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Implementation of 2008 *SNA* and *BPM6* in Australian Statistics

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Note for BOPCOM Members

This paper is an update of a paper covering the introduction of *2008 SNA* and *BPM6* in Australia. I considered narrowing it down for BOPCOM to cover only *BPM6*, but the implementation of the standards was so intertwined in Australia, where the ABS compiles both the national accounts and the balance of payments, that I left it covering both. Furthermore, as the two standards have converged, there are lessons in the implementation of the *2008 SNA* and in the coordination required that are useful for BOP compilers.

Introduction

The Australian Bureau of Statistics (ABS) implemented the System of National Accounts 2008 (*2008 SNA*) and the Balance of Payments and International Investment Position Manual, Sixth Edition (*BPM6*) with the release of statistics for September quarter 2009. The ABS was the first national statistical agency to implement the revised standards. The implementation coincided with the introduction in the Australian national and financial accounts of an update to the industrial classification used by the ABS and Statistics New Zealand. Managing two concurrent significant changes to Australia's macroeconomic statistics was a major challenge that involved many different parts of the organisation. The timing of the implementation coincided with the global financial crisis, which placed significant strain on existing statistical sources and methods and complicated the introduction of the new standards.

This paper outlines the processes used, and issues faced, by the ABS in this implementation. The paper presents a number of principles which the ABS adopted to guide the implementation and describes issues that created difficulties. It is hoped that this paper will provide insights to other national statistical organisations as they prepare to implement the new standards.

Organisational context

The ABS is Australia's national statistical organisation. The ABS compiles Australia's key macroeconomic statistics including the national accounts, the balance of payments, the international investment position, the financial accounts, government finance statistics and a range of prices indexes including the Consumer price Index (CPI).

The macroeconomic accounts are compiled within one broad organisational unit, the Economic and Environment Statistics Group. Source data for the accounts are drawn from areas within the Economic and Environment Statistics Group, other areas of the ABS and from a range of non-ABS sources.

The Standards

The international standards for macroeconomic accounts, apart from those for Government Finance Statistics, were updated concurrently. The new standards are presented in the *2008 SNA* and *BPM6*. The Government Finance Statistics Manual is currently being revised. The ABS was a strong contributor to the development of *2008 SNA* and *BPM6* due to its adherence to previous standards and investment in developing national accounting capability. The ABS supports the research agendas for the System of National Accounts and Balance of Payments.

The new standards are updates of the System of National Accounts 1993 and the Balance of Payments Manual version 5, both of which were released in 1993. The updates were in response to the emergence of a number of new economic phenomena which arose or assumed greater importance as economies continued to develop in their complexity or have emerged as important measurement issues. These issues were initially described in the Information Paper: **Introduction of revised international standards in ABS economic statistics in 2009** (cat. no. 5310.0.55.001).

The Australian and New Zealand Standard Industrial Classification (ANZSIC 2006), which is compatible with the International Industrial Classification Revision 4 (ISIC Rev4), and the Standard Economic Sector Classifications of Australia (SESCA 2008) were introduced into ABS economic statistics at the same time as the new international standards.

Management of change process

The ABS decided that a clean, once-off cut-over would minimise instability in macroeconomic series induced by standards changes. The alternative approach would have resulted in instability over a period of several quarters, or even years. Once this key decision was made, the work programs of a large number of statistical operations had to be coordinated, and a user consultation and communications program had to be developed. The approach came to be known as the "big bang" approach. It was recognised that this approach can be risky if not managed appropriately.

This approach was able to be managed in Australia as the ABS is responsible for the national accounts, the balance of payments and many of the data collections that feed into the macroeconomic accounts. Two senior internal ABS governance bodies were created and charged with the coordination. These were the ANZSIC Implementation Board, and the Macroeconomic Steering Committee (MESC). There was some overlap of membership of these bodies to further ensure coordination.

The role of the ANZSIC Implementation Board was to ensure that the implementation of the new classification was coordinated across the many data collections and datasets. This was achieved by establishing implementation work programs and monitoring progress against those plans.

MESC was established to consider methodological changes in the macroeconomic accounts. As the standards had not been finalised, it participated in the revision of the SNA and BPM by providing input into ABS submissions to the update process. It signed off, at a detailed level, methodological and conceptual changes across the macroeconomic accounts following finalisation of the standards. MESC included both senior and operational staff to ensure that the full implications of changes were understood and taken into account.

MESC determined a set of principles for implementing the changes in standards, reviewed proposals to depart from the standards, ensured that user communication plans were adequate, and reviewed implementation progress.

At the end of the implementation process the need for MESC ended. However, it was recognised that one of the roles of MESC, namely to oversee the introduction of new methodologies into the compilation of macroeconomic accounts, was needed on an ongoing basis. A Macroeconomics Methods Board was set up to undertake this role and continues to meet monthly.

Principles behind the implementation

There is a big investment in standards by the ABS including in the System of National Accounts, Balance of Payments Manual, industry classifications and a range of standards for most statistical measures. The ABS tries to influence the international standards as far as possible, accepts that compromises are made, and then implements the standards to the fullest extent possible.

Building on the experience of implementing previous upgrades to the international standards and other significant changes, the ABS identified the following principles to guide the implementation.

(a) Standards

Departures from standards:

- Should be few in number, demonstrate a significant benefit or avoidance of an unwarranted cost (for example, enhance harmonisation with Australian financial reporting standards; not possible for businesses to report the information within a reasonable cost).
- Should be carried through all accounts/statistics (that is, no "local" departures) while being aware that some related standards, like Government Finance Statistics, are being updated on a different timetable.
- Enable a straightforward reconciliation with the standard where feasible.
- Only be implemented after extensive consultation and publicity.

(b) Timing of implementation

- Changes impacting GDP should be implemented at the same time (as far as practical) and in conjunction with the introduction, for the 2008-09 annual national accounts, of ANZSIC 2006. This meant that data changes were required in ABS annual business collections for the 2006-07 reference year to coincide with the national accounts processing cycle over three years.
- Other changes to be made as practicable.

(c) Coordination and consultation

- The implementation must be centrally coordinated so that there is consistent treatment across the ABS and clients receive a consistent message about plans.
- Clients must be provided with sufficient opportunity to consider the changes being introduced and all clients must have equal opportunity to access this information.

Backcasting, bridging, parallel runs, seasonal adjustment

The ABS maintains long time series for national accounts and the balance of payments and international investment position. A large proportion of these series is maintained in original, seasonally adjusted and trend variations. The introduction of changes like 2008 SNA and BPM6 resulted in shifts in the levels of component and total series. If the shift in level was sufficient to distort the seasonally adjusted time series, the ABS revised the historical series to make the time series as continuous as possible. In addition, the ABS produces a large number of series in Chain Volume terms (CVMs). The changes in standards also required changes to the relevant deflators, and this proved to be a particular challenge.

With some changes, like repairs moving from goods to services, it was relatively easy to adjust the time series. However, in some cases there was not sufficient detail available to adjust directly the historical series (e.g. the separate identification of technical reserves in the international investment position and the requirement for more detailed industry classes in the Property and business services division). In these cases the ABS estimated the shift in the level of the series by comparing estimates at the one point in time for both the current and new basis (although comparison for additional periods is desirable). The historical series were revised to take account of this shift in the level.

Ideally any change in the level of a series would be measured over a sufficient period to enable seasonal patterns to be observed. This was possible for some modelled estimates, but for estimates based on surveys, the cost of producing two estimates for one or more time periods is expensive both in processing costs and provider burden terms. In these cases, alternative methods were needed. For example, for the International Investment Survey the BPM6-based form was introduced in June quarter 2009 and estimates were compiled on both a BPM5 and BPM6 basis. This was possible because the BPM6 forms generally included more detailed dissections of BPM5 items. One quarter was used for measurement because of the cost and complexity of compiling estimates on both bases, the lead time necessary to change questionnaires and systems and because the changes generally added further detail to the information currently being collected rather than introducing completely different requirements.

To ensure consistent treatment of time series, the ABS established a standard approach to measuring shifts in the level of series. The size of the level shift induced by a methodological or measurement change was assessed using regression analysis techniques on the ratios between the current published estimates and actual or simulated estimates produced by the revised methodology. In cases where the level shift was found to be significant in the seasonally adjusted series, the historical series was backcast to make the time series as continuous as possible while maintaining, as far as possible, the integrity of the period to period seasonally adjusted movements and taking into account real world changes (e.g. computer and information services do not exist for the whole ABS time series). For a small number of lower level series it was not possible to create a valid time series and these series were marked 'not available' for periods prior to when data collection commenced. An example is Direct Investment between fellow enterprises in the International Investment Position.

