



Challenges in compiling employment and unemployment estimates – the Australian experience

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Abstract

This paper describes challenges faced in compiling Australian employment and unemployment estimates and how the Australian Bureau of Statistics (ABS) is addressing these challenges. In particular the paper will describe the implementation of a review of the labour content in ABS household surveys (the review), a proposed vehicle for integrating monthly and less frequent household collections and relevant administrative data, and plans to improve the coherence of data from the labour statistics program.

Keywords: employment; unemployment; ABS labour force statistics.

1. Introduction

The ABS collects a range of data on the labour market through its suite of household and business surveys. These data provide important economic and social indicators providing insight into the performance of the economy, the effects of labour market policy, and the participation of people in the labour force including their successes in finding employment, earnings, type of work and working hours.

Compiling statistics on a topic as broad as the labour market poses many challenges and this paper focusses on three current challenges faced by the ABS' labour statistics program including:

- Implementing the outcomes of a review of the labour content in ABS household surveys.
- Transforming the broader household survey program to maximise benefits from survey and administration data integration.
- Improving the coherence of data from the labour statistics program.

Other recent challenges experienced by the program but not covered in this paper include:

- The implementation of electronic self-enumeration (e-forms) into the household survey program – this was covered in the paper “*Opportunities and challenges from implementing e-forms into a household survey*” presented to the 2014 IAOS conference in Danang, Vietnam¹.
- Commentators focusing on the more volatile seasonally adjusted estimates rather than the underlying trend and the challenge of explaining the statistics in a meaningful way when considerable media and political commentary is focused on the headline measures.
- Satisfying the demand for more detailed cross-classified estimates while meeting the ABS' obligations under the *Census and Statistics Act, 1905* to maintain the confidentiality of information collected under the Act. The use of a perturbation methodology is being assessed as it is considered the most satisfactory technique for avoiding the release of identifiable statistics while maximizing the range of information that can be released.

¹<https://iaos2014.gso.gov.vn/content.php?id=document>

2. Background - the current ABS Labour Household Survey Program

The ABS' labour household survey program is primarily provided through the Monthly Population Survey (MPS), which comprises:

- The monthly Labour Force Survey (LFS), one of the most important ABS collections, providing timely information on labour market activity within Australia. The estimates of most interest are the monthly number of people employed and unemployed, the unemployment rate, underemployment rate, employment to population ratio, the labour force participation rate, and aggregate hours worked.
- Labour supplementary surveys (which are conducted together with the LFS).
- Labour topics included in the Multi-purpose Household Survey (MPHS) (which is conducted on the outgoing part of the sample each month with the estimates presented on a financial year basis).

The labour supplementary surveys and MPHS complement and extend the information collected in the LFS. These provide more detailed information on particular labour market issues and population groups of interest.

The labour household program had remained largely unchanged since a new questionnaire was implemented in 2001. In late 2010, the ABS commenced a review of the program which aimed to improve the relevance of data released, maximise the coherence of interrelated topics, improve efficiency by minimising the duplication of content, and enable emerging priorities to be met. The review identified that the program was not fully meeting user demands, and there was potential to reshape the program to provide a richer suite of data in a more coordinated and efficient manner. User consultation was a critical component of the review and in determining the new product set.

3. Implementing the outcomes of the labour household surveys content review

In planning for the implementation of changes resulting from the review, it became apparent that the LFS systems were at high risk of failure and would require remediation work to meet demands on the system in the near future and to hold it stable pending an ABS wide systems transformation.

While the change program was being implemented a number of other developments occurred to meet broader corporate requirements, including:

- The introduction of e-forms to the LFS and supplementary surveys from December 2012.
- The introduction, to both the sample design and outputs, of population benchmarks based on the 2011 Census of Population and Housing and post enumeration survey outcomes; and, at the same time, introduction of updated geography boundaries.
- Changes to collection procedures, including the enumeration period and target response rates, to enhance the cost-effectiveness of the survey while maintaining the high quality of the estimates.

