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Abstract

Over the last half century the Australian Bureau of Statistics (ABS) has continually adapted its collection methods and statistical outputs to ensure the agency remains relevant to changing economic, social and environmental conditions, and to the emerging priorities of governments. One of the earliest ways to achieve more from the economic statistics framework, without significantly increasing ABS costs or provider burden, was to progressively move from censuses of businesses to sample surveys. With the greater availability of taxation and other administrative data in more recent years, the ABS has steadily improved the efficiency of its survey designs and estimation methodologies. It has also begun to supplement survey outputs with new outputs based on data substitution and data modelling. This paper broadly describes the evolution of economic collections in the ABS, beginning with the gradual move from business censuses to sample surveys. The paper then discusses the many opportunities and challenges created by the use of administrative data for collection infrastructure and operations. The paper concludes with a summary of the key messages from the ABS experience.

1. Introduction

Over the last half century the Australian Bureau of Statistics (ABS) has continually adapted its collection methods and statistical outputs to ensure the agency remains relevant to changing economic, social and environmental conditions, and to the emerging priorities of governments.

2 One of the earliest ways to achieve more from the economic statistics framework, without significantly increasing ABS costs or provider burden, was to progressively move from censuses of businesses to sample surveys. With the greater availability of taxation and other administrative data in more recent years, the ABS has steadily improved the efficiency of its survey designs and estimation methodologies. It has also begun to supplement survey outputs with new outputs based on data substitution and data modelling. Notwithstanding its many benefits, the use of taxation and other administrative data has presented numerous complex challenges for the ABS to ensure that the statistics remain coherent and 'fit-for-purpose'.

3 This paper broadly describes the evolution of economic collections in the ABS, beginning with the gradual move from business censuses to sample surveys and the importance of the frameworks and standards which have underpinned these changes. The paper then moves on to discuss the many opportunities and challenges created by the use of administrative data for collection infrastructure and operations. Issues surrounding the use of administrative data form the major part of the paper, because it is considered a key part of the future, and also where the greatest challenges lie. The paper concludes with a summary of the key messages from the ABS journey over the last 60 years.

2. Evolution of ABS Economic Collections

Moving from Censuses to Sample Surveys

4 The ABS has undertaken a mix of economic censuses and sample surveys since the late 1940's. After World War II, the growing demand for statistics led to experimentation with, and eventual acceptance of, the use of sample surveys as a valid and cost effective alternative to the traditional census approach. Surveys of businesses relating to inventories, capital expenditure, repairs and maintenance, and employment and wages were soon introduced, and they covered most businesses in manufacturing, mining, transport, and wholesale and retail trade. These data were mainly used in compiling national accounts. These first surveys were initially conducted on a six-monthly basis, with the first quarterly surveys starting in the late 1950's.

5 By the 1960's it was apparent that a comprehensive or 'big picture' view of the economy needed to be developed. This involved bringing data streams for different industries together, without overlap or omission, to add to the whole. Existing industry collections had been developed piecemeal, mainly on an activity basis, with no economy wide business frame, and they concentrated on capturing all activity deemed relevant to particular industries.

6 The first vehicle for achieving this integration was the 1968-69 Integrated Economic Censuses. The integrated censuses had two main objectives - to significantly improve the quality and reliability of industry statistics, and to provide data for use in compiling the national accounts.

The project had the conceptual framework provided by the United Nations' System of National Accounts (SNA) as a guide. Today the System of National Accounts continues to underpin the coherence of the Bureau's economic statistics. The use of SNA and other international standards is discussed in more detail in Section 3.

7 The development of the statistical infrastructure needed to facilitate the integration of economic censuses (and later surveys) was a highly significant undertaking. One of the cornerstones of the change was the development of the ABS's first integrated register of businesses. The source of information on businesses was group employer registrations from the Australian Taxation Office (ATO). Special legislation was introduced to allow the ATO to provide the ABS with group employer records. A group employer census was then held to populate the statistical units on the register, supplemented by interviews with the 1,000 largest and most complex businesses. The other significant development supporting the integrated censuses at this time was the development of the first Australian Standard Industrial Classification (ASIC), based on the International Standard Industrial Classification (ISIC).

