CENTRE FOR ABORIGINAL ECONOMIC POLICY RESEARCH

THE AUSTRALIAN NATIONAL UNIVERSITY

The Scale and Composition of Indigenous Housing Need, 2001–06

N. Biddle

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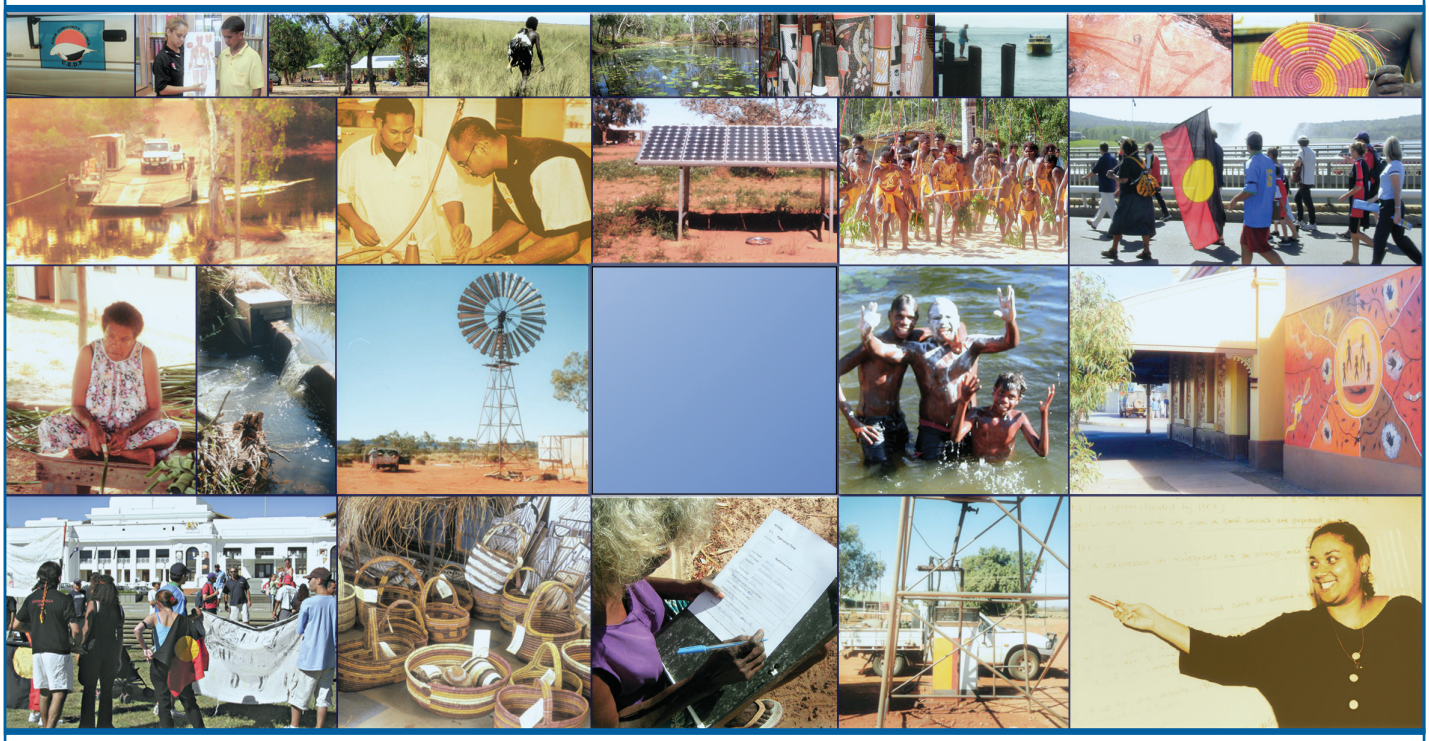

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Enquiries may be directed to:

The Centre for Aboriginal Economic Policy Research
Hanna Neumann Building #21
The Australian National University
Canberra ACT 0200

Telephone 02–6125 0587
Facsimile 02–6125 9730

Professor Jon Altman
Director, CAEPR
College of Arts & Social Sciences
The Australian National University
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Ministerial Council for Aboriginal
and Torres Strait Islander Affairs

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The scale and composition of Indigenous housing need, 2001–06

N. Biddle

Nicholas Biddle is Research Fellow at the Centre for Aboriginal Economic Policy Research, College of Arts and Social Sciences, The Australian National University.

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ABSTRACT

This paper sets out to document the scale of Indigenous housing need as recorded in the most recent (2006) Census at a regional level and how this level of need changed between 2001 and 2006. What the results show is that the issue of Indigenous housing presents two challenges for government: catch-up and keep-up. Regarding 'catch-up', using an internationally recognised occupancy standard, the Indigenous population is still experiencing substantial overcrowding with the percentage living in overcrowded households 4.8 times that of the non-Indigenous population. While the level of need is greatest in remote regions, to reduce the disparity between the two populations it is in capital city regions where the greatest number of houses would be required. There have been some improvements in absolute terms using a related measure since 2001, but the gap with non-Indigenous Australians is widening. Population growth presents the other dilemma in meeting Indigenous housing need—that is, the challenge of keeping-up.

Keywords: Indigenous housing need, regional change, 2006 Census.

CAEPR INDIGENOUS POPULATION PROJECT

This project has its genesis in a CAEPR report commissioned by the Ministerial Council for Aboriginal and Torres Strait Islander Affairs (MCATSIA) in 2005. The aim of the paper (published as *CAEPR Discussion Paper No. 283*) was to synthesise findings from a wide variety of regional and community-based demographic studies. What emerged was the identification of demographic 'hot spots'—particular Indigenous population dynamics in particular regions that give rise to issues of public policy concern. These trends spatially align with specific categories of place that transcend State and Territory boundaries. The 'hot spots' coalesce around several structural settings including city suburbs, regional towns, town camps, remote Indigenous towns, and outstations, as opposed to the more formal regionalised or jurisdictional spatial configurations that have tended to guide and inform Indigenous policy development.

Recognising that the structural circumstances facing Indigenous populations are locationally dispersed in this way, MCATSIA has established an enhanced research capacity at CAEPR to further explore the dynamics and regional geography of Indigenous population and socioeconomic change.

This research activity commenced in late 2007 and is constructed around four discrete yet overlapping projects:

- a detailed regional analysis of relative and absolute change in Indigenous social indicators
- an assessment of social and spatial mobility among Indigenous metropolitan populations
- case-study analyses of multiple disadvantage in select city neighbourhoods and regional centres
- the development of conceptual and methodological approaches to the measurement of temporary short term mobility.

Working Papers related to these projects are co-badged with MCATSIA and released as part of the CAEPR Working Paper Series. It should be noted that the views expressed in these publications are those of the researcher/s and do not necessarily represent the views of MCATSIA as a whole, or the views of individual jurisdictions.

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EXECUTIVE SUMMARY

1. This paper updates the evidence on the housing situation of Indigenous Australians using a regional approach and examines how some of the outcomes changed between 2001 and 2006. More specifically the paper looks at variation across aspects of overcrowding, housing tenure, the structure and condition of the housing stock, and housing affordability. In summary, the issue of Indigenous housing presents two challenges: catch-up and keep-up.

2. Across Australia, Indigenous Australians are almost five times as likely to live in a dwelling deemed to require extra bedrooms than a non-Indigenous Australian. Remote Indigenous Australians continue to experience the greatest rates of overcrowding. In terms of the number of dwellings requiring additional bedrooms, however, it is in the major cities where the absolute numbers are highest.

3. Between 2001 and 2006, there was a 6.9 per cent fall in the percentage of the Indigenous population who lived in a dwelling with more than one person per bedroom. Over the same time period, the percentage of the non-Indigenous population who lived in such households declined at a faster rate than for the Indigenous population leading to a slight increase in the ratio between the two populations (from 1.74 to 1.78 at the national level).

4. There is a significant positive association between the change in the rate of overcrowding in an area and the corresponding net migration rate. There is no significant association between the rate of net migration for the non-Indigenous population and changes in the rate of overcrowding for the Indigenous population. The Indigenous and the non-Indigenous populations appear to be accessing very different segments of the housing market.

5. There is as much if not more variation across Indigenous Regions for the Indigenous population as there is between the Indigenous and non-Indigenous population in terms of housing tenure. In nine of the Indigenous Regions, over 40 per cent of Indigenous households are either owned or being purchased by residents of the house and in a further 10 regions home ownership is still the predominant tenure type. There are a further two regions, Brisbane and Cairns, where private rental is the most common form of access to housing for Indigenous households. Of the remaining 26 Indigenous Regions, there were seven that had over half of Indigenous households renting from a community organisation. Two of these were in Western Australia with the remaining five in the Northern Territory.

6. Between 2001 and 2006, there was a 9.3 per cent increase in the Indigenous population who lived in a dwelling that they owned or were purchasing. Furthermore, the percentage for the non-Indigenous population stayed roughly the same, leading to a substantial reduction in the disparity between the two populations. However, the ratio of Indigenous and non-Indigenous percentages at the national level is still quite low (0.39). In all regions, despite larger households on average, Indigenous households lag behind other households in most measures of affordability. Ultimately, until the socioeconomic status of the average Indigenous household is raised sufficiently, the prospect of home ownership will remain an unattainable goal for many Indigenous households.

