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Update of the 1993 SNA: Progress report and main issues

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UPDATE OF THE 1993 SNA – PROGRESS REPORT AND MAIN ISSUES¹

Background

In 2003, the United Nations Statistical Commission (UNSC) called for an update of the *1993 System of National Accounts* (1993 SNA) to bring this pre-eminent international statistical standard into line with the new economic environment, advances in methodological research and the needs of users. The Commission mandated that the update would not recommend fundamental or comprehensive changes to the 1993 SNA that would impede its implementation, that recommendations for change should consider feasibility of implementation and that consistency with related manuals should be an important consideration.

The Intersecretariat Working Group on National Accounts (ISWGNA) — comprising the Statistical Office of the European Communities (Eurostat), the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD), the United Nations and the World Bank — was asked to organize and coordinate the update project, assisted in its work by a project manager and editor. The timetable, as agreed to by the UNSC in 2004, calls for the draft 1993 SNA, Rev.1 to be ready for adoption by the UNSC in 2008. The timetable was amended at its meeting in 2007 to have two deliverables: the first, comprising the core chapters, in 2008, and the second, comprising the remainder, in 2009. The content of the chapters is shown in the table below.

At its meeting in February-March 2007, the UNSC was presented by the ISWGNA with a consolidated list of recommendations for changes to the 1993 SNA to which it gave its assent. This Statistics Brief describes those changes that it is thought will be of major interest, chiefly those which will have the greatest impact on major statistics in the national accounts, and where possible gives an indication of the expected magnitude of the changes.

Conduct of the update

From the start, the UNSC emphasized the need for the broadest possible involvement of the global statistical community in the update project and has commended the ISWGNA for its efforts to achieve this. First, an Advisory Expert Group (AEG) on National Accounts, comprising 20 country experts from all regions of the world, was established to play a key role in the update. The AEG considers proposals for change and expresses its views, both in meetings (six so far) and in web-based written consultations. Second, there is the project website, maintained by the United Nations Statistics Division (UNSD) at <http://unstats.un.org/unsd/nationalaccount/snarev1.asp>, which promotes transparency and the wide involvement of national accounts experts from all over the world. The website provides comprehensive and timely information related to the update, including the five-year work programme, the agreed list of update issues, related papers, recommendations of the AEG, comments by countries on the recommendations and links to related sites.

¹ This paper is presented to the 11th OECD-NBS workshop on national accounts by Paul Schreyer, OECD. However, the document has been written by Charles Aspden OECD. A shorter version will be published later in 2007 as an OECD Statistics Brief.

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*indicates a new chapter

A number of task forces and working groups were set up to focus on particular aspects of the national accounts and to report to the ISWGNA and AEG on their findings. In addition, the ISWGNA has worked closely with two groups - the IMF's Balance of Payments Committee (BOPCOM) and the Task Force on the Harmonisation of Public Sector Accounts (TFHPSA) - to ensure complete harmony with the update of

the Balance of Payments Manual and maximum harmony with the Government Finance Statistics Manual, respectively.

In the first phase of the update, the ISWGNA identified 44 issues that warranted consideration for substantive change, which were subsequently agreed to by the UNSC, and 39 matters for clarification. All 44 issues were then subject to research and debate by the various task forces, working groups and committees in the second phase of the project. The groups then submitted reports of their findings on each issue to the ISWGNA and AEG for consideration at one of their meetings.

Once the ISWGNA and AEG had concluded their consideration of an issue, a provisional recommendation was placed on the UNSD website for comment by anyone within 60 days. All national statistical offices and central banks were alerted. Reports of the ISWGNA/AEG meetings and the issues papers submitted by the groups were posted on the website so that anyone can see how the recommendations had been arrived at. In addition, a number of regional meetings of national accountants were held around the world to explain the recommendations and the rationale for making them. In 2006 a full set of provisional recommendations was posted on the UNSD website for comment in English, French, Spanish and Russian. In all but a few cases, the world-wide response to the provisional recommendations was one of overwhelming support. For the exceptions the ISWGNA closely considered the comments, undertook further investigations and reconsidered the issues further with the assistance of the AEG. By late 2006 the ISWGNA and AEG had concluded their consideration of all 44 substantive issues and a full set of final recommendations was prepared for consideration by the UNSC.