8 While the first integrated censuses were a success in many ways, they proved to be very expensive to conduct, and even with the power of new computing infrastructure, the huge volume of data led to long delays in releasing census outputs. Given these problems, the strategy changed to conducting annual censuses for core industries (manufacturing, mining, and electricity and gas), and rotating censuses for other industries (retail trade, wholesale trade, construction, and transport) on a less frequent basis. By the early 1970's the quarterly surveys of inventories and capital expenditure had also been integrated, and the population frame for the quarterly surveys was also sourced from the integrated register.

9 The 1980's and 1990's saw a move towards an annual rolling program of service industry collections. These collections were funded in large part by a reduction in the survey program for the traditional goods producing industries. Specifically, towards the end of the 1990's the agricultural and manufacturing censuses, which had been annual to this point, became 5 yearly with sample surveys conducted in intercensal years. These significant changes to ABS's collection program reflected the growing importance of service industries, and tight resource constraints on the ABS.

10 A major element in the economic statistics strategy in the late 1980's and early 1990's was the development of the Economic Activity Survey (EAS). The EAS was an annual sample survey of all businesses in the market sector. EAS was the first survey to produce measures of operating income, operating expenses, value added and its components, and selected balance sheet items, simultaneously for all industries in the economy. The estimates from EAS enabled the construction of balanced supply-use tables that were used to benchmark annual national account estimates of value added by industry.

11 Another significant milestone in the overall integration of ABS Economic Statistics was the development of the Quarterly Business Indicator Survey. This survey, which provides movement indicators for the quarterly national accounts, was first conducted in 2001 and combined three existing quarterly business surveys for inventories and sales, profits and private sector employment and earnings.

12 To demonstrate how the ABS program of business collections has evolved over the years, Attachment 1 summarises the current program of ABS economic collections.

Recent Innovations

13 In the mid 1990's the Australian government established the Small Business Deregulation Taskforce to reduce the government reporting burden on small business. The Task Force looked at all types of government 'red tape' and commissioned an independent survey which concluded that the burden imposed by statistical collections amounted to around 1% of the overall burden. Notwithstanding this small proportion, the ABS actively collaborated with the Task Force to develop a range of recommendations which would reduce this provider load significantly. One of the main recommendations was a 20% reduction in the burden imposed by ABS collections. To meet this challenge, the ABS started to look much more seriously at administrative data as a real alternative to direct collection. Better use of administrative data has been the key methodological and operational challenge for ABS economic collections over the last decade.

14 In 2000, wide ranging changes were introduced to the Australian taxation system. These changes presented opportunities to substantially increase the use of administrative data in ABS business surveys, to improve the quality of existing survey outputs and/or reduce sample sizes, to build new outputs based on administrative data and, through these means, reduce business survey costs and provider burden. The New Taxation System (TNTS) also provided the opportunity to create a new Business Register, which for small and medium sized businesses, is maintained directly via data from the Australian Taxation Office. A more detailed discussion of these changes and their impact on ABS Economic Statistics is provided in Section 4.

15 A major re-engineering program has also been underway in the ABS over the last seven years. The work started with the Business Statistics Innovation Program (BSIP) which was focussed on restructuring collection operations along functional lines. BSIP was a great success for the ABS, and more recently the data collection centre for business surveys was merged with the data collection centre for household surveys to capitalise on the synergies between the two areas. BSIP was soon followed by the End-to-End Re-engineering Program (E2E), which has focussed on transforming the "end-to-end" processes, technologies and methodologies used in the production of ABS economic statistics.

