



The Future of the SNA: A Practitioner's Point of View

Michael Davies (Australian Bureau of Statistics)

Paper Prepared for the IARIW-OECD Special Conference: "W(h)ither the SNA?"

Paris, France, April 16-17, 2015

Session 4: National Accounts in the Wider Statistical Context (II)
Thursday, April 16
15:30-16:45

Discussant: Sanjiv Mahajan (Office for National Statistics, UK)

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Michael Davies
Division Head
Macroeconomic Statistics Division
Australian Bureau of Statistics

Views expressed in this paper are those of the author and do not necessarily reflect those of the Australian Bureau of Statistics.

Introduction

This paper looks at the future of the System of National Accounts (SNA) from the point of view of a practitioner. By practitioner, I mean someone in a national statistical office (or similar institution) who produces, for example, a set of quarterly national accounts. I am using "macroeconomic accounts" to describe a set of accounts as elaborated in the 2008 System of National Accounts, the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6), and the IMF's Government Finance Statistics Manual (GFSM).

Given their importance, there are many expectations around macroeconomic accounts. Some may appear self-evident, but it is worth listing them:

- The producing institution is usually taxpayer funded - careful use of taxpayers' money is expected.
- The data are widely used for analysis and policy making, so are subjected to intense scrutiny.
- There is an expectation that they be robust and a useful approximation of the real world.
- Revisions are expected, but they are expected to be within reasonable bounds.
- They should form a sensible time series. They are not expected to lurch around from period to period with conceptual/ methodological/ data changes. There is an expectation that a set of similar quality data will be produced next period.
- There is an expectation that NSO staff can answer questions and explain the relationships in the accounts and detail.
- There is an expectation that data be internationally comparable.
- There is an expectation that the data be compiled at a detailed level, and that it form a consistent and coherent set of macroeconomic accounts.

In order to meet these expectations, an institution needs to maintain and develop several layers of infrastructure. It is useful to view these as layers of infrastructure, as this forms a good basis for a discussion of the challenges in maintaining and developing them.

The layers are:

1. The first layer of infrastructure is the conceptual framework, the 2008 System of National Accounts and related standards.
2. The second layer is the people needed to compile robust macroeconomic accounts.

3. The third layer is the methodology and process of compilation. This covers a wide range of techniques used to convert a range of data into coherent accounts. This layer includes business registers and survey and census methodologies and practices.
4. The fourth layer is population of the framework. This layer includes the availability and acquisition of survey, census, administrative and transactions data plus the derivation of missing and contradictory values through estimation, balancing and modelling.

Layer 1: The 2008 System of National Accounts.

The 2008 System of National Accounts articulates a framework for the recording of all the economic activity in an economic territory. It defines a set of concepts and builds up a full set of accounts based on these concepts.

The SNA is a robust, conceptually based framework suitable for representing all economic transactions and positions. Statistics compiled in this framework are produced regularly by most countries and are highly valued by analysts and policymakers. This paper proceeds on the basis that macroeconomic accounts compiled in accordance with the SNA will be essential for the management of economies for the foreseeable future and looks at what is needed to maintain the framework.

The SNA is a framework based on economic theory, so it presents data in a structure and with terminology that is familiar to users. The core set of macroeconomic statistics has proved its worth and is very much in demand. It has proved to be quite robust, including through the recent global financial crisis. There are demands for improved timeliness, for fine level detail, for expansion of the dataset, for longer time series, and for increased relevance. A very significant user is the government which usually funds the production of the accounts as well. Institutions producing macroeconomic accounts are therefore answerable to governments in a number of ways and need to manage this complex relationship.

The conceptual basis of macroeconomic accounts is impacted by academic developments in economic theory and this leads to considerable debate on the interpretation and practical implementation of the theory. Practitioners need to keep across economic developments and balance many theoretical/ practical tradeoffs.