7. There is a clear back-log in sufficient functional dwellings to meet the needs of Indigenous Australians in discrete communities. At the current rate of acquisition, it would take almost 23 years to reduce the effective occupancy rate from the current 6.8 people per dwelling to 3.4 people (the national average for the Indigenous population). If the current population growth rate held over the 23 years estimated to meet the identified backlog, then an additional 22,556 dwellings would be required just to keep up with population change.

INTRODUCTION AND OVERVIEW

Where people live is a good predictor of a range of socioeconomic outcomes. There is a large and growing literature that suggests that factors like education, labour market outcomes, income, health and crime victimisation are influenced by, or at least associated with, a person's area or neighbourhood level context (see Durlauf 2004 for a summary). Given the concentration of Indigenous Australians in remote parts of Australia, regional towns (ABS 2008) or poor city neighbourhoods (Taylor 2006), an appreciation of spatial patterns can yield important insights into the outcomes of Indigenous Australians and how they are changing through time.

The regional distribution of the Indigenous Australian working age population and how this related to labour market outcomes has recently been examined (Biddle, Taylor & Yap 2008). This analysis showed quite substantial variation across 37 Indigenous Regions in terms of the level, composition and outcomes of employment. A number of remote Indigenous Regions had relatively high levels of employment, though this was often explained by the Community Development and Employment Projects (CDEP) scheme. Related to this, employment in full-time, private sector jobs was concentrated in cities and to a lesser extent regional areas. There was also diversity when comparing results across the last inter-censal period, especially when looking at outcomes relative to the non-Indigenous population in the regions.

As with labour markets, housing markets also show distinct regional patterns. Substantial variation has been shown across Australia in terms of housing affordability and the level of overcrowding and homelessness that the Indigenous population face (National Centre for Social Applications of Geographic Information Systems (GISCA) 2003). Sanders (2005) showed that the patterns of housing tenure varied between urban, suburban and regional Australia on the one hand, and remote and very remote Australia on the other. In particular, in 2001 home ownership and private rental were the predominant tenure types in cities and regional areas, whereas 61 per cent of households that contain an Indigenous person in very remote Australia were renting their houses from community organisations.

The level of housing need for the Indigenous population is of course complex and multifaceted. There is a high degree of interaction between the dimensions of need endorsed by the Standing Committee on Indigenous Housing (SCIH) with one level of need often being a cause or consequence of another (Australian Institute of Health and Welfare (AIHW) 2005). For example, homelessness may be a response in part to high levels of household overcrowding which is in turn related to access to economic resources and affordability. The other two measures of need, dwelling conditions and connection to essential services, are likely to impact on the health and socioeconomic status of occupants.

Unpacking the causal pathways and interactions is beyond the scope of this paper. Instead, the focus here is on updating the evidence on different aspects of the housing situation of Indigenous Australians separately and examining how some of the outcomes changed between 2001 and 2006. I use a regional approach and distinguish between absolute and relative need. More specifically I examine variation across aspects of the following:

- housing utilisation and overcrowding
- housing tenure
- the structure and condition of the housing stock, and
- household income and housing costs.

The data and geography used in this series are outlined in more detail in Biddle, Taylor and Yap (2008). In this paper, 2001 and 2006 Census data are used to focus on those who identify as being Indigenous (Aboriginal, Torres Strait Islander or both) and making comparisons with those who identify as being non-Indigenous.

ABS: Australian Bureau of Statistics

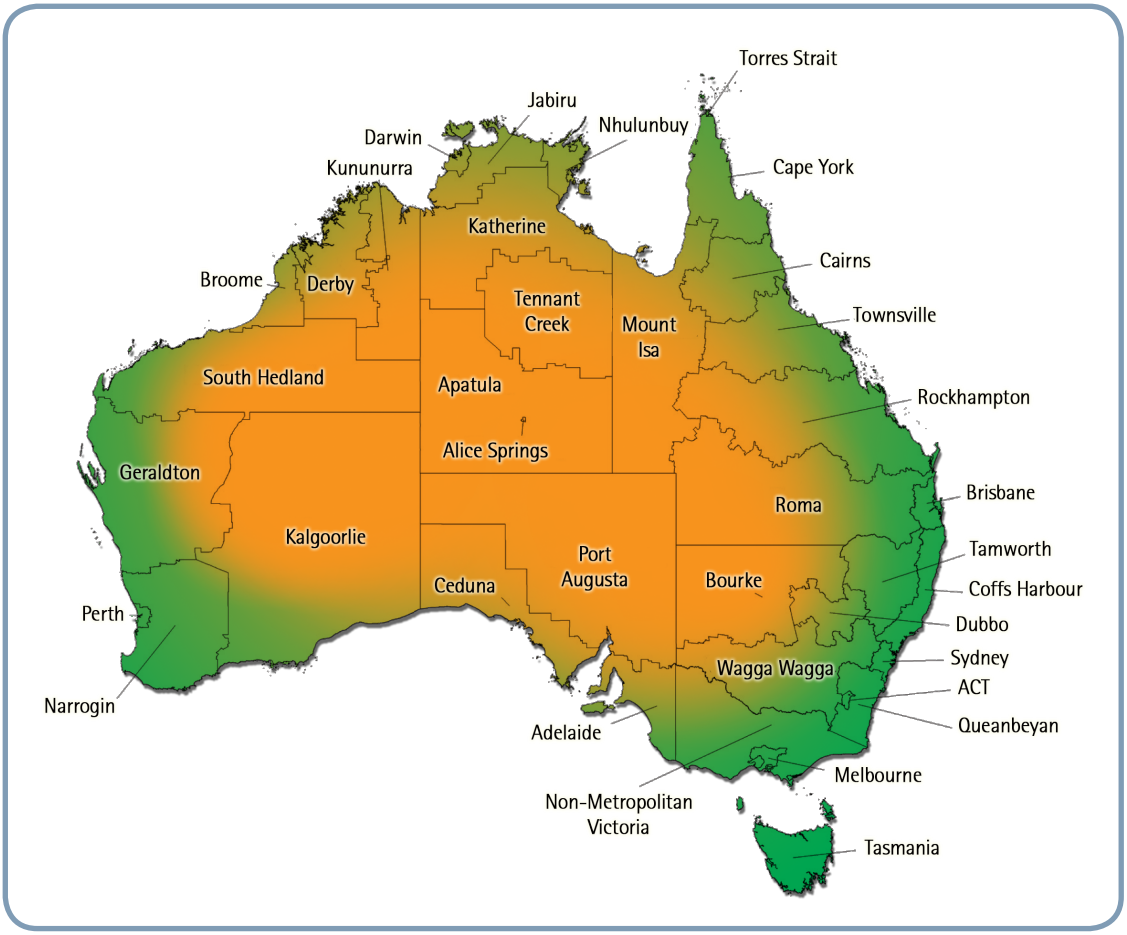
CDEP: Community Development and Employment Projects

GISCA: National Centre for Social Applications of Geographic Information Systems

SCIH: Standing Committee on Indigenous Housing

AIHW: Australian Institute of Health and Welfare

Fig. 1. Indigenous Region structure, 2006



Those who do not state their Indigenous status are excluded from the analysis. Where applicable, some of the characteristics are compared with what the ABS defines as Indigenous households (at least one Indigenous usual resident) with other households (no Indigenous usual residents). As Australian censuses are for the most part self-completed, interpretation of Indigenous status and housing related concepts is left up to the individual. This needs to be kept in mind when interpreting results.

A degree of caution is required in interpreting census data given the widespread and substantial undercount of the Indigenous population in 2006 especially in remote towns, Aboriginal towns and outstations across remote parts of Western Australia, the Northern Territory and, to some extent, Queensland (Taylor & Biddle 2008). Because of high standard errors at the Indigenous Region level with regards to population estimated, this paper focuses on rates rather than levels of characteristics, with a few exceptions. For example, the analysis presents a percentage rather than an absolute number of people who live in a house that is overcrowded.

Ultimately, in areas of inadequate enumeration the census is more akin to a large sample survey. However the drawback of treating it as such is that we have no estimate of the characteristics (including housing characteristics) of those not captured. In the short-term these issues are not easily dealt with and add a level of uncertainty around estimated rates. In the long term, more research needs to be done into the characteristics of those missed from the census and the likely impact on socioeconomic analysis.

To look at the distribution of outcomes I use Indigenous Regions as the unit of geography.[1] These are the least disaggregated level in the Australian Indigenous Geographical Classification (AIGC) and in 2006 there were 37 Indigenous Regions. The boundaries and nomenclature for the 2006 Indigenous Regions are given in Fig. 1.

AIGC: Australian Indigenous Geographical Classification

OVERCROWDING AND HOUSING UTILISATION

Overcrowding has significant negative impacts on a number of outcomes. The impact of inadequate housing on health outcomes has been identified historically (Gauldie 1974; Thomson, Petticrew & Morrison 2001), as well as more specifically for the Indigenous population of Australia (Bailie & Wayte 2006; Pholeros, Rainow & Torzillo 1993). Biddle (2007) showed a significant negative association between overcrowding and education participation after controlling for large households. That is, it was not the number of people living in a house per se which had an association. Rather, the effects come from an inadequacy of the housing stock to meet the needs of Indigenous Australians whether they live in large households or small.