Where it is not possible or necessary to maintain a long time series, the ABS adopted an approach of ‘bridging’ the current published estimates and the estimates produced by the revised methodology. This means that estimates on both the current and new basis were produced for one point in time and both sets of estimates are released along with analysis to help clients understand the differences between the series. This approach was used for the annual economic surveys. This technique is particularly relevant for the Balance of Payments Financial Account series as many were not appropriate to be modelled beyond a certain time.

Because of the large number of changes being implemented concurrently, together with normal revisions, interpreting impacts or sources of the changes with any precision was not possible. This was not only a difficulty for users, but also an issue for quality assurance of outputs by the ABS.

Implementation timing

Changes to the Australian System of National Accounts resulting from revised international standards were implemented with the 2008-09 issue (cat. no. 5204.0) which was released on 8 December 2009. The new standards were also reflected in the September quarter 2009 issue of Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0), and the 2008-09 issue of Australian National Accounts: State Accounts (cat. no. 5220.0). The September quarter publication of Australian National Accounts: Financial Accounts (cat. no. 5232.0) was released on Thursday, 24 December 2009.

Changes to the international accounts and the indicator series related to the macroeconomic accounts were implemented in respect of the 2008-09 or the September quarter 2009 reference periods. For example the changes were implemented in the July 2009 issue of Retail Trade (cat. no. 8501.0), the August 2009 issue of International Trade in Goods and Services (cat. no. 5368.0) and the September quarter 2009 issue of Balance of Payments and International Investment Position, Australia (cat. no. 5302.0).

To accommodate additional processing required to compile the macroeconomic accounts according to the revised standards, the release of two key publications were delayed. The September quarter 2009 issue of Balance of Payments and International Investment Position, Australia was delayed one week until Tuesday, 8 December and the September quarter 2009 issue of Australian National Accounts: National Income, Expenditure and Product was delayed two weeks until Wednesday, 16 December 2009. Subsequent issues of these publications were released according to standard timing.

The ABS chose a September quarter implementation as this coincided with both the release of the annual financial year publications, the start of a new financial year and the normal timing for introducing historical revisions.

Communicating with users

A comprehensive communication plan was developed consistent with the principle that the changes only be implemented after extensive consultation and publicity. The main features of this plan included:

- Early presentation of the implementation plans to the Australian Statistics Advisory Council which is the key advisory body to the Statistician on statistical services.
- Early presentation of the implementation plans and updates on progress to the Economic Statistics User Group which is the key advisory body on economic statistics.
- Release of an information paper in 2004 on ANZSIC 2006 development, followed by a paper in 2006 on ANZSIC 2006 implementation plans with an update on those plans in 2008.
- Commencing in 2007, consultation with the key government agencies using macroeconomic statistics.

- Following this consultation, release in 2007 of an information paper to all stakeholders outlining the key SNA and BPM changes and the implementation plans.
- Release from June to September 2009 of an information paper for each of the affected publications describing the main changes impacting on that publication, the timing for implementing the changes, the impact on time series in the publication and the impact on the presentation of statistics in the publication; this included the provision of mock-ups of the publication and time series spreadsheets as they would appear after the implementation of the changes.
- Release in September 2009 of an information paper summarising the main changes and quantifying, to the extent possible, the impact on key aggregates; for some of the more significant changes detailed methodological information was provided.
- Inclusion in the first release of each publication of a comment on the statistical impacts of the changes.

The ABS produces a range of manuals describing the underlying concepts and structure of the key accounts like the Australian System of National Accounts and the Balance of Payments and International Investment Position. These manuals outline the sources, methods and terms used in compiling the accounts. The current versions of these publications reflect SNA1993 and BPM5 concepts and a number of references to data sources and methods are out-of-date. The concepts, sources and methods documentation for the Balance of Payments and International Investment Position was partially revised in early 2011 with further updates planned over the next year. The revised concepts, sources and methods documentation for the Australian System of National Accounts was released in September 2012.

Changes to data collections and systems

Apart from changes to data collections from ANZSIC 2006 changes, there were some changes in data collections to support 2008 SNA and BPM6. From a practical point of view the changes to the ABS Annual Integrated Collections (the suite of annual industry surveys) and the Quarterly Business Indicator Survey (the main source of quarterly economic indicators) were minor (although the changes to QBIS coincided with the high impact introduction of non-employing units to the survey), however these reclassified units and coverage changes were difficult to implement into supply-use balancing. This had a consequence of impacting on the changes from 2008 SNA in the supply-use tables and making the implementation process quite difficult.

The changes to the Survey of International Investment were not significant for two reasons. First, the ABS form already collected data to meet some BPM6 requirements and only some new items (e.g. transactions between Direct Investment fellow enterprises) had to be added. The ABS tested the revised forms with a number of companies to ensure that the required information was understood and available. All companies in the survey were given early notice of the changes so that they could prepare their information systems and for the first quarter with the new forms they were despatched several weeks early. Second, the ABS decided that it was not feasible, at this stage, to collect all the additional BPM6 Supplementary items. Collecting supplementary information like country of ultimate investor would have required a fundamental change to the survey form and processing system which was not feasible. Changes to some of the data models underlying International Investment were more significant than the changes to the directly collected survey data. These changes were both to address BPM6 requirements and to improve data not directly impacted by BPM6. For example, changing the Financial Intermediary Services Indirectly Measured (FISIM) to reflect better data availability for National Accounts and Balance of Payments, and to implement the BPM6 treatment of FISIM (deducting FISIM from interest in the Primary Income Account).

There were minimal survey changes resulting from BPM6 because of the existing compliance with BPM5 and the Manual on Statistics of International Trade in Services (MSITS). The main changes were from swaps between the Goods Account and Services Account (merchanting, goods for processing etc.). Ensuring coherence between National and International Accounts created some challenges. In the case of merchanting, significant effort was put into implementing the net export values into supply-use tables as no product information was available from survey collections, nor was it feasible to add questions.

The ABS relies on administrative data from a number of government organisations including the Australian Taxation Office and the Australian Prudential Regulatory Authority (APRA), Australia's financial regulator, and maintains strong relationships with the organisations at both senior and operational levels. Changes to administrative data sources can require a considerably longer lead time than needed for changes to ABS surveys.

The ABS Business Register is based on the Australian Business Register maintained by the Australian Taxation Office. The Australian Business Register provides name and address information along with an industry code for each business. The ABS worked closely with the Australian Taxation Office to have the industry classification updated to ANZSIC 2006. This involved changing the industry coder, updating the code of all existing registered businesses and, for a period, maintaining both the old and new ANZSIC code.

The ABS uses data from a suite of forms from APRA, Australia's financial regulator. The extent of changes required to these forms varied, with the Bank forms only requiring minor changes and the Registered Financial Corporations forms requiring more substantial changes. The changes to the Registered Financial Corporations forms have not yet been implemented but will be incorporated in a form review APRA commenced in 2011. Not having the full set of 2008 SNA data available from the APRA forms means that some finer level counterparty and instrument information is not currently available for the Financial Accounts compilation.

The main change driven from the implementation of new standards was the opportunity to review systems and processes for compiling the accounts. Opening up the Balance of Payments compilation series allowed the ABS to review how it modelled some estimates and made improvements to the way series were estimated (for example reviewing the insurance model in Trade in Services and extending it to Primary and Secondary Income and the International Investment Position. It also allowed the removal of redundant series such as the capital account entry for migrant transfers which was replaced by the Other Volume Change estimates for persons changing residency model (see case study in appendix 2).

Challenges for related outputs
The changes to input-output tables were significant due to changes in the industry classification. As the ABS publishes input-output tables with a lag, this gave sufficient time to make adjustments due to new standards. 2008 SNA reaffirms the 1993 SNA treatment of basic prices. Analysts who use input-output tables however, have expressed a strong preference for the 1968SNA definition of basic prices. 1993 SNA altered the definition of basic prices with regard to the treatment of transport. Under 1993 SNA, transport which is not separately invoiced was included in the basic price, while that which is separately invoiced was not included in the basic price of the product being transported. This was a change from the 1968SNA definition of basic price which excluded the transport component whether separately invoiced or not.

The ABS considers that the 1968SNA definition provides more useful statistics for detailed analysis of the economy and intends to apply this definition. As at 2011, this had been implemented in the input-output tables and is being considered for implementation in supply use benchmarks and producer price indexes. This will result only in changes to estimates of output and intermediate consumption by industry for series at basic prices, with no impact on gross value added or GDP or series at purchasers' prices.