In parallel with the finalization of the recommendations, work began on drafting the revised text for the 1993 SNA in mid-2006, and is still proceeding. As each draft chapter is completed it is posted on the UNSD website for comment, following the same procedure adopted for the individual issues. Comments are analysed and addressed by the ISWGNA and the editor, and matters of major substance are brought to the attention of the AEG for their consideration.

Overview of the recommendations

As can be seen from the descriptions of issues in the full set of consolidated recommendations, the motivations to consider the agreed issues were diverse. The reasons included the need to design treatments for units and transactions that arose or became more prominent since the 1993 SNA was completed, to remove inconsistencies in the 1993 SNA, to harmonize the 1993 SNA with other manuals in the field of macroeconomic statistics and to proceed with the research agenda left at the end of the process leading up to the 1993 SNA. The recommendations cut across almost all parts of the SNA, but they are concentrated in parts that deal with non-financial assets, financial services and financial instruments, the rest of the world (balance of payments) and government and the public sector. In other words, the majority of the recommendations relate to units and transactions that represent characteristics of an increasingly globalised economy; come from increased interest in the sources of wealth and debt; recognize the increasing role of intangible non-financial assets; take into account further innovation in financial markets; reflect the interest in better measures of the impact of pension liabilities in the context of an ageing population; and recognize the need for better measures of government and public-sector debt and deficit. Some of the recommendations affect major aggregates of the System, such as GDP and saving, as would be expected of an update intended to capture the evolving aspects of production, consumption and accumulation. Many other recommendations do not affect the major aggregates but reflect a range of other elements, including elaborations and clarifications of definitions and classifications.

Two features of the recommendations deserve special attention in the light of the interest expressed by the UNSC. First, the recommendations reflect the successful efforts to harmonize the SNA and other international statistical standards and manuals. Most striking is the close coordination of the update of the

1993 SNA and the revision of the *Balance of Payments Manual, Fifth Edition* (BPM5). The two projects are proceeding on roughly similar schedules, and this has allowed issues that cut across the two areas to be considered by both groups. When feasible, the editors of the two manuals participated at the other project's meetings and they have been in close contact to agree on definitions and the how the issues should be elaborated. Both the IMF *Government Finance Statistics Manual* and the *Monetary and Financial Statistics Manual* were already harmonized with the 1993 SNA. Throughout the update, close attention was paid to further harmonization with these manuals and the *Integrated Environmental and Economic Accounting, 2003*. Similarly, close coordination was carried out to maintain consistency with the major classification systems. For example, as a clarification — but an important one — an agreed structure for the high-level presentation of industries in the SNA was worked out that was consistent with the *International Standard Industrial Classification of All Economic Activities, Rev.4* (ISIC Rev. 4). Second, the recommendations, when appropriate, draw upon international standards for business and public accounting. Every effort was made in researching the issues to take into account the existing and emerging standards of the accounting community, particularly those of the International Accounting Standards Board (IASB) and the International Public Sector Accounting Standards Board (IPSAB). That is particularly important because of their increasingly international application. Examples of recommendations that are supported by accounting standards are those for mineral exploration, non-performing loans and military expenditures.

Major changes in the 1993 SNA Rev. 1

New recording of pension schemes

The 1993 SNA makes a distinction between employer pension schemes and social security even though both are part of social insurance schemes. Employer pension schemes are viewed primarily as being a means of redistributing income over time for a single individual. Depending on the conditions of employment, an employee builds up a claim on his employer during his period of employment for income to be paid after retirement. Social security schemes, in contrast, primarily redistribute income among a set of individuals at a single point in time. It is this notion of redistribution between large sections of the population within the current period that leads to the feasibility of basing their funding on a pay-as-you-go-basis.