This distinction highlights one of the difficulties in measuring variation in overcrowding across population subgroups (for example Indigenous compared to non-Indigenous Australians) or across different regions in Australia. That is, measures of housing utilisation that may be relevant in one context (the number of people per house) may not be relevant in other contexts. However, these cultural considerations are going to be important in almost all measures used, albeit to varying degrees. Compared to specially targeted surveys or qualitative interviewing techniques, measures of overcrowding derived from pre-existing statistical collections like the census are likely to only give partial measures of overcrowding. A measure that is used consistently across populations and regions will include people who may subjectively feel that their housing situation does not constitute overcrowding despite being measured as such. Equally, a proportion of the population are likely to subjectively feel that they are living in an overcrowded household because of their particular circumstances but not be captured in standard measures.

These important caveats aside, the most comprehensive measure of overcrowding available in the census is a specially constructed variable of housing utilisation that is derived from a number of census variables including the age and sex of occupants and their relationship within the household. Using the Canadian National Occupancy Standard it is assumed that the bedroom requirements of a household are such that:

- there should be no more than two persons per bedroom
- children less than 5 years of age of different sexes may reasonably share a bedroom
- children 5 years of age or older of opposite sex should have separate bedrooms
- children less than 18 years of age and the same sex may reasonably share a bedroom, and
- single household members 18 years of over should have a separate bedroom, as should parents or couples (ABS 2003).

In this paper, households that were estimated to not meet these requirements were deemed to be overcrowded. In Table 1, the percentage of the Indigenous and non-Indigenous Australian population who lived in such dwellings in 2006 is presented, as well as the ratio between these two sets of figures. In addition, to get a sense of the scale of the problem, the number of dwellings that do not meet the standard is given. These absolute numbers are presented across two columns: the first for dwellings which include at least one Indigenous Australian, and the second for all other households.[2]

Table 1. Dwellings estimated to require additional bedrooms, 2006

Indigenous Region	Per cent of people in dwellings			Number of dwellings	
	Indigenous	Non-Indigenous	Ratio	Indigenous households	Other households
Queanbeyan	14.6	3.7	3.94	290	2,019
Bourke	27.6	5.1	5.42	330	297
Coffs Harbour	17.4	4.5	3.85	1,646	10,827
Sydney	14.3	8.9	1.61	1,639	65,776
Tamworth	19.3	4.0	4.82	534	1,238
Wagga Wagga	14.8	3.8	3.87	536	2,800
Dubbo	16.1	4.1	3.96	281	509
Melbourne	13.2	6.5	2.02	580	42,179
Non-Met. Victoria	15.2	4.3	3.57	605	9,745
Brisbane	15.5	4.7	3.29	1,721	21,224
Cairns	37.8	5.6	6.70	1,073	1,839
Mt Isa	47.6	7.3	6.48	403	227
Cape York	56.1	8.2	6.82	506	82
Rockhampton	22.2	5.2	4.28	675	3,554
Roma	21.3	4.6	4.64	519	2,268
Torres Strait	41.0	11.5	3.58	390	16
Townsville	29.8	5.3	5.63	949	3,003
Adelaide	16.6	4.4	3.82	618	10,814
Ceduna	34.3	3.5	9.71	91	204
Port Augusta	41.5	3.6	11.48	343	433
Perth	18.6	3.0	6.22	705	7,460
Broome	43.3	8.7	5.00	215	148
Kununurra	67.3	9.8	6.87	341	70
Narrogin	18.3	2.9	6.36	279	1,611
South Hedland	43.9	4.7	9.30	312	291
Derby	54.5	9.1	6.00	290	21
Kalgoorlie	38.4	3.7	10.49	253	283
Geraldton	29.4	3.9	7.47	218	340
Tasmania	11.5	4.6	2.51	531	3,689
Alice Springs	39.2	4.5	8.68	235	157
Jabiru	79.4	9.9	8.04	708	35
Katherine	73.9	9.3	7.95	697	109
Apatula	76.7	11.2	6.82	706	39
Nhulunbuy	87.1	6.9	12.67	678	45
Tennant Creek	62.0	5.5	11.32	226	12
Darwin	28.6	7.9	3.61	520	1,336
Australian Capital Territory	8.9	3.4	2.62	93	1,975
Australia (total)	**27.2**	**5.7**	**4.80**	**20,736**	**196,675**

Source: ABS Census of Population and Housing 2006.

Table 2. Population living in dwellings with less than one bedroom per person: 2001, 2006 and percentage change

	Indigenous			Non-Indigenous			Ratio		
Indigenous Region	2001 (%)	2006 (%)	Change (%)	2001 (%)	2006 (%)	Change (%)	2001 (%)	2006 (%)	Change (%)
Queanbeyan	53.5	48.7	-9.0	32.0	27.3	-14.6	1.67	1.78	6.5
Bourke	62.7	58.8	-6.3	32.7	28.1	-14.0	1.92	2.09	8.9
Coffs Harbour	54.7	50.4	-7.9	33.7	29.6	-12.3	1.62	1.70	5.0
Sydney	51.2	47.1	-7.9	40.6	38.0	-6.6	1.26	1.24	-1.4
Tamworth	59.2	54.0	-8.8	32.8	29.4	-10.3	1.81	1.84	1.7
Wagga Wagga	54.6	49.0	-10.3	35.2	30.8	-12.6	1.55	1.59	2.6
Dubbo	56.4	52.2	-7.4	34.1	29.3	-14.1	1.66	1.78	7.8
Melbourne	47.9	43.4	-9.5	38.6	35.6	-7.8	1.24	1.22	-1.9
Non-Met. Victoria	53.1	48.5	-8.8	37.1	32.7	-11.8	1.43	1.48	3.5
Brisbane	51.9	49.2	-5.2	31.3	28.9	-7.8	1.66	1.71	2.9
Cairns	68.5	67.7	-1.1	33.5	30.7	-8.2	2.04	2.20	7.8
Mt Isa	77.1	73.1	-5.1	40.4	36.3	-10.1	1.91	2.01	5.6
Cape York	79.7	78.9	-1.0	42.4	39.5	-7.0	1.88	2.00	6.4
Rockhampton	60.0	56.6	-5.7	35.1	31.9	-8.9	1.71	1.77	3.6
Roma	60.5	56.7	-6.2	34.2	31.0	-9.2	1.77	1.83	3.3
Torres Strait	75.8	69.9	-7.8	52.7	42.1	-20.2	1.44	1.66	15.6
Townsville	65.9	62.8	-4.7	35.9	32.5	-9.5	1.84	1.93	5.2
Adelaide	51.3	48.1	-6.3	33.5	30.7	-8.5	1.53	1.57	2.5
Ceduna	71.0	64.0	-9.8	36.3	32.3	-10.8	1.96	1.98	1.1
Port Augusta	72.0	64.4	-10.6	33.9	31.0	-8.4	2.12	2.07	-2.4
Perth	55.6	50.1	-9.9	27.1	24.2	-10.7	2.06	2.07	0.8
Broome	77.0	68.7	-10.9	39.4	34.7	-12.1	1.95	1.98	1.4
Kununurra	84.9	82.0	-3.5	38.8	36.2	-6.9	2.19	2.27	3.7
Narrogin	59.9	53.3	-11.0	29.8	25.3	-15.3	2.01	2.11	5.1
South Hedland	73.1	72.7	-0.6	42.9	39.8	-7.2	1.70	1.83	7.1
Derby	83.5	77.9	-6.7	38.4	33.9	-11.9	2.17	2.30	5.9
Kalgoorlie	75.9	69.6	-8.3	35.4	31.5	-11.2	2.14	2.21	3.2
Geraldton	64.7	60.1	-7.1	32.9	28.2	-14.3	1.97	2.13	8.4
Tasmania	50.0	47.5	-5.0	33.9	31.5	-7.1	1.47	1.51	2.3
Alice Springs	65.9	66.6	0.9	40.3	34.1	-15.4	1.64	1.95	19.4
Jabiru	92.2	89.4	-3.0	42.6	38.0	-10.8	2.16	2.35	8.8
Katherine	88.4	87.9	-0.6	44.6	40.0	-10.4	1.98	2.20	10.9
Apatula	92.7	89.2	-3.8	44.7	37.2	-16.8	2.07	2.40	15.6
Nhulunbuy	95.3	95.2	-0.2	52.0	50.6	-2.8	1.83	1.88	2.7
Tennant Creek	86.0	81.9	-4.7	35.3	31.3	-11.2	2.44	2.62	7.3
Darwin	62.2	62.1	-0.3	39.3	36.7	-6.6	1.58	1.69	6.8
Australian Capital Territory	47.2	42.8	-9.2	29.2	26.4	-9.5	1.62	1.62	0.3
Australia (total)	**61.8**	**57.5**	**-6.9**	**35.5**	**32.4**	**-8.9**	**1.74**	**1.78**	**2.1**

Source: ABS Census of Population and Housing 2001 and 2006.

Across Australia, Indigenous Australians are almost five times as likely to live in a dwelling deemed to require extra bedrooms than a non-Indigenous Australian, 27 per cent compared to 5.7 per cent. This national average hides substantial variation across the regions. In the Australian Capital Territory, only 8.9 per cent of Indigenous Australians live in dwellings deemed to be overcrowded with Sydney, Melbourne and Tasmania also having relatively low rates. Remote regions on the other hand, were estimated to have a very high percentage of the Indigenous population living in such dwellings, including four regions in the Northern Territory with rates above 70 per cent. In Nhulunbuy, where the rate for the Indigenous population is highest, Indigenous Australians have a percentage that is 12.67 times as high as the non-Indigenous population. Clearly, on this measure remote Indigenous Australians continue to experience substantial rates of overcrowding both in absolute terms and relative to the remainder of the population in the region.

