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Australian Census Issues*

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BACKGROUND

1. Australia conducts a census every five years. It is a drop off/pick up (or list/leave) census. All people in Australia on census night are required to complete a form for the place where they were at that time. (The official population estimates are based on census usual residence counts, adjusted for underenumeration and a count of Australian residents overseas on census night from data supplied by the Department of Immigration, Multicultural and Indigenous Affairs).
2. Australia has a "long form" census, with no "short form". For the 2001 Census, data capture and coding was batch processing using Optical Character Recognition and Automatic Coding (OCR/AC). Computer assisted coding from images (as distinct from data capture) was used for those responses which could not be reliably captured by OCR/AC.
3. Data for 80% of all variables were released within eleven months of census date, with data for the remaining variables available within fourteen months after census day. Dissemination was increasingly focused on the internet.

I. ISSUES FOR AUSTRALIA

A. Census content: disability/unpaid work

4. Australia conducts a survey, approximately every five years, on disability. This survey provides reliable data at the national and state level on the incidence of disability. However, there is a need for disability data for smaller geographic areas in order to undertake planning and location of services. The Australian Bureau of Statistics (ABS) conducted an extensive program of question development and testing in the lead up to both the 1996 and 2001 Censuses to devise a question that would provide reliable data on disability. The question testing yielded large numbers of false positives and negatives and this topic was excluded from these censuses.
5. Consultation with users since 2001 has determined that the priority small area data requirement was to identify those disabled people who needed assistance with activities such as self care, mobility and communications. Testing of possible questions indicated that while false negative responses remain high, false positive responses were negligible. Evaluation of the data on need for assistance with activities such as mobility and communications has shown a high level of correlation between the census test and the Survey of Disability, Ageing and Caring findings.
6. The ABS was requested by the Australian Prime Minister, after the 2001 Census, to consider the inclusion of a question on unpaid work in the 2006 Census. The ABS considers that a comprehensive time use survey is the best vehicle to collect reliable data on unpaid work activities. Such a survey is scheduled for 2005.
7. Consultation with users has established a need for small area data on unpaid carers (for children other than one's own and for the disabled). ABS will recommend the inclusion of a question on carers in the 2006 Census. As the census form will need to be increased in size to include this topic, the ABS will also seek additional funding from government.

B. Use of internet in censuses

8. The ABS has identified the following issues with the incorporation of internet forms into a "drop off/pick up" census:

- a. Operational and collection control issues: integrate an electronic form into the "drop-off/pick up" methodology used in Australia for the conduct the census;
- b. Technical issues: useability, security, volume and mode effects on responses; and
- c. Cost

a. Operational and collection control issues

9. Increased flexibility in return of forms will increase the possibility of both people and dwellings being missed or counted more than once. This risk is higher in Australia as there is no comprehensive address file which can be used for collection control purposes. People in a range of different situations, such as in group households or non private dwellings (e.g. hotels/hospitals etc) may also wish to use electronic lodgement of their census form. Close to real time management information will need to be supplied to collectors to avoid them contacting households which have already returned a form. This is to avoid public relations issues as well as reduce the possibility of duplicate forms being generated.

10. The collector record book will remain the key to ensuring collection control within the Australian census. The collector lists each dwelling during enumeration (including address information) and allocates a census reference number (CRN) to that dwelling on the delivery of the census form. The CRN will be required by the householder to use electronic return. The ABS is investigating the use of mobile phone technology (SMS messaging) to supply the last three digits of the CRN of those forms which have been received, whether electronically or by mail, back to the collector. This should reduce the likelihood of collectors visiting dwellings which already have sent a form. This technology will also allow, for the first time ever in Australia, the ability to follow up on those households who claim to have returned a form, either by internet or mail, and to monitor collection processes more accurately while collectors are still in the field.

b. Technical issues

11. The electronic census form will need to be useable, not only in terms of user friendliness of the actual form but also in terms of ability of people to deal with technical issues in accessing the form. There is also the requirement that disabled people can use the form. The electronic form needs to be kept secure as it is accessed through the internet and stored. ABS systems need to have the capacity to handle the number of people who may wish to access the form at any one time during census operations. The mode effects of an electronic form to a paper form need to be understood and measured.

12. The ABS is undertaking a tender process to engage a supplier to provide the software and infrastructure for the internet form. To date, the ABS for testing purposes has been able to develop an electronic form and the associated infrastructures that users have found to be easy to use. This involves users logging on to an ABS website and completing the form on line. Many users have had great difficulties with downloadable forms and the ABS has decided not to pursue this option for 2006 Census.

13. An electronic form opens up the possibility of introducing on-line editing. The current thinking is to keep this to a minimum, and only use sequence editing (skipping people past questions which they do not need to answer on the basis of previous answers supplied) and for confirming key fields such as sex and year of birth. This will keep the form in line with the paper form, keep server load and down load size to a minimum and possibly reduce modal bias.

