

## 7. Housing

Adequate housing is a fundamental human need for survival and protection from the environment (HREOC 1996). However, there are significant groups of people who continue to live in public places, in shelters, or any makeshift bed they can find. According to the 2001 Census, the rate of homelessness<sup>1</sup> for Indigenous Australians was 3.5 times the rate for non-Indigenous Australians (ABS and AIHW 2005). The lack of appropriate housing means that sometimes people choose to live in public areas. This is particularly relevant for the Indigenous population for whom homelessness is sometimes viewed quite differently, both spiritually and culturally (Keys Young 1998). Memmott, Long and Chambers (2003) distinguished between 'public place dwellers' (who do not live in a boxed dwelling but argue that they are both 'placed' and 'homed'), and other homeless people who may be seeking accommodation because of relationship breakdown, escaping domestic violence, or for other reasons. The lack of resources in terms of income as well as the housing situation in Australia means there are significant barrier for securing appropriate housing (Birdsall-Jones and Shaw 2008).

In Chapter 4, the absence of health and education services locally, as well as the cultural and socially driven reasons for movement was introduced. These population movements are an added dimension to the issue of Indigenous homelessness and overcrowding. The obligation of providing familial support for kin and visitors means that overcrowding occurs more in Indigenous homes than non-Indigenous. While there are various degrees of homelessness which Indigenous people experience differently from non-Indigenous people, the census 5% Sample File does not allow for that analysis. Instead, in this chapter, the issue of housing tenure and overcrowding is analysed.

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 and Morrison 2001), as well as more specifically for the Indigenous population of Australia (Bailie and Wayte 2006; Pholeros, Rainow and Torzillo 1993). The efficacy of any policy responses to high levels of overcrowding 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

---

<sup>1</sup> The standard definition of homelessness is classified in three levels: people without conventional accommodation; people who move frequently from one temporary shelter to another; and people in boarding houses (ABS and AIHW 2005).

Indigenous and other households in public or community rental compared to other tenure types. Furthermore, Memmott et al. (2009) identified a number of intrinsic benefits of home ownership including stability and the ability to pass a house down in the family.

The effects of overcrowding, poor quality housing and tenure type are likely to be quite different across the lifecourse. While all age groups are likely to be adversely affected by poor housing outcomes, the young in particular are more likely to be impacted, given the relationship between education participation and attendance. Furthermore, the ability and motivation to control one's housing status is also likely to vary. The housing outcomes of children are in many ways beyond their control, with agency and access to economic resources increasing into adulthood. Therefore, policies aimed at improving the housing outcomes of children will need to address the other members of the household. Housing needs are also likely to vary with the space required and the need for stability changing dramatically as one moves across the different stages of the lifecourse. That is, the type, determinants and effects of housing outcomes are all likely to differ at different points in the lifecourse.

The analysis in this chapter focuses on two aspects of Indigenous housing. In the next section, housing tenure is analysed, with differences between people who own or are purchasing their own home, people in private rental and people in community rental considered. The section that follows considers one measure of overcrowding (the number of usual residents per bedroom), with the final section discussing the implications of the empirical results.

## Housing tenure

The analysis presented in this section considers two aspects of housing tenure. The first aspect is whether or not a person is living in a dwelling that is owned or being purchased by one of the usual residents. The second aspect focuses on people who are living in a rental property, looking at whether or not the person is living in a dwelling rented from the government or community organisation, as opposed to rented in the private housing market.<sup>2</sup> The analysis presented in this chapter excludes people who live in non-private dwellings.

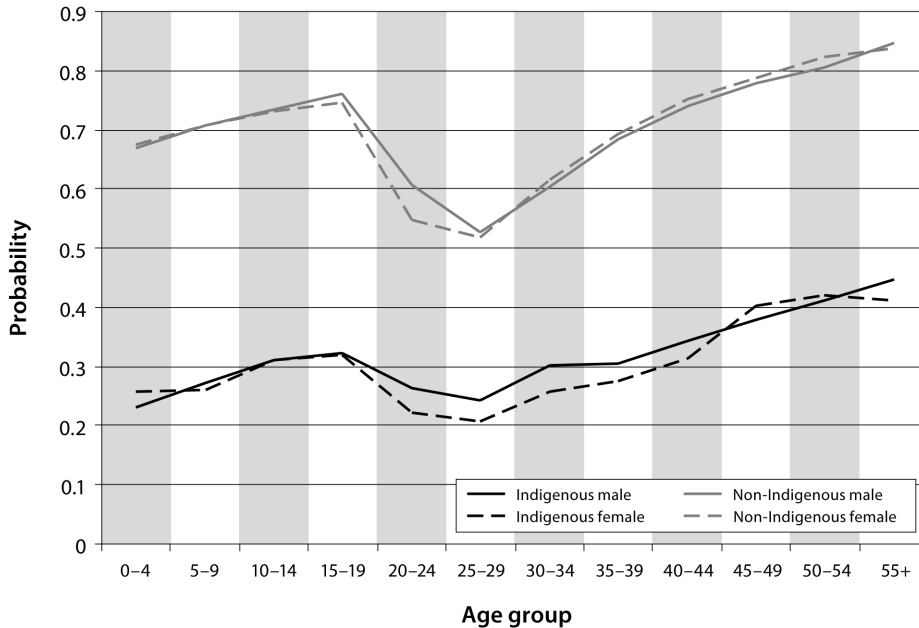
---

<sup>2</sup> In the context of this paper, the private housing market includes dwellings rented from a parent or other relative.