16 As part of E2E re-engineering, new core systems components have been gradually introduced as business collection areas migrate to the new environment. These components include imaging software for data capture, an integrated provider management system, a single Input Data Warehouse for storage of unit record data, a shared data entry/edit/amend environment based on BLAISE/NOTES, new significance editing software based on SAS, and a new system for imputation, winsorisation and estimation. Underpinning this re-engineering work has been a growing focus on process improvement and management, and a technical architecture based on a conceptual metadata framework.

17 In recent times the ABS has also drawn together its suite of annual financial industry collections, including EAS, into a single integrated system known as the Annual Integrated Collection (AIC). While these collections had operated under the same broad theoretical

framework, the application of this framework had been inconsistent across collections. Some of the expected benefits of this integrated system include improved data quality and coherence, increased user satisfaction, improved operational efficiencies and increased capacity to respond to emerging data needs.

18 On the horizon, one of the most significant external impacts on the compilation of ABS economic statistics is the development and implementation of Standard Business Reporting (SBR) for Australian businesses. SBR is being introduced by the Commonwealth Government to alleviate compliance burden on business from government regulation. SBR will allow data which are provided once by businesses, to be used by a variety of government agencies for varying purposes. While SBR is unlikely to impact on the program of economic surveys, it is expected that it will impact significantly on the way some businesses report to the ABS and on how they should be represented on the ABS Business Register.

3. Harmonisation with International Frameworks and Standards

19 International frameworks and standards have provided the basis for the development of ABS economic statistics for many years. As early as 1950, the ABS was releasing balance of payments and international investment data broadly consistent with the International Monetary Fund's Balance of Payments Manual (BPM). Similarly, the United Nations' SNA has provided the framework for Australia's National Accounts since it was first released in 1953. As described in section 2, the large scale restructuring of the ABS economic statistics program and infrastructure in the late 1960's, in preparation for the introduction of the integrated censuses, was underpinned by this framework.

20 ABS frameworks and standards have remained aligned with the SNA and BPM as these frameworks have been revised and updated. Good international standards are seen as essential to ensure that Australian economic statistics are coherent, relevant and comparable with the macro-economic statistics of other nations. To this end, the ABS contributes considerable resources to the update process to ensure that Australian views are taken into account, and that the outcomes of revision processes are conceptually coherent and practical.

21 Since the introduction the Australian Standard Industrial Classification (ASIC) in 1969, several updated industrial classifications have been implemented in the ABS. The original ASIC was revised twice (1978 and 1983), and the first combined Australian and New Zealand Standard Industrial Classification (ANZSIC) was introduced in 1993. A revised version of ANZSIC was introduced in 2006. The use of ANZSIC 2006 in ABS economic statistics is being progressively implemented and will be completed by late 2009. This classification provides a more relevant classification to capture the changes that have occurred in the Australian and New Zealand economies since 1993, such as the 'new economy' activities. Like its predecessors, the ANZSIC 2006 aligns with the latest International Standard Industrial Classification of All Economic Activities (ISIC Rev 4) at the sub-division level, as far as practicable.

22 In addition to the new ANZSIC 2006 classification, there are a range of other improvements to ABS processes and concepts which will be implemented concurrently to minimise the number of shocks or breaks to ABS data series. These include updates to International Standards in the

System of National Accounts 1993 (SNA93) Revision 1 and Balance of Payments Manual (BPM) Revision 6. When implementing the updated standards, the ABS will also redress some existing areas of non-compliance with SNA and BPM.

4. Use of Administrative Data in ABS Business Surveys

23 The innovations and external influences described in paras 13-18 highlight the important role that administrative data play in ABS economic statistics. The ABS is committed to using administrative data sources wherever possible as a cost effective means of obtaining data which reduces provider load, improves scope and coverage of statistics, and increases the availability of longitudinal and small area data. The most significant source of administrative data for achieving these goals is the Australian taxation system.

Early use of Taxation Data

24 The ABS has accessed business taxation unit record data maintained by the Australian Taxation Office (ATO) for many years. The integrated business register, first introduced with the integrated censuses (1968-69), was based on information sourced from the group employer records from the ATO. Although the register was maintained by the ABS, new businesses were identified through new group employer details supplied by the ATO in paper format and then as computer files from the early 1990's.

