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**SEMINAR ON POPULATION AND HOUSING CENSUSES
SESSION I**

The business case for the Australian census and how we are trying to extract more value from the census¹

Submitted by the Australian Bureau of Statistics (ABS)

I. INTRODUCTION

1. In Australia the 2006 Census will cost around \$US 225 million for a full content - full enumeration census or about \$US 11 per capita. This cost includes development work, field collection costs, processing, census output products and services, evaluation (including the costs of the Post Enumeration Survey) and archiving of the name identified census information on microfilm for those who choose to have their information preserved in this way.

2. The first part of this paper examines the basic business case for undertaking censuses and is largely based on the findings of a review conducted into the Australian Census in 1994 in the lead up to the 1996 Census. By its nature, the review focused largely on official and government uses of the census. There was no attempt to assess benefits to the private sector or the wider community. The second part of the paper examines what the ABS intends to do for the 2006 Census to increase further value derived from the census by encouraging the widest possible use of the census data by all sectors of the community.

¹ This paper has been prepared at the invitation of the secretariat.

II. BUSINESS CASE FOR THE CENSUS

3. In the lead up to the 1996 Census a review was undertaken at the direction of the Government with a view to reducing the cost of the census. Various options were looked at including conducting censuses less frequently and reducing the content or coverage of the census.
4. The review found that any savings from a less frequent and/or lesser content census were relatively insignificant given the overall benefits of the census. The review found that around 80% of the cost of the Australian census was in the collection and in the processing costs for the basic demographic questions required for population estimates purposes – the legal minimum requirement for the Australian census.
5. The cost of collecting and processing the remaining “non core” questions was estimated at around 20% of the total cost of the census. (These costs will have decreased greatly as a proportion of the overall costs of the census since 1996 with improvement in the efficiency of processing, such as improved optical character recognition, automatic coding and use of images).
6. Given these findings, the recommendation from the review was to continue with a full content - full enumeration census conducted every five years.
7. The following major areas of use of census data were identified by the review:
 - A. Electoral
 8. The central purposes of the census, and a requirement of the Australian Constitution is that the number of seats in the House of Representatives for each State is determined by the population of the state. The five yearly census underpins the official population estimates that are used for this purpose. Legal opinion after a High Court challenge held that a periodic census needed to be undertaken to enable the State populations to be reliably determined. The Census and Statistics Act requires that a census be held every five years and this has been the case in Australia since 1961.
 - B. Fiscal
 9. The Australian federation is characterised by large vertical fiscal imbalance. The federal government has wide taxation powers and effectively has the sole authority to impose and collect taxation from the two largest sources of revenue in a modern state that is: income taxes on individuals and companies and consumption taxes on goods and services. Whilst the States in the Australian federation have limited taxation powers they have extensive responsibilities for a range of services such as infrastructure (roads, water, electricity etc.), hospitals, education and policing. This requires large shifts of funds from the federal government to the various State governments.
 10. The allocation of these funds is largely determined by the Commonwealth Grants Commission, an independent government body. The Commonwealth Grants Commission uses both the census based population estimates and analysis of the detailed census information to determine these allocations. The use of detailed census information is to ensure that there is an

equality of services provided by government wherever people might live in Australia. Thus the State proportions of older people, people from non-English speaking background, and Aboriginal and Torres Strait Islander peoples, for example, are used to determine an adjustment factor to the population estimate based allocation for each State.

11. For the most recent year \$US 34 billion of funding was allocated through this process. The cost of a five yearly Census is relatively small in comparison.

12. The Census based population estimates, used for both electoral and fiscal purposes, adjust Census counts for the net undercount, Australian residents temporarily overseas, and births, deaths and net migration since Census date. For official population estimation purposes, Census counts have been adjusted for the net undercount since the 1976 Census.

C. Policy and Service Delivery

13. The review examined in detail the use of information from the following topics:

- (a) Occupation
- (b) Industry
- (c) Qualification
- (d) Journey to work
- (e) Usual address five years ago

14. These topics were chosen for detailed consideration, as they were the most expensive topics to collect and process. Data in respect of these topics would be affected if the proposal for a Short Form/Long Form Census was adopted.