## Home ownership

The percentage of the population who live in a dwelling that is owned or being purchased by one of the dwelling's usual residents is shown in Fig. 7.1.

**Fig. 7.1 Probability of living in a dwelling that is owned or being purchased, 2006**



Source: Customised calculations using the 2006 5% CSE, ABS Census of Population and Housing

The patterns across the lifecourse in terms of living in an owner-occupied house are similar for Indigenous and non-Indigenous Australians. The probability starts off high (when the house is likely to be owned by a parent or guardian), declines substantially in a person's twenties as they leave home and then increases gradually as wealth is accumulated. If anything, the differences across the lifecourse are less for the Indigenous compared to the non-Indigenous population, with the former having a much flatter age profile. While the patterns are similar, the differences in home ownership between Indigenous and non-Indigenous Australians are consistently large across the lifecourse. Proportionately, Indigenous Australians are half as likely to live in an owner-occupied dwelling as non-Indigenous Australians for almost all age groups, with the difference being particularly large for children.

## Modelling home ownership across the lifecourse

Table 7.1 presents the factors associated with the probability of living in a home that is owned or being purchased by a usual resident. Because the income and employment characteristics of the individual are likely to have a substantial impact on the ability to afford one's own home, the analysis is restricted to the 15 years and over age group. As expected from Fig. 7.1, the results presented in Table 7.1 confirm that Indigenous adults are significantly and substantially less likely to live in a home that is owned or being purchased by a usual resident. A comparison between Model 1 and Model 2 shows that some of this difference is removed after controlling for other characteristics of the individual. However, the difference in Model 2 of  $-0.252$  relative to a base case of  $0.872$  is still very large.

**Table 7.1 Factors associated with the probability of living in a dwelling that is owned or being purchased, 2006****Part A: Demographic and geographic variables**

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 3	Model 4
Indigenous	-0.379	-0.252		
Female	0.013	0.022	n.s.	n.s.
Aged 15–19	0.157	0.081	0.056*	n.s.
Aged 20–24	n.s.	0.047	n.s.	n.s.
Aged 25–29	-0.078	n.s.	-0.074	-0.092
Aged 35–39	0.081	0.012	-0.054	n.s.
Aged 40–44	0.135	0.022	n.s.	n.s.
Aged 45–49	0.173	0.030	n.s.	n.s.
Aged 50–54	0.200	0.040	n.s.	0.106
Aged 55 +	0.241	0.074	0.104	0.206
Aged 15–19, female	-0.031	-0.041	n.s.	n.s.
Aged 20–24, female	-0.070	-0.049	n.s.	n.s.
Aged 25–29, female	-0.020	-0.016	n.s.	n.s.
Aged 35–39, female	n.s.	0.007	n.s.	n.s.
Aged 40–44, female	n.s.	0.013	n.s.	n.s.
Aged 45–49, female	n.s.	0.015	n.s.	n.s.
Aged 50–54, female	0.012	0.022	n.s.	n.s.
Aged 55 + , female	-0.023	0.021	n.s.	n.s.
Victoria		0.030	0.061	0.073
Queensland		0.004	-0.045	-0.041
South Australia		0.020	0.037*	0.086
Western Australia		0.027	-0.040	n.s.
Tasmania		0.032	0.129	0.168
Northern Territory		-0.099	-0.069	n.s.
Australian Capital Territory		n.s.	n.s.	n.s.
Major city		n.s.	0.053	0.030
Probability of the base case <sup>b</sup>	0.607	0.872	0.765	0.516
Pseudo R-Squared	0.0605	0.1921	0.2014	0.2570
Number of observations	698 879	559 079	8 444	8 444

