

Valuing the Australian Census

27 August 2019



Overview

Background and Structure

In May 2019, the Australian Bureau of Statistics (ABS) commissioned Lateral Economics to estimate the value of the benefits Australia gained through the use and application of data from the Census of Population and Housing (the Census). The ABS was assiduous in insisting that the work be independent and, while it was extremely helpful to us in our research, made no attempt to influence our judgements.

This report discusses the benefits of the Census in three categories:

1. Major uses of economic value;
2. Minor uses of economic value (what we have called ‘the long tail’); and
3. Predominantly non-economic uses.

As with similar studies elsewhere, most of our effort has involved providing an indicative valuation of the first category of benefit. An economic value has been imputed to the second category more summarily.

The value of the third category cannot responsibly be quantified, but is of major significance. The Census provides politically independent informational infrastructure that helps safeguard the integrity of our federal system of government and thus the capacity of Australia’s democracy to represent its people fairly.

Our process

Our process has been:

- desktop research (UK and NZ studies on the value of a Census, ABS resources on the Census, websites and reports documenting the uses of Census data, etc.);
- engaging widely within the ABS, including with members of the senior executive;
- speaking with a broad range of stakeholders (45+), in the public, private, and NGO sectors across Australia and internationally (see Appendix A for more detail), including:
 - Federal government policy and program areas,
 - State government policy and program areas,
 - Private sector firms and industry groups,
 - Academics, and
 - Office for National Statistics, UK.



- seeking feedback on key issues in valuing the Census and on the uses of Census data in Australia via four articles in the public domain that were published on the *Mandarin* website; and
- engaging with Australian National University (ANU) Emeritus Professor Bob Gregory, who provided peer review.

Our framework and methodology

Building on methodologies employed in previous officially commissioned studies in New Zealand and the UK,¹ we calculate the value of the Census by comparing it to a world in which the Census ceases being compiled and as a result, those currently using the Census make use of the next best existing alternative data series obtainable.²

This was consistent with the methodology of earlier studies in the UK and New Zealand, so it facilitates comparison. Further, the specification of an alternative scenario in which, over time, alternatives to the Census were developed, would have been a considerable undertaking, only possible in close collaboration with ABS and other stakeholders. Not only was this quite unrealistic given the resources and time available for this project, but the right place for such a project would be in the context of much wider strategic considerations for the ABS and Australia's data services.

It should be recognised that this counterfactual was explored by us as an analytical construct rather than a practical option being considered by us or the ABS. While statistical agencies worldwide are exploring ways in which Census-equivalent data could be generated, the ABS made it clear to us that there are no plans to change the nature of Census taking in Australia by, for example, moving away from the current 5 yearly Census model.

¹ Bakker, C., 2013, *Valuing the Census: A Report prepared for Statistics New Zealand which quantifies the benefits to New Zealand from the use of Census and population information* and ONS, 2011, *2011 Census benefits evaluation report*.

² This might include the ABS's survey-based official statistics, or market research data, or many other sources of administrative or non-official data. Alternatives will obviously vary by issue and use, and not all alternative data will be available to all people (for example, due to commercial or confidentiality restrictions) or be easy for them to understand and/or use.



Major quantifiable benefits

In our analysis, a widely reported benefit of the Census is more accurate Estimated Resident Population (ERP) figures at the small area level. If the Census was terminated, the ABS would continue to produce ERP estimates, but their accuracy would degrade without Census revisions.

As illustrated in Figure 1 below, we group major quantifiable value into five categories, albeit with some cross over between them:

1. Services planning and targeting
2. Infrastructure planning and targeting
3. Improved policy design
4. Other commercial uses
5. Public goods

Across these categories, Census data contributes to a vast range of government policy and private sector investment decisions in numerous sectors. Census data is also baked into funding formulas and allocations in government (including funding to States and Territories and subordinate bodies) or in resource planning models and systems.