These characterisations are not exact. Pension schemes include some element of redistribution, for example from people who die early to those who live longer than expected. Increasingly demographic change calls into question the possibility of maintaining both the levels of social protection provided by social security and the pay-as-you-go nature of funding. Nevertheless, the starting point in the review of this issue was that there is a fundamental difference in the claim that an employee will have in future on the pension scheme organised by his employer and that on the government through social security. Investigation soon showed that this presumption is not true for all countries. In some, the distinction between the pension schemes offered by government to its employees is very hard to distinguish from social security. The initial review, therefore, can be seen as comprising two separate elements.

1. What changes need to be made to have a comprehensive recording of pension liabilities and coherent recording of all transactions associated with the functioning of employer pension schemes run by private employers?
2. Can a distinction always be drawn between the benefits due to a government employee under a pension schemes from those due under social security?

Agreement has been reached on how to improve the recording of private employer pension schemes. This is described below. Although discussion continues on how to make the distinction in 2 and what the

further implications may be for the recording of social security schemes in the SNA, agreement has been reached on a promising approach. This too is described below.

Private pension schemes

The 1993 SNA states that the actual social contributions by an employer and employee in a period should be the amount actually paid into a pension fund. For a defined contribution scheme, this is correct and complete since the eventual payment depends only on the amounts set aside in a pension fund. For a defined benefit plan, there is no guarantee that the amounts set aside will exactly match the liability of the employer to the employee. In consequence a number of changes to the 1993 SNA in the case of defined benefit plans are proposed.

The level of the employer's contribution should be determined by assessing the increase in the net present value of the pension entitlement the employee has earned in the period in question, adding any costs charged by the pension fund for operating the scheme and deducting the amount of any contribution the employee makes.

This amount must be determined actuarially, taking into account only the life expectancy of the employee and not any future earnings or the impact of any future pay increases on the ultimate pension benefit. While these estimates cannot be made accurately for any individual, robust estimates can be, and are, made for cohorts of employees.

To explain the steady increase in the net present value of future pension payments as retirement gets closer, it is appropriate to record property income payable to the employee and returned to the pension fund as a social insurance contribution supplement. This should be estimated by applying the discount rate used in the actuarial calculations to the pension liability accrued up to the beginning of the period.

An explicit liability of the pension fund to the employee is to be shown in the financial account and balance sheet. The assets of the fund are then to be regarded as belonging to the fund and not (as stated in the 1993 SNA) as belonging to the employee. Depending on the relationship between the fund and the employer, any excess of the liabilities over the available assets may represent a claim of the pension fund on the employer (and any excess of the assets over the liabilities a claim by the employer on the pension fund). In some countries, though, any such shortfall may be covered by an insurance arrangement between the employer and the pension fund. In such a case the insurance related transactions between the employer and the pension fund are to be determined separately from the transactions relating to the provision of pension to the employee.

The use of an actuarial basis for the determination of the amount of the employer's liability has consequences for the items affecting both the other changes in volume of assets account and the revaluation account.

There is a cost to administering any pension scheme and even for a non-autonomous scheme. In principle, there should be a value of output of the fund. This is to be determined on the basis of the sum of costs, and by convention is deemed to be payable by the current employees. The imputed level of the employer's contribution must be large enough to ensure this cost is met.

When an obligation to pay pensions passes from one unit to another, this should be recorded as a transaction in pension liabilities even if neither unit has previously recorded such liabilities.

Government employer schemes

Considerable discussion focused on how to portray the pension entitlements of schemes for government employees, given the diversity of funding arrangements across countries. In order to make a recommendation that can be widely accepted, it is proposed that a standard table should be prepared in conjunction with the regular accounts showing the pension entitlements accruing to households for all pension schemes, regardless of the means of funding or the category of the unit bearing the responsibility to meet the obligations of the pension scheme. Countries will have flexibility about whether all of these schemes should be carried forward to the “core accounts” (that is, whether the full increase in the entitlements will be shown as income and saving of households), but in cases where particular schemes are not carried forward, a reasoned explanation for why this is not done will be required. Internationally agreed criteria for when a scheme might not be carried forward should be developed but this might not be possible before the proposed adoption of the updated SNA text in March 2008. In this case, the search for the necessary criteria will form part of the research agenda.

Social security schemes

As part of the work to define precisely the format of the pensions table, consideration will be given to the desirability and feasibility of including information for social security scheme in the same or a similar table.