## Part B: Socioeconomic and other variables

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 3	Model 4
Changed usual residence in the last 5 years		-0.213	-0.096	-0.141
Changed usual residence in the last year		-0.117	-0.092	-0.133
Secondary school student		0.063	0.143	0.197
Tertiary student		-0.006	0.063	0.080
Part-time student		n.s.	n.s.	n.s.
Completed Year 9 or less		-0.037	-0.150	-0.145
Completed Year 10 or 11		-0.012	-0.042	-0.036
Does not have any qualifications		-0.008	-0.066	-0.085
Has a Diploma or Certificate only		0.014	n.s.	n.s.
Speaks another language and English well		-0.014	-0.447	-0.342
Speaks another language and English not well or not at all		-0.039	-0.285	-0.227
Never married		-0.162	-0.230	-0.162
Divorced, separated or widowed		-0.170	-0.196	-0.120
Has had at least one child (for females)		-0.014	-0.040	n.s.
Has a 'core activity' need for assistance		-0.022	n.s.	n.s.
Provides unpaid child care (all)		0.008	n.s.	n.s.
Provides unpaid child care for children other than own		n.s.	n.s.	n.s.
Provides unpaid assistance for someone with a disability		n.s.	n.s.	n.s.
Not employed		-0.047	-0.160	-0.135
Owner or manager of enterprise or contributing family worker		0.028	0.129	0.164
Employed in the government sector		0.015	-0.030	n.s.
Employed part-time		n.s.	-0.046	-0.036*
Undertook volunteer work		0.005	0.047	0.072
Low individual income (less than \$250pw)		n.s.	n.s.	n.s.
High individual income (\$1,000pw or more)		0.045	0.099	0.152
Lives in a mixed Indigenous and non-Indigenous household				0.302
Probability of the base case <sup>b</sup>	0.607	0.872	0.765	0.516
Pseudo R-Squared	0.0605	0.1921	0.2014	0.2570
Number of observations	698 879	559 079	8 444	8 444

<sup>a</sup> n.s. = Those variables that were not significant at the 10% level of significance.

\* = Those variables that were significant at the 10% level of significance but not the 5% level

<sup>b</sup> The base case for the total population is non-Indigenous. For all estimates, the base case is aged 30–34 years and in addition, for Models 2–4 (for the total population and for the Indigenous estimates), the base

case lives in New South Wales, outside of a major city, did not change usual residence in the last five years, is not a student, has completed Year 12, has a university degree, speaks English only, is currently married, has not had any children, does not provide unpaid child care or assistance to someone with a disability, is employed as an employee in the private sector, works full-time, did not undertake volunteer work and has an income between \$250 and \$1 000 per week. For Model 4, an additional characteristic of the base case is that they are living in an Indigenous-only household.

Source: Customised calculations using the 2006 5% CSF, ABS Census of Population and Housing

There are a number of characteristics identified as being associated with home ownership for the Indigenous population. Interestingly, while significant, the difference between Indigenous people who live in a major city and Indigenous people who live in the rest of Australia was not large. This is supported somewhat by the results presented in Biddle (2008), who found that home ownership rates for the Indigenous population were slightly lower in major cities than they were in the rest of non-remote Australia. It is in remote as opposed to regional Australia where home ownership was found by Biddle (2008) to be lowest, and in that sense it is unfortunate that it is not possible using the 5% CSF to separately identify remote from non-remote, and in particular regional, Australia.

Individuals who changed usual residence in the previous five years were significantly less likely to live in an owner-occupied dwelling than a person who has been in the same usual residence since 2001. Given that all individuals who changed usual residence in the last year are likely to have changed usual residence in the last five years as well, the second migration variable is in addition to the first. It would seem, therefore, that recent movers have an even lower probability than people who moved in the last five years only to live in an owner-occupied dwelling. Transaction costs when buying a home are quite high and people who have changed usual residence recently are likely to delay purchasing a home until they are settled in an area. Furthermore, there is likely to be an element of reverse causality, with home ownership placing a constraint on residential mobility.

The majority of the variables in Models 3 and 4 are related in some way to access to economic resources either at the household or individual level. It is interesting, therefore, that even after controlling for these characteristics, the variable for living in a mixed Indigenous and non-Indigenous household (in Model 4) is significant and has such a large marginal effect. It is impossible to tell with the available data whether this is related to unobserved preferences or the contribution of other household members to the ability to afford a house. Nonetheless, it would appear that the composition of an Indigenous Australian's household is an important predictor of whether or not they are a home owner.