14. Current technologies allow the securing of the communication links and data through the use of encryption. As well, the completed form will be moved behind the ABS firewall as soon as possible. There will be a number of issues which will need to be raised with any successful contractor, such as the physical security of the premises and computers and servers used in this operation.

15. ABS is asking possible contractors to provide quotations on a number of scenarios with respect to volume and scalability. Experience from the 2001 Census has shown however, that volume can be easily regulated through procedures - whether it is made easy for people to use the internet.

c. Cost

16. Offering the internet as an option is likely to increase the costs for censuses being held in the next two to three years. While over half of Australian households can access the internet from home, only around 5% have used the internet to return their census forms in census tests. One of the biggest obstacles is that the paper form is very easy and quick to complete. With such a low take-up there are limited possibilities to reengineer census processes to take advantage of electronic forms. All of the infrastructure required for a traditional census will need to be in place in addition to the infrastructure for an electronic census.

C. Collection issues

17. The 2001 Census saw a substantial increase in the gross error of the Australian census over the 1996 Census. While the final net underenumeration rate remained at 1.8%, there was an increase in both under and over enumeration and a doubling of the proportion of "non contact" households (households considered by the collector to be occupied on census night and for which no form was obtained).

18. Further analysis of the Post Enumeration Survey results (PES) has supported the anecdotal evidence that there were problems in enumerating inner city areas of large cities (populations over a million). However, unexpectedly, the analysis has also shown that the underenumeration

rate was high in large population centres of between 50,000 to 250,000 (e.g. Wollongong, Albury-Wodonga, Cairns etc).

19. New strategies are being put in place for inner city areas and to undertake more intensive follow up of "non contact households". An additional high priority issue is the enumeration of Indigenous peoples, particularly those living in traditional communities.

a. Inner city areas of large cities

20. In inner city areas, there were reports of problems of accessing apartments with high levels of security and difficulties in recruiting staff in these areas, because of the high employment levels. The numbers of these have increased dramatically over the last five years. The following strategies are being considered for implementation in 2006 Census for these areas:

- A redeployment of ABS Regional Office resources from mapping and enumeration area design work in the lead up to the census to identifying these areas and developing appropriate strategies.
- Management from the ABS Regional Office census management unit of the enumeration for these areas.
- A reduction in the number of dwellings in the collector workload for these areas to allow more intensive follow up.
- The use of mail back (and internet) rather than pick-up as a first choice for the return of forms.

b. Non contact follow-up

21. More intensive follow-up of households that do not supply a census form by mail is planned. This has been made possible by the planned implementation of a new means of communicating with field staff using mobile (cell) phone technology as detailed above. Householders who have claimed that they have either completed an electronic form or mailed a form back but have not done so will be followed up by census collectors. More direct messages will be provided about the legal obligations of completing a census form.

c. Indigenous Australians in traditional communities

22. Australia has two distinct Indigenous peoples - Aboriginals and Torres Strait Islanders. At the time of the 2001 Census, there were about 370,000 Aboriginal people, 30,000 Torres Strait Islander people and 20,000 people who were both Aboriginal and Torres Strait Islander, all together about 2% of the Australian population. While most Indigenous people live in urban settings, there is a significant proportion of the population who still live in traditional communities.

23. Indigenous people in traditional communities are of considerable policy interest and the census is one of the few sources of statistics for this population group. Census based estimated resident population figures are used nationally to allocate federal funds and for determining

representation in the federal parliament and within the states and territories for planning local services. They are of particular importance to the Northern Territory, as around twenty percent of the population live in these communities. Issues include methods used for counting Indigenous people in traditional communities, independently measuring the quality of the census count and the adequacy of the current population measures for policy and planning purposes.

24. Enumerating Indigenous people living in communities presents many challenges. Within the Aboriginal community there are numerous distinct languages and cultural groupings. As well, the population is highly mobile moving between communities and into urban areas for varying periods of time and for different purposes. Census operations have to adapt around customary law and religion. An example is "sorry business", a period of mourning associated with a death in the community. ABS enumeration strategies are based around the engagement of the local community and people in the census count. Generally, ABS receives high levels of cooperation (and indeed enthusiasm) for the census. For the 2001 Census (unlike 1996 and 1991), the ABS was able to undertake the census in all Aboriginal communities. Enumeration is undertaken by interview, with one collector for every ten households. Various quality assurance points are implemented during field operations to ensure complete enumeration.

25. ABS has not been able to independently check the quality of census enumeration in these communities. Demographic analysis, in particular, age cohort analysis, shows that a small proportion of the population is being missed, especially very young children and young adult males. However, this technique is not entirely independent of the census, except for young age groups, where the analysis is based around comparing birth registrations data with current census counts rather than previous census counts.

26. Because of the intensity of effort put into the census enumeration, all the available people within a particular community who could undertake a Post Enumeration Survey (PES) have already been used for the census. As a PES would also have to use local people, it may not be possible to secure independence between census operations and PES.