Quantitative impact

It is not possible at the moment to quantify the impact on the accounts of these changes. The impact is likely to vary considerably between countries and depend on the composition of the different types of schemes within a country, the current treatment and the extent to which the recommendations are implemented in the core accounts in respect of government employee schemes. Compensation of employees and household saving could change (probably upwards) and gross operating surplus could change (probably downwards). If government liabilities are recognised for unfunded employer defined benefits scheme for government employees then the ratio of the SNA public debt to GDP could rise substantially, maybe by between 20% and 80%. The impact on GDP and the SNA measure of public deficit will depend on whether the actual pension payments currently included in compensation of government employees are greater or less than the imputed contributions to the pension fund plus the imputed interest on previously unpaid contributions that will replace them when the change is implemented. Some non-EU countries, such as Australia and Canada, have already made this latter change.

Research and experimental development

The 1993 SNA does not recognize research and experimental development as capital formation, despite the fact that it is thought to be a major contributor to future economic growth. This is not an oversight. In fact, it was proposed to include the “capitalisation” of R&D in the 1993 SNA, and it was only late in the piece that the proposal was aborted because agreement could not be reached on how it should be implemented. There is no doubt that this is a difficult issue and history almost repeated itself in this update, but not quite.

The R&D entry in the full set of consolidated recommendations presented to the UNSC in 2007 reads as follows:

1. Research and development should be treated as gross fixed capital formation in the SNA. It should be defined as in the *Frascati Manual*², namely “research and experimental development

² *Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development*

comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including the knowledge of man, culture and society and use of this stock of knowledge to devise new applications.” This definition should not be interpreted as including human capital as capital formation within the SNA.

2. By convention, since much R&D is carried out on own account, it should be valued at cost. In practice, the information collected in accordance with the *Frascati Manual* will provide estimates of R&D expenditure; discussion is ongoing to make adjustments to the Frascati framework to meet the needs of the SNA more closely. It is recognised that a detailed guide to implementation will be desirable to assist implementation of this recommendation.
3. All R&D expenditure that is sold or is expected to bring a benefit in the future to its owner (including for the provision of public services in the case of R&D undertaken by government) is included within the asset boundary. Only R&D that brings no economic benefit discernable at the time of its completion is excluded.
4. With the inclusion of R&D in the asset boundary, patented entities will no longer be separately identified as such in the system, but they will be subsumed into R&D assets.

While there is strong support by countries for adopting these recommendations in the SNA, there is also considerable concern that it is premature to do so because of technical difficulties that have yet to be overcome. The ISWGNA responded by making the following proposal to the UNSC, which was accepted.

In principle, research and development expenditure should be recognized as part of capital formation. However, there are a number of difficulties to be overcome before the objective can be reached. Satellite accounts will provide a useful way of working towards solutions that give the appropriate level of confidence in the resulting measures and practical guidance on implementation will help to ensure international comparability. Therefore, the 1993 SNA, Rev.1 will describe the objective and its conceptual underpinnings, note the difficulties and provide links to work underway to overcome them and recognize that for many countries implementation will take some time. The Intersecretariat Working Group will report periodically to the Statistical Commission on progress and signal when widely accepted implementation guidelines are available.

The technical difficulties fall into three groups: the scope of R&D capital formation, determining methods for compiling R&D price indices and capital measures, and collecting the raw data to derive estimates of R&D capital formation.

The difficulty with scope concerns the practical implementation of recommendation (3). This recommendation implies that expenditures on R&D should be recorded as capital formation only if they are expected to bring economic benefits to the institutions making the expenditures, or members of their collective group. This is essentially the definition of fixed capital formation. We can probably assume that businesses do not spend money on R&D for purely altruistic motives and not make significant error, but the same assumption cannot be made with respect to non-profit and general government institutions. Recommendation (3) implies, for example, that if a government spends money on health R&D with the intention of using the output in its own production of health services then the R&D expenditures should be recorded as capital formation. The reason being that the R&D asset is expected to be used recurrently in the production of the government’s health services in future periods. If, however, the expenditure on health R&D is undertaken with the sole aim of making the output publicly available then there are no direct expected benefits to the government and so the R&D expenditures should be expensed, i.e. recorded as

intermediate consumption. The challenge is to put recommendation (c) into practice in such a way that meaningful and internationally comparable estimates are made.