For the Financial Accounts (flow of funds) there were two key changes:

- Expanding the detail of financial corporations sector used in the National Accounts.
- Inclusion of reinvested earnings in the Financial Corporations sector.

The key change introduced with the 2008 SNA and BPM6 classifications was the separate identification of money market funds and other investment funds. Due to the lack of clarity in 2008 SNA, the ABS has included as investment funds those institutions which exhibit the following characteristics:

- pooling of investors' monies to purchase assets;
- assets are owned by a separate legal entity, such as a trust or company, which issues shares/units to investors on a proportional ownership basis;
- the fund/company must be open to the public, either via a prospectus or a distribution channel (e.g. a platform); and
- the investors are able to dispose of their units and/or shares within a reasonable period of time, on a well developed secondary market, such as a stock exchange or through readily accessible redemption facilities offered in association with the fund.

Funds displaying the above characteristics were classified to the relevant subsector, being either money-market funds, non-money market investment funds, or non-financial investment funds. Several institutions that pool investor funds were not classified as investment funds because they were either not open to the public (e.g. property syndicates) or did not have a sufficiently active secondary market for their units and/or shares (e.g. agricultural, film and timeshare trusts and venture capital development funds).

Only those investment funds investing predominantly in financial assets were treated as financial corporations. Those investing in non-financial assets, such as property, were treated as non-financial corporations. This distinction is based on whether the institution's primary income is obtained from rentals, or dividends and interest. This classification of non-financial investment funds was a minor departure from international standards.

Changes to the sector classification used in the Financial Accounts resulted in complications for International Investment which provides estimates by sector for the Financial Accounts, and which was therefore required, for consistency, to change its own sector classification. The need to coordinate classifications and other aspects of account compilation across different areas is likely to present challenges to many countries, especially if the relevant accounts are not compiled in the same office.

A further challenge to the compilation of the IIP was the change in ANZSIC, and in particular the change in classification of a number of important units. While industry classification is not a prime focus, and IIP data are only published by broad industry, the changes to industry classification created problems that took a long time to resolve.

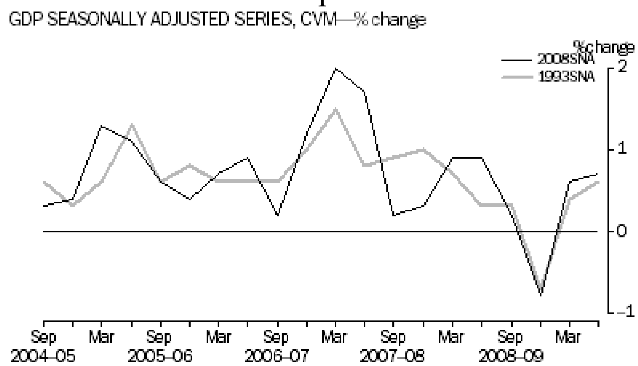
Impacts and challenges implementing new international standards

The benefits of a comprehensive set of SNA-based national accounts include the ability to adapt to global economic changes, such as the Global Financial Crisis, and maintain a conceptually consistent set of aggregates with sufficient quality for policy makers and Australia's central bank.

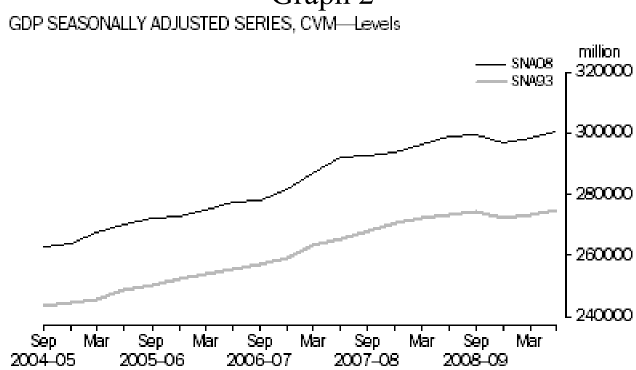
Introducing the revised international standards mainly resulted in level shifts in many of the main aggregates for the relevant accounts, but little revision to growth rates. In graph 1, the most commonly used measure of national accounts shows that there was minimal impact on real growth rates. These changes were well within the range of standard revisions to GDP growth rates. Graph 2 shows that the levels of GDP increased on average by 9%. One of the more complex changes was the capitalisation of research and development expenditure which is summarised in Appendix 2. Another major change to the levels of GDP was from the introduction of defence weapons platforms as capital stock although the values are not published due to confidentiality reasons. Both of these changes were offset in other parts of the National Accounts. Using the examples above, defence weapons platforms reduced government expenditure and output by the value of the capital product less consumption of fixed capital; and an increase in capitalisation of research and development products was offset by a reduction in own account expenditure.

One of the unintended consequences of a shift in the GDP level before the rest of the world was a distortion to some of the key ratios used to monitor economic performance. For example, within a short time after the release of new data, the Australian government announced that Debt to GDP levels had fallen and Australia's GDP per capita ranking in the OECD had increased. Conversely some other agencies viewed the changes quite negatively as Australia's innovation and research expenditure as a component of GDP fell and Australia lost ground in OECD ranking tables. This was dealt with by explanatory foot notes and, in some cases, the continuation of 1993 SNA equivalent GDP.

Graph 1



Graph 2

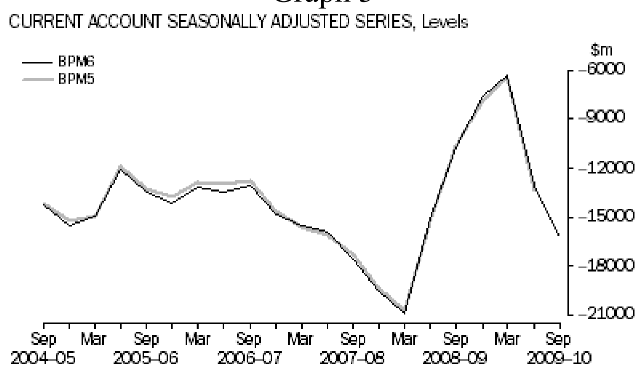


The complex nature of updating the Australian System of National Accounts and Balance of Payments delayed the publication of results by two weeks. Unfortunately the national accounts released on 16 December 2009 needed to be corrected subsequently. The corrections were to seasonal adjustment of the Value Added of Agriculture, the estimation of components of Household Final Consumption Expenditure in current prices and Real Gross National Income.

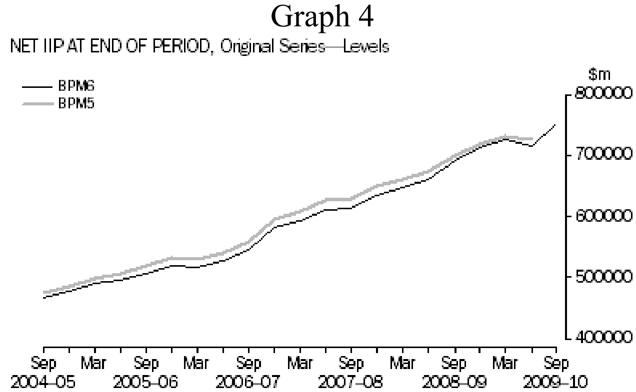
The impact of BPM6 on the Balance of Payments and International Investment Position was smaller in comparison to the changes to Australia's GDP measures. Primarily this was due to the level of compliance with BPM6 prior to the changes in standards and that most of the changes were reallocating existing measures. For example, Australia collected substantial information on merchanting, goods for processing and repairs on goods. These were simple exchanges between goods and services accounts. There were minor changes to the net levels of services and income accounts due to the introduction of a pensions model, changes to the treatment of taxes and changes to financial services. In the case of Financial Intermediation Services Indirectly Measured (FISIM) the amount modelled was deducted from interest which meant no net impact on the current account.

There was virtually no net impact on the Current Account balance (graph 3). There were only small changes to the history of the Net International Investment Position (graph 4), and the Net Foreign Debt measure (graph 5), which remained relatively stable under changes to BPM6, in part a reflection of existing data collected for the IIP and in part a reflection of the comprehensive series of accounts maintained by the ABS. The slightly lower level for the BPM6 series of Net International Investment Position and Net Foreign Debt were attributed to better foreign asset measures from implementing BPM6. There were changes to gross flows of IIP from the introduction of a new pension model and revisions to the insurance model. However, one of the more complex cases was the treatment of assets and liabilities of persons changing residency see the immigrant transfers case study in Appendix 2.