While the rates of overcrowding experienced by the Indigenous population are highest in the more remote regions, it is in the major cities where the absolute numbers are highest in terms of the number of dwellings requiring additional bedrooms. This of course represents the distribution of the population outlined in Biddle, Taylor and Yap (2008). However, it also shows that if substantial inroads are to be made into the disparity in overcrowding at the national level between the Indigenous and non-Indigenous population, then investments must also occur in urban and regional Australia. For example, if the five largest cities in Australia (Sydney, Melbourne, Brisbane, Adelaide and Perth) were added to the three largest regional jurisdictions (Coffs Harbour, Cairns and Tamworth) then this would make up almost 9,000 or 43 per cent of the Indigenous occupied dwellings that required additional bedrooms.

Because the measure of overcrowding used here was only available for the 2006 Census, it was not possible to estimate whether the level of need for the Indigenous population or the extent of the disparity compared to the non-Indigenous population has changed through time. However, it was possible to calculate a simpler measure, namely the percentage of the population who live in dwellings with less than one bedroom per person. While this is likely to overstate the level of overcrowding, it will still give a good indication of variation across regions and changes through time. Indeed, the correlation between this simple measure of overcrowding and the more sophisticated measure presented earlier was 0.987 at the regional level for the Indigenous population in 2006.

Table 2 presents data for the percentage of the population who live in dwellings deemed to be overcrowded using this simpler measure in 2001 and 2006, as well as the percentage change across the two years. These results are given for the Indigenous population, the non-Indigenous population and the ratio between the two.

Between 2001 and 2006 there was a 6.9 per cent fall in the percentage of the Indigenous population who lived in a dwelling with more than one person per bedroom. While these falls were reasonably widespread, they were greatest in regional parts of Australia—with Wagga Wagga, Port Augusta, Broome and Narrogin all recording declines of 10 per cent or more. In more remote parts of Australia and in the Northern Territory in particular, the declines were much smaller, and Alice Springs actually recorded a slight increase.

Between 2001 and 2006 the percentage of the non-Indigenous population who lived in such households declined at a faster rate than for the Indigenous population, leading to a slight increase in the ratio between the two populations (from 1.74 to 1.78 at the national level). There were only three regions where the ratio of this measure of overcrowding between the Indigenous and non-Indigenous population declined (Sydney, Melbourne and Port Augusta).

These results show that in terms of closing the gaps between Indigenous and non-Indigenous Australians, a fast expanding economy or particular demographic changes can lead to a situation where policy is trying to hit a moving target. This may be setting such policies up to fail, despite substantial absolute

Table 3. Coefficient estimates and p-values: Factors associated with change in overcrowding, 2001–06

	Model 1		Model 2	
Explanatory variables	Coefficient	P-Value	Coefficient	P-Value
Indigenous net migration	0.166	0.000	0.218	0.000
Non-Indigenous net migration			-0.037	0.214
Indigenous population aged 0–4 years			0.530	0.001
Area predominantly in outer regional, remote or very remote Australia			1.914	0.029
Constant	-6.173	0.000	-13.653	0.000
Adjusted R-Squared	0.0240		0.0517	

improvements for the Indigenous population. It may be prudent therefore to distinguish between measures that do and do not make sense from a relative perspective. Education is one measure where it would make sense to focus on relative outcomes as Indigenous and non-Indigenous Australians have to compete in the same labour market. For housing, where there are particular cultural norms and demographic trends, it may make more sense to look at Indigenous outcomes in isolation. This would still probably result in an identified need to reduce rates of overcrowding in most, if not all, regions. What would vary, however, is the particular targets and distribution of any reductions.

There are two main ways in which the absolute level of overcrowding can decline for the Indigenous population in a particular region or community: either there needs to be a net increase in the housing stock available to the Indigenous population (additional houses or, at the very least, additional bedrooms) or a net outflow of Indigenous Australians from the area. To show the potential impact of the latter, Table 3 presents a regression analysis of the association between the percentage change in the level of overcrowding between 2001 and 2006 for the Indigenous population (measured as the percentage of the population living in a house with less than one bedroom per person) and net internal migration. The regression is undertaken using Indigenous Areas (the level below Indigenous Regions) as the unit of analysis—there were 530 Indigenous Areas with complete information in 2006.

There are two models presented in Table 3. In model 1, the only explanatory variable is net migration for the Indigenous population, which is calculated as the difference between the number of people who moved into an area and the number of people who moved out between 2001 and 2006 (expressed as a percentage of the 2001 Indigenous population). In model 2, the non-Indigenous rate of migration is also included alongside the number of Indigenous Australians aged 0–4 years in 2006 expressed as a percentage of the 2001 usual resident population. While this does not quite capture the births that occurred in the inter-censal period, it can be used as an indicator of relatively high fertility and additions to the population that are not captured in the migration figures. The final variable in model 2 is an indicator for whether the Indigenous Area is predominantly in outer regional, remote or very remote Australia based on the ARIA+ (Accessibility/Remoteness Index of Australia) categorisation. The base case is therefore Indigenous Areas in major cities or inner regional areas.[3] The first column of numbers for each model is the coefficient, the second column the p-value (values below 0.05 are generally taken to imply a significant relationship between the variables).

ARIA+: Accessibility/ Remoteness Index of Australia

The results from model 1 show the expected positive association between the change in the rate of overcrowding in an area and the corresponding net migration rate. In terms of scale, an area that had a net population inflow of 10 per cent of the population (roughly one standard deviation above the mean of zero) had an estimated decrease in the rate of overcrowding of 4.513 per cent, compared to a 6.173 per cent decrease for an area with a stable population.

The results from model 2 show that there is no significant association between the rate of net migration for the non-Indigenous population and changes in the rate of overcrowding for the Indigenous population. In other words, if a large number of non-Indigenous Australians move into an area, then this does not appear to displace the existing Indigenous population. Conversely, a large net outflow of the non-Indigenous population was not associated with an improvement in Indigenous occupancy rates. Clearly, the Indigenous and the non-Indigenous populations are accessing very different segments of the housing market, a point expanded on in the following section.

The other two variables in model 2 were found to be significant. A large number of 0–4 year olds was not surprisingly associated with a relative worsening in overcrowding between 2001 and 2006. High rates of fertility put additional pressure on the housing stock. Even after controlling for the other variables in the model, outer regional, remote and very remote Australia fared relatively poorly in terms of changes in overcrowding between 2001 and 2006. In other words, demographic factors do not appear to be driving the relatively poor performance outlined in Table 2. This is unlikely to be as a result of changes to the Community Housing and Infrastructure Program (CHIP) as these occurred after the latest inter-censal period. Rather, it may simply reflect the relative pace of improvement in access to economic resources documented in Biddle, Taylor and Yap (2008).

CHIP: Community Housing and Infrastructure Program

Looking at the final line of the table, the 'Adjusted R-Squared', it is clear that only a small proportion of the variation in changes in overcrowding was explained by the independent variables. As the aim of the estimation was not to be behavioural or predictive but rather to examine a few particular associations, the estimations still hold a fair degree of validity. However, the low Adjusted R-Squared does show that there are other important variables that are not included in the model. The most obvious is changes in the housing stock to which Indigenous Australians have access, an issue that is taken up later in the paper. Before then though, I consider the other main aspect of housing that impacts on overcrowding—tenure.

HOUSING TENURE

The previous section showed substantial differences across Indigenous Regions in terms of the extent of overcrowding experienced by Indigenous Australians. Clearly, there is a substantial disparity in terms of access to adequate housing for the Indigenous population: while improving by some measures in absolute terms worsened relative to the non-Indigenous population in the last inter-censal period. The efficacy of any policy responses to this situation will depend heavily on the local housing market and dominant tenure type in the region. For example, AIHW (2005: 42) showed that in 2001 there was greater disparity in levels of overcrowding between Indigenous and other households in public or community rental compared to other tenure types.

The housing stock in each Indigenous Region is disaggregated into four categories in Table 4. The first category is those dwellings that are owned or being purchased by the residents of the house. The second column is for those houses that are being rented privately from a real estate agent or from a person not in the household (e.g. a parent or relative). The final two columns are for those houses being rented in the non-private sector whether from State or Territory housing authorities (column 3) or housing