It is difficult, if not impossible, to compile price indices of R&D outputs because they are highly heterogeneous and for the most part there are no observable market prices. Certainly, one could compile a price index by aggregating the price indices of the inputs into the R&D production process, but such an input price index would not reflect any productivity change that may be occurring in R&D production. There is no reason to believe that the factors that lead to productivity growth across the economy somehow bypass R&D activity. A possible answer to this problem is to develop pseudo output price indices. The US Bureau of Economic Analysis (Okubo et al, 2006) has considered several different ways of doing this. One way is to reduce the growth of the input price index by the growth in productivity of industries thought to be experiencing high productivity growth similar to R&D activity. Another way is to assume the value of real R&D output is proportional to the output prices of the most productive services industries. A third way is to assume the value of real R&D output is proportional to the output prices of R&D-intensive products. The prices of such products may be the best proxies for the value of the R&D embodied in these products. This index is calculated from price indexes for the largest R&D performing manufacturing industries. The BEA has indicated its intention to pursue the development of pseudo output price indexes further.

If R&D expenditures are to be recorded as capital formation, then the associated capital measures must also be derived. They comprise consumption of fixed capital (in order to derive net measures of production, operating surplus, saving, etc.), capital stock (for the balance sheet) and capital services (for decomposing the operating surplus and productivity measurement). The perpetual inventory method (PIM) is almost universally used by countries to make estimates of capital measures for fixed assets. The most important parameter in the PIM is the service life of the asset, and so the principal challenge is to determine adequate estimates of the service lives of R&D assets.

It is clear from recommendation (2) that data collected as via R&D surveys as per the *Frascati Manual* will be the principal source for compiling estimates of R&D capital formation. Such R&D surveys have been compiled for many years by many countries, providing long time series to compile historic estimates of R&D capital formation. While the existing data have been used to compile experimental estimates of R&D capital formation by several OECD countries, the FM data are less than ideal for this purpose and certain assumptions have to be made. The changes required to the R&D surveys to better meet the needs of the national accounts have already been identified and documented, and it is now a matter of making the changes. Nevertheless, there are some outstanding issues that need to be settled concerning international trade in R&D. The principal focus of R&D surveys conducted as per the FM is to obtain intra-mural expenditures on R&D by R&D performers, but they also collect data relating to extra-mural flows. While it is possible for these surveys to identify exports of R&D output, they can only provide estimates of imports of R&D output to themselves, but not imports of R&D output to non-R&D performers. Thus, these data must be obtained from another source, such as a Balance of Payments survey. Cross-border exchanges of R&D output between affiliated enterprises will require particular attention.

Spillovers

When the knowledge gained from R&D is traded by its legal owner with other units, such as via a licence or the sale of a patent, the exchange is recorded like that for any other product. But it is in the nature of R&D that the knowledge gained often becomes available to units other than the legal owner (or the economic owner if a licence agreement has the appearance of a sale of the R&D) by means other than a transaction. This can happen because the owner knowingly makes the knowledge available to others by putting it in the public domain, such as by patenting the knowledge or by making the knowledge freely available. When a patent expires other units are free to use the patented knowledge and gain benefits - something that commonly occurs with the production of pharmaceutical products. Even though a patent may prevent another unit using the knowledge directly until the patent expires, awareness of what is in the patent may still be beneficial to another unit. The knowledge also can be spread by other means, such as by the legal owner, or a licensee, using the knowledge in their production. The benefits that accrue to units other than the owner are commonly referred to as spillovers. The upshot is that it is common for the owner to obtain only a portion of the economic benefits provided by the knowledge gained from their R&D, but it is only that portion that should be recorded as an asset in the System.