25 Aggregate data from the income tax system were also used by the National Accounts area of the ABS as a source for annual benchmarks for items such as turnover and gross operating surplus. Aggregate data from the ATO suffered, however, from many deficiencies, including consolidation of data for large businesses, inaccurate industry classifications, timeliness and completeness of the dataset, and differences in the content and definition of data items. Through an amendment to the Income Tax Assessment Act in the mid-1980s, the ABS was given access to identifiable income tax unit records. Through lengthy negotiations, ABS requirements were also considered in the design of the items collected on income tax returns.

The New Taxation System

26 These earlier developments in the use of ATO data enabled the ABS to establish a legislative and strategic relationship with the ATO before significant changes to the Australian taxation system were introduced in 2000. This relationship meant that the ABS was very well placed to take advantage of the opportunities, presented by these changes, for increasing its use of ATO administrative data in business survey infrastructure and operations.

27 The main elements of the new taxation system directly affecting economic statistics strategies were:

- the introduction of unique Australian Business Numbers (ABN) assigned to businesses under the new taxation system

- the creation of a whole of government Australian Business Register (ABR), maintained by the ATO, which is based on the ABN
- the introduction of a Goods and Services Tax
- quarterly/monthly reporting of various aspects of business activity to the ATO in a consolidated form via a Business Activity Statement (BAS)
- changed business structures

New ABS Business Register

28 The introduction of the new taxation system provided an opportunity to revisit not only the need and existing scope of the ABS Business Register, but also the units definitions and maintenance procedures. The ABS Business Register is now divided into two separate populations consisting of:

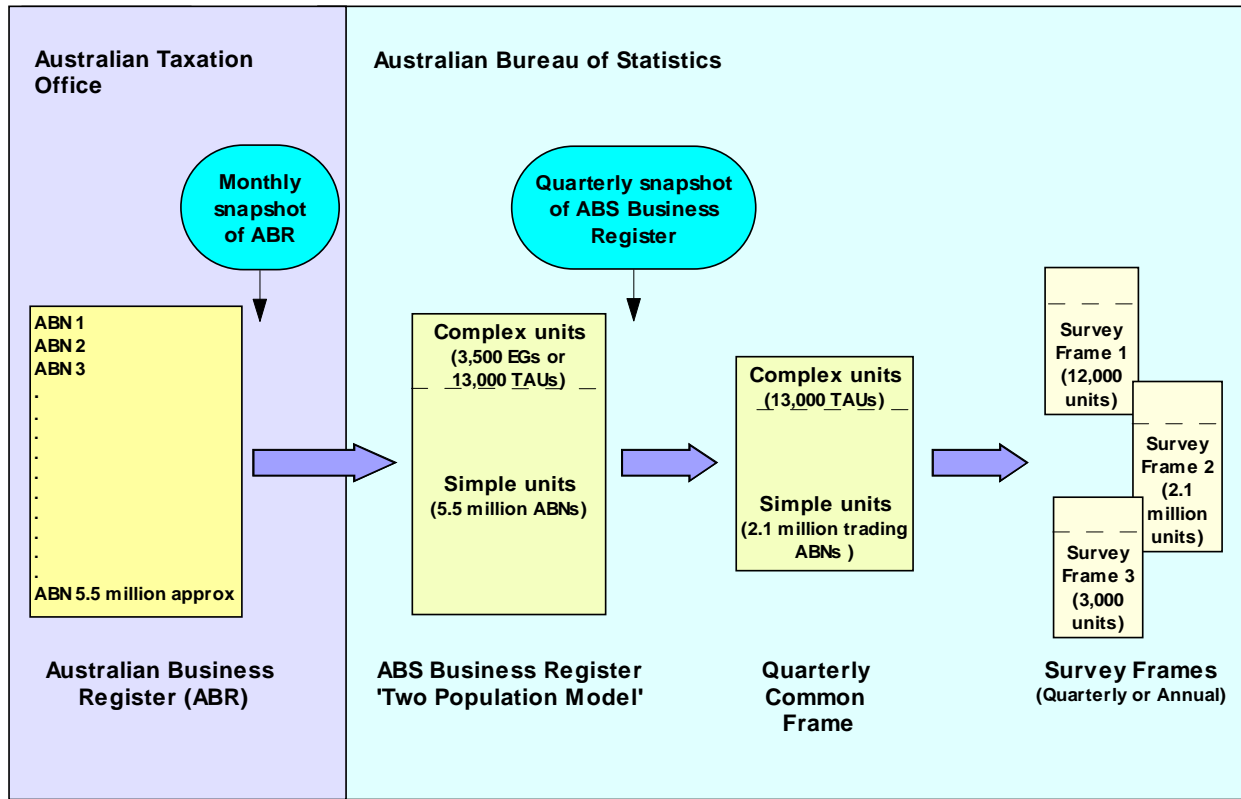
- a complex population, to which a three level hierarchical statistical units model is applied
- a simple population based on the ABN.