## Community or government housing

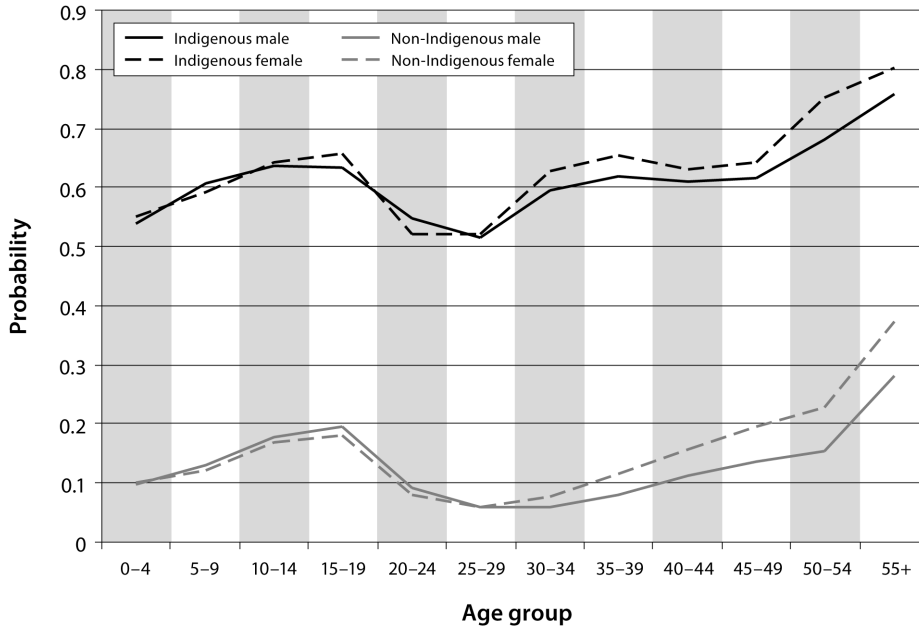
While there are many costs and benefits of home ownership (financial and otherwise) there are also substantial differences depending on landlord type for people who are renting. In terms of access, community or government rental is usually rationed according to some measure of need (typically socioeconomic and demographic status), with supply also restricted. Private rental on the other hand, is usually allocated by the market. There are, however, potential access issues in the private rental market as well, including the geographic distribution of rental housing (AIHW 2005), and the ability to tap into available networks to secure rental properties from family and/or friends.

Even for a given rental property leased via an agent, access might vary depending on the characteristics of the prospective renter (Yinger 1986). Landlords or agents may be less likely to rent to a particular sex, age or ethnicity group, with family circumstances also being taken into account. Such discrimination could be statistical as opposed to taste-based in the sense that these characteristics are used as markers for other undesirable but unobserved characteristics of the applicant (for example the likelihood of not paying rent or damaging the property). Either way, there is evidence that some groups are less likely to be offered a rental place given their observed characteristics (Yinger 1986), and it is quite possible that this impacts on Indigenous Australians. Another difference between community or government housing and private rental is the cost of the rental accommodation. The former is likely to be heavily subsidised by the government or community organisation (hence the need to ration), leaving a greater share of the household budget to be spent on other goods or services. The final major difference between community or government and private rental is the security of tenure. Once access to a community or government house has been obtained, the renter often has a reasonably secure and stable housing situation (AIHW 2005). This is likely to change when the income or family composition of the household changes.

Compared to private rental, community or government rental therefore has a number of attractive aspects for many Indigenous Australians (Sanders 2005), and may even have benefits over home ownership. Focusing on people in a rented dwelling, Fig. 7.2 shows the proportion of Indigenous and non-Indigenous Australians who are renting from a government or community organisation. While there are also likely to be differences in access and outcomes for people in a community as opposed to government rental, sample sizes are not sufficiently large to analyse differences between the two. Furthermore, the distinction may not always be clear to respondents to the census.



**Fig. 7.2 Probability of living in a dwelling rented from a government or community organisation, 2006**



Source: Customised calculations using the 2006 5% CSE, ABS Census of Population and Housing

The probability of living in a dwelling that is rented from a government or community organisation (as opposed to private rental) starts off reasonably low for the 0–4 years age group. It then increases throughout childhood, reaching a local maximum amongst 15–19 year olds. Given the targeting of families and the elderly when it comes to the allocation of public or community housing, it is not surprising that the probability of living in such households is at its lowest during a person’s twenties. The probability increases from a person’s early-thirties onwards as people have families of their own, with the highest rate across the lifecourse occurring in the 55–plus age group. An interesting finding in Fig. 7.2 is the higher probability for females (from the early-thirties onwards). This likely reflects the greater proportion of single-parent females compared to single-parent males.

Similar to the findings presented in Fig. 7.1, the results in Fig. 7.2 show no discernable differences between Indigenous and non-Indigenous Australians in terms of patterns across the lifecourse. Rather, it is the difference in levels that is most striking. Proportionately speaking, Indigenous Australians in a rented dwelling are around five times more likely than non-Indigenous Australians to

be in a community- or government-rented dwelling. As shown in Table 7.2, this is caused in part by the types of areas in which Indigenous Australians live and their other characteristics.

## Modelling community or government housing across the lifecourse

The results presented in Table 7.2 show the factors associated with the probability of living in a dwelling that is rented from a government or community organisation, as opposed to through a private rental agreement. Once again, the analysis for the table focuses on the 15 years and over age group, and on individuals in rented dwellings only. The results presented in Table 7.2 confirm that Indigenous Australians are more likely to live in community or government rental than non-Indigenous Australians. While the magnitude of the difference declines substantially once other characteristics have been controlled for, the difference between Indigenous and non-Indigenous Australians in Model 2 is still quite large. The marginal effect for the Indigenous variable (0.175) dwarfs the predicted probability of the base case (0.030), as well as the marginal effects for all other variables. While there are significant differences by age and sex for the total population (in Model 2), this is not the case for the Indigenous population (Models 3 and 4). While the first three sets of variables (sex, age and the interaction between the two) are jointly significant, none of the individual variables are significant, even at the 10 per cent level of significance. It would seem, therefore, that the differences across the lifecourse identified in Fig. 7.2 are due to the variation in other characteristics controlled for in the model.