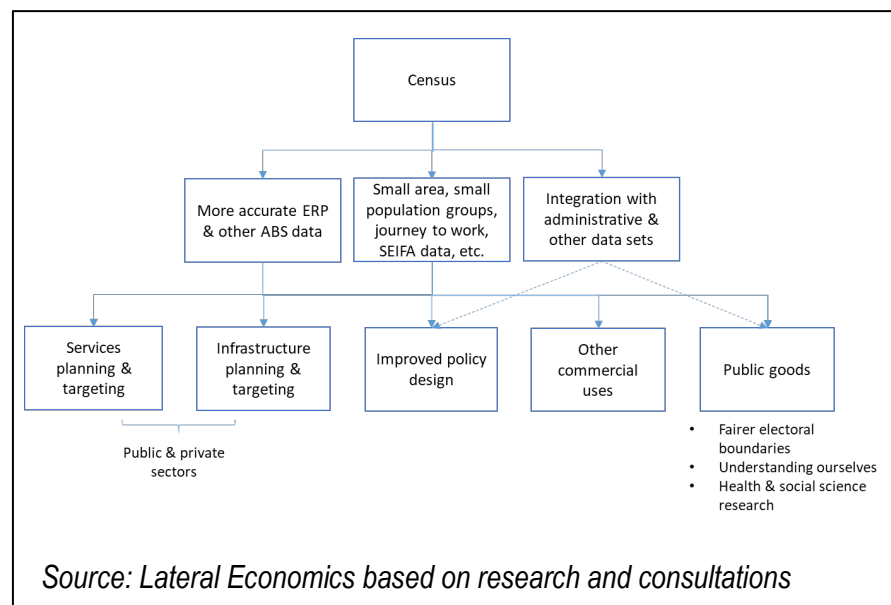
Public sector agencies – particularly state agencies relying on the Census to understand small areas and disadvantaged groups – have built up a vast array of models to inform their service delivery and infrastructure decisions based on the five-yearly Census data.

Demographers and social researchers have come to rely on the Census as invaluable and very difficult to replace. As one leading social researcher, Mark McCrindle, noted, “It holds up a mirror to our society.” Particularly in an age of social media, it helps bust myths about numerous questions of public interest, and hence improves the quality of public debate.

The Census’s comprehensiveness and accessibility makes it influential in commercial and other sectors seeking to understand the size and nature of markets. This influences numerous locational and other resource allocation decisions.



Figure 1 – Flow chart of Census value streams



Minor quantifiable benefits

Though it is impracticable to estimate each of the 'long tail' of Census uses directly with any kind of precision, their aggregated benefit could be high for several reasons.

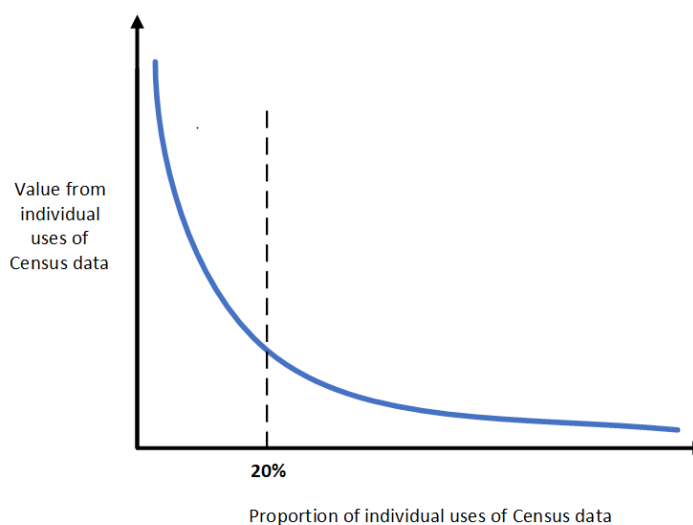
- the Census is highly accessible to non-specialist researchers and users
- Census-related data is used with great frequency whenever anyone seeks to describe or understand aspects of small Australian communities or geographies.
- While many of these uses would be of low and very low value, some would be used in research which could give rise to new knowledge (and/or greater confidence in existing knowledge) of unpredictable and sometimes considerable value.