15. The review identified the following key government uses for data from the topics listed below.

- (a) Targeting labour market programs: monitor the changing industrial and occupational structure of the labour market for assessing impacts of current policies and development of new policies.
- (b) Resource allocation in the education sector.
- (c) Monitoring access and equity for women, people from non-English speaking background and Aboriginal and Torres Strait Islander people.
- (d) Urban planning, and in particular, the transport infrastructure.
- (e) Disaster and crisis planning - there is a need not only to know how many people are living or working in an area but also the characteristics of the people.
- (f) Monitoring international and internal migration: nearly fifty percent of the Australian population move their usual residence in a five-year period. Understanding who is moving and where they are moving from and to is important for modeling intercensal population estimates as well as understanding the dynamics of population change at the local level for all levels of government.

16. In all these areas Census data is used extensively for planning, funding allocation, monitoring and research purposes. The marginal cost of including the above topics in the five yearly Census was clearly justified.

III. EXTENDING THE USE OF CENSUS INFORMATION

A. Statistics for communities

17. Key to extending the use of the census data in Australia has been the "community profile" series - simple two or three dimensional tables covering most of the census topics packaged together for every enumeration area and community in Australia. These were first introduced as part of the 1966 Census output and they are now seen as the fundamental output from the Australian census. These profiles are very easy for the general public to relate to and continue to be extremely popular. They are now available on the web site which has made them even more accessible to a wider range of Australians. Over the two years to March 2006, 750,000 community profiles from the 2001 Census have been downloaded from the ABS web site. They are also widely used in schools.

18. Our Library Extension Service, which operates through public libraries and university libraries, is another important way of extending the use of community profiles and Census data more generally, particularly to the general public.

19. The strategy of actively providing Census data to the community is an important way of ensuring community support for the Census. In fact, they can become very important advocates for the Census if it is under threat.

B. Spatial analysis of census data

20. Potential for spatial analysis of data, and in particular census data, has been recognised for a long time and is undertaken by many larger organizations in most countries. ABS has developed a specific product, CDATE released on CD ROM, that puts this capacity within the reach of a wide range of organizations that may lack the budget and/or technical know how to undertake this task themselves. CDATE brings together census data, statistical boundary data, mapping data, a fully functional GIS and an easy to use interface that allows relatively inexperienced users to begin on a road of discovery. CDATE has been enormously successful in making census data relevant to the business needs of second tier businesses, and regional and local authorities many of whom would not have envisaged using census data. Particular applications are determining location of services or by combining the census data with the organizations own data, identifying gaps in market or service delivery. CDATE was first released following the 1986 Census. Demand exceeded our expectations even though the price was relatively high. It was the first CD ROM product in Australia and played a major role in introducing the technology to Australia.

C. Extending the analysis of census data - engagement with the academic community

21. The Australian Bureau of Statistics undertakes a number of initiatives to extend the use of census data within the academic community through facilitating analytical research.

22. ABS is a partner with several universities that seek funding from the Australian Research Council to undertake research projects or build research capability. The projects involved are major pieces of research lasting typically around three years. The ABS contribution is in the form of access to special census tabulations and advice. Of particular note is the work on small area modeling of income and expenditure undertaken by the National Centre for Social and Economic Modeling at the University of Canberra that has now been taken up by a number of government departments as part of their policy formulation processes.

23. The Australian Census Analytical Program (ACAP) provides for more focused analytical research on specific topics. The topics are selected by the ABS after seeking expressions of interest from the academic community. A notable success has been in measures of homelessness that are now widely accepted. The census is not able to fully measure this concept directly - but the researchers have been able to supplement the census data with data derived from administrative sources.

24. ACAP will be further upgraded following the 2006 Census. A major research conference will be held this coming July to explore how the Census data can be used more extensively for research and analytical purposes. It will also explore how the ABS can best assist within the constraints of funding and confidentiality provisions.