**Table 7.2 Factors associated with the probability of living in a dwelling that is rented from a government or community organisation, population aged 15 years and over, in a rented dwelling, 2006**

**Part A: Demographic and geographic variables**

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 3	Model 4
Indigenous	0.403	0.175		
Female	0.017	-0.006	n.s.	n.s.
Aged 15–19	0.124	0.007	n.s.	n.s.
Aged 20–24	0.028	n.s.	n.s.	n.s.
Aged 25–29	n.s.	-0.004 *	n.s.	n.s.
Aged 35–39	0.021	0.011	n.s.	n.s.
Aged 40–44	0.051	0.010	n.s.	n.s.
Aged 45–49	0.073	0.018	n.s.	n.s.
Aged 50–54	0.092	0.021	n.s.	n.s.
Aged 55 +	0.211	0.027	n.s.	n.s.
Aged 15–19, female	-0.018	0.007 *	n.s.	n.s.
Aged 20–24, female	-0.020	n.s.	n.s.	n.s.
Aged 25–29, female	-0.012	n.s.	n.s.	n.s.
Aged 35–39, female	0.008 *	-0.006	n.s.	n.s.
Aged 40–44, female	0.008 *	n.s.	n.s.	n.s.
Aged 45–49, female	0.013	n.s.	n.s.	n.s.
Aged 50–54, female	0.018	n.s.	n.s.	n.s.
Aged 55 +, female	0.017	n.s.	n.s.	n.s.
Victoria		-0.007	n.s.	n.s.
Queensland		-0.006	n.s.	n.s.
South Australia		0.039	0.195	0.186
Western Australia		0.005	0.172	0.137
Tasmania		0.014	-0.112	-0.097 *
Northern Territory		0.068	0.148	0.115
Australian Capital Territory		0.092	0.277	0.266
Major city		0.004	-0.089	-0.075
Probability of the base case <sup>b</sup>	0.061	0.030	0.279	0.437
Pseudo R-Squared	0.1234	0.3159	0.3287	0.3646
Number of observations	177 696	137 494	5 324	5 324

## Part B: Socioeconomic and other variables

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 3	Model 4
Changed usual residence in the last 5 years		-0.025	-0.198	-0.258
Changed usual residence in the last year		-0.015	-0.106	-0.123
Secondary school student		-0.020	-0.124	-0.139
Tertiary student		-0.016	-0.117	-0.150
Part-time student		0.027	0.207	0.223
Completed Year 9 or less		0.042	0.154	0.148
Completed Year 10 or 11		0.016	0.075	0.072
Does not have any qualifications		0.029	0.143	0.166
Has a Diploma or Certificate only		0.019	0.095*	0.106*
Speaks another language and English well		0.022	0.314	0.273
Speaks another language and English not well or not at all		0.025	0.391	0.352
Never married		0.039	0.090	n.s.
Divorced, separated or widowed		0.026	-0.053	-0.126
Has had at least one child (for females)		0.017	0.169	0.156
Has a 'core activity' need for assistance		0.036	n.s.	0.084
Provides unpaid child care (all)		-0.004	-0.064	-0.070
Provides unpaid child care for children other than own		n.s.	n.s.	n.s.
Provides unpaid assistance for someone with a disability		0.020	0.057	0.069
Not employed		0.066	0.214	0.187
Owner or manager of enterprise or contributing family worker		-0.019	-0.233	-0.308
Employed in the government sector		0.018	0.137	0.113
Employed part-time		0.021	0.121	0.118
Undertook volunteer work		0.002*	-0.038	n.s.
Low individual income (less than \$250pw)		0.018	0.100	0.128
High individual income (\$1,000pw or more)		-0.016	-0.105	-0.125
Lives in a mixed Indigenous and non-Indigenous household				-0.259
Probability of the base case <sup>b</sup>	0.061	0.030	0.279	0.437
Pseudo R-Squared	0.1234	0.3159	0.3287	0.3646
Number of observations	177 696	137 494	5 324	5 324

<sup>a</sup> n.s. = Those variables that were not significant at the 10% level of significance.