The main improvements resulting from the review were:

- More information available from the core LFS, resulting in a richer array of data with key measures released more frequently. Key data, such as underemployment and underutilisation rates, will be available monthly rather than quarterly, while some information that had been released annually from the supplementary surveys will be available quarterly from the LFS (such as educational attainment, retrenchments, and leave entitlements).
- Richer datasets from the labour supplementary surveys, with interrelated topics combined to better enable analysis of key labour market linkages between groups and topics, for example earnings with employment arrangements. Some additional, higher priority data, such as overwork, was added to the supplementary surveys to better inform on contemporary labour market issues.
- More capacity in the ABS household survey program to run additional supplementary surveys - either existing topics more frequently or new user funded surveys to respond to emerging labour or social issues, although this potential is yet to be realised.
- An overall reduction in the burden placed on survey respondents across the labour household surveys program, due to reduced duplication and better coherence of content. Despite this overall

reduction in respondent burden, there may be a small increase in average interview times in some specific months.

The changes planned for the core monthly and quarterly LFS, the labour supplementary surveys, and the labour MPHS topics are listed on the ABS website². The implementation of some outcomes has been delayed due to complications in particular with remediating the computer system, managing the multiple developments mentioned above, and unexpected statistical impacts.

While an assessment of statistical impact on LFS estimates was undertaken prior to implementation, it was not possible to measure the impact of all the changes on the estimates. A parallel run was not considered feasible nor was the cost and burden on households justified given the impacts identified in the assessment. It became clear that the full significance of the changes had been underestimated when, following the implementation of the new LFS questionnaire and new supplementary survey program from July 2014, unexpected results were observed for July, August and, in particular, September.

An independent technical review of the LFS commissioned by the ABS found that the major source of volatility in the labour force estimates was the change in the supplementary survey program run in conjunction with the LFS. The review concluded that the supplementary surveys had a systematic influence on the LFS time series. As the supplementary surveys had generally been run in the same month each year, their effect had generally been removed from the seasonally adjusted and trend series along with genuine seasonal factors as part of the seasonal adjustment process. With the change in the supplementary survey program the standard seasonal adjustment process could no longer account for their influence.

The labour force seasonal adjustment process now incorporates prior corrections to take account the effects of the supplementary surveys. Using the prior corrections to explicitly estimate the effects of the LFS supplementary surveys provides a more reliable set of seasonally adjusted estimates and will be used in the ongoing seasonal adjustment of the series. The executive summary of the independent technical review and the ABS response to the recommendations are available from the ABS website³.

The outcomes of the labour household surveys content review have continued to be implemented in conjunction with more thorough management of statistical risk and the lessons learnt from this change program will be applied in the broader household survey program transformation described in the next section.

4. Transforming the household survey program

The ABS has developed and articulated a proposal for a new high-level model for acquiring and producing population and social statistics, including those collected as part of the Labour program. A key element of the model is a large, integrated, continuous sample survey - the Australian Population Survey (APS) - which would bring together the existing suite of ABS household surveys and increase efficiency, agility and data coherence.

The APS will use a two-phase modular, continuous sampling approach. A large First Phase sample of selected households will be initially approached to provide a subset of Census-like content using a similar collection methodology to the Census itself (online self-enumeration wherever possible, followed up by telephone interviewing and personal visits as needed). First Phase respondents then have a chance of being selected for Second Phase survey data collection.

²<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/1F44BCA083506C5ECA257B16000E28D1?opendocument>.

³<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/6202.0Main%20Features4Nov%2014>

The Second Phase content is a consolidation of the current ABS household survey program but the content will be managed as a series of flexible modules within the same overall survey vehicle, rather than the current group of disparate surveys.

The Second Phase will be split into three broad streams, indicated below in Figure 1:

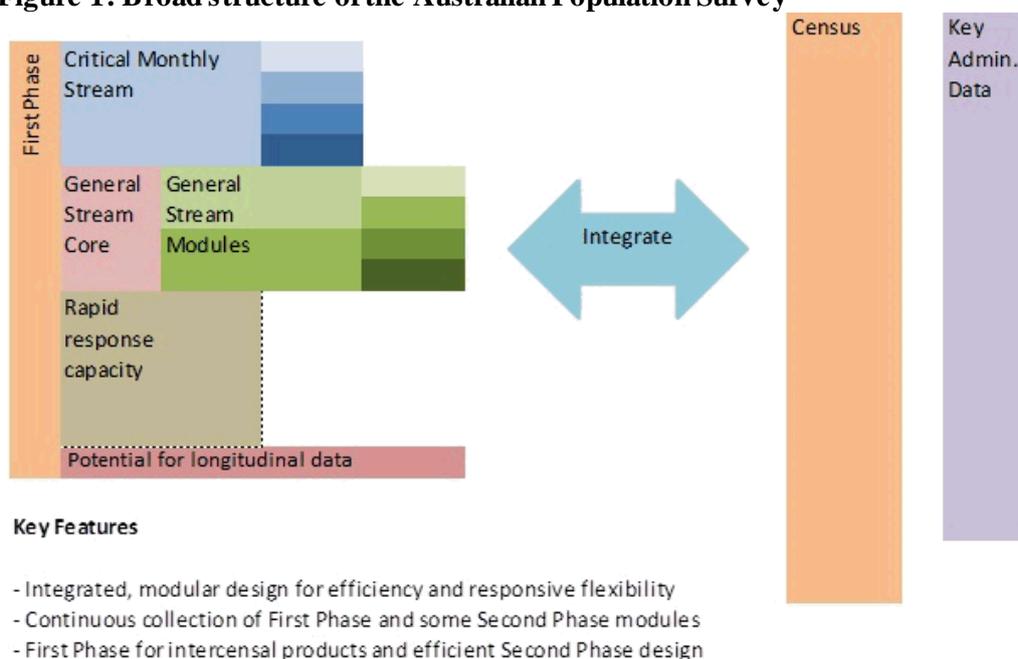
- 1) A Critical Monthly Stream, which can be considered a significantly enhanced, streamlined version of the current MPS;
- 2) A General Stream, which consolidates content from the current suite of Special Social Surveys and the MPHS topics in modular form; and
- 3) A Rapid Response Stream, comprising the residual First Phase respondents not selected for either the Critical Monthly Stream or General Stream, who would be available for an additional user-funded topic(s) with a fast-turnaround focus.

The APS provides a unique opportunity for recruiting long-term longitudinal panels where, for example, labour dynamics and employment transitions over a defined period can be more explicitly measured. In addition, the First Phase provides a more efficient way of identifying sub-populations of interest for example the Aboriginal and Torres Strait Islander population or people with disability

Figure 1 summarises the proposed model for the APS highlighting the relationship between the First Phase and the three broad streams of the Second phase. The Critical Monthly Stream is shown with a core component required for key monthly labour force estimates and modules containing content required less frequently (similar to that in the current supplementary survey program).

The General Stream is shown with a relatively small core component, broad modules covering a diverse range of subject matter (e.g. health, disability, income, living conditions) with smaller modules providing an opportunity to target specific populations and/or content. Potential for a separate longitudinal component is also shown, as is the ability to integrate information from other sources including relevant administrative datasets and the Census of Population and Housing.

Figure 1: Broad structure of the Australian Population Survey





The Critical Monthly Stream and General Stream are expected to be roughly the same size (each in the order of 40k-50k households approached per year) which is similar to the number of households currently approached for the MPS.

The Critical Monthly Stream will be built around the principal objective of producing monthly Labour Force estimates. It will loosely be the equivalent to the MPS, though with a number of significant enhancements that are afforded by such a major transformation. The Critical Monthly Stream is proposed to have the following features:

- Monthly, cross-sectional estimates of labour force status (level and movements) will remain the dominating objective of the stream.
- A strong focus around labour related content, relocating non-labour related topics to the General Stream.
- A shift from an 8-month rotating panel to a 12-month rotating panel sample.
- Utilising information in the First Phase, to the extent feasible, to improve estimation for the Critical Monthly Stream.
- Respondents generally receiving supplementary topics in the same order and timing over their 12 month enumeration period (known as the 'Nth month' model) rather than this being determined by an independent supplementary survey timetable based on specific calendar months, with the estimates presented on an annual basis.
- Continuing the current multi-modal approach with online self-enumeration wherever possible.
- Integration, where possible, of relevant administrative data.

The design and development of the APS is in early stages, with initial stakeholder engagement currently taking place. Users from a general social survey perspective have embraced the proposed transformational change, seeing the opportunities for improved frequency and integrated estimates. Stakeholders of the LFS have expressed reservations about the APS proposal as they do not want to jeopardise the current time series and they are concerned about increased volatility during the transition. However, the 'Nth month' model has the potential to remove some of the statistical effects currently observed in the labour force series.