Table 4. Households by housing tenure (per cent), 2006

Indigenous Region	Indigenous households				Other households			
	Own/ buy	Rent – Private	Rent – State	Rent – Comm.	Own/ buy	Rent – Private	Rent – State	Rent – Comm.
Queanbeyan	39.0	28.9	20.7	8.5	76.1	17.8	2.9	0.6
Bourke	36.9	15.7	18.1	20.0	76.4	12.3	1.9	0.6
Coffs Harbour	40.7	34.8	16.3	5.2	73.3	20.2	3.6	0.5
Sydney	36.7	31.9	27.3	2.2	67.7	25.3	5.0	0.5
Tamworth	34.9	29.0	23.4	8.5	73.1	19.1	2.9	0.6
Wagga Wagga	38.3	28.8	24.7	4.8	73.7	18.9	3.6	0.6
Dubbo	40.4	29.3	22.1	5.1	75.0	17.6	3.1	0.7
Melbourne	44.3	35.3	16.4	1.7	73.8	21.7	2.8	0.4
Non-Met. Victoria	41.2	26.2	25.5	3.6	77.0	16.7	3.6	0.5
Brisbane	39.2	41.9	13.7	2.1	68.6	25.7	3.2	0.4
Cairns	27.0	35.9	21.3	11.0	67.0	26.9	2.8	0.4
Mt Isa	26.2	12.5	31.3	23.5	60.0	21.1	4.5	0.8
Cape York	4.4	3.1	10.7	66.5	41.3	13.9	2.0	2.6
Rockhampton	38.1	33.4	16.0	5.9	70.6	20.1	3.0	0.6
Roma	36.3	34.9	14.8	8.4	72.9	20.6	2.2	0.5
Torres Strait	8.9	2.8	35.6	40.6	13.9	12.1	7.5	11.3
Townsville	34.3	30.7	21.1	9.7	68.8	23.3	3.3	0.5
Adelaide	39.1	24.8	29.8	3.1	73.0	16.9	6.5	1.1
Ceduna	26.6	14.5	36.3	17.6	72.3	16.1	6.3	0.8
Port Augusta	28.3	13.3	33.9	19.2	68.9	12.9	12.5	0.4
Perth	40.5	29.6	26.0	1.3	73.6	20.9	3.3	0.4
Broome	21.8	11.8	34.2	26.1	51.9	24.6	10.9	0.7
Kununurra	9.2	3.8	23.3	58.8	45.6	13.5	12.6	2.9
Narrogin	40.5	25.0	28.2	1.7	73.4	18.5	3.5	0.6
South Hedland	18.4	8.2	39.4	17.6	38.5	15.8	9.1	0.3
Derby	9.7	3.5	25.8	57.8	42.0	12.7	18.5	2.6
Kalgoorlie	26.8	15.6	22.4	28.2	65.4	20.3	5.3	0.9
Geraldton	31.0	22.5	33.0	7.8	69.7	18.0	5.6	0.6
Tasmania	54.8	24.1	17.3	1.0	75.0	16.8	5.4	0.6
Alice Springs	33.7	23.9	25.4	13.8	62.9	23.0	5.3	0.6
Jabiru	2.7	0.4	3.1	87.2	22.8	5.9	9.4	10.7
Katherine	10.5	6.1	12.1	64.8	49.2	15.9	9.4	1.7
Apatula	2.4	0.3	1.5	90.5	11.9	3.2	7.2	11.8
Nhulunbuy	2.0	0.9	4.0	86.0	5.6	9.3	11.9	5.1
Tennant Creek	11.9	6.2	15.6	61.1	44.0	16.5	10.1	2.7
Darwin	40.4	22.9	28.8	4.3	61.3	25.5	6.9	0.2
Australian Capital Territory	42.7	26.0	27.0	2.2	70.4	19.6	7.8	0.4
Australia (total)	**36.5**	**28.8**	**21.4**	**9.5**	**71.5**	**21.6**	**4.0**	**0.5**

Note: Households with an 'other' tenure type are included in the percentage calculations but are left out of the table. Included in this omitted category are dwellings rented through a residential park (including caravan parks and marinas), through an employer (including the Defence Housing Authority), and those occupied under a life tenure scheme. In other words, the rows won't necessarily add up to 100.

Source: ABS Census of Population and Housing 2006.

co-operatives, church groups or other community organisations (column 4). These four categories are further broken down into 'Indigenous households' (those with at least one Indigenous usual resident) and 'other households'.

It should be noted that households with an 'other' tenure type are included in the percentage calculations but are left out of the table. Included in this omitted category are dwellings rented through a residential park (including caravan parks and marinas), through an employer (including the Defence Housing Authority), and those occupied under a life tenure scheme.

Across Australia, 36.5 per cent of households with an Indigenous usual resident are either owned or are being purchased. This is compared to other households where the percentage is almost double (71.5%). There is not a substantial difference between Indigenous and other households in terms of the per cent being rented in the private market, which nationally was recorded as 28.8 per cent and 21.6 per cent respectively. Indigenous households are therefore disproportionately renting through the non-private sector with over one-fifth of such houses rented from State or Territory housing authorities and almost one-tenth rented through community organisations. The percentages for the non-Indigenous population (4.0% and 0.5% respectively) are substantially lower.

Across Indigenous Regions there is substantial variation in the types of houses in which Indigenous Australians live. In nine of the Indigenous Regions, over 40 per cent of Indigenous homes are either owned or being purchased by residents of the house and in a further 10 regions home ownership is still the predominant tenure type. Interestingly, there are a further two regions, Brisbane and Cairns, where private rental is the most common form of access to housing for Indigenous households.

Of the remaining 16 Indigenous Regions, there were eight that had over half of Indigenous households renting from a community organisation. Two of these were in Western Australia and one in Queensland with the remaining five in the Northern Territory. Indeed, apart from Alice Springs and Darwin, community housing is far and away the dominant tenure type in the Northern Territory for the Indigenous population, with the percentage rising to around nine out of 10 Indigenous households in the Jabiru, Apatula and Nhulunbuy Indigenous Regions.

There were four Indigenous Regions where less than half of other households were in the four presented tenure types—the Torres Strait, Jabiru, Apatula and Nhulunbuy. In these regions, the 'other' category is the dominant group of tenure types and although it is not possible to test with the data used for this paper, the results presented in Sanders (2005) would suggest that renting from employers makes up a large proportion of this category.

The results presented in Table 4 indicate that Indigenous and non-Indigenous Australians are currently accessing housing through quite different means and through very different sectors. Furthermore, there is as much if not more variation across Indigenous Regions for the Indigenous population as there is between the Indigenous and non-Indigenous population.

While home ownership is definitely not the dominant tenure type in quite a number of Indigenous Regions, there are still a number of benefits to individuals who live in such houses. For example, Boehm and Schlottman (1999) found a significant association between home ownership of parents and educational attainment of children in the household. Importantly, these results hold using longitudinal data and after controlling for other factors. These and other social benefits (summarised in Dietz & Haurin 2003) generally ascribed to more stable housing tenure are of course in addition to the wealth generating effects from potential capital gains.

Table 5. Population living in dwellings owned or being purchased: 2001, 2006 and percentage change[a]

Indigenous Region	Indigenous 2001 (%)	Indigenous 2006 (%)	Indigenous Change (%)	Non-Indigenous 2001 (%)	Non-Indigenous 2006 (%)	Non-Indigenous Change (%)	Ratio 2001	Ratio 2006	Ratio Change (%)
Queanbeyan	29.9	32.1	7.3	68.4	71.9	5.0	0.44	0.45	2.2
Bourke	24.0	25.5	6.5	68.5	69.9	1.9	0.35	0.37	4.5
Coffs Harbour	32.6	34.7	6.4	70.3	70.1	-0.2	0.46	0.49	6.7
Sydney	32.8	31.9	-2.8	67.6	67.4	-0.3	0.49	0.47	-2.6
Tamworth	24.5	27.7	13.1	66.7	68.1	2.1	0.37	0.41	10.8
Wagga Wagga	29.8	31.4	5.3	68.8	69.8	1.4	0.43	0.45	3.8
Dubbo	30.1	34.7	15.4	69.7	70.9	1.7	0.43	0.49	13.5
Melbourne	40.5	39.4	-2.7	74.3	72.9	-1.9	0.54	0.54	-0.8
Non-Met. Victoria	33.6	35.0	4.1	74.2	73.6	-0.7	0.45	0.48	4.9
Brisbane	32.4	34.8	7.5	66.0	66.6	0.9	0.49	0.52	6.5
Cairns	15.3	18.6	21.5	60.5	64.3	6.2	0.25	0.29	14.4
Mt Isa	15.0	17.2	14.7	53.4	56.9	6.4	0.28	0.30	7.8
Cape York	2.0	2.2	6.2	35.7	36.1	1.1	0.06	0.06	5.1
Rockhampton	25.9	30.3	17.1	65.2	65.6	0.6	0.40	0.46	16.5
Roma	24.5	28.6	16.6	67.1	68.0	1.4	0.37	0.42	15.1
Torres Strait	8.0	7.1	-11.5	11.1	14.6	30.7	0.72	0.49	-32.3
Townsville	19.9	24.7	24.0	62.9	64.6	2.8	0.32	0.38	20.7
Adelaide	29.5	33.2	12.8	73.4	71.8	-2.1	0.40	0.46	15.2
Ceduna	15.6	18.5	18.0	68.3	69.7	2.1	0.23	0.27	15.7
Port Augusta	12.5	19.2	53.4	65.5	66.9	2.1	0.19	0.29	50.2
Perth	32.1	31.8	-1.1	74.5	72.2	-3.1	0.43	0.44	2.1
Broome	11.2	14.7	30.9	49.8	47.1	-5.4	0.23	0.31	38.5
Kununurra	4.2	5.3	27.5	40.0	40.5	1.2	0.10	0.13	26.0
Narrogin	27.0	32.3	20.0	70.7	69.6	-1.6	0.38	0.46	22.0
South Hedland	10.4	11.6	12.3	45.1	36.9	-18.1	0.23	0.32	37.1
Derby	5.3	6.2	16.6	34.5	36.9	7.1	0.15	0.17	8.8
Kalgoorlie	13.2	17.4	32.7	54.2	61.3	13.0	0.24	0.28	17.3
Geraldton	18.8	21.6	14.5	63.4	65.6	3.4	0.30	0.33	10.8
Tasmania	52.5	51.7	-1.6	72.9	72.2	-1.0	0.72	0.72	-0.6
Alice Springs	17.4	21.3	22.8	55.9	61.8	10.6	0.31	0.34	11.0
Jabiru	1.8	2.9	58.3	26.3	18.9	-28.2	0.07	0.15	120.3
Katherine	5.7	5.2	-9.2	40.5	42.9	6.0	0.14	0.12	-14.4
Apatula	0.5	1.3	185.9	18.1	13.2	-26.9	0.03	0.10	291.0
Nhulunbuy	0.4	1.8	339.3	4.3	7.2	67.6	0.10	0.26	162.0
Tennant Creek	4.5	5.5	22.5	40.4	38.9	-3.8	0.11	0.14	27.4
Darwin	26.6	29.5	11.0	57.2	59.5	4.1	0.46	0.50	6.6
Australian Capital Territory	36.0	38.3	6.6	69.1	69.0	0.0	0.52	0.56	6.6
Australia (total)	**25.0**	**27.3**	**9.3**	**69.9**	**69.7**	**-0.4**	**0.36**	**0.39**	**9.8**

Note: a. Because the figures in Table 5 represent the percentage of individuals by the tenure of their dwelling, rather than the percentage of houses, they are not directly comparable to those in Table 4.