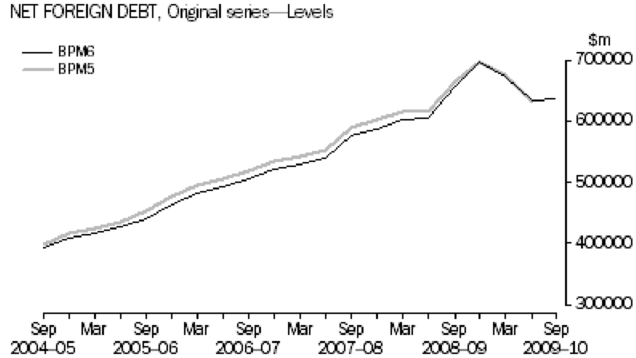
Graph 3



Graph 4



Graph 5



User response to implementing new standards

Figure 2 - Timeline for implementation of new standards

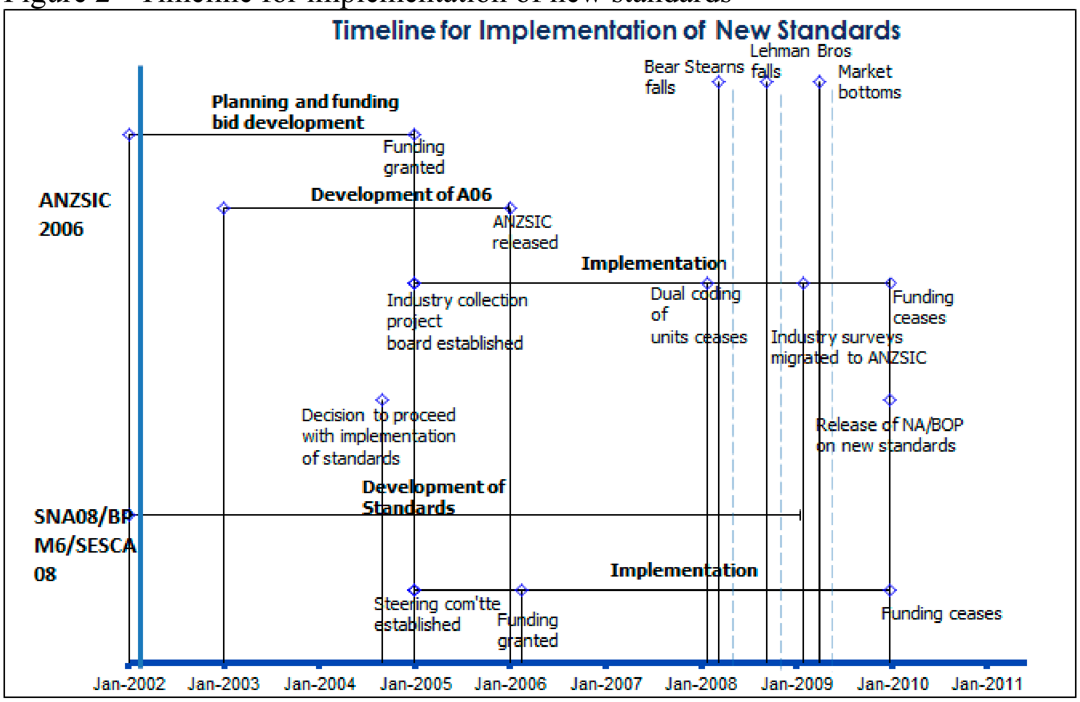


Figure 2 shows the timelines for funding, planning and implementing the ANZSIC06, 2008 SNA and BPM6, and the unfortunate coincidence of the final implementation with the onset of the global financial crisis. User reactions to the release of data compiled to the new standards were coloured by this coincidence. Analysts had to cope with new or significantly different series and interpreting their behaviour by attributing movement to economic phenomena or statistical phenomena. (This was also a problem for the compilers of the macroeconomic accounts.)

Very close to the implementation date some users suggested that the implementation should be delayed. Given the lead times indicated in the timeline graphic, particularly the ANZSIC 2006 implementation that had required conversion of data collections well before, it was practically impossible to delay. In essence delay would have required compilation of 1993 SNA and BPM5 accounts from data collected to 2008 SNA and BPM6 standards. It would also have run into the Christmas (Australian summer) holiday period.

The difficulties users were experiencing were reduced to some extent by the communication program the ABS had put in place to inform users in well advance about the nature of the changes, the likely impacts and the detailed changes to published tables, spreadsheets and other products. Even so this communication program did not reach all users and some were surprised. Others were aware that changes would occur, but the impacts on their work were not apparent until the data were released.

In addition to the turmoil in the economy due to the global financial crisis and the Australian Government's reaction to it and the change in standards themselves, there was another impact of the changes in standards. Given the number of data collection and compilation systems that had to be revised to accommodate the standards, the opportunity was taken to improve data sources or methods to address known deficiencies. These quality improvements were impossible to separate out from the standards changes, and made the task of users forecasting or anticipating results more difficult.

Setting aside the unfortunate coincidence of the release of accounts to the new standards in a time of turmoil, a more considered user view of elements in the new standards has been formed:

- The new standards are an improvement on the previous standards, result in higher quality output, and are welcomed broadly by users. Of special mention here is the ANZSIC06, which is closely aligned with ISIC rev 4. The systematic allocation of industrial activity based on production function attributes is technically superior to the predecessor standards. The level of industry detail presented in the Australian System of National Accounts better supports economic analysis, particularly productivity analysis. Also worth mentioning are improved economic data about migration and the treatment of reinvested earnings of investment funds.
- Some of the standards changes which attracted controversy internationally during the revision of the standards were not controversial in Australia. These include the recognition of unfunded employee pension liabilities of government, and the capitalisation of defence weapons platforms. Both of these new features in the standards had been implemented in government accounts in Australia since 1998, when Australian governments adopted accrual accounting standards. Not only were these features not controversial, the government accounting systems generate most of the data required for their implementation, and the ABS has included government employee pension scheme liabilities in the Australian System of National Accounts since 1998.

- There is some scepticism by some users about the utility of capitalising research and development expenditure. It does not seem to explain some of the productivity "puzzles" (as suggested in the literature about unaccounted for intellectual property) while at the same time made forecasting capital formation more difficult. Given the difficult implementation (see Appendix 2 for details), it is difficult to know if this feature of the standards has failed to deliver full promise because of conceptual or measurement methods reasons.
- Australia implemented a reasonably complete set of national accounts when implementing the 1993 SNA and BPM5. Therefore there was little "catchup" in moving to the 2008 SNA and BPM6 by comparison with countries that may have omitted certain 1993 SNA features such as FISIM. Users were familiar with most 1993 SNA concepts and by and large attributed volatility in series during the global financial crisis to measurement difficulties rather than standards changes. Of course some users still have difficulty with some 1993 SNA concepts.
- There were some user concerns about the shift in the level of GDP due to 2008 SNA. Some agencies that relied on ratio based performance indications, such as business R&D to GDP (downgrade) and debt to GDP (upgrade), GDP per capita (upgrade), move up or down international comparison lists depending on the formulation of the ratio.

In summary, most users were more concerned with interpreting data in the context of the global financial crisis than issues to do with the new standards.

International reporting obligations

One issue that arose from Australia's early adoption of the new standards was how to report to international organisations. There is tension between publishing statistics to the new standards by the national statistical agency and the publication of statistics by international organisations for international comparability purposes, where not all countries report to the same standards. There are both policy and practical questions that arise.

The policy question is the desirability or otherwise of an international agency publishing key indicators different to those published by the national agency. Two sets of key indicators for a country will tend to confuse the economic debate, especially in the country concerned. Informing the domestic economic policy debate is the main reason for producing macroeconomic statistics by the national agencies concerned. International comparability is the main reason for international agencies publishing macroeconomic indicators for countries. Adjustment of one set of key indicators to a different standard will compromise one of the two objectives. The ABS found it difficult to negotiate a satisfactory outcome on this policy question with the agencies concerned.

Similar issues arise even when there are no standards changes, when a country departs from the standards for domestic policy reasons. For example the ABS seriously considered estimating a return on capital for non-market producers (mainly general government) as discussed in the 2008 SNA revision process but ultimately not included in the final manual. Some domestic users were enthusiastic about this proposal. Discussion with one international organisation suggested that if Australia included such an estimate, then that agency would adjust the ABS data to exclude it.

The ABS also notes that standards and reporting requirements are evolving outside a formal standard setting framework, for example the G20 finance ministers' data gaps initiatives, Basel III developments, and globalisation indicators development. These need to be managed as well.

Some of the more detailed international manuals (for example, the Manual of Statistics on International Trade in Services) were not available when the new Australian accounts were being compiled. As a consequence, the ABS needed to choose between the more detailed presentations from these manuals and using the core of the new standards. This means that the ABS will need a separate process to implement more detailed presentations based on these manuals.