29 The complex population is maintained by the ABS through personal and mail profiling, and some survey feedback. This ABS Maintained Population (ABSMP) contains approximately 3,500 Enterprise Groups (EGs). Related to these groups are approximately 13,000 Type of Activity Units (TAUs), which represent the production units surveyed in most business surveys.

30 The simple population or ATO Maintained Population (ATOMP) is taken directly from the Australian Business Register (ABR) and comprises approximately 5.5 million ABNs. However, of these units, only approximately 2.1 million ABNs represent active trading businesses. While some benchmark and classification items for these units are derived by the ABS, all names, addresses, industry coding and other data items flow directly from updates to the ABR. With the quality of the ABS Business Register so heavily dependent on the quality of the ABR, the ABS maintains a high level of communication and cooperation with those parts of the ATO responsible for its administration, and there are several levels of working parties and steering groups.

31 A snapshot of the ABS Business Register is taken every quarter, and this snapshot is used as the basis for the construction of business survey frames (as shown in Diagram 1). The snapshot, called the Common Frame, is matched to BAS data to obtain information about the operating status of businesses. Businesses which have not reported BAS data for some time are treated as deaths and removed from the survey specific frames. This process significantly improves the quality of survey frames and the efficiency of selected samples. As another means of frame maintenance, BAS data are used to identify large businesses to help manage the distribution of units across the two population model on the Business Register.

Diagram 1 Creation of ABS Business Survey Frames



Improvements to ABS surveys and expansion of outputs

32 Implementation of the new taxation system resulted in a large increase in the use of ATO data in business surveys. For the 2001-02 EAS, Manufacturing, Mining and Utilities collections (surveys which subsequently formed a key part of the Annual Integrated Collection (AIC)), the adoption of an ABR based register allowed non-employers to be included on survey frames for the first time. Initially, Business Income Tax (BIT) data were used to substitute for small businesses (both employing and non-employing) in these collections. Since 2006-07, BAS data have been used to substitute for small non-employing units, as BAS data are timelier and have far greater coverage of the population than BIT data. Employing businesses and large non-employers form part of the sample survey population, with BAS data used to create stratification and estimation benchmarks.

33 BAS estimation benchmarks, combined with new Generalised Regression (GREG) estimation methodologies, have created real efficiencies in some of our sample designs (up to a 20% saving in sample sizes for comparable relative standard errors on key estimates). However, these new estimation methodologies have proven to be more complex to understand and implement, and the data are much harder to validate and clear. While these new estimation methodologies show promise for the future, they are still very much work-in-progress for the ABS.

34 In addition to running traditional ABS direct collection surveys, the AIC has commenced work on a program of "complementary estimates" which will explore further uses of data substitution, data modelling and synthetic estimation using mainly administrative tax data. The aim of this program is to produce more detailed financial, demographic and product data, more frequently, but without further imposition on providers.