We assume, somewhat arbitrarily that the long tail generates 25% of the value of other uses, though we think this is conservative. It could easily be several times this figure.³

³ This may be justified by the so-called 80-20 rule first articulated by the Italian economist Vilfredo Pareto who documented his surprising discovery of a range of economic distributions following a power law. As he showed in a range of countries, approximately 80% of the land was owned by 20% of the people. If this relationship holds, the benefits arising from the 80% of (more minor) uses will generate around a quarter of the value generated by the 20% of major uses which we have quantified.



Figure 2 – Stylised illustration of a long tail relationship



Benefits, Costs and Net Benefits

Table 1 presents indicative estimates of the gross annual value of Census-related data according to the methodology described above. We estimate around \$666 million of gross annual value in total. Adjusting this by an additional 25% to take account of the 'long tail' provides an annual estimate of over \$800 million. It should be considered indicative rather than definitive, given the assumptions that were necessary to generate the results.

Against these estimated benefits, we estimate the Census has an economic cost of around \$670 million every five years. This comprises:

- the direct resources utilised measured by the budgetary cost;
- a deadweight loss associated with the ABS' taxpayer-funded costs; (this was not included in either the analyses of the costs of UK or New Zealand Censuses.)
- the time used by Australian households to complete Census forms, whether in paper or online. (The UK study did not appear to account for this cost.)

Our more comprehensive accounting for costs makes our ultimate calculation of the benefits of the Census relative to its costs more conservative than the previous NZ and UK studies. Our methodology of progressive deterioration in the accuracy of ERP estimates based on the declining timeliness of census data is also conservative, as it is based on the data point we have, which is the inaccuracy of five-year-old census data. As it gets older, its quality would deteriorate further.



Conclusion

Our estimates suggest the benefits of running the Census easily outweigh its costs in the order of \$6 of economic value for each \$1 it costs. On this reckoning, the cost of the Census would have to rise to six times its current cost – to around \$3 billion every five years – before it started to become cost ineffective.

This is before accounting for unquantifiable benefits associated with improving the fairness and integrity of our democracy and government.

However, we did encounter some evidence that the value of the Census can be increased further at minimal cost. For example:

- the potential value from linking Census data to administrative data sets is only beginning to be realised and holds immense potential. (In other work for the Population Health Research Network, Lateral Economics concluded that data linkage generated over \$16 for every dollar invested).⁴
- though the issue was outside our brief and we did not investigate it, some experienced users argue that there remains substantial room for the ABS to make its data more widely available with negligible increase in the risks to privacy.
- there may be ways to reduce costs associated with the development of Census-equivalent statistics, including relying less on the general public to answer questions every five years.

⁴ Lateral Economics, 2017. "The impact of the Population Health Research Network (PHRN), at <https://lateraleconomics.com.au/output/the-impact-of-the-population-health-research-network-phrn/>



Table 1 – Summary of economic benefits and costs over five years

Category	Sub-category	Indicative annual estimate	Indicative five-year estimate
Value/Benefits			
Services	Health	\$34 million	\$170 million
	Education	\$40 million	\$200 million
	Transport services	\$4 million	\$20 million
	General public services	\$49 million	\$245 million
	Public order and safety	\$22 million	\$110 million
	<i>Sub-total</i>	<i>\$149 million</i>	<i>\$745 million</i>
Infrastructure	Health	\$103 million	\$515 million
	Education	\$48 million	\$240 million
	Transport and utilities	\$129 million	\$645 million
	Utilities	\$82 million	\$410 million
	Housing	\$54 million	\$270 million
	<i>Sub-total</i>	<i>\$417 million</i>	<i>\$2,085 million</i>
Locational decisions and market research	Other commercial capital and operating	\$100 million	\$500 million
<i>Sub-total</i>		<i>\$666 million</i>	<i>\$3,330 million</i>
Adjustment for a 'long tail'	Further 25% to take account of additional uses across community	\$166 million	\$830 million
Total Value		\$832 million	\$4,160 million
Costs	ABS direct costs		\$500 million
	Deadweight loss		\$100 million
	Household costs		\$70 million
Total Cost			\$670 million
Net Benefit			\$6 of economic value for each \$1 of costs

