

SNA News

Issue 6
July 1997

An information service
of the Inter-Secretariat Working Group
on National Accounts (ISWGNA)

Milestones in action

by Stefan Schweinfest
Economic Statistics Branch, UNSD

In *SNA News and Notes* no. 4 (July 1996) six milestones for SNA implementation were presented that had been formulated by the ISWGNA upon request of the Statistical Commission. In order to make these milestones operational for the monitoring of progress in the implementation of the SNA 1993,

Country assessments

Countries respond annually to the UNSD questionnaire, which contains over 60 national accounts tables. A selection of 26 key tables was used in the assessment. In order to measure whether a country had reached a certain milestone a set of criteria was defined. For instance, in order to reach milestone 3 a country needed to have reported (i) data on GDP broken down by expenditure components and kind of activities (in either constant or current prices), (ii) data on external transactions as well as (iii) data on the government sector, including the capital account.

According to this evaluation 56 of 184 UN memberstates assessed were considered in the pre-SNA phase, 45 at milestone 1 and 56 at milestone 2. Only 27 countries reached a milestone level of 3 or higher,

Formulation of implementation targets

The milestones do not only serve to monitor past progress in the SNA implementation, they may also back up the formulation of implementation targets for the future, at the national as well as at the international level. With regard to global implementation priorities, the ISWGNA had put five options before the Statistical Commission to consider. The Commission "recommended that with regard to the medium term implementation targets priority atten-

tion should be given to countries presently in the pre-SNA phase or in phase 1. More generally, the needs of special country groups (...) ought to be taken into account [in the design of appropriate actions for implementing the 1993 SNA]. The Commission noted that (...) different approaches might be required in different regions" (Report of the 1997 session of the Statistical Commission).

UNSD with assistance from the UN Regional Commissions has elaborated a methodology to assess individual countries based on the national accounts data they provide to UNSD. A description of this methodology together with a table assessing all countries for the period 1990-95 was presented to the 1997 meeting of the Statistical Commission as a background document. The content of this document is summarized in the following.

European Union

IMF

OECD

United Nations

World Bank

Accruals versus cash estimates of taxes on products

by Paul McCarthy
Statistics Directorate, OECD

In principle, SNA accounts are to be compiled on an accruals basis. However, there is also recognition in paragraphs 7.59 and 7.60 of SNA93 that, when taxes are never likely to be collected, it is not appropriate to record the full accrual-based figure.

In practice, most industrial activity recorded in a country's national accounts is based on surveys of businesses, which include details of the amounts due to be paid in taxes on products (such as VAT). However, a reconciliation with the government accounts often reveals government receipts of such taxes running at a much lower level than that reported by businesses. The way in which such an issue should be handled will differ depending on what is actually causing the difference to occur. It is possible that the gap arises from the taxes being collected by businesses through the prices they charge but, in effect, never being passed on to government (i.e., a tax evasion problem).

On the other hand it is possible that a significant gap could arise from businesses using accrual-based accounting and government using cash-based accounting. Any delay in passing on the taxes to gov-

ernment could lead to discrepancies between the two sets of estimates, particularly in countries suffering from high inflation.

If the difference arises because businesses charge their customers the full amount of the tax but do not pass it all on to government, the part which is retained by businesses should not be treated as a tax on products. Based on the data supplied by businesses, the valuation of GDP at market prices is correct but the value of GDP at basic prices should be calculated as GDP at market prices less that part of the tax which is actually passed on to government. In other words, within GDP at market prices, the mix between operating surplus and taxes on products is changed compared with the situation based on the data reported by businesses.

In the second situation above, the taxes collected by businesses are all being passed on to government but the difference arises because businesses are using accrual accounting and the government is using cash accounting. In this case, GDP at market prices and at basic prices as measured by business data would both be correct and an adjustment would have to be made to the government tax receipts to bring them up to the appropriate (accrual-based) level.

Wages paid in arrears

In some countries at present, government workers are not being paid until several months past the time when the work is actually done. If it is clear that the wages will be ultimately paid, it is appropriate for the (accrued) income to be shown as part of the national accounts estimates of production. However, a problem of interpreting the accounts arises when this income is attributed to households. The reality of the income/saving squeeze being faced by households will not be reflected in the sectoral accounts in the estimate of household saving, which is derived as the difference between total income (containing a "non-paid" element) and total consumption.