\* = Those variables that were significant at the 10% level of significance but not the 5% level

<sup>b</sup> The base case for the total population is non-Indigenous. For all estimates, the base case is aged 30–34 years and in addition, for Models 2–4 (for the total population and for the Indigenous estimates), the base case lives in New South Wales, outside a major city, did not change usual residence in the last five years,

is not a student, has completed Year 12, has a university degree, speaks English only, is currently married, has not had any children, does not provide unpaid child care or assistance to someone with a disability, is employed as an employee in the private sector, works full-time, did not undertake volunteer work, and has an income between \$250 and \$1 000 per week. For Model 4, an additional characteristic of the base case is that they are living in an Indigenous-only household.

Source: Customised calculations using the 2006 5% CSE, ABS Census of Population and Housing

Some of the variables that have been identified earlier in this paper as varying across the lifecourse and found to be significantly associated with community or government rental are residential mobility, education attendance, marital status, child rearing and employment. All of these differences are likely to reflect eligibility rules. One variable that potentially represents differential access across the Indigenous population in terms of community and government housing is living in a major city. The lower probability for those who changed usual residence in the last five years (and especially who changed usual residence in the last year) is likely to reflect the greater stability of community and government housing. This may be because individuals who move frequently are unable to access community or government housing, or it may be because that tenure type places a break on residential mobility. Either way, there is clearly a significant interaction between the two variables.

## Overcrowding

There is a large (and growing) literature on the relationship between a person's housing circumstances and their health outcomes. One aspect of this literature is the adequacy of the housing stock to meet the sanitary needs of the residents (Bailie and Wayte 2006; Pholeros, Rainow and Torzillo 1993). Unfortunately, the census does not have very good information on the quality of Indigenous housing. The other aspect of housing that is covered in the literature is overcrowding. Here the link is also reasonably straightforward – the greater the concentration of people in a house, the more likely it is that communicable diseases will spread across the residents. A person's health is not the only thing that overcrowding impacts upon. Biddle (2007) showed a significant negative association between overcrowding and Indigenous education participation. Importantly, these results held after controlling for the size of the household in terms of usual residents. 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.

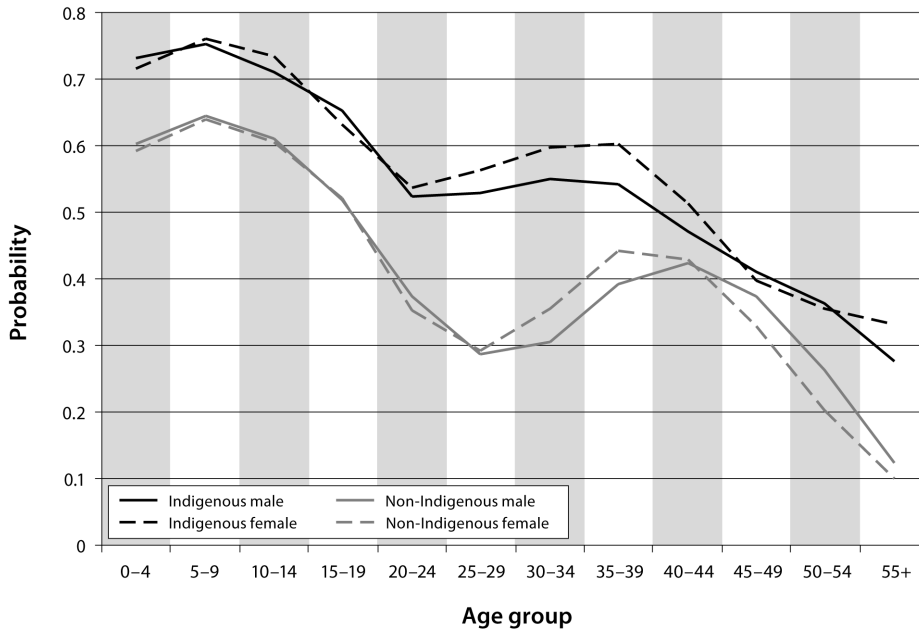
This distinction highlights one of the difficulties in measuring variation in overcrowding across population subgroups (for example Indigenous compared to non-Indigenous Australians), or across different regions in Australia. That is,

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.

The most comprehensive measure available on standard census outputs is the housing utilisation measure based on the Canadian occupancy standards which takes into account the number of bedrooms in the dwelling as well as the size and demographic composition of the usual residents (Biddle 2008). Unfortunately, the housing and person information available on the 5% CSF is not sufficiently detailed to construct this occupancy measure, nor is it made available as a standard output. For this reason, the analysis in this section uses the slightly cruder proxy for overcrowding, namely the number of people per bedroom and in particular, the probability of living in a dwelling where there is more than one person per bedroom. As mentioned, Biddle (2007) showed that this variable is associated with education participation for Indigenous youth, whereas Biddle (2008) showed that the proxy for overcrowding had a very high correlation at the area level with the aforementioned housing utilisation measure (with a coefficient of 0.987).