Several OECD Member countries have already compiled R&D satellite accounts, and EU countries as a whole are expected to begin doing so on an annual basis in a few years time. During the early phases of the update of the 1993 SNA, the OECD's Canberra II Group³ was responsible for undertaking research into the capitalisation of R&D, and over the last year it has been working jointly with NESTI⁴. Work has begun on developing solutions for all of the difficult matters described above. The OECD is in the process of drafting guidelines on the compilation of R&D satellite accounts for inclusion in an OECD *Handbook on Measuring Intellectual Property* to be released in 2008. The work of the Canberra II Group on R&D has concluded, but the work will be taken up by an OECD taskforce which will work in tandem with a Eurostat task force.

Quantitative impact

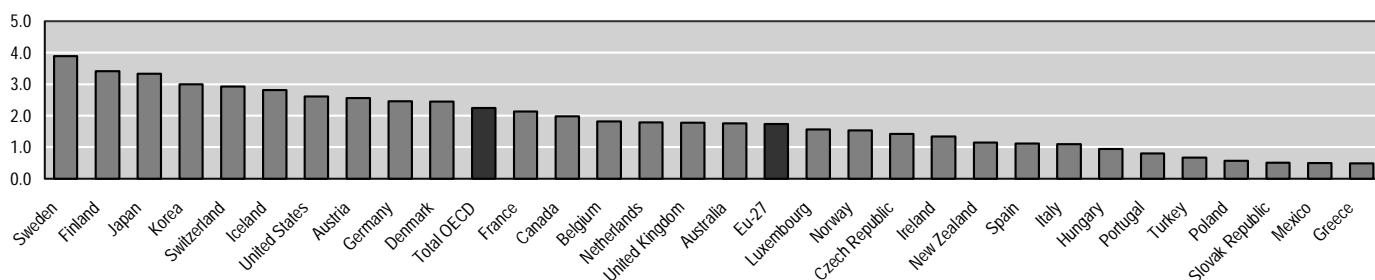
The impact on GDP of the capitalisation of R&D depends on the relative size of R&D production to GDP, if and when implemented. An approximate indicator of what this is likely to be is the ratio of gross domestic expenditures on research and development⁵ (GERD) to GDP. This ratio varies considerably between OECD countries. Figure 1 presents the value of this ratio for OECD Member countries in 2006, or the latest year. The ratio varies from about 0.5% for Greece to a little under 4% for Sweden – with the OECD average being 2.3%. A word of caution is needed because the GERD to GDP ratio is only an approximate indicator of the impact of the capitalisation of R&D on GDP for three reasons. First, there are conceptual differences between GERD and the national accounts measure of R&D output. Second, expenditures on R&D are already included in the output of non-market producers because output is measured by summing costs. However, R&D assets will incur consumption of fixed capital and so the gross value added, but not the net value added, of non-market producers will be boosted by the consumption of past R&D capital formation. In a growing economy the consumption of past R&D capital formation will be generally less than current expenditures on R&D and so the impact on GDP can be expected to be a little less than the GERD to GDP ratio suggests. Third, it is likely that some expenditure on R&D by government and non-profit institutions will not be recorded as capital formation.

³ On the Measurement of Non-financial Assets

⁴ The OECD Working Party of national Experts on Science and Technology Indicators, which is responsible for the Frascati Manual.

⁵ One of the principal aggregates obtained from R&D surveys conducted as per the *Frascati Manual*.

Figure 1. Gross Domestic Expenditure on R&D as a percentage of GDP, 2006¹



1. 2006 or latest year.

Cost of capital services

Capital services provided by non-financial assets to the production process are not explicitly mentioned in the 1993 SNA. The OECD manual *Measuring Capital*⁶ defines capital services as inputs that flow to production from a capital asset. They may be estimated as the sum of consumption of fixed capital, expected real holding gains/losses and a return to capital, similar in value to the cost of interest on the remaining value of the asset. The rental paid by the user of a rented non-financial asset to the owner covers both the costs incurred by the owner in providing the rental service and the capital services rendered by the asset to the owner. For non-financial assets used by the owner, capital services appear implicitly as part of the gross operating surplus.