The national accounting treatment of this situation is to record the wages on an accruals basis (i.e., as having been paid when the work was actually done). The impact on household saving would probably be to show a higher level of saving than would otherwise be the case. The squeeze on wages would generally reduce consumption, which would be fi-

nanced by some rundown in saving, but this would be more than offset by the jump in saving caused by the accrued (but unpaid) wages. In effect, the unpaid wages are being shown (correctly) in the accounts as involuntary or forced saving.

When the problem of accruals versus cash wages is acute, it is recommended that the items for compensation of employees, disposable income and saving be further disaggregated to show the cash-based estimates separately (as memorandum items) from the accrual elements. In this way, the extent of household saving that may be involuntary because of the accrued lag will be immediately apparent. Clearly, the counterpart entries (either corporations or government) should be similarly disaggregated.

All the above proposals are based on the assumption that the wages due are eventually paid. To the extent that such wages are never paid, neither they nor the corresponding government output should be recorded.

Intangible assets, patents and copyrights in the 1993 SNA

by Peter Hill
Statistical Division, United Nations Economic
Commission for Europe

Accounting for intangible assets, and any associated patents or copyrights, is an area in which some significant improvements occurred between the 1968 and the 1993 SNA. However, patents cannot be treated symmetrically with copyrights in the 1993 SNA because of difficulties created by the decision to continue to treat all expenditures on R and D as current. The purpose of this note is to try to clarify the complex issues involved which may be a source of some confusion.

Patents and copyrights are legal instruments which constitute evidence of their holders' ownership rights over certain kinds of *intangible assets* which may be described as 'originals' as they are the outputs produced by *creative or innovative* activities of a scientific, engineering, entertainment, artistic or

Copyrights

The 1993 SNA explicitly recognises the process of creating an entertainment, literary or artistic original as falling within the production boundary of the SNA. The output consists of an original in the form of a new visual and/or sound recording, manuscript, musical composition, etc. The original is then used to produce copies which are themselves used in further processes of production or for consumption. The original must, in fact, be an *intangible fixed asset*, as defined in para. 10.7 of the 1993 SNA, provided it is itself used repeatedly or continuously in the production of other goods and services (i.e., copies) for more than a year. Although an original has to be recorded and stored on some physical medium -- paper, film, tape, disk, etc., -- it must be clearly distinguished from the latter. Blank pages, films, tapes, disks, etc. have little value. They acquire value by having an original recorded on them, the original being essentially an intangible entity with no physical dimensions or coordinates of its own. Nothing material is transferred from the original in the process of producing the copies.

An entertainment, literary or artistic original is therefore classified as an *intangible fixed asset* in the 1993 SNA and recorded under AN.112 in the asset

literary nature. Patents confer ownership rights over scientific originals or inventions, whereas copyrights confer ownership rights over entertainment, artistic, literary or programming originals (new recordings, films, manuscripts etc. and computer software). The laws governing patents and copyrights are broadly similar in most countries. The ownership rights conferred by patents and copyrights are often described as 'intellectual property rights'.

Patents and copyrights have to be clearly distinguished from the intangible assets to which they relate. Similar kinds of legal instruments may exist for tangible assets: for example, the 'deeds' of a house (i.e., the legal documents which are evidence of ownership over a house) are obviously very different from the house itself. It is convenient to explain the treatment of copyrights first as they are not subject to certain additional complications which affect patents in the SNA.

classification. By definition, therefore, the acquisition of an original, whether through own account production or purchase on the market, counts as gross fixed capital formation. Notice that the copyright does not appear anywhere in the asset classification because the copyright is not itself an asset, being only a legal instrument providing evidence of ownership over an asset. Any payments received by the owner of the asset -- i.e., the holder of the copyright -- from other units who are licensed to use the asset are conceptually equivalent to the rentals received by owners of tangible fixed assets who lease them out. They are treated as payments for services provided by the owner of the asset, whereas in the 1968 SNA they were treated as a form of property income.

