued at market prices, and one may assume that these prices also reflect the attached risk elements related to the future income derived from them and/or the future down-payment. There are a few exceptions though, of which I would like to mention two. The first one relates to loans which are to be valued at nominal value. Although the SNA 2008 recommends memorandum items recording fair values only for loans specifically characterised as non-performing, this does not work in practice, that is to say that I am not aware of countries actually producing the relevant numbers. It is also a half-way solution, both in practical terms and from a conceptual point of view. Nowadays loans becoming more and more tradable, if only via securitisation, I feel that on conceptual grounds we should perhaps go for a full accounting of loans at fair value, realising that practical considerations regarding data availability may prevent us from doing so. In a consistent framework such as the system of national accounts, this alternative valuation of loan holdings will also affect the value of the corresponding liabilities. This raises a concern, which also has become apparent in the case of accounting for government debt, where applying the market value to government debt securities may not provide the most suitable representation of debt figures, certainly in cases of significant differences between the market value and the nominal value of the tradable securities, such as in

the case of Greek government debt. Here, having debt data at nominal value, in addition to data at market or fair value in the core system, may be the solution.

102. As mentioned before, there is a growing demand for wealth data. Having complete and high-quality sets of balance sheets, including estimates for all non-financial assets, has gained considerable importance. In some cases, fair values of assets can only be estimated by calculating the Net Present Value (NPV) of the future income streams. A prime example is the valuation of natural resources. Also pension entitlements can be mentioned here. Usually, relatively simple and straightforward assumptions are being applied, for the discount rate and for the pattern of the future income streams. The assumptions used in these “direct” NPV calculations can however have a very significant impact on the actual valuation, in the course of time, of the relevant assets. Furthermore, such direct estimates, for e.g. subsoil assets, may either contain inconsistent price and volume forecasts, or they typically tend to ignore that prices are uncertain in the future and that producers may adapt to changing economic conditions in real time. Here, we may need to make more use of dynamic programming and option valuation techniques, as developed and used in the finance literature. See Pionnier e.a. (2014) for a more elaborate discussion. Generally, more guidance on the use of discount rates may also be helpful in respect of applying (direct) NPV methodologies.

103. In recording provisions and contingent liabilities, the SNA 2008 has made a major step forward by recognising (more explicitly) guarantees, such as (i) guarantees provided by means of a financial derivative, (ii) provisions for calls under standardized guarantees, and exceptionally also (iii) one-off guarantees if for example governments grant guarantees “... to corporations in certain well-defined financially distressed situations and with a very high likelihood to be called”; see SNA 2008, chapter 17, part 3. The recording of pension entitlements/liabilities related to social security, in a supplementary table, can also be considered as an important enhancement in this context. However, as noted in the research agenda in annex 4 of the SNA 2008, further discussion is needed on the possible inclusion in the system of national accounts of contingent liabilities, which do not necessarily have a corresponding financial asset of equal value held by a counter-party. In the aftermath of the economic and financial crisis, as a consequence of which governments had to intervene in the financial system and became substantially exposed to possible calls on certain guarantees, one can clearly observe an increased interest in having data on these and related contingencies. It would be good, if in a following version of the SNA, or preferably substantially quicker, a well-defined set of contingent liabilities could be defined and included. Already now, data on such contingencies of general government are being collected on a systematic basis by Eurostat.

104. Finally, the economic and financial crisis has shown how important data on risk exposures and vulnerabilities are for a proper analysis of economic developments. The G20 Data Gaps Initiative already started various initiatives to enhance the information base on this kind of exposures, for example by promoting the compilation of institutional sector accounts, including “from-whom-to-whom” tables showing the interconnectedness of sectors and countries. In my opinion, the compilation of the latter tables should be further promoted by including them in the standards, also because they can be an important tool to enhance the reliability of the financial accounts and balance sheets. Having said that, it goes without saying that macro-economic statistics will never be fully equipped to address very specific questions such as the possible risk exposures of a certain domestic sector to let’s say Greek government bonds or to the US real estate market. That would require a granularity of data which is inconsistent with the main goals of macro-statistics. It does however call for a re-thinking about the possibilities for enhancing the link between micro-statistics and the system of national accounts. One can also observe the same type of requests for granularity in other areas of research and policy analysis, such as the analysis of enterprises in a globalising world, or the research into the distribution of income, consumption and wealth across household groups. In the area of getting to grips with risk exposures to other sectors within and outside the domestic economy, current developments in the compilation of, for example, databases with very

granular information on the issuance and holdings of securities may be a very promising way forward, certainly if such databases can be directly linked with the statistics at the macro-level.

105. Reconsidering the classification of financial instruments, by looking at ways in which these instruments could allow for an enhanced analysis of maturity and/or currency mismatches by (sub)sector, may be another step to enhance the information base for analysis of risk exposures. One should however acknowledge that, for example, currency denominated balance sheets may only reveal potential risks, and not the actual risks involved, as the relevant exposures may have been covered by derivatives, options, swaps, etc. This also (partly) holds for maturity risks and credit default risks. Furthermore, the above mentioned information on contingencies could also strengthen the framework in revealing risk exposures. These proposals should however be looked upon as a couple of initial thoughts, which need to be further thought through and elaborated in a more systematic way.