The need for maintenance

The SNA framework needs maintenance and development. While the core concepts are largely well defined, there are some gaps and inconsistencies. Clarification of some core concepts is needed and the application of the core concepts to the recording of new or complex economic transactions and positions is needed. An institution could leave this work to others and just wait for problems to be solved, but there are significant benefits in being involved in the developments. Above all, it develops skills in the staff which are essential in bringing judgement to bear on the day to day production of accounts.

I believe that clarifications of and improvements to the SNA are likely to involve stricter application of the basic concepts, in particular those of market value and accrual accounting. This will make the accounts more coherent and more useful for macroeconomic policy making. They may also involve more imputation. We have noted that some countries tend to favour conservative book value and cash-based accounting (perhaps with timing adjustments to produce pseudo-accrual data). We understand that these countries may be uncomfortable with improvements to the SNA because of the use of macroeconomic statistics for administration.

The hostility to market valuation and accrual recording was evident in the positions taken by several countries in the discussions on FISIM, the treatment of emissions trading schemes and of government liabilities for pensions.

The international debate must go ahead based on the concepts of the SNA, not on non-SNA considerations. The criteria used in deciding on a treatment for emission trading permits were whether the value of a transaction equals the cash which changed hands and whether a particular valuation method would increase government liabilities. Neither of these are SNA considerations and we must work hard to avoid such considerations influencing statistical decisions.

The most recent update to the standards saw a high degree of convergence between the SNA, BPM and GFS. There is a will for this convergence to continue. The logical end point is a fully integrated set of accounts, with what are now balance of payments being an expanded rest of the world account and the GFS being incorporated into sectoral accounts. This will pose significant challenges, especially in countries where, for example, BOP are done in the central bank and the national accounts in the NSO. Nevertheless, this is a direction we need to pursue.

It is desirable to work towards greater alignment with other standards, particularly those for labour, prices, and household transactions and wealth.

The updating process

The SNA and related standards have been updated through infrequent “big bang” updates. These are linked to a paper publication cycle with long lead times and, given modern technology, a continuously updated document would be possible. It would have the advantages of keeping the framework up to date as economies develop and of incorporating the outcomes of the resolution of inconsistencies as soon as they are resolved.

However, it seems preferable to have a stable standard in place for a significant period of time. This is especially important where, for example, the standard is embedded in legislation. However, the SNA is embedded in far more than legislation: it is also embedded in processes and design and in historical data to the extent that the change process has become very expensive and time consuming.

A major strength of the SNA is that it is complete and internally consistent (with some exceptions that should be fixed). This means that it cannot be tinkered with without risking unforeseen consequences. This makes incremental updates difficult, despite the fact that the real world object of measurement, the economy, evolves continuously and some of the inconsistencies in the framework may be resolved between updates.

There may be a solution to the question of frequency of updating. The current SNA often conflates concepts, methods and data sources. It would be preferable for future updates to separate these out. This means that there would be an articulation of a conceptual framework, regardless of methodological and source data considerations. There would then be an articulation of the methods and sources to be used, that is a description of the application of the conceptual framework in real world circumstances.

This approach would address the problem of the frequency of updates. The conceptual framework could be subject to continuous improvement, while the practical implementation (the methods and sources) would be frozen for an agreed period of time. The periodic update would involve bringing the implementation into line with the refined conceptual framework.

Demand for high frequency data

SNA macroeconomic accounts record all transactions and positions in an economy. To compile such a dataset takes time and money. In what appears to be an accelerating world, there is a demand for quick indicators of how the economy is developing. Some countries have flash GDP estimates, compiled shortly after the reference period. These are often little more than forecasts and are subject to significant revision, so are of limited usefulness. There is a need to develop and maintain a set of short term indicators which are closely related to the macroeconomic accounts. However, publishing data which purports to be a set of accounts compiled in a few days undermines demands for resourcing complete, coherent quarterly accounts, which I believe are of far more use and should be the focus of SNA development.

Demand for micro data in a macro framework

The SNA is a set of data which shows, at an aggregate level, the supply and use of resources in successive periods and the stocks carried over from one period to the next. There are demands for the SNA data to serve a wide variety of purposes, and the purpose to be served shapes priorities in the development of the framework.