Source: ABS Census of Population and Housing 2001 and 2006.

Table 6. Households (per cent) by dwelling structure, 2006

Indigenous Region	Indigenous households				Other households			
	House or terrace	Flat or unit	Caravan or cabin	Improv home	House or terrace	Flat or unit	Caravan or cabin	Improv home
Queanbeyan	91.2	7.7	1.1	0.0	92.2	6.2	1.4	0.2
Bourke	91.9	5.4	2.2	0.5	92.0	5.0	2.2	0.7
Coffs Harbour	89.5	8.4	1.8	0.3	90.1	8.0	1.7	0.2
Sydney	81.5	17.5	0.3	0.6	74.8	24.9	0.2	0.1
Tamworth	90.0	9.0	0.9	0.1	91.8	7.2	0.8	0.2
Wagga Wagga	91.1	7.9	0.9	0.1	91.5	7.6	0.8	0.1
Dubbo	92.3	6.7	0.7	0.3	93.5	5.5	0.9	0.1
Melbourne	84.0	15.3	0.4	0.3	84.4	15.3	0.2	0.0
Non-Met. Victoria	90.2	8.1	1.3	0.4	92.5	6.5	0.8	0.1
Brisbane	87.9	10.1	1.3	0.6	86.3	12.7	0.9	0.1
Cairns	80.8	16.6	1.5	1.1	84.4	13.7	1.7	0.2
Mt Isa	85.6	11.2	1.0	2.2	82.1	13.4	4.3	0.3
Cape York	95.6	1.3	2.3	0.8	84.5	6.8	5.0	3.7
Rockhampton	88.3	8.2	2.9	0.7	91.0	6.3	2.3	0.4
Roma	90.1	7.9	1.7	0.3	92.1	6.6	1.0	0.2
Torres Strait	97.2	0.0	2.4	0.3	88.1	1.0	10.9	0.0
Townsville	85.6	12.0	1.1	1.3	87.2	10.8	1.7	0.3
Adelaide	90.7	8.1	0.4	0.7	90.1	9.4	0.4	0.1
Ceduna	94.3	4.5	0.7	0.5	91.3	6.8	1.5	0.3
Port Augusta	94.3	3.1	1.1	1.5	95.1	3.6	1.1	0.3
Perth	91.2	7.0	0.3	1.5	90.9	8.6	0.4	0.1
Broome	88.8	4.6	5.9	0.6	76.4	8.6	13.9	1.0
Kununurra	80.1	2.7	5.6	11.6	74.2	8.9	13.5	3.4
Narrogin	94.4	4.5	1.1	0.0	94.6	3.9	1.3	0.2
South Hedland	95.1	2.7	1.8	0.4	87.5	6.1	5.7	0.7
Derby	96.9	0.3	2.4	0.3	81.7	6.0	8.0	4.3
Kalgoorlie	90.7	4.9	2.5	1.9	91.8	5.4	2.7	0.1
Geraldton	87.5	10.3	2.0	0.2	89.2	6.9	3.3	0.6
Tasmania	91.6	7.5	0.7	0.2	90.8	8.7	0.4	0.1
Alice Springs	85.7	7.9	1.5	5.0	86.0	10.7	3.1	0.2
Jabiru	97.1	0.7	1.0	1.1	76.9	9.5	8.6	4.9
Katherine	81.3	6.1	2.6	10.1	82.0	8.8	7.7	1.5
Apatula	93.2	0.5	4.3	2.0	74.0	18.6	5.2	2.2
Nhulunbuy	95.0	1.2	0.9	2.9	84.5	12.9	1.6	0.9
Tennant Creek	88.0	6.8	4.0	1.1	78.6	14.0	6.9	0.5
Darwin	77.3	15.0	0.6	7.1	77.5	20.0	2.0	0.5
Australian Capital Territory	89.1	10.5	0.3	0.2	89.7	10.1	0.1	0.0
Australia (total)	**88.2**	**9.6**	**1.2**	**1.0**	**85.8**	**13.4**	**0.7**	**0.1**

Note: 'House or terrace' includes townhouses, 'flat or unit' includes apartments as well as dwellings attached to a shop or office, 'caravan or cabin' includes houseboats, and 'improv home' refers to improvised homes, tents and sleep-outs.

Source: ABS Census of Population and Housing 2006.

While there are no longitudinal data available for the Indigenous population, Biddle (2007) found an association between home ownership and educational attendance of Indigenous youth aged 15–17. While it is not possible to establish causation with cross-sectional information, any increases in home ownership may be associated with education participation whether it be directly or indirectly. These and other social benefits must also be weighed against the benefits that a number of people report from communal land holdings, especially in the more remote regions in which this type of tenure dominates. This notwithstanding, home ownership can be used as an indicator of wealth for the Indigenous population, especially in cities and other urban or regional areas.

The results presented in Table 5 show the change between 2001 and 2006 in the percentage of the Indigenous population who live in a home that was owned or being purchased by Indigenous Region. This is done in absolute terms as well as relative to the non-Indigenous population. It should be kept in mind that the figures in Table 5 represent the percentage of individuals by the tenure of their dwelling, rather than the percentage of houses. This is done because a number of the benefits of home ownership are estimated to flow to individuals; however it means that the 2006 figures are not directly comparable to those in Table 4.

Between 2001 and 2006 there was a 9.3 per cent increase in the percentage of the Indigenous population who lived in a dwelling that was owned or being purchased (from 25.0% to 27.3%). Furthermore, the percentage for the non-Indigenous population stayed roughly the same, leading to a substantial reduction in the disparity between the two populations. At 0.39, however, the ratio of Indigenous and non-Indigenous percentages at the national level is still quite low.

Between 2001 and 2006 there were only six regions where the percentage of the Indigenous population who lived in dwellings owned or being purchased declined. Three of these were in capital cities (Sydney, Melbourne and Perth) and the greatest decline was in the Torres Strait Indigenous Region. Those areas which witnessed the greatest increase in the last inter-censal period were generally in remote parts of the Northern Territory but also in Western Australia and South Australia. Albeit coming from quite a low base, there were substantial increases in Nhulunbuy, Apatula, Jabiru and Port Augusta.

Despite these increases over the last inter-censal period, home ownership still remains the tenure type for only a minority of Indigenous Australians nationally. While there is scope for home ownership to increase further, the biggest constraint on this occurring is arguably not land title (which is directly amenable to public policy) but rather the adequacy of income and issues of affordability (Sanders 2005). This issue will be taken up in a subsequent section of this paper; first, however, it is worth considering the state of the housing stock accessed by Indigenous Australians.

STRUCTURE AND CONDITION OF THE HOUSING STOCK

Tenure undoubtedly has a significant impact on the benefits a person derives from their housing circumstances. However, the structure and the condition of the housing stock is also an important factor. This is best illustrated by the large body of literature concerning the link between housing and health outcomes in remote communities. According to the summary article by Bailie and Wayte (2006: 180) 'the amenities required for a number of the healthy living practices were functioning adequately in only 38 per cent to 68 per cent of surveyed houses' in Northern Territory Indigenous communities in 1999.

Unfortunately, there is no information on the condition of the housing stock in the Census. The structure of each dwelling is recorded, with the distribution across Indigenous Regions in terms of structure types summarised in Table 6. The first column of numbers is for houses or terraces (which include townhouses). Especially in urban and suburban regions these types of dwellings are likely to have more space available

Table 7. Dwelling and population counts and actual and effective occupancy rates in IHO managed dwellings, 2006

	Counts		Dwellings requiring major repair/ replacement (%)	Occupancy	
	Dwellings	Population		Actual	Effective
New South Wales					
Non-Remote	3,407		23.6		
Remote	769		11.7		
Total	4,176	5,082	21.4	1.2	1.5
Queensland					
Non-Remote	2,416		35.5		
Remote	3,834		30.5		
Total	6,250	27,446	32.4	4.4	6.5
South Australia					
Non-Remote	228		34.6		
Remote	707		26.0		
Total	935	4,567	28.1	4.9	6.8
Western Australia					
Non-Remote	238		24.8		
Remote	3,224		39.0		
Total	3,462	13,838	38.0	4.0	6.4
Northern Territory					
Non-Remote	184		24.5		
Remote	6,264		31.5		
Total	6,448	41,681	31.3	6.5	9.4
Australia					
Non-Remote	7,006		28.4		
Remote	14,848		31.5		
Total	21,854	103,884	30.5	4.8	6.8

Note: a. Australia totals include Victorian and Tasmanian IHO managed dwellings. Population counts were not available by remoteness by State/Territory.