Writing new computer software counts as production in the same way as writing a new book or musical composition. In the 1993 SNA, a new computer programme is therefore treated as an original, which must be an intangible fixed asset when it is used repeatedly or continuously in the production of other goods and services for more than a year. It is then classified under AN.112 alongside artistic originals. As every PC user is aware, the creator of software can obtain copyright.

Patents and scientific originals

The situation is different in the 1993 SNA, however, for scientific originals, such as inventions, new drugs, new processes, etc. and any associated patents. Their treatment is linked to that of expenditures on research and development (R and D). This was the subject of an intense debate during the SNA revision process. As R and D may continue to yield benefits long after it is undertaken, it can be argued that the expenditures incurred are essentially capital in nature. Most economists consider that R and D should be treated as investment rather than consumption and many national accountants would agree with them. Despite long discussions and extensive consultations with national statistical offices, no consensus emerged during the revision process, but a majority favoured continuing to classify all expenditures on R and D as current. The reluctance to classify expenditures on R and D as capital formation may be explained more by practical than conceptual considerations because of the difficulty of identifying and valuing the 'assets' produced by many R and D activities and accounting for their subsequent use and consumption.

In consequence, the outputs of R and D establishments are treated as being consumed as they are produced. Even though scientific originals may be produced which are assets from an economic point of view, they cannot be recognised as assets within the SNA. There is no category 'scientific originals' under intangible fixed assets, AN.112, in the asset classification of the 1993 SNA. Nevertheless, patents may be taken out which establish legal ownership over these supposedly non-existent produced assets.

The SNA is placed in an impossible situation. In reality, the holders of the patents are owners of assets which must be recorded in the balance sheets of the SNA. Moreover, the holders of the patents also engage in transactions which have to be accounted for. The 1993 SNA was fully cognizant of the problem and tried to find a way around it. Recognising

Conclusion

The treatment of programming, entertainment, literary, and artistic originals and their associated copyrights in the 1993 SNA constitutes a major improvement over the 1968 SNA. However, a similar treatment for scientific originals is effectively blocked by the decision to treat all expenditures on R and D as current which prevents creative or innova-

that assets in the form of 'patented entities' do exist, it felt obliged to classify them under AN.221, *non-produced* intangible assets. These are described (p. 310 of the 1993 SNA) as 'constitutions of matter, processes, mechanisms, electrical and electronic devices, pharmaceutical formulations and new varieties of living things produced by artifice'. The trouble is, of course, that these entities are clearly scientific originals produced as the outputs of activities which fall within the production boundary of the SNA. This implies that they ought to be classified as intangible *produced* assets alongside entertainment, scientific and literary originals and computer software, i.e., as intangible *fixed* assets. This would in turn imply that their acquisition should be classified as gross fixed capital formation, but this option is ruled out by the R and D decision. There is no conceptually satisfactory way of escaping from this impasse.

The potential confusion is compounded by the fact that it was decided in the 1993 SNA to treat payments of royalties to holders of patents, by convention, as payments for services rendered (see para. 7.92 and para. 69 of Annex 1), i.e., *as if* they were rentals received from the lease of fixed assets. This treatment would be valid if patented entities, i.e., scientific originals, were recognised as fixed assets, but it is inconsistent both with their classification as *non-produced* intangible assets and with the decision to treat all R and D as current.

Given the constraint imposed by the R and D decision, another possibility might have been to treat patents, by convention, *as if* they, and not the patented entities, were the assets. Viewed as legal instruments (i.e., 'constructs of society' as described in AN.22) patents could then be classified as *non-produced* intangible assets. Royalties would then have to be classified as property income. In effect, this is the treatment adopted in the 1968 SNA. However, the underlying inconsistency remains, whatever expedient is adopted.

tive scientific activities from producing assets. As a result, the SNA treatment of patents and patented entities is inherently, and unavoidably, unsatisfactory and leads to inconsistencies within the system. In effect, the SNA needs to move either forwards or backwards.

(1) One possibility is to accept the fact that the

decision to treat all R and D expenditures as current implies that no assets are produced by R and D activities. Assets in the form of scientific originals (i.e., patented entities) cannot therefore exist. The patents themselves, as legal instruments, have to be treated as non-produced assets and royalties treated as property incomes. This means going back to the 1968 SNA.