In summary, the ABS thinks that management of reporting to international agencies when the standards change needs improvement. There are some things that international agencies might be able to do to cope with the almost inevitable differences between reporting countries short of publishing a different set of key aggregates.

Managing national accounts in a volatile environment

From 1992 to the mid 2000s Australia enjoyed a long period of sustained and stable growth. In parallel with the economic phenomena, the national accounts compilation effort was similarly stable. Short-term economic indicators provided a reliable guide to the evolution of annual benchmark series. While there were some disturbances to this pattern, accounts compilation generally conformed to a quarterly and annual routine assisted by a relatively stable and experienced compilation team. This changed dramatically with the onset of the global financial crisis in 2007 and through 2008 when economic volatility disturbed longstanding relationships between benchmarks and indicator series. This period coincided with the introduction of new standards for economic accounts (see the timeline graphic earlier in this note) and also retirement of some of the more experienced members of the compilation teams. Many staff in the compilation teams during this period had never experienced an economic downturn. In short there was both considerable volatility in the economic environment and in the accounts workplace. Since then the volatility has continued, for example:

- 2007 - 2008 onset of the global financial crisis
- 2008 - 2010 various government measures to counteract the crisis
- 2009 - 2011 significant natural events (break of drought, floods, fires, cyclones, earthquakes, tsunamis) in Australia and regionally
- 2010 – 2012 sovereign debt concerns on international financial markets.

This volatility had two major impacts on the macroeconomic accounts:

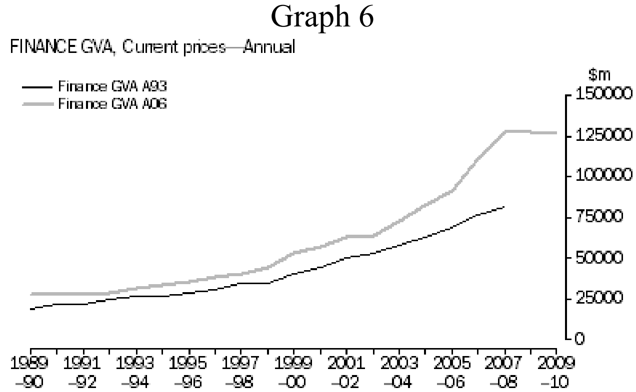
- The emergence of a significant discrepancy between GDP measured by the production method, GDP(P), and GDP measured by the expenditure method, GDP(E). This discrepancy reflected to a large degree the changed relationship between quarterly series used as indicators and the benchmark series established from annual supply/use balancing. The economic explanations for the change in relationships include rapid changes in relative prices particularly resource prices, modification of production methods particularly cost-cutting in intermediate consumption, changes in seasonal patterns, and the impact of government stimulation measures. In addition the unfamiliarity of staff with both volatile conditions and new or modified series resulting from the standards changes added a possible statistical explanation to the emergence of the discrepancy.

- A difficult to explain increase in estimates of FISIM in both the national accounts and CPI that until the onset of the global financial crisis had been stable and predictable. This lead to a crisis in confidence about concepts, methods and data sources for this notion. It is worth noting that in Australia the focus of external criticism of FISIM was on the price component, particularly as it impacted the CPI. This is by comparison with other countries where the focus of criticism was on FISIM in nominal terms, possibly because of the use of the CPI in Australia as part of inflation targeting and in Europe the use of nominal GNI to set EU contributions.

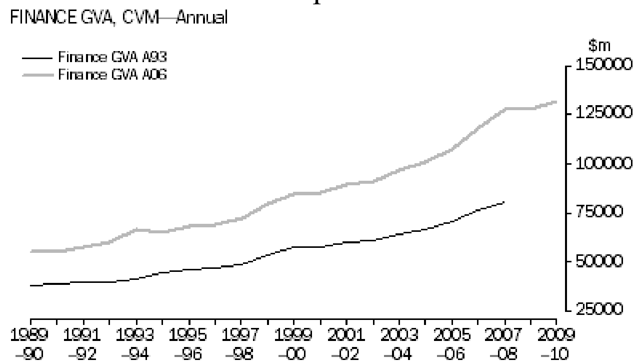
These impacts required responses to be made by the data collection and compilation teams who were already struggling with new standards and volatile input data. The responses included deployment of a quarterly supply/use model as a tool to quality assure quarterly national accounts results by identifying potential imbalances in volumes and prices; evaluation of data sources and methods for FISIM with the eventual removal of FISIM as a contributor to the headline measure of the CPI; diversion of significant effort into ensuring capture of government stimulus initiatives; diversion of effort into coping with disruptions to data collection activities by natural events; understanding of the performance of many elements of the compilation system when under stress and ensuring that outputs were in line with real-world economic and natural phenomena.

The following two graphs show the impact of the review of sources and methods for compiling financial sector production, including FISIM, before and after the change in standards, over the period of the onset of the GFC, in both nominal (current prices) and chain volume (CVM) terms. Of note is price effects, the difference between current and CVM series. The CVM series is less volatile than the nominal. This outcome also reflected in the financial services component of the CPI (including FISIM), where the price effects were similarly volatile. The ABS continues to support the ISWGNA task force investigating the best practice concepts and methods for measuring FISIM.

Graph 6

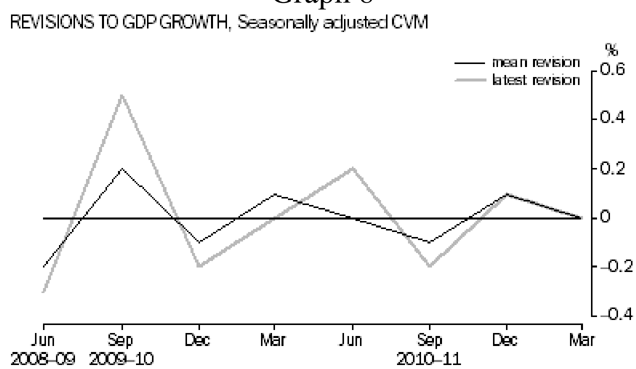


Graph 7`



Looking forward, there are significant challenges to macroeconomic statistics in global conditions and the likelihood of further volatility. These challenges will make compilation of macroeconomic accounts more difficult than was experienced prior to 2007. The lesson the ABS wishes to pass on to those implementing the new standards in this volatile environment is to plan ahead carefully and be prepared to cope with the unexpected.

Graph 8



Future developments

The international Monetary Fund's Government Finance Statistics Manual is in the process of being updated from the 2001 edition, consistent with 2008 SNA and is due for completion in 2012. This may result in some additional changes for some economic categories.

It appears that Canada and USA will probably convert to 2008 SNA in 2013 and European Union countries in 2014. This may result in the emergence of best methodological practice closer to these dates as these countries consider their implementation in detail.

Published papers

Release of macroeconomic accounts data
ABS Cat. No. 5204.0, Australian System of National Accounts, 2008-09,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/5D5846E18D54CB5CCA2577CA0013978C?opendocument
ABS Cat. No. 5206.0, Australian National Accounts: National Income, Expenditure and Product, Sep 2009,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/72C8D550C68B28FACA2576DA0012B2DA?opendocument
ABS Cat. No. 5220.0, Australian National Accounts: State Accounts, 2008-09,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/C10E2EEFA1D5705CCA2577DF001554A3?opendocument
ABS Cat. No. 5232.0, Australian National Accounts: Financial Accounts, Sep 2009,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/88103B01DD3D6BC7CA2576F10015413D?opendocument
ABS Cat. No. 5302.0, Balance of Payments and International Investment Position, Australia, Sep 2009,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/6DF804E645F4AA5DCA2576D60012B6E2?opendocument
ABS Cat. No. 5368.0, International Trade in Goods and Services, Australia, Aug 2009,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/EBE9BD5D7B723C0CCA2576640011592A?opendocument

Information papers
ABS Cat. No. 5310.0.55.001, Information Paper: Introduction of revised international standards in ABS economic statistics in 2009, (2007),
http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/AAACCFDC646DD1AFCA25734D00127EC2?OpenDocument
ABS Cat. No. 5310.0.55.002, Information Paper: Implementation of new international statistical standards in ABS National and International Accounts, September 2009,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/FBD636304CF0ACF7CA25765C0019CE40?OpenDocument

Release of updated classifications from main economic statistics collections
8155.0 - Australian Industry, 2006-07,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/8155.0Main%20Features22006-07?opendocument&tabname=Summary&prodno=8155.0&issue=2006-07&num=&view=
5676.0 - Business Indicators, Australia, Sep 2009,
http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/5676.0Main%20Features2Sep%202009?opendocument&tabname=Summary&prodno=5676.0&issue=Sep%202009&num=&view=