Source: Community Housing and Infrastructure Needs Survey 2006.

for each resident both inside and outside compared to both the second and third categories (flats or units and caravans or cabins respectively). This third category, along with the final category (improvised dwellings) is least likely to have the amenities identified by Bailie and Wayte (2006). Table 6 shows the percentage of Indigenous and other households in each of these dwelling structure categories.

Across Australia, more Indigenous than non-Indigenous households were living in houses or terraces than other households (88.2% compared to 85.8%). Most of this difference is made up by the relatively high percentage of other households in flats or units, especially in Sydney and other capital cities. There were, however, more Indigenous households in caravans or cabins (1.2% compared to 0.7%) as well as improvised dwellings (1% compared to 0.1%). The percentage of Indigenous households in these last two dwelling types varies quite substantially across the Indigenous Regions. In Kununurra and Katherine more than 10 per cent of Indigenous households live in improvised homes, with Alice Springs and Darwin also having

a relatively high percentage. If these results are robust and do not simply reflect idiosyncracies in data recording, then clearly Indigenous Australians in these regions are particularly at risk of the poor health and other negative characteristics associated with inadequate housing amenities.

As mentioned, the census does not provide much useful information on the condition of the housing stock. However, in the same year as the Census the ABS also conducts the Community Housing and Infrastructure Needs Survey (CHINS). Through this survey, it is possible to evaluate the status of 'housing, infrastructure, education, health and other services available in discrete Aboriginal and Torres Strait Islander communities throughout Australia' (ABS 2007: 2).

CHINS: Community Housing and Infrastructure Needs Survey

IHO: Indigenous Housing Organisation

The most important dimension of enquiry available from the CHINS for the purposes of this paper is the estimation of the severity of the repairs required on each of the dwellings managed by Indigenous Housing Organisations (IHOs) in discrete communities. By eliminating those dwellings that require major repair or total replacement, it is possible to adjust the occupancy rate in these communities and calculate an effective occupancy rate defined as the number of usual residents divided by the total number of functional dwellings (that is those requiring minor or no repairs).

Unlike the census, the CHINS is not national in scope and hence it is not possible to estimate effective occupancy rates for Indigenous Regions. Instead, Table 7 focuses on the four States with the highest Indigenous populations as well as the Northern Territory. There are no IHO managed dwellings in the Australian Capital Territory and the values for Victoria and South Australia were based on too small a population to be reliable. As well as giving values for these States and Territories as a whole, some results are given separately for non-remote communities (in major cities and regional Australia) and remote communities (including in very remote Australia).

For Australia as a whole, 30.5 per cent of dwellings managed by IHOs were estimated to require either major repair or complete replacement. This value was slightly higher in remote (31.5%) compared to non-remote (28.4%) discrete communities. What this means is that when these dwellings are excluded, the effective occupancy rate is 6.8 people per functional dwelling as opposed to the much lower estimate of 4.8 people per dwelling.

In three states, New South Wales, Queensland and South Australia, a higher percentage of houses in non-remote Australia were estimated to require major repair or replacement compared to non-remote Australia. In the remaining two jurisdictions it was in remote discrete communities where the percentage was estimated to be highest. In remote Western Australian communities, for example, nearly two out of every five dwellings fell into this category. It was, however, the Northern Territory where the effective occupancy rate was highest—with 9.4 usual residents per functional dwelling.

The results presented in Table 7 demonstrate a clear back-log in terms of sufficient functional dwellings to meet the needs of Indigenous Australians in discrete communities. In terms of meeting this backlog, 5,111 major repairs and 1,563 replacement dwellings were required across Australia in order to reduce the effective occupancy rate down to the level of the actual occupancy rate. However, if the aim was to reduce Indigenous Australians' effective occupancy rate to the average household size for dwellings Australia-wide (3.4 persons per household according to the 2006 Census), a further 8,700 houses would be required in these discrete communities (15,374 repairs or replacements in total).

Looking at the back-log for each State/Territory separately, New South Wales is the only jurisdiction where the effective occupancy rate across IHO managed dwellings is at or below the rate of 3.4 persons per household. For the other States, a further 3,848 houses were required in Queensland, 671 in South Australia and 1,924 in Western Australia. The jurisdiction with the greatest backlog, however, is the Northern Territory with 7,827 additional houses required.

Table 8. Median income and home loan repayments, 2006

Indigenous Region	Median weekly loan repayment ($)	Median weekly income ($)		Median repayment less than 30 per cent of income (%)	
		Indigenous households	Other households	Indigenous households	Other households
Queanbeyan	293	665	826	48.8	58.0
Bourke	150	617	648	63.9	64.1
Coffs Harbour	300	700	784	35.0	41.5
Sydney	415	898	1,166	62.1	74.6
Tamworth	231	636	789	55.3	63.9
Wagga Wagga	250	647	837	43.2	52.8
Dubbo	240	636	788	40.2	49.4
Melbourne	300	955	1,080	48.2	54.8
Non-Met. Victoria	231	639	824	56.0	65.1
Brisbane	301	992	1,066	49.9	54.6
Cairns	270	838	990	57.2	61.9
Mt Isa	250	962	1,469	57.3	76.1
Cape York	226	786	1,147	65.1	74.9
Rockhampton	233	793	878	65.5	66.2
Roma	230	760	828	64.9	65.4
Torres Strait	250	809	1,125	51.9	72.3
Townsville	277	933	1,071	61.9	67.1
Adelaide	243	687	901	43.8	54.5
Ceduna	200	652	792	52.2	58.4
Port Augusta	155	633	735	66.4	68.9
Perth	300	851	1,089	43.6	55.3
Broome	400	683	1,241	45.3	83.1
Kununurra	300	642	1,296	30.7	69.4
Narrogin	250	734	911	47.3	55.8
South Hedland	250	1,052	1,991	61.8	88.9
Derby	211	660	1,123	53.7	77.3
Kalgoorlie	250	795	1,241	51.7	71.8
Geraldton	231	704	932	59.7	68.9
Tasmania	200	775	802	58.8	59.2
Alice Springs	300	869	1,345	43.3	68.1
Jabiru	165	773	1,192	77.1	88.8
Katherine	250	717	1,189	47.4	72.4
Apatula	323	764	1,060	37.2	60.2
Nhulunbuy	251	995	2,001	65.3	91.5
Tennant Creek	150	612	1,103	64.0	85.0
Darwin	300	967	1,318	48.8	66.7
Australian Capital Territory	346	1,221	1,513	65.9	76.1
Australia (total)	**300**	**791**	**1,031**	**40.4**	**51.9**

Source: ABS Census of Population and Housing 2006.

To put this historic backlog in perspective, in the 12 months preceding the CHINS there were 670 buildings acquired by the IHOs and a total of 490 demolished or sold. Under the assumption that all the dwellings that were demolished or sold fell into either the major repair or replacement category, at this rate of acquisition it would take almost 23 years to reduce the effective occupancy rate from the current 6.8 people per dwelling to 3.4 people. This is a lower bound for the number of years required to meet this backlog, as firstly it assumes that no further dwellings fall into the major repair or replacement categories. Given the short life of a dwelling in remote areas especially, this assumption is unlikely to hold. Secondly, it assumes a constant population when in reality the Indigenous population is growing quite quickly through time. Although population growth rates are not available for discrete communities separately, the ABS estimates that between 2001 and 2006 the Indigenous Estimated Resident Population (ERP) grew by 12.8 per cent or 2.4 per cent annually (ABS 2007). If this growth rate held over the 23 years estimated to meet the identified backlog, then the usual resident population in the communities would grow to 180,574 individuals which would require an additional 22,556 dwellings to accommodate the population at an occupancy rate of at 3.4 persons per dwelling.

ERP: Estimated Resident Population

HOUSING AFFORDABILITY

A key aspect of the response to the issues of overcrowding, insecure housing tenure and poor dwelling conditions discussed already is the economic resources that Indigenous Australians are able to draw upon. Issues of access to quality housing are intimately tied up with issues of income, wealth and affordability.

Between March 2002 (the first available quarter) and September 2006 (when the most recent Census occurred) the price index produced by the ABS for established homes increased by a staggering 50.7 per cent—calculated using a weighted average cross the eight capital cities (ABS 2008). Nationally, the median income of employed Indigenous Australians increased by only 4.1 per cent over the last inter-censal period—a slightly longer time period (Biddle, Taylor & Yap 2008). If there is an affordability crisis in Australian housing, then Indigenous Australians are more strongly locked out of the market than most.

Although house prices are likely to be lower outside capital cities, the ability to service loans is also likely to be lower, especially for the Indigenous population. While there is no information on house prices or costs of living in the Census in order to get a complete picture of affordability, there is information on how much each household with a mortgage spends on loan repayments. Using this information, Table 8 gives an estimate of median weekly loan repayments by Indigenous Region. This is presented alongside median weekly household income for those households with and without an Indigenous occupant. Combining this information, the final two columns in Table 8 shows the per cent of households (Indigenous or otherwise) that have an income large enough such that the median repayment in the region would make up less than 30 per cent of total income. This is a crude measure of the impact of housing costs but gives an indication of the spatial distribution across Australia.

Not surprisingly, median home loan repayments were highest in Sydney. With the exception of Adelaide (which includes a large part of the surrounding area as part of the Indigenous Region) the other capital cities also had median loan repayments that were at or above the Australian median. What is interesting, though, is the number of regions outside the major cities that also had relatively high median loan repayments. For example, Broome ranked second highest in this measure at $400 per week, behind only Sydney. Alice Springs, Coffs Harbour and surprisingly Apatula all had values at or above the national average.