(2) The other possibility is to accept the fact that scientific originals do actually exist. This implies that intangible fixed assets may be produced as outputs from R and D activities so that some expenditures on R and D have to be classified as gross fixed capital formation. In short, the treatment of scientific originals should be aligned with that of entertainment, literary and other artistic originals, and also computer software.

It is difficult to see either change being made in the immediate future, as both would entail important changes from the 1993 SNA. It may be necessary to continue to live with the inconsistencies for the time

being, but they should be recognised as inconsistencies.

The first change would be a retrograde step which ignores economic reality. It may be conjectured that in the longer term the second change will eventually have to be made. It is extremely difficult to justify the differing treatments of scientific and other originals within the 1993 SNA, and it may also become increasingly indefensible from an economic point of view to deny scientific originals the status of intangible fixed assets in the face of the major contributions which they appear to make to economic growth and development. The second change does present a serious challenge to national accountants, however, and requires further elaboration because simply reclassifying R and D as capital formation would not dispose of the problems which concerned those who were reluctant to do so during the SNA revision.

The 1993 SNA research agenda: A status report

by Jean-Etienne Chapron, UNSD

The Inter-Secretariat Working Group on National Accounts (ISWGNA) conducted recently a review of its research agenda. The following article extracts from the UN Statistics Division (UNSD) report a brief description which is struc-

tured in two sections:

- Topics listed in the research agenda of the 1993 SNA (pages xlili-xliv of english version)
- Additional research topics which have emerged since 1993

Topics listed in the 1993 SNA

The organizations listed after the topics are those who have a visible output (expert group meeting, handbook, etc.) completed or planned in the near future:

- Financial intermediation services indirectly measured - FISIM (Statistical Office of the European Communities (EUROSTAT)): Some technical points still to be decided. Deadline Autumn 1997.
- Consumer subsidies (EUROSTAT): Draft report ready by second half of 1997. First discussion in a small European task force in Autumn 1997. Second version presented for discussion to European working party on National Accounts and other international organizations by December 1997.
- Informal/formal distinction (UNSD, International Labour Office (ILO), UN Economic Com-

mission for Africa (ECA), UN Economic and Social Commission for Asia and the Pacific (ESCAP)): UNSD/ECA workshop on services in the informal sector in Addis-Ababa, June 1996. UNSD/ESCAP/ILO workshop on statistics on the informal sector in Bangkok, 12.-16. May 1997.

- Environmental accounting (UNSD, EUROSTAT, World Bank, Organisation for Economic Cooperation and Development (OECD)): Pilot studies in Europe, Africa, Asia, Latin America. Finalization of the Operational Manual of the UN System for Integrated Environmental and Economic Accounting (SEEA) by end 1997 (Nairobi Group). Beginning of the revision of SEEA in 1997, through the London Group.
- Functional classifications: OECD: Finalization of Classification of the functions of government

(COFOG), Classification of the purposes of non-profit institutions serving households (COPNI) and Classification of individual consumption by purpose (COICOP) in 1997. UNSD: First outline of Classification of outlays of producers by purpose (COPP) circulated for comments in December 1996. Draft COPP presented at the joint meeting OECD/EUROSTAT/UN Economic Commission for Europe (ECE) in Paris, June 1997.

- ▷ Intangible assets (EUROSTAT, OECD): European meeting in London (February 1996), international workshop organized by the Australian Bureau of Statistics (March 1997). OECD handbook planned for 1998-99. Contribution by the British Office for National Statistics.
- ▷ Output of services, including services produced within households (OECD, UNSD): OECD has published in 1995 a study on "Households Production in OECD member countries - Sources and Methods". Topic also included in UNSD

Additional research topics

This section comprises new research topics addressed by ISWGNA member organizations:

- ▷ Conversion of aggregates from 1993 SNA to 1968 SNA (EUROSTAT): Methodology defined in 1996 for conversion of the 1995 version of the European System of Accounts (ESA) to its 1979 version.
- ▷ Hidden economy (EUROSTAT, World Bank, OECD): European program of work 1995-98.
- ▷ Specific problems of countries in transition (ECE, OECD, EUROSTAT, UNSD): UN Handbook published in April 1997. Annual joint

work on households' accounts (socio-economic accounting).