The recommendation begins by noting that capital services for assets used in market production are implicitly included within the 1993 SNA but are not separately identified. Given the importance of identifying them for productivity measurement and other analysis, a new chapter is being added to the updated 1993 SNA explaining the role and appearance of capital services in the system and stressing the desirability of calculating capital services, capital stock and consumption of fixed capital in an integrated and consistent manner. No changes will be made to standard entries in the accounts to show capital services but an explanation will be provided of how supplementary items or tables could be derived and presented. Hence, there is no recommendation to include capital services in the core accounts, but some countries may choose to include them as “of which” items for gross operating surplus (or value added in volume terms).

Quantitative impact

None.

Military expenditures

In the 1993 SNA, offensive weapons and their means of delivery are excluded from capital formation regardless of the length of their life. That treatment implies that military assets provide defence services only and entirely in the period of acquisition. Further, weapons whose expense has been expressed as intermediate consumption, according to the present treatment, can be sold or exported in another accounting period, calling for counter-intuitive entries in the accounts for government.

The recommendation is that all military expenditure that meets general SNA criteria for capital formation — that is, being used in production over a period in excess of one year — will be treated as

⁶*Measuring Capital* is undergoing a revision. The new edition is expected to be released in early 2008.

capital formation. Weapon systems and military inventories will be distinguished within fixed capital formation and inventories, respectively.

For many OECD countries the new recommendation will probably be easier to implement than the old one because the present recommendation requires countries to differentiate between expenditures on military “assets” that could be used for civilian purposes (which are recorded as capital formation) from those that cannot (which are expensed). The new recommendation is also consistent with recent changes in the international public sector financial accounting standards. Possibly the greatest obstacle to implementation is the level of secrecy that surrounds military expenditures in some countries. While all countries operate their military budgets with some degree of secrecy, this issue may be especially problematic for countries with a high level of secrecy.

Quantitative impact

The change to the treatment of weapons systems will boost GDP by an amount equal to the consumption of fixed capital of weapon systems, and this will vary considerably between countries. The US has already adopted the change, and this adds about 0.5% to US GDP (Mead et al, 2004)⁷.

Goods for processing

Both the 1993 SNA and the *Balance of Payments Manual* (BPM) treat goods that are sent abroad for processing and then returned to the country from where they were dispatched as undergoing an effective change of ownership. The goods are therefore recorded in exports when they leave the first country and again in imports when they return to it. The country undertaking the processing is shown as producing goods that are recorded at their full value, even though the processor never has to pay for the value of the goods on entry. With the increasing importance of offshore processing, such treatment is increasingly questionable. It is further complicated by a different recommendation for goods being processed in one country for a second, which instead of being returned to the second country, are sold (on behalf of the owner in the second country) to a third country.

The recommendation is that imports and exports should be recorded on a strict change of ownership basis in both the SNA and BPM. That is, goods being processed in one country on behalf of another would no longer be part of imports and exports in the balance of payments and SNA. That would be a change from the 1993 SNA. The consequences affect the recording of transactions within the national economy as well as international transactions. The decision to record on a pure change of ownership basis implies that no transactions will be recorded for intra-enterprise (inter-establishment) deliveries when goods are passed from one establishment to another for processing and then returned. That has implications for the input-output tables, which on the proposed basis will reflect what each unit contributes to the production process rather than the physical technology, as previously was the case.

This recommendation recognizes that many goods move from one country to another without entailing a consequential payment from the recipient country to the sending country other than for the service provided. The recommendations have implications for the way in which the physical movement of goods, captured in merchandise trade statistics, is reconciled with the international flows to be recorded in the balance of payments and the national accounts. Import and export flows measured on an ownership

⁷ The US BEA provides the OECD with annual national accounts estimates that are consistent with the 1993 SNA, and for which expenditures on weapons systems are recorded as consumption. These data appear in the OECD’s releases of annual national accounts data. However, such data are unavailable quarterly, and so the quarterly US national accounts data available from the OECD include the capital formation of weapons systems.

basis are difficult to capture with customs-based trade statistics (see Jansen 2007 for a discussion). It may be necessary to increasingly rely on business survey information as a statistical source.

Quantitative impact

In principle this change should have no impact on GDP. The change will lead to lower estimates of output and intermediate consumption, but the reduction will be the same and so there will be no change to industry gross value added. Exports and imports will also be reduced by the same amount, and for some countries the reductions could be relatively large.