The probability across the lifecourse of living in a dwelling with more than one person per bedroom is presented in Fig. 7.3. Clearly, the probability of living in a house with more than one person per bedroom declines with age. For the Indigenous population, this continues up until the 20–24 year age group, whereas for the non-Indigenous population, the local minimum is for the 25–29 year age group. This is not surprising, given the high incidence of siblings sharing rooms. Beyond these two ages, the probability then rises into and across the thirties and early forties as people cohabit and have children of their own.

**Fig. 7.3 Probability of living in a rented dwelling with more than one person per bedroom, 2006**



Source: Customised calculations using the 2006 5% CSE, ABS Census of Population and Housing

While there are clear lifecourse patterns to this proxy measure of overcrowding, it is also clear that there is a large and consistent gap between Indigenous and non-Indigenous Australians. Indigenous children are about 10 percentage points more likely to live in such dwellings, with the difference even greater in their late-twenties and thirties.

## Modelling overcrowding across the lifecourse

Using the probability of living in a dwelling that has more than one person per bedroom as a proxy, Table 7.3 presents results that consider the factors associated with overcrowding. Given the high incidence of siblings sharing bedrooms, a situation that does not tend to be classified as overcrowding, the analysis focuses on the 15 years and over age group. In addition to the explanatory variables used in previous estimations in this chapter, the model for this dependent variable includes the tenure and structure of the dwelling as explanatory variables. The base case is a house that is owned or being purchased by one of the usual residents.

**Table 7.3 Factors associated with the probability of living in a dwelling that has more than one person per bedroom, population aged 15 years and over, 2006****Part A: Demographic and geographic variables**

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 1	Model 2
Indigenous	0.176	0.153		
Female	0.049	-0.095	-0.065 *	-0.056 *
Aged 15–19	0.209	0.273	0.150	0.135
Aged 20–24	0.066	0.164	n.s.	n.s.
Aged 25–29	-0.019	0.039	n.s.	n.s.
Aged 35–39	0.085	0.046	n.s.	n.s.
Aged 40–44	0.115	0.065	-0.084	-0.067
Aged 45–49	0.067	0.041	-0.129	-0.111
Aged 50–54	-0.043	-0.039	-0.180	-0.148
Aged 55 +	-0.182	-0.174	-0.265	-0.212
Aged 15–19, female	-0.045	0.092	n.s.	n.s.
Aged 20–24, female	-0.062	0.051	n.s.	n.s.
Aged 25–29, female	-0.040	0.014	n.s.	n.s.
Aged 35–39, female	n.s.	-0.021	n.s.	n.s.
Aged 40–44, female	-0.040	-0.051	n.s.	n.s.
Aged 45–49, female	-0.083	-0.079	n.s.	n.s.
Aged 50–54, female	-0.106	-0.099	n.s.	-0.088 *
Aged 55 +, female	-0.081	-0.067	n.s.	n.s.
Victoria		-0.006	-0.096	-0.088
Queensland		-0.029	0.053	0.054
South Australia		-0.032	n.s.	n.s.
Western Australia		-0.086	0.033 *	0.045
Tasmania		-0.017	n.s.	n.s.
Northern Territory		0.084	0.148	0.157
Australian Capital Territory		-0.070	n.s.	n.s.
Major city		0.005	-0.085	-0.086
Probability of the base case <sup>b</sup>	0.306	0.277	0.421	0.318
Pseudo R-Squared	0.0823	0.1543	0.1527	0.1588
Number of observations	711 953	555 224	8 313	8 313



## Part B: Socioeconomic and other variables

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 1	Model 2
Changed usual residence in the last 5 years		-0.043	-0.033	-0.034
Changed usual residence in the last year		-0.011	0.032	0.025 *
Secondary school student		0.017	n.s.	n.s.
Tertiary student		0.013	-0.068	-0.061
Part-time student		-0.017	n.s.	n.s.
Completed Year 9 or less		0.020	0.050	0.052
Completed Year 10 or 11		0.008	0.034	0.035
Does not have any qualifications		0.021	0.096	0.090
Has a Diploma or Certificate only		n.s.	n.s.	n.s.
Speaks another language and English well		0.117	0.118	0.127
Speaks another language and English not well or not at all		0.230	0.125	0.130
Never married		-0.101	-0.106	-0.074
Divorced, separated or widowed		-0.134	-0.108	-0.075
Has had at least one child (for females)		0.169	0.111	0.116
Has a 'core activity' need for assistance		0.027	-0.048	-0.052
Provides unpaid child care (all)		0.229	0.171	0.163
Provides unpaid child care for children other than own		-0.092	n.s.	n.s.
Provides unpaid assistance for someone with a disability		0.006	n.s.	n.s.
Not employed		-0.004 *	n.s.	n.s.
Owner or manager of enterprise or contributing family worker		n.s.	-0.065	-0.063 *
Employed in the government sector		-0.013	n.s.	n.s.
Employed part-time		n.s.	n.s.	n.s.
Undertook volunteer work		0.007	-0.041	-0.036
Low individual income (less than \$250pw)		0.031	0.041	0.033
High individual income (\$1,000pw or more)		-0.034	-0.056	-0.048
Renting from private organisation, family or friend		0.037	n.s.	0.026 *
Renting from government or community organisation		0.078	0.156	0.200
Other tenure type		0.042	n.s.	n.s.
Lives in semi-detached, row or terrace house		-0.019	-0.105	-0.091
Lives in flat, unit or apartment		0.015	-0.098	-0.078
Lives in other dwelling type		0.365	0.122	0.129
Lives in a mixed Indigenous and non-Indigenous household				0.115