Financial activities, including derivatives (International Monetary Fund (IMF)): Monetary and Financial Statistics Manual in final stages of review. Expert group meeting in October 1996. On some derivatives, amendments requested to the 1993 SNA.

Regional Accounts (EUROSTAT): Handbook in final stages.

Review of purposes and uses of the SNA (UNSD): Seminar on uses of national accounts scheduled for 1998. Publication of proceedings in 1998-99.

From the list published in the 1993 SNA, the following topics have not yet been addressed by at least one member of ISWGNA: cost of capital, matrix presentation, scope of capital formation (research and development, education and human capital), labour accounts.

ECE/OECD meeting and related papers. EUROSTAT's annual reports on work in progress in pre-adhesion countries.

- ▷ Socio-economic accounting (UNSD): Expert group meeting on household satellite accounting (socio-economic accounting) organized by UNSD in New York, 6.-10. October 1997, with a technical report published in 1998. Cooperation with the Delhi-Group.
- ▷ Distribution of GDP by households and measurement of poverty (World Bank): Work in progress.

Updating the 1993 SNA

In the introduction to the 1993 SNA, it is noted (p.xliii) that the "1993 SNA, like its predecessors, represents a stage in the evolution of national accounting. To continue that evolution, further research will need to be carried out." It is more than 5 years since the 1993 SNA was finalised and, in order to ensure its continuing relevance for purposes of economic analysis and policy making, some parts of the system are already in need of some updating. Periodic updating may be necessary to reflect real changes taking place within economies; furthermore

financial and fiscal instruments continue to evolve, and accounting methodologies improve, for example in the treatment of certain financial, intangible or natural assets. Significant progress has already been reported in some areas such as FISIM, functional classifications and certain financial instruments (see *SNA News and Notes* no. 5, January 1997). Recognising the need for some updating, the Statistical Commission has asked the ISWGNA to make concrete proposals for a streamlined updating procedure which also allows for adequate consultation.

In its first consideration of this issue at a recent meeting, the ISWGNA sought to formulate some general guidelines about the ways in which specific proposals for updating might be processed, including procedures for consultations with appropriate experts. Considerable thought was also given to the

question of the most effective ways of using modern technologies to communicate amendments - once approved - to compilers and users. A detailed set of proposals will be presented by the ISWGNA at the beginning of 1998.

Software for national accounts in multiple dimensions

by Tjeerd Jellema and Gosse Hommes
Institute of Social Studies Advisory Service,
The Hague, The Netherlands

According to 1993 SNA recommendations a System of National Accounts should consist of a Supply / Use Table (SUT) and a System of Integrated Economic Accounts (IEA), related through a Cross Classification Table (CCT). Together they make up the integrated set of accounts

IAS'96: A unique solution

IAS'96 (Integrated Accounts System) is based on the concept of n-dimensional data sets. A user is completely free to define any data set of any (reasonable) number of dimensions. This means that instead of being stored across different worksheets (which happens when spreadsheet-based software is used), all the data can be stored in a single data set. The user can exercise total control over the structure of the accounting system to be implemented. If the data set is intended for the purpose of a base-year SUT, its definition will span activities, products, transaction, supply and use and valuations layers. If, instead, it is intended for a stand-alone IEA flow system, the data set will be defined in terms of institutions, transactions and resources and uses. It is also possible to create a dataset which combine SUT and IEA into the Central Framework.

Each of the dimensions, in turn, is defined by means of hierarchical classification systems such as, for instance, ISIC and CPC, which are completely user modifiable. These hierarchical classifications are used for automated aggregation. Furthermore all data screens - these are called Views - use the hierarchies in the classifications to hide or show detail (collapse or expand categories) in the accounting system. For instance, a view may show total intermediate demand in a single cell and alternatively, by expanding the product axis and the activity axis, the user can see (part of) a 200 by 200 matrix.

called the Central Framework. The system can include a variety of extensions and additions, such as Satellite Accounts, Social Accounting Matrices and Regional Accounts.