Appendix 1 - Detailed challenges with implementing new international standards

BPM6

New Standard	Changes	Effort/ impact on accounts
1. Institutional sector classification	Add additional classes in sector breakdown for mutual funds, holding companies, and entities for holding and managing wealth etc., as a supplementary presentation	Minor, increase in size of financial sector.
2. Employer retirement pension schemes	Treat unfunded employers' pension schemes identically to funded employers' pension schemes Use actuarial valuations to measure Employers' social contributions and Property income Allocate the net assets of defined benefit employers' pension schemes to the sponsoring employers Create a supplementary table for Social security schemes	Minor, modelled estimates for most accounts.
3. Classification of services	Add a supplementary presentation on travel Reclassification of a number of service categories Services between affiliated enterprises nie to be removed	Minor, slight change to goods and services account, publication changes.
3. Classification of services Repairs on Goods	Move Repairs for goods from a merchandise trade classification to a service classification	Minor, increase in services account, decrease in goods account.
3. Employee Stock Options	Treat Employee stock options as a form of Compensation of employees in kind	None, no data sources to implement.
5. Non-life insurance Related to BPM/SNA Issue 8/ Reinsurance)	Record claims and liabilities on insurance technical reserves Estimates to be revised in line with reviews on freight, direct and reinsurance services	Minor, changes to existing insurance model and reallocation in IIP.
6(a) Financial services	Estimates to be revised in line with reviews on Financial services (Explicit fees, Financial Intermediary Services Indirectly Measured, Margins on buying and selling transactions & Asset management costs deducted from property income)	Minor, improved FISIM estimate, small changes to survey instrument for remainder of financial services.
7. Treatment of remittances	Replace Current workers remittances with Personal transfers	Minor, data sufficient for one direction only.
8. Reinsurance	Treat reinsurance similarly to direct insurance Claims on technical reserves are not currently captured	Minor, see changes to Non-life insurance.
9. Services including travel	Treat the services of travel agencies and tour operators similarly to those working on commission Optionally, add a supplementary presentation on tourism Split Other travel debits into Education and Health fees Government expenditures abroad to be included under the relevant goods and non-travel services, or failing specification to Government services nie rather than in Travel	Minor, changes to existing tourism model.
10. Patented entities *Related to Issue 9 Research and Development*	Under the SNA93, patented entities are treated as non-produced intangible assets and subsequently reported as property income. Payments received for patents are however recorded as payments for services. There is concern whether the payment for patented entities should continue to be treated as a payment for a service. Since R&D will be classified as a capital asset in the new BPM6/SNA Rev 1 changes, patented entities will not be separately identified but will be subsumed into R&D capital assets	Work in progress. Not completed in 2009, scheduled for completion in 2012
11. Originals & Copies	A copy of a licence to use is treated as gross fixed capital formation if the licence is used over a 12 month period If a copy of a licence to use is purchased with	Work in progress. Not completed in 2009, scheduled for completion in 2012.

	annual payments over a 12 month period, it is treated as acquisition of an asset under a financial lease. If the annual payment is made for a licence to use without a long term contract, the payment is treated as payments for a service under an operating lease	
12. Reserve assets	International reserves to be compiled as a core item for both assets and liabilities Use change of ownership principle for reversible transactions involving the RBA Create a functional category that has both assets and liabilities to record allocation of SDRs, use of fund credit, loans from the fund, debt insurance derivatives in net liability position	Minor, reallocation in IIP.
15. 10 percent threshold	10 percent threshold applies only to voting power not equity and voting power Further clarification on the meaning of ordinary shares, voting rights, subsidiary, associated branch	Minor, slight change to survey frame.
16. Mergers, acquisitions	New breakdowns by type of FDI (Cross-border mergers and acquisitions and Other) as supplementary items	Minor, already managed within existing processes.
18. Direct investment - related issues	Given that a captive non-life insurance company is a direct investment enterprise, the claim of the insured was also that of a direct investor Where a NPISH has a financial claim on a related nonresident NPISH, there should be no direct investment claim. The claim should be treated as portfolio investment or other investment The treatment of the provision of goods and services provided in-kind should be treated like transfer pricing. Where such transactions occur between other affiliated enterprises that do not have an equity relationship, the transaction should be treated as an injection of equity	Minor, most issues already handled within accounts.
18. Right to use/exploit non-produced resources between residents & non-residents	Clarification on the circumstances where a notional resident unit is created	None, natural resources licences either residents only or are for 2 years or more.
19. Military expenditure	Reclassify Defence Weapons Platforms used in production for more than one year as capital formation rather than intermediate consumption goods	Minor, reallocation in goods account.
19. Reverse investment and directional principle	Will be presented on a gross basis, showing direct investors, direct investment enterprises and other related affiliates separately Direct investors will include indirect, as will direct investment enterprises	Minor, publication change.
21. Permanent debt	No debt positions between related financial intermediaries are to be included in Direct investment. Only permanent debt positions between related financial intermediaries are to be included in Portfolio and Other	Minor, BPM6 treatment consistent with Australian practice.
22. Land and building owned by non-residents	A notional enterprise is created when a change in ownership takes place through a lease on land and buildings Claims on the direct investment should be treated as equity	Minor, reallocation in IIP.
22. Goodwill and other non-produced assets	Reclassification of purchased goodwill to purchased goodwill and marketing assets Entries will continue to be recorded only when the value of such entities is evidenced by a sale The value of purchased goodwill and marketing assets will be valued as the takeover value of the enterprise less the value of other assets and liabilities identified for the enterprise	Work in progress. Not completed in 2009, scheduled for completion in 2011. Treatment will be consistent with National Accounts.
23. Maturity and instrument split	Include an instrument split in the IIP as a supplementary item	Minor, change in publication.
25(b) Holding companies, special purpose	Trust funds and investment funds that are	Minor, BPM6 treatment consistent with

entities, trusts	created as legal entities, even without employment, should be treated as Other Financial intermediaries. Their output should be valued at cost if no market valuation of their output is available These units should be classified as Miscellaneous Financial Intermediaries	Australian practice.
25(d) Non-resident unincorporated units	Clarification on the meaning of a branch	Minor, reallocation within accounts.
28. Ultimate beneficial owner/Ultimate destination	Align Ultimate beneficial owner with foreign direct investment	Not implemented.
29. Round tripping	More detailed cases to be included in supplementary tables	Minor, publication changes.
34. Valuation of real estate	Use price indexes to estimate stocks of Foreign direct investment in real estate	Minor, changes to rent model.
37. Activation of guarantees (contingent assets) and constructive obligations	Clarification between guarantees as financial derivatives and standardised guarantees	None, guarantees are rarely used in Australia.
38(b) Assets, liabilities and personal effects of individuals changing residence (Migrant transfers)	Migrant transfers to be recorded in the Other changes in volume of assets account	Major, changes to IIP, Primary Income, and flow through to National Accounts. Problems with determining treatment of long-term migrants and their assets/liabilities.
39(a) Meaning of national economy	To include external and administered territories in Australia's economic territory	Minor, increases from inclusion of Norfolk Island.
40. Goods sent abroad for processing	Move goods for processing from a merchandise trade to a service classification	Minor, increase in services, decrease in goods.
41. Merchanting	Move merchanting goods from a net service classification to a gross goods classification	Minor, increase in goods, decrease in services.
42. Retained earning of mutual funds, insurance companies and pension funds	New categories of property income payable and receivable would be introduced, distinguishing dividends distributed to, and retained earnings attributed to investment fund shareholders A new financial asset category, Investment fund shares will be introduced and will cover the reinvestment of the distributed income (as well as purchases and sales of mutual fund shares)	Minor, new model for retained earnings, increase in income.
43 (b) Debt indexed to a foreign currency	When the principal and coupons on a debt instrument are indexed to a foreign currency it should be denominated in that foreign currency	Minor, changes to compilation processes.
44. Financial assets classification	New categories; More detailed breakdown of Financial assets and liabilities (e.g. Monetary gold, SDRs, Equity, Quoted shares, Unquoted shares, Other equity, Investment fund shares, etc)	Minor, publication changes.
C8. Classification of financial assets: F5 Shares and other equity/F52 Mutual funds	Separate categories for quoted, unquoted, other shares New category for investment funds (quoted and unquoted) Subcategory for insurance technical reserves	Minor, publication changes.
C30. Financial corporations classification, more detailed list of financial corporations (e.g. Money market funds, investment funds, intermediaries, financial auxiliaries, etc	New categories; more detailed breakdown of Other sector classifications (e.g. Money market funds, Insurance companies, Pension funds, etc)	Minor, publication changes.