27. Administrative data in Australia that could be used for comparison or validation purposes is of variable quality and suffers from duplications and omissions. This is particularly the case with respect to Aboriginal people. In many communities, a name can no longer be used on the death of a person who has that name. Other people sharing the name must also change their names. Multiple registrations may result. As well many Aboriginals have multiple names used for different situations.

28. ABS is examining the possibility of using a "reverse record check" method for assessing the quality of the count in these communities.

29. Many of the issues raised by users are challenging the concept of census derived usual resident based population estimates as the prime or only population figure for an area. Anthropological research has indicated that Aboriginal people have high mobility through an established network of kin and community relationships which is not fully reflected in the census figures. Analysis of 2001 Census data with other data indicates that many Aboriginal people might be providing the address of where they were enumerated as their usual residence rather

than what is more likely to be their usual residence address. While this has little impact at the state or territory level, it impacts on population estimates at the community level. A proposal under consideration for 2006 Census is asking basic demographic information about people who may normally live in the community but are not there at census time and publishing these as a supplement to the other population measures.

D. Dissemination issues

30. For 2001 Census, ABS continued with a range of products and services that had remained largely unchanged since 1991. These products included the most popular product in terms of volume: the community profiles (a standard set of tables for every geographic area, including enumeration area, in Australia), a CD ROM GIS product, CDATEA2001, which brought together the community profiles data, a Mapinfo based GIS application and mapping data, plus a range of publications. A major change however, was in the means of access. Nearly all community profile data was accessed via the internet rather than in hard copy or other electronic media.

31. While overall, this range of products appears to have met the needs of data users, it did not fully capitalise on the opportunities presented by the internet. This was particularly the case for inexperienced data users. The 2006 Census dissemination strategy will be largely based around internet access to the data and will better exploit the capabilities of the internet. Greatly improved search facilities will enable users to get the data they need without requiring them to have extensive understanding of the census. ABS is exploring the possibility of providing expert users with the facilities to directly generate their own tabulations from the census unit record file. Various technical and other protocols will be in place to ensure that any tabulations do not compromise the confidentiality of the data.

32. The ABS does not plan to produce a full scale GIS version of CDATEA for 2006 Census. An internet version of this product will be made available which will provide basic mapping functionality. It is expected that the private sector will provide products that will cater for those organisations with advanced GIS capability.

33. For 2006 Census, ABS will provide data at a new level of geography: the mesh block. The mesh block will consist of around fifty dwellings. This finer level of geographic disaggregation will be welcomed by users who have great expectations as to the amount and detail of data they may be able to obtain. However ABS has not yet determined the data that can be safely released for individual mesh blocks or the methods that might be used to ensure that confidential data are not released through client specified tables.

E. New data sets

34. The 2006 Population Census provides an opportunity to establish the basis of a longitudinal data set from successive censuses, and/or to link census and other data sets for statistical purposes. For example, a longitudinal census dataset would allow research on change over time and the impact that past factors may have in contributing to current or expected future circumstances, across sub populations of interest (e.g. Indigenous people, migrants, aged, etc) and across topics, such as mobility, that interact with several areas of concern.

35. The ABS is currently testing overall public reactions to data linking and investigating possible protocols that might be established to protect confidentiality of the data and maintain the confidence of the public. A final decision whether to go ahead is expected by May 2005.

36. The ABS will not proceed with any linking exercise if there is a risk that it may jeopardise the success of the census. That is, testing must clearly show that there is community support for developing such datasets, and that respondents will still complete the census form if such linking is to proceed. The linkage is also dependent on additional budget being provided to fund the proposal.

37. Data linking is not being considered for census data collected prior to 2006.

II. ISSUES FOR AUSTRALIA AS A COUNTRY PROVIDING TECHNICAL SUPPORT

38. Listed below are some issue for Australia as a country providing technical support:

- a. The United Nations Handbooks on various aspects of the census are indispensable tools for technical support. These provide a common agreed international framework for censuses and ensure that consistent approaches are being adopted across a range of agencies and/or countries that might be providing the support. These handbooks should be updated for the 2010 round to reflect the learnings from the 2000 round and to take into account technological and other changes. The United Nations Handbooks deal extensively with overall census operations, geographic issues and processing. While dissemination issues are covered in the handbooks, this aspect of the census merits a handbook by itself.
- b. Technical support is often provided in an haphazard and uncoordinated manner. The lead United Nations agency is often the United Nations Population Fund (UNFPA) which has its own statistical agenda. Better coordination should be attempted with, ideally, the United Nations Statistics Division (UNSD) through Regional Commissions taking a leading role. As well as benefiting the recipient countries, donor countries will be able to plan in advance for assistance.
- c. Some countries need more than short term advisory services. Provision should also be made for the longer term deployment of experts as part of the census project team.
- d. The focus of any assistance, whether in the form of short-term technical advice or long term deployment of technical experts, should be on capacity building in the recipient country.
- e. With statistical offices at different stages of development, it is difficult to conduct workshops, expert groups, etc that are relevant to all interests. There is a benefit of working through the Regional Commissions. The countries tend to be more similar in their interests and needs, and it keeps the number of countries to more manageable levels.