Introduction of the 1993 SNA Rev.1 by OECD countries

In 2006 the OECD conducted a survey of OECD Member countries to determine when they expected to introduce the changes in the *1993 SNA, Rev.1* and adopt the *International Standard Industry Classification Rev. 4*, or their version of it. The results were presented to the Working Party on National Accounts in October 2006 (Aspden, 2006). The switch to ISIC Rev. 4 is a major undertaking for many countries and its implementation affects when countries will adopt the 1993 SNA Rev.1. Some prefer to introduce the two together while others prefer to do them separately. The latter is the case for EU countries. They have decided to implement *NACE*⁸ Rev.2 in 2011, and it is proposed to adopt the revised *European System of Accounts*⁹ in 2011, but not implement it in releases until 2014. Neither of these last two dates is firm. It is likely that the non-EU European countries will follow suit. The non-European OECD Member countries have indicated quite different dates.

- Australia has indicated its intention to introduce most of the changes in the updated SNA in late 2009, along with ANZSIC¹⁰ 2006.
- Canada intends to introduce all the changes in the updated SNA in 2010, along with NAICS¹¹ 2007.
- The US has already implemented some of the changes, namely the extension of the asset boundary to all military expenditures of a capital nature and the new treatment of non-life insurance services. It intends to introduce the remainder progressively. The biggest change in terms of its complexity and impact on GDP is the capitalization of R&D. This has been provisionally scheduled for inclusion in the core accounts in 2012/2013. (A satellite account is well underway now.) Several other major changes will probably be introduced in 2012/13, but some of the other changes may be introduced at other times. NAICS 2007 will be introduced in the national accounts in 2010.
- Korea has a tentative plan to adopt the updated SNA in 2014, at the same time it adopts the revised KSIC¹².
- Japan has not made firm plans, but the likely timing is the adoption of both the updated SNA and revised JSIC¹³ in 2015.

⁸ General Industrial Classification of Economic Activities within the European Communities

⁹ The revised ESA is intended to be generally consistent with the updated SNA.

¹⁰ Australian New Zealand Standard Industry Classification

¹¹ North American Industry Classification System

¹² Korean Standard Industry Classification

- Mexico intends to adopt the updated SNA in a staggered fashion. The proposed changes concerning some issues, such as pension schemes, non-performing loans and guarantees, could be introduced in the medium term, while those relating to the capital formation of non-financial assets are likely to be introduced later. No decision has yet been made on specific dates for making these changes. Mexico plans to introduce NAICS 2002 (which is only a little different to NAICS 2007) in 2007.
- New Zealand has not yet developed a schedule for adopting the updated SNA, but it intends to introduce all the changes at the same time. It has tentative plans to introduce ANZSIC 2006 in either 2010 or 2011.

An important expected outcome of the adoption of the revised industry classifications is much greater comparability between country industry data. A majority of OECD countries intend to implement the new ISIC (or national/regional forms of it) by 2011. Thus, the OECD intends to implement a new questionnaire using the new SNA ISIC aggregations (A10 and A38 levels) in 2011, in coordination with Eurostat.

Summary and conclusions

This article has briefly described the update process of the 1993 SNA and given some details of the most important changes. Descriptions of all the substantive changes to be made in 1993 SNA, Rev. 1 can be found in the *Full Set of Consolidated Recommendations* on the UNSD website. Only a few of the changes will have an appreciable effect on GDP and other major aggregates, but it is not possible to be precise about how big those effects will be. It is unclear whether the change with potentially the biggest impact on GDP, the capitalisation of R&D, will be actually introduced in the core accounts of many countries, and if it is, when. However, most OECD countries will at least compile R&D satellite accounts which could international comparisons.

It is likely that most OECD countries will implement most of the changes over a five or six year period, starting at the end of 2009. It is expected that countries that adopt the new SNA will make estimates on both the old and new bases for an overlap period, but it is unlikely that countries will continue to compile “old” and “new” estimates in parallel for subsequent periods. This means that there will be a reduction in comparability for a number of years. In its releases of national accounts data, the OECD will endeavour to provide metadata alerting users to the methodological differences.

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