The data management needs of the compilation process of these component parts are varied, and few National Accounts offices actually have a unified approach to National Accounts data management. Few tools exist that fulfill all of the requirements posed by an evolving and growing system of accounts.

The capabilities of IAS'96 allow it to closely mirror SNA'93 where it concerns the representation of the accounts. It fully supports T-accounts and matrix representations in its layout views, and layouts are again fully user specifiable. This explains why IAS'96 is as adept at presenting the IEA as it is with SUT or SAM data sets. It is even possible to have one layout view present the Central Framework in the conventional representation and another layout present the same data set as a Social Accounting Matrix.

The implementation of formulas by IAS'96 is synonymous with the SNA concept. Formulas applied to cells at a higher hierarchical level in the classification are applied to all cells down the hierarchy, so it is equally feasible to enter a single formula to define the concept of total supply across all products (a vector), and another to compute value added across activities and institutions (a plane) at the same time.

However, IAS'96 is first and foremost a national accountants tool and to this end it supports the implementation of reconciliation strategies through manual editing and through a more powerful concept of Rule-based editing. Thus, every change made to a data set is saved in an edit history, so that all of the steps taken during the reconciliation process remain available for analysis.

The Rule-based editing will allow the national accountant to perform such tasks as reclassification, grossing up, rounding, the apportionment or pro-rat-

ing of data, and (final) balancing by means of the RAS method implemented across multi dimensions. Rules are saved and can be re-used; therefore, it is wholly possible to specify a baseline balancing strategy, and apply it from year to year. Complex operations, such as the transformation of a SUT into Input-Output tables, are supported by means of so-called

Technical specifications

IAS'96 is based on the combination of a strong relational database back-end imposing structure and consistency on the data and the flexibility of a spreadsheet with regard to the presentation of the data. It has been developed using a compiled language (Delphi). The software requires 8 Mb of RAM to run on Windows 3.1 systems, and 16 Mb of RAM to run on Windows 95 and Windows NT systems, although more is recommended for larger accounting problems.

IAS'96 supports data capture and export through the clipboard as well as through DDE and provides file import and export to ASCII, Paradox and dBASE tables.

The present version of IAS'96 is a 16-bit (Windows 3.1) application; however, this version has already been successfully ported to Windows 95 as a 32-bit application. Future versions of IAS will support the new platforms more fully.

Experts.

The entire reconciliation process can be transparently documented by using the Issue View, in which each of the modifications to the data can be annotated and links made to the actual edits, so that an integrated report can be prepared on the entire process of compilation of the data.

Apart from a user manual and an extensive help facility the documentation includes a series of work-through exercises, as well as case studies in compiling the major 1993 SNA manual sample tables.

IAS'96 has been developed at the Institute of Social Studies Advisory Service (ISSAS), The Hague, which forms part of the Institute of Social Studies. The software package, developed by the authors of this article, draws upon the experience gained by the Institute over the last two decades with national accounting projects in Asian, Caribbean and Latin American countries.

For more information on IAS'96 please contact: ISSAS, P.O. Box 29776, 2502 L.T The Hague, The Netherlands, Telephone: 31-70-4260760, Fax: 31-70-4260770, E-mail: issas@iss.nl; 101453, 3264@compuserve.com; 100334,2404@compuserve.com.

Meetings and seminars

UNSD will hold an

Expert group meeting on linking business accounts to non-financial accounts
in New York from 18-22 August 1997.

In addition, UNSD will also hold an

Expert group meeting on household satellite accounting
in New York from 6-10 October 1997.

The third meeting of the

UN expert group on international economic and social classifications
will take place in New York from 1-3 December 1997.

The IMF will hold a course on

National accounts
from 3-12 November 1997 in Washington, D.C.

Editorial note

SNA News and Notes is a bi-annual information service of the ISWGNA prepared by United Nations Statistics Division (UNSD).

It does not necessarily express the official position of any of the members of the ISWGNA.

SNA News and Notes is published in four UN-languages (English, French, Russian and

Spanish) and can be accessed on the internet: <http://www.un.org/Depts/unsd>

Correspondence including requests for free subscriptions may be addressed to: UNSD, Room DC2-1720, New York, NY 10017, tel.: +1-212-963-4854, fax: -1374, e-mail: sna@un.org