Other Administrative Data Sources

35 In addition to the Australian Taxation Office, other government agencies and some private sector organisations are important sources for economic data released by the ABS and for population frames. These include:

- Documentation maintained by the Australian Customs Service on goods sent or received provides the basis for ABS overseas trade data and export and import statistics.
- Data collected in the regulation of Australia's Finance and Insurance industries are provided to the ABS by the Australian Prudential Regulation Authority (APRA) and used in the National Accounts.
- Government Finance Statistics are largely compiled from the financial accounts maintained by Commonwealth, State and Territory governments and related entities. Local (regional) Government statistics are compiled from a mixture of direct ABS surveys and administrative data from the Local Governments Grants Commissions in each state.
- Registrations recorded by State and Territory Motor Vehicle Registration Authorities are used for Motor Vehicle Census statistics and form the basis for the population frame for the Survey of Motor Vehicle Use. Data on new motor vehicle sales are sourced from the Federal Chamber of Automotive Industries.
- Building Approvals data are derived from building permits issued by local government and other authorities. These approvals also form the population frame for the Building Activity Survey.
- Australian Automobile Association tourism directories are the main frame coverage source for the quarterly Survey of Tourist Accommodation. This source also provides many of the key auxiliary items for the survey design and outputs such as type of establishment and star grading.

5. Overcoming Barriers in the use of Administrative Data

Quality of administrative data

36 The opportunities that greater access to administrative taxation data have created have also presented many new challenges. The lessons learnt in overcoming these problems emphasise that the integration of administrative data into the existing economic frameworks and processes must be carefully planned and tested. While complex designs involving a mix of direct collection and administrative data sources will deliver efficiencies, it is highly desirable that the full implications of these changes be well understood before the theory is put into practice.

37 By their nature, administrative data are usually collected for regulatory purposes or for the administration of government programs. They are not primarily collected for statistical purposes. The quality of statistics from administrative data can therefore be more difficult to understand and control than data obtained from business surveys. Data quality and supply can be affected by process and systems change, changes to the regulatory environment, and shifts in priorities for the source agency. It is important that such changes are anticipated, understood and managed, and that movements in published statistics reflect real movements in the economy.

38 The use of BAS data in ABS business collections has highlighted a number of quality themes which translate to other administrative datasets and their use in economic statistics:

- Understanding the definitions and concepts covered by administrative data items. The data items collected, and the quality of business reporting against these items, is determined by a taxation imperative rather than a statistical one. Mapping exercises of BAS data items to ABS survey data items and SNA concepts highlight a number of conceptual flaws in the BAS data. While the biases introduced into estimates from these flaws may be tolerable for some units in the population (e.g. small units), they may not be acceptable for all units, and complex work-arounds (e.g. modelling) may be needed to overcome the shortcomings.
- Understanding the underlying business processes and priorities which influence the reporting and derivation of data. Despite the seemingly straightforward data items in BAS, unexplained discrepancies exist between BAS data and ABS survey data at the unit and aggregate levels. These differences may reflect aspects of the underlying business processes, but also reflect that reporting anomalies, such as nil reporting on some items, are not a high priority for taxation purposes.
- Limitations with large datasets. While the BAS dataset is a very large data set providing comprehensive coverage of the Australian economy, the sheer volume of records on the dataset introduces constraints on data quality, and the ability of the ABS to 'clean' the data. Editing and imputation of missing records can occur based on logical algorithms, but these processes cannot address more widespread undercoverage or quality deficiencies.
- Balancing timeliness and quality 'trade-offs'. While the timeliness and frequency of BAS data are quite good, there are only a limited number of data items available for use. The BIT dataset on the other hand has a far more extensive range of data items available, but it is only available long after the reference period in question (the lack of timeliness is often the greatest limitation of administrative data).