The SNA is designed to inform macroeconomic policy. However, there is growing interest in microeconomic views which are consistent with the aggregate data compiled within the framework. As a starting point, it is important that statistics about each share common standards and classifications, as this enables more efficient collection of data and the integration of the two datasets.

Not only are common standards useful for compiling detailed national accounts but, they are a desirable property for micro statistics, where a lot is often made of meeting user demands at the cost of completeness and coherence of the bigger picture.

The main areas of interest are understanding the behaviour and development of economic agents. There is also an increasing level of interest in the links between macroeconomic and microeconomic policy concerns such as the distribution of income and wealth. The SNA framework is a robust foundation for this work.

Demand for firm level data

There is increasing demand from users of economic statistics, particularly government and academia, for information about the behaviour and development of firms. This information is important for the evaluation of government policy to ensure that resources are properly targeted to raise aggregate productivity and employment. Firm level analysis assists by shedding light on the sources of productivity and employment. It can be used to identify those firms, or groups of firms, with high and low productivity and the characteristics which distinguish them.

To meet this demand, increasing effort must be made to develop business registers that are consistent with the SNA framework but which also meet the need for microeconomic data. A comprehensive register of firm level information would enable enhanced integration of data at the unit level, more firm and small area analysis and more targeted and efficient survey operations. These linkages can be used to develop a wide range of statistical products, such as fine level industry and geographic data. Users are also interested in accessing the unit record data to better understand the behaviour and development of firms.

Demand for household data

Data compiled within the SNA framework provide vital information about the size and structure of the economy, but not about the distribution of income and wealth or the access to goods and services by individuals. These issues of equity are important in understanding living standards, and have been an increasing focus for policy makers in recent years.

Issues of distribution and access are central to targeting and improving the efficiency of economic policies.

There has been considerable progress in this area through the OECD-Eurostat expert group for measuring disparities in a macroeconomic accounts framework. The role of the expert group was to devise robust and internationally comparable methodology to allow the integration of distributional information using existing micro information on household groups that are consistent with the SNA concepts and aggregates.

The ABS has released two publications based on (and expanding upon) the work undertaken with the expert group. These estimates of income, consumption and wealth were constructed by bringing together annual macroeconomic accounts data with the results of the ABS Survey of Income and Housing and ABS Household Expenditure Survey.

The detailed household data had been available for some time, but its incorporation into the macroeconomic accounts clearly added significant value, as evidenced by comments in the press and by analysts.

Demand for sectoral data

Users are realising the power of the sectoral views of the economy presented in the accounts to shed light on, for example, debates about the role of the public sector. Work on refining the compilation of sectoral data should continue.

Growth accounting

One of the areas where the SNA data is stretched to its limit is in the analysis of economic growth. Such analysis aims to determine the size of economic growth, what is driving growth and who is realising the benefits of the growth.

Ideally, data compiled in the SNA framework would allow growth accounting and the estimation of multi-factor productivity. The 2008 SNA took a significant step in this direction with the introduction of capital services. A large number of conceptual and measurement issues relating to capital services need to be addressed.

The use of SNA data for such analysis highlights the shortcomings of the measurement of services; the asset boundary, which is important in calculating multi factor productivity, especially as intangible assets, which are poorly defined and poorly measured, play an increasingly important part in production; and the possible need to record the formation of human capital. Significant work is needed in these areas.

The answer to every problem: Let's develop an alternative framework.

The debate over the extent to which GDP can represent welfare has been long and lively. What is measured by GDP is clearly defined, and it is up to analysts to decide how they use this. Should measures of welfare be needed, it is appropriate to develop such measures independently of the SNA.

However, a significant challenge to the SNA is the emergence of proposals to develop alternative frameworks for the recording of particular subsets of economic activity based on the assertion that the SNA cannot measure the particular activity, when in fact it can. A current example is globalisation. Solutions being put forward often involve breaching fundamental SNA concepts of ownership, transactions, valuation, economic territory and residence.