Probability of the base case <sup>b</sup>	0.306	0.277	0.421	0.318
Pseudo R-Squared	0.0823	0.1543	0.1527	0.1588
Number of observations	711 953	555 224	8 313	8 313

<sup>a</sup> n.s. = Those variables that were not significant at the 10% level of significance.

\* = Those variables that were significant at the 10% level of significance but not the 5% level

<sup>b</sup> The base case for the total population is non-Indigenous. For all estimates, the base case is aged 30–34 years and in addition, for Model 2 (for the total population and for the Indigenous estimates), the base case lives in New South Wales, outside a major city, did not change usual residence in the last five years, is not a student, has completed Year 12, has a university degree, speaks English only, is currently married, has not had any children, does not provide unpaid child care or assistance to someone with a disability, is employed as an employee in the private sector, works full-time, did not undertake volunteer work, has an income between \$250 and \$1 000 per week and lives in a house owned or being purchased. For Model 4, an additional characteristic of the base case is that they are living in an Indigenous-only household.

Source: Customised calculations using the 2006 5% CSF, ABS Census of Population and Housing

The large marginal effect for many of the age groups shows substantial variation in this measure of overcrowding across the lifecourse. However, after controlling for this variation, there is still a significant and substantial difference between Indigenous and non-Indigenous Australians. Importantly, the difference does not change by much after controlling for other characteristics of the individual and their dwelling. That is, to the extent that the most important variables are captured in the model, it would appear that there is something consistent about Indigenous status itself that is associated with living in a dwelling with more than one person per bedroom. This may be something not captured by the census (and hence unobserved in the model) including geographic location. Alternatively, it might be related to a relative preference for such dwellings and household structure.

For the most part, characteristics that are associated with this measure of overcrowding for the total population have the same association for the Indigenous population in isolation. For variables that do have a differently signed association, the magnitudes of the marginal effects are not large. Two variables where there was found to be substantive differences are tenure type and structure of the dwelling. For the total population, dwellings that are owned or being purchased by one of the usual residents (the base case) have the lowest probability of being overcrowded. For the Indigenous population, on the other hand, dwellings that are being rented in the private rental market do not have a significantly different probability of being overcrowded as compared to owner-occupied dwelling (at least at the 5% level of significance). There is, however, a significant difference between those who are renting from a government or community organisation and those in an owner-occupied dwelling. While it is not possible to assign causality with these cross-sectional results, it is clear that

there is significant interaction between tenure and household overcrowding. However, it is also clear that this interaction is different for Indigenous compared to non-Indigenous Australians.

Finally, one of the more interesting findings from the second part of Table 7.3 is that Indigenous Australians who live in a household with both Indigenous and non-Indigenous usual residents are more likely to live in a dwelling that is deemed to be overcrowded than the base case (Indigenous-only households). This is despite the fact that mixed households have on average slightly fewer usual residents than Indigenous-only households. It is interesting to note, therefore, that this is one of the few instances where the coefficient for mixed households in Model 4 is in the same direction as the Indigenous status variable in Models 1 and 2.

## Housing across the Indigenous lifecourse

The results presented in this chapter have shown large differences between Indigenous and non-Indigenous Australians in terms of housing tenure and overcrowding. Importantly, these differences were consistent across the lifecourse and remained after controlling for other characteristics. One of the more relevant findings from the chapter was the interaction between the two main variables of interest. Indigenous Australians who lived in a house that was rented from a government or community organisation are significantly and substantially more likely to live in a house with more than one usual resident per bedroom compared to Indigenous Australians who own their own home or are renting in the private sector. Not everyone can afford to own their own home, and in many of the areas in which Indigenous Australians live, the private housing market is virtually non-existent. Furthermore, there are potential benefits to living in a community-rented house (Sanders 2005). Nonetheless, it needs to be made clear that there are potential trade-offs in terms of overcrowding.

Ultimately, while housing does not feature explicitly in COAG's Closing the Gap targets, there is no doubt that there are important interactions between housing and the measures that are included. Without improvements in the quality and availability of housing for the Indigenous population, it will be very difficult to make substantial inroads into health and education inequality. Conversely, without improvements in Indigenous employment, home ownership is likely to remain low, and overcrowding is likely to continue.