2008 SNA

New Standard	Changes	Effort/ impact on accounts
1. Repurchases agreements	2008 SNA decided to retain the existing SNA93 treatment of repurchase agreements as a newly created financial asset independent of the underlying security i.e. a collateralised loan, even though the right to on-sell of the securities is almost universal. The ABS does not support this, and intends to continue its 'in-principle' treatment of both the sale and the repurchase as transactions in securities.	Not implemented.
2. Employer retirement pension schemes	Unfunded defined benefit schemes to be treated consistently with funded schemes - accruing costs to be recorded as COE and liabilities to employees to be recognised on the balance sheet. A service charge to households should be imputed where relevant. ASNA is already largely consistent but review required	Minor, small improvements to production estimate and financial accounts.
3. Employee stock options	Fair value to be treated as COE and deducted to derive GOS. This is consistent with the new AIFRS.	Minor, reallocation in financial account.
4. Valuation of non-performing loans	2008 SNA recommends continuation of historic cost basis but a 'compulsory' memorandum item recording at fair value. ABS yet to finalise its treatment - considering reversing the SNA recommendation	Minor, publication changes.
5. Non-life insurance services	Insurance service charge to be measured using expected rather than actual claims. Clarification of treatment of re-insurance to be consistent with direct insurance. ASNA is already consistent with this approach	Minor, changes to insurance model.
6. Financial services	ABS is already substantially consistent with the revised SNA and only minor changes were proposed to external FISIM and to measurement of central bank output. However, subsequent to consideration of this topic it has now become apparent that the FISIM methodology has not coped well with the recent changes in financial market conditions necessitating a review of FISIM methodology.	Minor. More change was due to fixing quality of financial sector estimates and examining FISIM performance under a GFC.
7. Taxes on holding gains	No changes to SNA93	None.
8. Interest under high inflation	Not relevant	None.
9. Research and development	R&D to be capitalised. Scope of R&D to be capitalised in ASNA did not include government R&D	Major. Increases in capital account and use of income account (GFCF).
10. Patented entities	As R&D is to be included in the asset boundary, patented entities will no longer be separately identified as a non-financial asset in the system, but they will be subsumed into R&D assets. Patented entities are not currently included in non-financial assets in ASNA	None.
11. Originals and copies	Clarification around treatment of copies. Confirmation that licenses to use are to be treated as capital formation when they are to be used for more than one year. ASNA is largely consistent with this - current practices will continue	None.
12. Data bases	Clarification around how data bases are to be capitalised. ASNA practice is consistent, although it is possible that current data sources are not capturing the entire scope	Work in progress. Inclusion was considered in 2010, no progress on implementation.
13. Other intangible fixed assets	Asset category to be retained but renamed as 'other intellectual property products'.	Minor, publication changes.
14. Cost of ownership transfer	Cost of Ownership Transfer to be depreciated over the expected period the associated asset is held rather than the economic life of the asset. Terminal costs to be treated consistently. ASNA	Minor, changes to perpetual inventory model.

	practice has been to depreciate COT immediately. ASNA will implement 2008 SNA in respect of depreciation. A separate asset class will be retained for COT (SNA recommends it be subsumed into the underlying asset class).	
15. Cost of capital services - production account	No changes to be made to standard entries in the accounts but greater prominence to be given to integrated capital services and capital stock measurement to be given in SNA. ASNA already derives capital services as input to productivity measurement	Not implemented.
16. Government owned assets	2008 SNA recognises that in principle the whole value of capital services and not just depreciation should be included in a cost valuation of non-market output. However, the SNA will retain the existing treatment pending further research. ABS has decided to implement the full capital services approach to measuring government output (but not NPISH output) in ASNA.	Not implemented.
17. Mineral exploration	2008 SNA provides a clarification, especially around the issue of the apparent double counting of mining exploration assets and sub-soil assets. The treatment of assets on the ASNA balance sheet is to be changed to accord with the clarification - subsoil assets are to be split between a produced (min ex) and non-produced components.	Minor, publication changes.
18. Rights to use/exploit non-produced resources between residents and non-residents	2008 SNA clarifies the situations in which a notional resident unit is to be established e.g. fishing vessels only become resident if a base of operations has been established in the country. ASNA is already consistent.	None. See BPM6 treatment.
19. Military expenditures	Treat DWPs as Capital assets rather than intermediate consumption goods. 2008 SNA established a separate asset category. ASNA to implement capital treatment but yet to be decided if it will be shown as a separate item.	Major, changes to capital account and use of income account (GFCF, GFCE).
20. Land	2008 SNA recommends a clearer distinction be made between land improvements and natural land - separate asset classes have been established. Cost of Ownership Transfer on land should be included. There are no plans to make this distinction in ASNA asset classification	None.
21. Contracts and leases of assets	2008 SNA provides clarification on treatment of the various leasing and licensing arrangements. Sales of permits by governments designed to restrict entry are to be treated as taxes. No change to mobile phone licenses. Contracts can be assets in their own right only if tradeable. ASNA is consistent, but there is no proposal to record contracts as assets.	None.
22. Goodwill and other non-produced assets	Entries will continue to be recorded only when the value of such entities is evidenced by a sale. Unlikely that will include goodwill on ASNA balance sheet.	Work in progress. Considered in 2011, ABS is unlikely to implement due to conflict with the definition of Net Worth.
23. Obsolescence and depreciation	The meaning and measurement of depreciation, especially in respect of obsolescence and cross sectional versus time series efficiency decline was clarified. COFC is now referred to as depreciation.	Not implemented.
24. Public-private partnerships	SNA is expected to provide broad guiding principles only which will eventually be updated if and when IPSAS establishes a standard for PPP arrangements. No changes are currently proposed for GFS and ASNA.	None.
25. Units	2008 SNA reviewed the treatment of ancillary units, holding companies, SPEs and multi-	None.

	territory enterprises. It has been agreed that current profiling procedures will continue for ancillary units and holding companies although in the case of the latter it will be inconsistent with SNA.	
26 Cultivated assets	2008 SNA makes a slight clarification to the definition. Of more importance in ABS context is that GFCF on orchard tree/vine assets has not been included in ASNA as recommended by SNA93. We are committed to review this.	Minor, publication changes and implementation of 1993 SNA orchard growth estimates.
27. Classification and terminology of assets	Some minor changes around terminology such as use of the term 'intellectual property products' in place of 'intangible assets'. Changes were made in ASNA where relevant.	Minor, publication changes.
28. Amortisation of tangible and intangible non-produced assets	This concerns mobile phone licenses in particular. ASNA balance sheet is incomplete in respect of these assets (but consistent in respect of mobile phone).	None.
29. Assets boundary for non-produced assets	The asset category "Other non-produced intangible assets" was dropped. It also indirectly concerns the treatment of securitisation of the future receipts of government. This is of no consequence for ASNA	None.
30. Definition of economic assets	This mainly concerns clarification around legal and economic ownership and the emergence of new types of assets.	None.
31. Valuation of water	This is a clarification. The same principles should apply as for the valuation of subsoil assets - NPV of future economic rents. There is no current proposal to value water in the ASNA balance sheet.	Not implemented.
32. Informal sector	It does not have any implications for ASNA.	None.
33. Illegal and underground activities	The ASNA treatment of the non-observed economy has already been subject to a detailed review consistent with the requirements of 2008 SNA. There is a further minor clarification that good regularly stolen from inventories are not to be added to the value of output. No further work was planned.	None. Consequently ABS is evaluating the introduction of the valuation of drugs into the economy.
34. Super dividends, capital injections and reinvested earnings	2008 SNA stopped short of a full reinvested earnings approach for dividends and cash injections. Instead, the existing approach is to continue except in those cases where dividends are disproportionately large relative to the recent level of earnings and dividends. In those cases the excess is to be treated as a withdrawal of equity.	Minor, new reinvested earnings model.
35. Tax revenue, uncollectable taxes and tax credits	Clarification around the accrual receipt of taxes and tax credits versus expenditures. ABS has produced GFS guidelines on the latter. There are no significant issues for Australia	None.
36. Private/public/government sectors delineation	2008 SNA has clarified the meaning of 'control' and market/non-market delineation. Impacts on classification of NPIs. Implications for ASNA were considered during a review of Australia's economic sector classification (SESCA).	None.
37. Activation of guarantees (contingent assets) and constructive obligations	Clarification between guarantees as financial derivatives and standardised guarantees by government as per Government version of AIFRS	None, Minor, 2008 SNA treatment consistent with Australian practice.
38.(a) Change of economic ownership (as a term)		None.
38(b) Assets, liabilities and personal effects of individuals changing residence (Migrant transfers)	Migrant transfers to be recorded in the Other changes in volume of assets account. Consumer durables appear only as a memorandum item in the balance sheets.	See BPM6 implementation above.
39(a) Meaning of national economy	This has been clarified in the BPM6. While in principle Norfolk Island will now be considered part of the Australian economy, a decision is yet	See BPM6 implementation above.