I believe that most of the concerns about the SNA not being able to measure globalisation activity can be solved using SNA concepts. Where they cannot be, it is more likely a signal that the SNA needs clarification than that an alternative concept is needed.

If a different concept is needed, the SNA allows for the compilation of satellite accounts and these concerns can be dealt with in a satellite account.

An example of “going around” the SNA is the recent story of factoryless goods production.

In response to a concern that companies such as Apple are responsible for most of the value of products such as I pads, which are manufactured in China, NAICS was changed to include “factoryless goods production”, breaching the classification principles and potentially putting data compiled using NAICS at odds with basic SNA concepts.

I believe that, rather than going around the SNA by introducing a change to the industrial classification, this should be addressed squarely within the SNA framework. Several issues need clarification, including the nature and recording of intangible assets (for example Apple’s intellectual property), how we record inputs from this asset into production (e.g. how Apple’s know-how ends up in an Ipad manufactured in China) and how to deal with the increasing range of goods which have a higher intangible content than tangible content. All of these are soluble using basic SNA concepts.

Charging off and creating alternative frameworks which do not have the benefits of coherence and symmetry of the SNA is not a good idea.

Layer 2: The People.

Teams and individuals around the world have risen to the task of producing robust macroeconomic accounts for their countries, often in difficult circumstances.

In order to produce fit for purpose macroeconomic accounts, people with a particular combination of skills are needed. People who have worked developing or running sample surveys are often uncomfortable with estimating cells in the accounts based on very limited information and with publishing estimates which appear to have no understandable measure of error. People with highly developed conceptual skills cannot always adapt to the exigencies of a regular production timetable while the most practical, hands on people are prone to overlooking conceptual mismatches and problems.

What is needed is a group of people who, individually or collectively, have the appropriate combination of skills.

Maintaining such a team is quite a delicate task. Recruitment and promotion exercises have to recognise this rather amorphous skill set or the ability to develop it. People need to be given a mix of work to develop the appropriate blend of skills.

Working with macroeconomic accounts remains a fascinating and challenging career choice. If we succeed in reinforcing the status of the SNA as the foundation of economic statistics, capable of supporting the types of opportunities outlined in Layer 1 above, it should continue to attract good people.

Layer 3: The Methodology and Process of Compilation.

This layer includes what could be seen as the physical infrastructure. Most institutions have a sound set of infrastructure, built over many years. This includes a business register, the computer systems used to collect and process data and compile the accounts and the documentation used to guide these processes. It also includes the methodologies, for

example to collect and edit data via sample surveys, to acquire and transform administrative and transactions data and to produce indexes, seasonally adjusted numbers etc.

Much of the physical infrastructure is ageing, making, for example, computer systems fragile and likely to cause errors or to use a high level of resources. This is at a time when budgets are being squeezed and it is increasingly difficult to mount a business case for new investment.

This is made even more difficult as those in charge of the purse strings are quite likely being told that the SNA measures yesterday's economy and cannot deal with, for example, globalisation and we really should be investing in new frameworks rather than shoring up outdated ones.

Targeted improvements in data management and analysis systems can help improve responsiveness and reduce costs. For example redesign of price index processing systems to support monthly indexes, automation of annual supply-use balancing in the macroeconomic accounts, improving data warehouse capacity to store, retrieve and integrate economic micro-data, rationalising account compilation routines, making system documentation available and transparent, and standardising editing and imputation systems across similar collections. There is also potential to reduce costs and respondent burden by the further integration of annual and quarterly statistical surveys.

There is a tension between strict survey methodology, where the ability to measure error is highly prized, and estimation in an accounting framework, which involves what methodologists perceive as undisciplined estimation. Tightly specified methodology is seen as desirable and it lends itself to the trend to streamline and automate statistical processes.