Combining the information on median loan repayments in the region and the distribution of household income, the regions of Kununurra, Coffs Harbour and Apatula had the greatest relative housing costs for Indigenous households. In all three regions, median home loan repayments were less than 30 per cent of total income for fewer than two out of every five Indigenous households. In all regions, despite larger

households on average, Indigenous households lag behind other households in this (albeit crude) measure. Ultimately, until the socioeconomic status of the average Indigenous household is raised sufficiently, the prospect of home ownership will remain an unattainable goal for many Indigenous households.

SUMMARY AND IMPLICATIONS

This paper sets out to document the scale of Indigenous housing need as recorded in the most recent (2006) Census. In summary, the issue of Indigenous housing presents two challenges: catch-up and keep-up. Regarding the 'catch-up' issue, using an internationally recognised consistent occupancy standard, the Indigenous population is still experiencing substantial overcrowding with the percentage living in overcrowded households at 4.8 times that of non-Indigenous population. There have been some improvements in absolute terms since 2001, but the gap with non-Indigenous Australians is widening.

Looking at the distribution of this need, the level of need is greatest in remote parts of Australia with four out of five Indigenous Australians in many areas living in a house either estimated to require additional bedrooms or with more than one person per bedroom. However, reflecting the Indigenous population distribution, the absolute number of people in overcrowded households is highest in cities and regional areas with over 1,500 houses requiring additional bedrooms in Coffs Harbour, Sydney and Brisbane. Clearly, any strategy to close the gaps in access to adequate housing can not ignore urban Australia.

Solutions to overcrowding will need to take into account the dominant tenure type in a particular area, with financial constraints—not land title—arguably the main barrier to home ownership in remote Australia. Community or public sector rental will have to remain part of the solution to Indigenous housing need. In urban areas, despite high rates of home ownership relative to the remote Indigenous population, the difference between Indigenous and non-Indigenous Australians is also likely to be driven by economic factors. According to Birdsall-Jones and Corunna (2008: 7) in urban Western Australia 'the strongest influence in the structuring of Indigenous housing careers, is the fact of their entrenched poverty'.

It would take 23 years at the current rate to reduce effective to actual occupancy rate, with 30.5 per cent of dwellings in discrete communities needing repair or replacement. However, if the aim was to get the effective occupancy rate down to the average household size for dwellings Australia-wide with Indigenous Australians (3.4 persons per household according to the 2006 Census) a further 8,700 houses would be required in these discrete communities. Of course the houses that are provided need to be sufficiently well constructed in order for them not to fall into the major repair or replacement category too quickly. Torzillo et al. (2008: 11) dispel the myth that 'Aboriginal people destroy their houses' as only 10 per cent of the identified damage across approximately 4,000 houses surveyed were caused by vandalism or misuse. Nonetheless, the absence of incentives for community renters to pay for the type of maintenance that home owners or landlords would see as being beneficial in the long term, needs to be factored into the funding of those homes.

Population growth presents the other dilemma in meeting Indigenous housing need—that is, keeping up. If the last inter-censal population growth rate of 2.4 per cent per annum continues over the aforementioned 23 years, then the usual resident population in the communities is predicted to grow to 180,574 individuals, which would require an additional 22,556 dwellings (at 3.4 persons per dwelling).

At a local level, the rates of Indigenous migration have been shown to exert a major influence on changes in overcrowding. If the migration trends identified between 2001 and 2006 and documented in Biddle and Taylor (forthcoming) continue, migration may ease some of the pressure on housing in small regional towns, remote towns, Indigenous towns and remote dispersed settlements. At the same time these trends will accentuate the housing situation in city areas, large regional towns, regional rural areas and town camps.

NOTES

1. Given the large number of changes between the 2001 and 2006 AIGC the 2001 data used in the present paper are based on Indigenous Areas, the level below Aboriginal and Torres Strait Islander Commission (ATSIC) regions in 2001. These were then aggregated to 2006 Indigenous Regions using a quasi-population based concordance. As the 2001 and 2006 Censuses are based on different Census Collection Districts (CDs) it is not possible for the ABS to construct official population based concordances. However after finding a number of anomalous results using the area based concordances supplied by the ABS, we constructed our own concordances that more explicitly take into account the uneven nature of boundary changes. Specifically, we used an area based concordance for 2001 Census CDs to 2006 Indigenous Regions. We then used the usual resident total population for the Census CDs in 2001, weighted them by the area based ratio of the 2001 Census CD in the 2006 Indigenous Regions and summed them up to 2001 Indigenous Areas. This gave an estimate of the ratio of the population in each of the 2001 Indigenous Areas that would have been classified into each of the 2006 Indigenous Regions using that classification scheme. These concordances are available from the author upon request.
2. It should be kept in mind that a number of regions, particularly in regional and remote Western Australia, the Northern Territory and Queensland experienced substantial undercount in the 2006 Census (Taylor & Biddle 2008). In these regions, the absolute number of houses requiring additional bedrooms is likely to be higher than outlined in Table 1.
3. In the original model, all four remoteness categories outside of the major cities were included in the model. The final specification was decided on based on hypothesis tests regarding the significance of the coefficients and whether the three most remote categories were significantly different from each other.

ATSIC: Aboriginal and Torres Strait Islander Commission

CD: Collection District

REFERENCES

Australian Bureau of Statistics (ABS) 2003. *Australian Social Trends*, cat. no. 4102.0, ABS, Canberra.

—— 2007. *Housing and Infrastructure in Aboriginal and Torres Strait Islander Communities, Australia, 2006*, cat. no. 4710.0, ABS, Canberra.

—— 2008. *Population characteristics, Aboriginal and Torres Strait Islander Australians: 2006*, cat. no. 4713.0, ABS, Canberra.

Australian Institute of Health and Welfare (AIHW) 2005. *Indigenous housing needs 2005: A multi-measure needs model*, cat. no. HOU 129, AIHW, Canberra.

Bailie, R.S. and Wayte, K.J. 2006. 'Housing and health in Indigenous communities: Key issues for housing and health improvement in remote Aboriginal and Torres Strait Islander communities', *Australian Journal of Rural Health*, 14: 178–83.

Biddle, N. 2007. Does it pay to go to school? The benefits of and participation in education of Indigenous Australians, PhD Thesis, Australian National University, <http://thesis.anu.edu.au/public/adt-ANU20071008.152249/index.html>.

Biddle, N. and Taylor, J. (forthcoming) 'Patterns of Indigenous Migration, 2001–06', *CAEPR Working Paper*, CAEPR, ANU, Canberra, <http://www.anu.edu.au/caepr/working.php>.

Biddle, N., Taylor, J. and Yap, M. 2008. 'Indigenous participation in regional labour markets, 2001–06', *CAEPR Discussion Paper No. 288*, CAEPR, ANU, Canberra, <http://www.anu.edu.au/caepr/discussion.php>.

Birdsall-Jones, C. and Corunna, V. 2008. *The Housing Careers of Indigenous Urban Households*, AHURI Final Report No. 112, Australian Housing and Urban Research Institute, Brisbane.

Boehm, T.P. and Schlottmann, A.M. 1999. 'Does home ownership by parents have an economic impact on their children?', *Journal of Housing Economics*, 8: 217–32.

Dietz, R.D. and Haurin, D.R. 2003. 'The social and private micro-level consequences of home ownership', *Journal of Urban Economics*, 54: 401–50.

Durlauf, S.N. 2004. 'Neighborhood effects', in V. Henderson and J.F. Thisse (eds), *Handbook of Regional and Urban Economics*, 4: 2173–42, North Holland, Amsterdam.

Gauldie, E. 1974. *Cruel Habitations: A History of Working Class Housing, 1780–1918*, Allen and Unwin, London.

National Centre for Social Applications of Geographic Information Systems (GISCA) 2005. *Indigenous Housing Need: Homelessness, Overcrowding and Affordabilility 2001 Census Analysis*, Draft Final Report to ATSIC, Canberra.

Pholeros P., Rainow S. and Torzillo P. 1993. *Housing for Health: Towards a Healthy Living Environment for Aboriginal Australia*, Healthabitat, Newport Beach.

Sanders, W.G. 2005. 'Housing tenure and Indigenous Australians in remote and settled areas', *CAEPR Discussion Paper No. 275*, CAEPR, ANU, Canberra, <http://www.anu.edu.au/caepr/discussion.php>.

Taylor, J. 2006. 'Population and diversity: Policy implication of emerging Indigenous demographic trends', *CAEPR Discussion Paper No. 283*, CAEPR, ANU, Canberra, <http://www.anu.edu.au/caepr/discussion.php>.

Taylor, J. and Biddle, N. 2008. 'Locations of Indigenous population change: What can we say?', *CAEPR Working Paper No. 43*, CAEPR, ANU, Canberra, <**http://www.anu.edu.au/caepr/working.php**>.

Thomson, H., Petticrew, M. and Morrison, D. 2001. 'Health effects of housing improvement: systematic review of intervention studies', *British Medical Journal*, 323: 187–90.

Torzillo, P.J., Pholeros, P., Rainow, S., Barker, G., Sowerbutts, T., Short, T. and Irvine, A. 2008. 'The state of health hardware in Aboriginal communities in rural and remote Australia', *Australian and New Zealand Journal of Public Health*, 32 (1): 7–11.