6. Concluding remarks

106. This paper started with addressing the main issues related to the implementation of the SNA 2008, the recently adopted new standards for the compilation of national accounts. Some of the issues are directly related to changes made to the standards, such as the capitalization of expenditures on R&D and military weapons systems. Other issues, although discussed in the context of the SNA 2008 and also having resulted in minor or major updates of the SNA, are more related to the actual measurement of certain phenomena, such as dealing with the complexities of the increasing internationalisation and globalisation of the world economy; or they are related to long-debated issues like the measurement of financial services. The latter reminded me again of my first ever participation in an IARIW-conference, the one in Noordwijkerhout (NL) in 1985. There was a special session on financial services, and someone said to me that this issue was already discussed for 30 years or more. Well, we are now another 30 years later in time, and we still haven't managed to resolve the complete puzzle. On the other hand, I think it is fair to say that we are moving forward and that substantial progress has been made, both in the conceptual area and in the actual measurement of these services.

107. Apart from an intermezzo on the inclusion of illegal activities, the rest of the paper contains a discussion of what I consider the main challenges with which national accountants are confronted in the future: (i) the knowledge economy; (ii) globalisation and international fragmentation of the production process; (iii) the economic and financial crisis and related user demands; and (iv) the ageing of societies. Many of these challenges can be met by having more granular data, either within the core set of national accounts or in a satellite account type of framework, which shows the resilience of the SNA. However, some of the challenges also request some further thinking about the international standards for the compilation of national accounts and related statistics. For the future research agenda, three main themes have been discussed in slightly more detail: globalisation, accounting for knowledge, and accounting for risk.

108. In the past decades, national accounts have become very successful, although a large part of the economic research community seems to have turned their back to the intricacies of defining and measuring macro-economic data. Notwithstanding the latter, one can notice an increased use of national accounts data, including the use of national accounts for so-called "administrative purposes"⁸. User demands for high quality macro-economic data have grown accordingly. In

⁸ Two main types of administrative purposes can be distinguished: (i) the use of macro-economic indicators for the determination of the contribution of a country to international organisations, the establishment of e.g. the capital shares of participating countries in, for example, the European Central Bank, etc.; and (ii) the use of macro-economic indicators for monitoring purposes, in which the surpassing of certain thresholds may have a direct impact, often regulated by law, on the economic policy of a country, the Maastricht criteria for government debt and deficit being the prime examples. This

addition, there is a growing alignment of international standards, such as those for balance of payments and government finance statistics, to the System of National Accounts. The latter development is extremely important, as it will help to create a consistent set of macro-economic statistics. On the other hand, the success has also created expectations and, as said, growing users demands. National accounts also increasingly have become the object of criticism in media and academic research, the most notable recent examples being the measurement of financial services and the inclusion of illegal activities. Sometimes these critiques are justified and call for further investigation. In other instances the comments and remarks simply show a certain ignorance of the standards and what they intend to measure, and call for enhanced communication from the national accounts community. A more substantive body of criticism relates to the measurement of (material) well-being. Various initiatives are going on to address this issue.

109. How to address the increasing and ever changing user demands is an important question. As it may have become clear from this paper, many of the, in some cases rather quickly changing, requests involve much more detailed data. It is clear that all these demands cannot be met by one overarching set of macro-economic statistics. Flexibility, in order to be able to meet user demands for new and quite specific types of analysis, may be of growing importance. This calls for a renewed interest in the linkage between micro-statistics and national accounts, both for corporations and households.

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Annex 1: Summary table on methodology for estimating capital stock and depreciation of R&D, based on country responses to an OECD survey in 2012

Country	Method	Service life	Depreciation function	Mortality function
Austria	PIM	13 years (basic research) 11 years (applied research) 9 years (experimental development)	Geometric	Delayed linear
Belgium	PIM	10 years*	Geometric	Double-declining
Canada	PIM	6.2 years	Geometric	
Czech Republic	PIM	8 years	Linear	Log-normal
Denmark	PIM		Geometric	
Finland	PIM	Detailed information available by industry: range of 7 – 10 years.	Geometric	
Germany	PIM	Survey in progress, alternative is 10 years*	Linear	
Ireland	PIM	Work in progress		
Israel	PIM	Detailed information by industry available from a pilot study**	Linear	Truncated normal
Italy	PIM	10 years*	Geometric	Double-declining
The Netherlands	PIM	12 years (exc. Chemical and electronics) 15 years (chemical) 9 years (electronics)	Winfrey	Weibull
New Zealand	PIM			
Norway	PIM	10 years*		
Portugal	PIM	10 years*	Linear	Delayed linear
Slovak Republic	PIM	Various		
Slovenia	PIM	10 years*	Geometric	Double-declining
Sweden	PIM	10 years*, additional work in progress	Geometric	
United Kingdom	PIM	4.6 years, additional work in progress	Geometric	Weibull

* Recommendation from a Eurostat task force: "In case, where such information is not available, a single average Service Life of 10 years should be retained"

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