This thinking can determine investment priorities. Several NSOs and international organisations are undertaking significant transformation projects, and a prime objective of these is the automation of statistical processes. The obvious targets for automation are the expensive and repetitive survey processes for the collection, editing and dissemination of data. More complex tasks, such as applying judgement to conflicting supply and use estimates, are hard to document and to automate. There is a risk that most of the investment will go to automating the more tractable processes, leaving macroeconomic accounts compilation at a disadvantage. Practitioners need to be proactive in influencing these developments.

Layer 4: Population of the Framework.

Most institutions have well established data collection infrastructure. Data for the compilation of macroeconomic accounts have traditionally come from censuses and surveys, often run at considerable expense by NSOs themselves. The trend over recent years has been to move from censuses to targeted sample surveys with sophisticated designs and to move from data collection to the acquisition of existing data. These have been administrative data, such as data from the tax authorities and, most recently, transactions data such as supermarket scanner data.

Data must be available, suitable, affordable and sustainable. By sustainable, I mean that there must be an expectation that comparable, fit for purpose data will be available for the foreseeable future.

Traditional data collection is expensive. This is a problem in a time of shrinking budgets. Privacy concerns are aired quickly and widely with modern media, sometimes portraying data collection as an intrusion by "big brother".

One of the biggest opportunities is the increasing availability of data collected as the by-product of administrative or commercial activities. The challenge is to establish stable and

long term arrangements for data supply, build in robust mechanisms for mitigating disruption, and, where possible, exploit opportunities for the providers to enhance the statistical value of their data.

We need to continue to incorporate administrative and transactions data into existing processes in a cautious and thoughtful way, getting to know the data and relying more on them as we gain confidence that they are fit for purpose.

The biggest opportunity entails the biggest threat. This is the hype and unrealistic expectations around "big data". Breathless newspaper articles describe how it is possible to produce complex economic measures from freely available big data for pennies. If this is possible, how can we justify the expensive maintenance and development of the layers of infrastructure described in this paper?

Interestingly, many non-official derivations of macroeconomic statistics from big data rely on benchmarking to less frequent and less detailed official aggregates. It may be possible to develop a symbiotic relationship, with complete and coherent quarterly benchmark accounts and a set of indicators produced quickly between and in advance of releases. For this to happen, the debate needs to move from seeing the quick estimates as cheap and quick alternatives to comprehensive accounts to seeing them as complementary.

Conclusion

The SNA is a robust, conceptually based framework suitable for representing all economic transactions and positions. Statistics compiled in this framework are produced regularly by most countries and are highly valued by analysts and policymakers. Macroeconomic accounts compiled in accordance with the SNA will be essential for the management of economies for the foreseeable future. The SNA is extensible in many directions and there are pressures to extend in all these directions.

Practitioners need to ensure the maintenance of several layers of infrastructure to ensure the sustainability and continued relevance of the accounts and the SNA is a key layer of infrastructure. This needs to be strengthened by clarification and consistent application of its core concepts. This needs to be combined with maintenance of the other layers, the people needed to compile robust macroeconomic accounts, the methodology and process of compilation and the population of the framework.

Appendix 1.

Contradictions, Inconsistencies and Unfinished Business in the 2008 SNA.

This appendix lists some of the areas of the SNA which need further work, with examples provided for each area.

Boundaries

Practical implementation of theoretical boundaries needs to be refined. An example is intangible assets. It is clear that intangible assets play a significant role in modern production and the SNA has not kept pace with this. This is one of the motivations in producing an alternative framework for globalised production. It also shows up as a shortcoming of productivity analysis using SNA data. Work also needs to be done on the inclusion of unpaid household work and other non-market activities within the production boundary.

Concepts needing clarification

The ABS considers the definition of income to be a priority for research because of the absence of clarity about this concept. One area needing clarification is the relationship between holding gains and losses and the SNA definition of income. This is especially important in measuring the output of the finance industry, one of the most important industries in most developed economies and one where the measurement of output and its division into price and volume are problematic.