	to be made if adjustments will be made to external flows and national accounts items including GDP.	
40. Goods sent abroad for processing	The recording of imports and exports should be on a change of ownership basis. That is, goods being processed in one country on behalf of another will no longer be part of imports and exports.	Minor, changes to supply-use benchmarks.
41. Balance of payments goods and services account	There are a number of changes - such as to merchanting , goods procured in ports, goods for repair and goods for processing not involving a change of ownership and reclassifications within the services items.	Minor, changes to supply-use benchmarks.
42. Retained earnings of mutual funds, insurance companies and pension funds	Retained earnings of investment funds are to be imputed as payable to shareholders as property income, which then reinvest the funds back to the investment fund (a financial transaction - investment fund shares). This will make the treatment of investment funds consistent with the treatment of pension funds.	Minor, covered in reinvested earnings model.
43 Interest and related issues	New treatment of index linked debt, concessional rates, fees payable on securities lending and gold loans. Debtor/versus creditor approach for recording interest on debt securities was not up for review and ABS remains at odds with SNA. However, ABS has decided to maintain its existing approach	Not implemented.
44. Financial assets classification	New categories; More detailed breakdown of Financial assets and liabilities (e.g. Monetary gold, SDRs, Equity, Quoted shares, Unquoted shares, Other equity, Investment fund shares, etc). ABS modified the financial corporations classification, particularly to isolate investment funds.	Minor, changes to financial assets classification, inclusion of non-money market funds assets.

Appendix 2

Case studies

Capitalising Research & Development

A major change in the System of National Accounts 2008 (2008 SNA) is the recognition of expenditure on Research and Development (R&D) as capital formation. 2008 SNA recommends that the value of R&D should be determined in terms of the future economic benefits it is expected to provide. The definition includes the provision of public services in the case of R&D assets acquired by government. In principle, R&D expenditure that does not provide an economic benefit to its owner does not constitute a fixed asset and is treated as intermediate consumption. ABS R&D surveys collect data on business expenditure on research and development (BERD), higher education expenditure on research and development (HERD), government expenditure on research and development (GERD), and private non-profit expenditure on research and development (PNPERD) in respect of four types of R&D activity: pure basic research, strategic basic research, applied research and experimental development.

In principle, R&D output is valued at market prices. However, survey data indicate that over ninety per cent of research and development activity is undertaken on own account, and representative market price data for R&D products are not available. R&D is produced as a secondary activity by a broad range of industries. The data collected from R&D performers in the Survey of Research and Experimental Development Businesses, are reported on a cost basis, with costs broken down into labour costs, other current expenditure, land, buildings and other structures, and other capital expenditure. R&D was valued at cost, and input deflators were used to calculate volume measures to overcome these difficulties. The measurement of the stock of R&D assets requires data on the flow of R&D expenditure, in volume terms, estimates of the life span of the various types of R&D assets and an estimate of the retirement distribution pattern of those assets as they become obsolete and leave the capital stock.

The R&D survey does not explicitly collect data on international trade in R&D services. However, survey data are classified by funder, and the ABS assumes that expenditure funded from overseas sources constitutes exports of services. Because the R&D survey collects data from performers of R&D, not users, they do not explicitly cover imports of R&D products. Although expenditure on imports by R&D performers is captured by the R&D survey as part of the cost of performing R&D, they do not capture expenditure on R&D by non-performers of R&D, which fall outside the scope of the R&D survey. For practical purposes, it is assumed that imports of R&D products are by R&D performers, and that they will be used as intermediate inputs into own account R&D. It is assumed that R&D funded by non-residents represents exports of R&D services. Both exports and imports of research and development products are collected in the Survey of International Trade in Services (SITS).

Migrant transfers (Other Value Changes due to persons changing residency)

Migration is the movement of a household unit from one economy to another for an intended period of more than one year. Migrants are covered in the calculation of Net Overseas Migration for population estimates; however the movement of their personal effects, assets and liabilities need to be accounted for. Under Balance of Payments Manual fifth edition (BPM5), this wealth was treated as a capital transfer and limited to personal effects and assets carried across the border. The Balance of Payments and International Investment Position Manual sixth edition (BPM6) revises the treatment of the transfer of assets and liabilities of persons and other entities changing their economy of residence.

Household assets in the National Accounts are classified into financial and non-financial assets with property (dwellings and land) included as non-financial assets. The national accounts household balance sheet shows property representing about 60% of household assets. BPM6 requires the creation of a notional resident unit as an owner of the land and buildings. This notional resident unit then is defined as a quasi-corporation. This treatment is designed so that land and other non-relocatable assets such as natural resources are always assets of the economy in whose territory they are located. Otherwise, the land would appear in another economy's national balance sheet. Therefore property assets (dwellings and land) will be included as part of equity in non-resident unincorporated corporations. 2008 SNA treatment will be the same but changes to household non-produced assets, financial assets and income flows need to be adjusted. Based on asset transfer information obtained from the third Longitudinal Survey of Immigrants to Australia, about 60% of settler arrivals transfer assets during their first year of stay. It will be assumed that all permanent migrants transfer or otherwise dispose of foreign held assets within two years of migration. The initial 'other change' and resulting position will be amortised through transactions over a two year period. It will be assumed that the same pattern of transfer and disposal applies to resident permanent departures as there is no information about the transfer of assets by residents. It was assumed that migrants changing residency long term generally hold onto their original assets as they would be returning to their country of origin.

An estimate of the number of households arriving and departing permanently is required to avoid allocating household assets to every man, woman and child that changed residency. For arrivals, the proportion of primary applicants to total arrivals was used to determine the number of households arriving. This information was obtained from the Department of Immigration and Citizenship (DIAC). Household formation rates by age group from the ABS publication Household Wealth and Wealth Distribution (cat. no. 6554.0), were applied to departures to determine the number of households departing.

The next layer of complexity for the persons changing residency model was how to conceptually measure long-term migration patterns. Under BPM6 long-term residents (those with the intention to domicile within an economy for more than 12 months) are treated similarly to permanent migration. In contrast to permanent migrants the assumption that migrants run down their assets over two years does not hold. It was assumed that long-term migrants generally hold onto their original assets as they would be returning to their country of origin. Accordingly 2008 SNA treatment has similar assumptions and changes were made to household non-produced assets, financial assets and income flows from these assets.

Given that Australia has a significant (particularly) inward migrant population the importance of this modelling is critical. The complete model needs to take account of the nature of specific sub-populations that are significant in Australia's situation:

- Identifying and removing the effects relating to the large international student population, which remains non-resident in the international accounts, but not in immigration administrative data.
- Identifying those that change status from long-term non-permanent to permanent after arrival in Australia.
- Identifying and accounting for international students who become permanent residents during or at the conclusion of their studies.

List of abbreviations

ABS	Australian Bureau of Statistics
AIFRS	Australian International Financial Reporting Standards
ANZSIC	Australian and New Zealand Standard Industrial Classification
APRA	Australian Prudential Regulatory Authority
ASNA	Australian System of National Accounts
BERD	Business Expenditure on Research and Development
BPM	Balance of Payments and International Investment Position Manual
COE	Compensation of Employees
COFC	Consumption of Fixed Capital
COT	Cost of Ownership Transfer
CPI	Consumer Price Index
CVM	Chain Volume Measures
DIAC	Department of Immigration and Citizenship
FDI	Foreign Direct Investment
FISIM	Financial Intermediary Services Indirectly Measured
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GOS	Gross Operating Surplus
HERD	Higher Education Expenditure on Research and Development
IIP	International Investment Position
IPSAS	International Public Sector Accounting Standards
ISIC Rev4	International Industrial Classification Revision 4
ISWGNA	Inter-secretariat Working Group on National Accounts
MESC	Macroeconomic Steering Committee
MSITS	Manual on Statistics of International Trade in Services
NPISH	Non Profit Institutions Serving Households
OECD	Organization for Economic Co-operation and Development
PNPERD	Private Non-profit Expenditure on Research and Development
QBIS	Quarterly Business Indicator Survey
RBA	Reserve Bank of Australia
R&D	Research and Development
SDR	Special Drawing Rights
SESCA 2008	Standard Economic Sector Classifications of Australia
SITS	Survey of International Trade in Services
SNA	System of National Accounts