Integration and coherence

39 The annual and quarterly Australian National Accounts are compiled from a number of sources including ABS surveys and administrative data. The introduction of the unique ABN has enabled greater coherence within the accounts and other economic statistics through improved alignment of survey and administrative data populations. This alignment is achieved through accurate maintenance of coding and flags on the ABS Business Register. For example, in order to reduce duplication and omissions in the National Accounts, businesses in the Finance sector which are regulated by the Australian Prudential Regulation Authority (APRA), are easily identified using the ABN and flagged, and data for these units are obtained directly from APRA.

40 Aligning administrative data and the ABS Business Register can be difficult for large, complex businesses. Enterprise Groups in the ABS Maintained Population (ABSMP) of the Business Register often have a large number of ABNs and a complex mapping of these entities to the production units, i.e. TAUs. This complexity imposes limitations on the use of administrative data for data substitution and benchmarking of large businesses. Overcoming this complexity has also been a common theme in moving the few ABS business surveys which do not use the ABS Business Register across to the integrated environment.

41 The ABN is also the identifier used to link administrative datasets and ABS survey data on the ABS Input Data Warehouse (IDW). The first version of the IDW was implemented to store BAS, BIT and ABR data. The development of the IDW, and the storage of data under common identifiers such as the ABN, is a key enabler for extending the use of administrative data and its integration with survey data. It also provides a single, safe repository for data that has been traditionally scattered across collection 'stove pipes' in large, sometimes poorly managed, datasets.

Engagement with administrative data providers

42 When considering the use of administrative data within statistical processes, the ABS has undertaken a comprehensive risk assessment for each of the individual strategies and developed contingency plans accordingly. For example, one of the key mitigation strategies for the use of taxation data within the ABS is the maintenance of a strong working relationship between the ABS and the ATO. This relationship is supported by forums at a number of levels, ranging from senior management level right down to working groups attended by operational staff. This close working relationship has enabled the ABS to better understand the quality of relevant data items, to influence the data items collected by the ATO, and to influence their quality maintenance strategies.

43 Formally underpinning this relationship is a Memorandum of Understanding (MOU) between the Australian Statistician and Commissioner of Taxation for joint activities and the exchange of information. Under this collaborative arrangement, the ATO provides the ABS with information and data which are of significant strategic importance to the production of statistics on the economy and population. In turn, the ABS assists the ATO with its statistical needs and with the management and quality maintenance of its information holdings and processes.

44 Supporting the management of the relationship between the ABS and ATO is a joint ABS/ATO Information Management Team located at the ATO, but with a number of outposted ABS officers. The placement of outposted officers is a strategy often employed by the ABS to assist in the management and development of relationships with those agencies providing key administrative data sources. Other strategies include the provision of expertise and training in statistical coding and related software, information management skills, and statistical standards. The implementation of the recently revised ANZSIC (ANZSIC 2006) was a significant joint exercise undertaken by the ABS and ATO where all of these strategies were successfully employed.

6. Key Messages from the ABS Experience

45 The ABS economic statistics program has evolved over time in response to changing statistical demands and to other external factors. There is also the ongoing need to identify improvements and efficiencies in business survey processes and infrastructure. The short-term horizon for the ABS suggests there are many new client needs and external factors emerging, such as new government initiatives around Standard Business Reporting (SBR) which will require multi-modal data collection. There are also demands for greater integration of economic, social and environmental data, as well as for improved regional data. These new demands will require the ABS to continue to evolve and adapt.

46 As the ABS looks for innovative ways to meet changing client needs and manage other external factors, the lessons from previous innovation and change remain relevant. Some of the key messages which have emerged from our past experiences are summarised below:

- In expanding and changing the range of economic statistics from business surveys and administrative data, it is important to have a clear understanding of client needs for data and their relative priorities, and to focus on the priority needs at each stage of the collection design and conduct.
- A good collection frame is the foundation for the production of quality statistics. Careful thought needs to be given to understanding the many factors underpinning the collection frame (e.g. scope, coverage, units models, quality of auxiliary information for sample design and estimation, etc.), and to the frame and sample maintenance procedures. In ABS's experience, many of the problems that arise with our statistics can be linked directly to deficiencies in the frame, or to our efforts to correct for these deficiencies (e.g. poor coverage, poor quality auxiliary information leading to misclassification of units, applying inappropriate birth/death factors, etc.).
- It is important to understand and take best advantage of available administrative data sources in all collection processes (e.g. sample design, estimation, imputation, data substitution, data supplementation, etc.). Administrative data can increase the range of outputs, reduce provider load and create significant operational efficiencies.
- One of the most important strategies for ensuring good quality and reliable supply of administrative data is a high level of engagement with administrative data source providers.
- While there is constant pressure on statistical agencies to reduce costs, in many cases it is still preferable to 'prove the concept' before rushing to implement it. Often the 'devil is in the detail' for complex designs involving a mix of direct collection and administrative data sources (e.g. the frame and units model may not fully align with units from the administrative data sources, assumptions underpinning the expanded coverage of a collection using administrative data may not be true, etc.). Significant additional costs can be encountered in resolving problems arising from not having fully understood the implications of putting theory into practice.
- From time to time, take a green-fields/top-down approach to the collection vehicle design to ensure priority client needs are met, rather than always trying to meet new needs by additions to potentially sub-optimal collection vehicles already in place.

- Greater integration of systems infrastructure and use of efficient processing practices will significantly reduce collection costs. For example, editing work has been variously estimated to account for 30% to 40% of collection costs. Adoption of standard editing systems and methodologies (e.g. selective editing) has the potential to significantly reduce collection costs without significantly reducing data quality.

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Attachment 1 - Current ABS Business Survey Program

ABS COLLECTION	Type	Sample Size	Frequency
International Accounts & Financial Statistics			
International Investment	partial census	1,000	quarterly
Survey of Financial Information	partial census	1,000	quarterly
Venture Capital	census	300	annual
International Trade in Services	sample survey	1,400	quarterly
Price Index			
Labour Price Index	sample survey	3,500	quarterly
Producer Price Index (PPI)	purposive sample	2,500	quarterly
Consumer Price Index (CPI)	purposive sample	n.a.	quarterly
Sub-annual economic activity			
Retail Business Survey	sample survey	1,400	monthly
Building Activity	sample survey	5,000	quarterly
Building Approvals	census	300	monthly
Engineering Construction Survey	sample survey	1,700	quarterly
Business Indicators Survey	sample survey	15,800	quarterly
New Capital expenditure	sample survey	8,000	quarterly
Innovation and Business Demographic Statistics			
Business Characteristics Survey	sample survey	14,300	annual
Research & Exp. Development - coverage	partial census	6,500	annual
Research & Exp. Development - Business	partial census	5,500	annual
Research & Exp. Development - Other	census	500	annual and biennial
Industry Statistics - Annual Integrated Collection (AIC)			
Economic Activity Survey (Industry wide)	sample survey	15000	annual
Manufacturing Survey	sample survey	9,000	annual*
Mining and Utilities Survey	sample survey	1,100	annual*
Construction Industry Survey	sample survey	1,700	every 6 years
Retail Industry Survey	sample survey	7,600	every 6 years
Wholesale Industry Survey	sample survey	5,000	every 6 years
Other selected Service Industry Surveys	sample survey	various	generally triennial
Information & Communications Technology Survey	sample survey	2,500	biennial
Environment & Agriculture			
Agriculture Commodities and Resource Management	sample survey	30,000	annual
Agriculture Activity	sample survey	11,200	sub-annual and annual
Agriculture Census	census	150,000	5 yearly
Labour			
Average weekly Earnings	sample survey	6,000	quarterly
Employee Earnings and Hours	sample survey	9,500	biennial
Employment and Earnings	sample survey	1,700	annual
Other collections			
Motor Vehicle Use	sample survey	8,000	quarterly
Tourist Accommodation	partial census	9,100	quarterly

Notes: n.a. – not available as sample sizes not easily related to number of businesses

*surveys have been annual but are currently under review