The ABS believes that there is a need for clarification to allow the full integration of the contribution of capital into the core national accounts. Returns to capital and entrepreneurship are embodied in the concept of gross operating surplus. By deducting consumption of fixed capital to derive net operating surplus, some of the contribution of capital to production is recognised. However, further clarification is necessary regarding the capital services produced by certain assets such as inventories as well as assets that take a long time to produce.

The measurement of the output of financial intermediaries remains a challenge. Research has focused on a number of existing measurement issues and the results of this work have highlighted outstanding issues, particularly with the concept of FISIM.

Application of change of ownership

The 2008 SNA treats repurchase agreements (repos) as collateralised loans or as other deposits if repos involve liabilities classified under national measures of broad money. During the latest revision of this international standard, consideration was given to whether this treatment should be revised to reclassify repos as security trades rather than loans. However, the 1993 SNA treatment was reaffirmed and the issue was placed on the international long-term research agenda.

The ABS does not believe that the 2008 treatment of repos is an accurate statistical representation of the nature of these instruments. The ABS maintains that the best statistical representation of a repo is that of a sale of securities, with the obligation to sell/buy-back similar securities recorded as a forward contract (i.e. a form of derivative). This treatment has the advantage of unduplicated recording of securities assets whereas the 2008 SNA treatment requires the recording of negative security assets to maintain equality between total securities' asset holdings and total securities' liabilities on issue.

Application of accrual recording

The ABS has concerns about the inconsistent treatment of reinvested earnings. The potential exists for domestic income to be misstated as some retained earnings of corporations are distributed and remitted to investors while other retained earnings are held by domestic corporations in the form of net saving.

Valuation

The difference between the BPM concept "point of uniform valuation" and the SNA's "transaction price at change of ownership" needs to be resolved. The ABS favours the SNA concept. It is consistent with the core principles of the SNA and applicable across all macroeconomic statistics. It can be implemented quite easily.

The international statistical community has long debated the most appropriate way to record interest in the SNA. This debate has centred on the two main approaches for recording interest, the debtor and creditor approaches. While the international statistical community is

divided between these approaches, the 2008 SNA recommends the debtor approach be applied for recording interest accruing on tradable securities.

The ABS believes that the creditor approach is consistent with the market value of the underlying instrument and the interest that accrues over its life and should be used in the compilation of macroeconomic accounts.

The 1993 SNA altered the definition of basic prices with regard to the treatment of transport margins. This was maintained in the 2008 SNA. The 1968 SNA definition excluded the transport component of basic prices whether separately invoiced or not, whereas only those transport charges which are separately invoiced are excluded from the basic price of the product being transported under the 2008 SNA treatment. Users of detailed data such as input-output tables have a strong preference for the 1968 SNA definition of basic prices as this definition provides more useful statistics for detailed economic analysis. The need exists for more work on this issue.

In February 2012, the United Nations Statistical Commission (UNSC), made a decision on treatment of emissions reduction schemes which effectively updates the 2008 SNA. Following lengthy international debate, a split asset approach was adopted whereby an asset (a permit or credit certificate) issued by government is considered to have two components in the hands of the holder: a financial asset valued at historic cost, and a market valuation component to accommodate secondary market price variations.

The ABS believes that this treatment breaches basic SNA concepts of market valuation and accrual recording. This divergence is consistent with the ABS's emphasis on the consistent recording of all stocks and flows at market values. The ABS considers that the historic cost treatment distorts the real impact of such schemes which operate by placing a market price on emissions.

The 2008 SNA recommends valuation of loans in the balance sheet at nominal value, with non-performing loans identified and two memorandum items concerning them included in the balance sheet of the creditor. The first is the nominal value of the loans so designated, including any accrued interest and service charges. The second is valued at the market equivalent of these loans.

The ABS believes that the fundamental market valuation principles of the SNA must be applied to these instruments. Specific loan loss provisions should be taken into account in valuing loan portfolios and their counterparts, and as a result the closest approximation to market value or fair value is recorded.