D. New prospects for 2006 Census

Improved and expanded dissemination options

25. The ABS has released its strategy for census dissemination for the 2006 Census. The main feature of this strategy is upgraded web dissemination. The aim is that, unlike previous census products, users will not need to know in advance about the census or how the census data are stored to get the information that they need. People will be able to use either geographic hierarchies or maps or an actual street address to determine the geography of interest. The data can be displayed in tables, mapped and graphed and downloaded into the user's own spreadsheets or software packages.

26. ABS will be providing for on line tabulation of the census unit record file data. In order to maintain the confidentiality of the data standard ABS perturbation routines will be applied to the census output and there will be restrictions on the complexity of the tables that can be produced from this service.

27. More details of the 2006 Census strategy can be found in Information Paper: 2006 Census of Population and Housing, ABS Views on Census Output Strategy (cat no. 2009.0) and Information Paper: 2006 Census of Population and Housing, Proposed Products and Services (cat no. 2011.0). Both publications are available from the ABS web site (www.abs.gov.au).
Neighbourhood statistics

28. ABS has plans to facilitate access to data for communities and neighbourhoods. The facilities that are being built for the dissemination of the census data may also be used to disseminate a wide range of community level data. The census community profiles will be brought together with a range of data from other sources to produce a comprehensive set of readily accessible statistics for neighbourhoods. This will not only extend the range of data available at the community level, it will provide statistics for these communities for the period between the censuses.

Mesh blocks

29. For the 2006 Census, the ABS will be coding the census data to mesh blocks. These are designed to have a minimum of thirty dwellings (compared to an average of 220 dwellings for the current enumeration areas) and their boundaries will not be tied to collection boundaries. This will improve the flexibility of ABS statistics by increasing the granularity of the statistics. Associated with this is the encouragement of mesh block coding by other government organizations of their administrative data. The aim is to expand the range of data that is available and to ensure that the data is on a comparable geographic base.

30. The value of this initiative will be enhanced by being able to overlay mesh block based statistics with digitised geography. We are still exploring how to best do this.

Census Data Enhancement

31. This consists of two separate initiatives: the creation of a statistical longitudinal census data base (SLCD) of a five percent of the population commencing with the 2006 Census; and undertaking quality studies that will involve the matching of survey or administrative records with the census records during census processing.

32. The SLCD will involve the matching of the records of five percent of the population from the 2006 and subsequent censuses. This matching will be done using statistical methods based on those characteristics of the population that either do not change (e.g. date of birth) or change in predictable or known ways (mesh block of usual residence). Individual name and address information will not be retained by the ABS or used in any way in the matching process. The aim of the creation of SLCD is to have a better means of understanding how current conditions might be related to past situations: for example, how current employment might be related to past family experiences or health outcomes related to previous occupations. Obviously the value of the SLCD lies in the future as data from the 2006 Census is linked with future censuses.

33. Privacy considerations have had a substantial influence on these arrangements. We went through a public consultation process and there was a real tension between the wishes of the research community and privacy advocates which we had to manage. The proposed strategy was determined after an independent Privacy Impact Assessment.

34. The SLCD will be further enhanced by statistical matching with other selected data sources available to the ABS such as births and deaths records, and immigration records.

35. The quality studies involve the linking of administrative and survey data with the 2006 Census data but using name and address. In order to protect the confidentiality of the census data, this will only be undertaken during census processing and no name and address records will be kept by the ABS once census processing is completed. Examples of possible uses of data from these studies include obtaining a better measure of Indigenous mortality; understanding the characteristics of non respondents for surveys and improving the population estimates by measuring the quality of usual residence responses in the census by comparing these to the immigration records for certain mobile populations (e.g. overseas students).

IV. CONCLUSION

36. Whilst the value of the census cannot be easily quantified, the electoral, fiscal, planning, policy and evaluative uses of the data make censuses indispensable for the proper governance of Australia. It is also potentially a valuable asset for the community as a whole but this depends on Census data being packaged in a way that it is accessible to the community. For the 2006 Census, the ABS is further enhancing the value of the census by improving accessibility to census data through better web facilities, implementation of mesh blocks and the Census Data Enhancement initiative.

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