The ABS is currently investigating various aspects of the Critical Monthly Stream with the intention to engage further with stakeholders in mid-2015 after further details of the benefits of the proposed model are available and a more detailed management of statistical risks and mitigation strategies prepared.

The APS model proposes to replace the ABS' household surveys model, which is still reasonably individual collection or input-oriented, with a solution or output-oriented approach. It is expected to support a broader range of statistical products and services than are currently available, in order to better meet the increasing demands of evidence based policy and decision making. The labour household program is an integral part of the APS model.

5. Improving the coherence of labour data

Similar to the labour household survey content review, it is planned to reshape the ABS Labour Employer Surveys (LES) program. The LES program comprises independent collections on specific aspects of business activity covering labour demand (job vacancies), earnings and labour costs, and workplace relations. The plan is to integrate, to the extent feasible, the current collections into a single collection that will improve the flexibility and coherence of the program and increase the ABS' capacity to accommodate any extra content to meet additional or emerging information requirements.

The process of reshaping the LES program will aim to ensure the highest priority information needs are met, while considering the following issues:

- Implementing the new LES program within current available resources.
- Securing user funding for new content and/or content with limited stakeholder support.

- Trade-offs between detail and frequency and/or timeliness.
- Integrating appropriate administrative data sources to meet detailed information needs.
- Assessing the impact on data providers through changes in respondent burden (both total for the program and at the individual provider level), and the impact of respondent burden on data quality.
- Minimising the impact on the continuity of time series.
- The timing of an ABS-wide systems transformation which will be required to implement the reshaped program.

In addition to the LES program review, the ABS is looking to improve the labour statistics program by:

- Developing an integrated Labour Account framework. A Labour Account will bring together a range of labour market data, which will enhance the strength of the individual sources and improve existing labour statistics⁴.
- Improving the reporting of industry, occupation and sector data through the linkage of survey data and business register information. Using business register information will improve the quality and level of detail of business/employer information, especially for information collected in household surveys like the LFS where the any responsible adult collection methodology is used.
- Exploring the potential of the Single Touch Payroll initiative⁵, announced by the Australian Government in December 2014, where software will enable employers to electronically report payroll, income tax withholding, and superannuation information to the Australian Tax Office when employees are paid. Depending on the information available from the initiative, the ABS will aim to reduce the reporting burden placed on business by integrating Single Touch Payroll information and survey data.
- Introducing a tax-based Linked Employer-Employee Database (LEED) as a first stage towards a comprehensive LEED that will integrate administrative data and household and business survey data. This first stage aims to demonstrate the ability of LEED to answer complex questions about employer-employee relationships at both a point in time and over time.

6. Conclusion

This paper has described several current challenges facing the ABS' labour statistics program and the responses to these. There is an ongoing challenge to produce timely, quality, coherent and relevant statistics in an environment of increasing demand for detailed data and reducing resources. To meet this challenge the ABS has initiated major changes to the labour household surveys program, the broader household survey program and the labour business survey program.

While the latter two initiatives are at an early stage, the changes to the labour household surveys program have been largely implemented but not without considerable challenges. This demonstrates that while change is needed to maintain the relevance of statistical series and to gain efficiencies, all changes need to be carefully managed and the statistical risk thoroughly assessed. In particular a series like labour force has proven very sensitive to changes to the timing and content of the labour force supplementary program. Balancing competing demands for change and stability of time series will remain an ongoing challenge for national statistical organisations.

⁴Labour Accounts: A step forward to a coherent and timely description of the labour market <http://www.ilo.org/public/english/bureau/stat/download/articles/2002-2.pdf>

⁵Single Touch Payroll initiative <https://www.ato.gov.au/General/Consultation/What-we-are-consulting-about/Papers-for-comment/Single-Touch-Payroll-discussion-paper/>



Abbreviations

ABS	Australian Bureau of Statistics
APS	Australian Population Survey
CATI	Computer assisted telephone interviewing
IAOS	International Association for Official Statistics
LEED	Linked Employer-Employee Database
LES	Labour Employer Surveys
LFS	Labour Force Survey
MPHS	Multi-purpose Household Survey
MPS	Monthly Population Survey

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