

## 4. Migration and mobility

Population mobility is the spatial movement of people either locally or internationally. In the census, population movement is measured using data based on the place of usual residence. At first glance, census-based analysis on Indigenous population movement suggests much higher rates of migration and mobility relative to the non-Indigenous population. Between 2001 and 2006, 46.5 per cent of the Indigenous population changed their place of usual residence, compared to 43.1 per cent for the non-Indigenous population as reported in Biddle (2009b). Furthermore, Biddle and Prout (2009) identified a much higher percentage of Indigenous Australians being away from their place of usual residence on the night of the census (6.8 per cent) compared to non-Indigenous Australians (4.3 per cent).

While these percentage comparisons paint an initial picture of a relatively mobile Indigenous population, more detailed analysis by geography and across the lifecourse shows a more complex set of patterns that is obscured by a single summary figure. Both populations exhibit a similar pattern of migration and mobility across the lifecourse, with rates starting off high, declining throughout the school years, reaching a peak in a person's mid- to late-twenties, and then declining slowly across a person's thirties, forties and fifties. However, the size and the duration of the different peaks and troughs are often quite different for Indigenous and non-Indigenous Australians.

At a macro level, using previous censuses Taylor (2006) showed that rates of migration for the Indigenous population converged quite dramatically when the age distributions of the two population were controlled for. It is not so much that the Indigenous population is more likely to change usual residence than the non-Indigenous population, but rather that there are more Indigenous Australians who are of the age where migration is at its highest.

At a micro or community level, migration of Indigenous Australians is one of the main drivers of population change. Biddle (2009b) identified the types of areas that Indigenous Australians were moving from or to and also showed that those who do move have a different age profile to those who do not. However, there has been no recent analysis of the characteristics of the people who do move relative to those who do not nor has it been established if this variation across the lifecourse in migration and mobility holds once other characteristics have been controlled for. Furthermore, the relationship between migration or mobility and other socioeconomic characteristics is also important, as these characteristics are likely to determine the level and types of services that people

who have moved might require. Understanding the patterns of migration and mobility across the Indigenous lifecourse as well as the composition of those who do move has important implications for service delivery.

Mobility that is of a temporary nature and does not result in a permanent change of usual residence can also have significant implications for the delivery of services at the local level (Prout 2008). However, the exact type of services that are likely to be called upon depends heavily on the age and characteristics of people who are in an area on a temporary basis. If it is school age students that are highly mobile, then education services are likely to feel the greatest pressure. Movement amongst the elderly or those with poor health is likely to place greater demands on health services.

The analysis in this section focuses on two dependent variables – the probability of a person changing usual residence in the five years preceding the 2006 Census (permanent migration or residential mobility), and the probability of a person being away from their place of usual residence on the night of the census (temporary mobility).<sup>1</sup>

## Permanent migration and residential mobility

People change usual residence for a number of reasons, with the literature (summarised in Greenwood 1997) identifying a number of push and pull factors that make the decision more or less likely. Push factors, or factors related to the person's source area, include local housing or employment market characteristics, political conditions, climatology and the presence or absence of social networks. If on balance the characteristics of potential destination areas (pull factors) are more favourable, then a person is more likely to make the decision to move. However there are significant financial and psychological costs associated with migration that need to be weighed up against the benefits before a potential move is considered worthwhile. Furthermore, the decision to migrate is often made at the family or household level with the gains or losses for one member of the family or household needing to be traded against the gains or losses for other members.

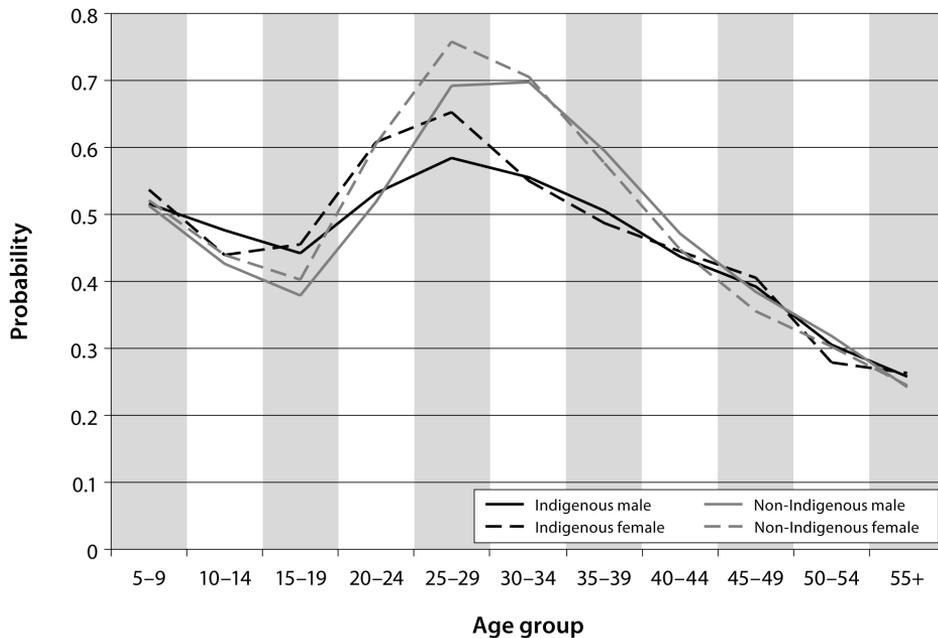
The costs and benefits of migrating are likely to vary substantially across the lifecourse. At a very young age, migration decisions are likely to be based on the employment opportunities or social networks of one's parents. Attendance at school imposes a substantial cost on migrating, with graduation or leaving

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<sup>1</sup> The census is limited in capturing mobility in that while it is able to tell whether a person has moved between two points in time, it says nothing about how many times that person has moved within that time frame.

school often providing a catalyst for a change of residence. As an individual moves towards adulthood, full-time work gives the means to move, with family formation often providing the motivation. As a person and/or their spouse settle into a stable job and their children reach school age, home ownership and firm specific human capital add a substantial cost to be weighed up against the diminishing benefits of moving. This variation across the lifecycle is summarised in Fig. 4.1, which shows the percentage of Indigenous and non-Indigenous males and females who changed their place of usual residence between 2001 and 2006 by five-year age cohorts defined at the end of the migration period.<sup>2</sup>

**Fig. 4.1 Probability of changing place of usual residence, 2001–06**



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

In general, a similar pattern of migration across the lifecycle is followed by all four demographic groups as shown in Fig. 4.1. Propensity to have moved starts off reasonably high (for those aged 5–9 years) and then declines steadily throughout compulsory schooling age. Beyond the age of 15, however, the

<sup>2</sup> In the population literature, a distinction is made between migration and residential mobility (Greenwood 1997). The latter refers to any change in a person's place of usual residence, whereas the former refers to a move from one area to another. Unfortunately, the 5% CSF does not have sufficient geographic detail to separately identify the two.

propensity to change usual residence increases substantially, reaching a peak in a person's mid- to late-twenties. There is then a gradual decline, with people aged 55 years and over having the lowest propensity of all four groups.

The two major differences between the Indigenous and non-Indigenous plots in Fig. 4.1 point to key differences in the cause and effect of long-term migration. The rate of migration for the Indigenous population stays relatively high for people aged 5–20 years. This is likely to both be a reflection of, and potentially an influence on, a relative lack of engagement with formal education. However, the non-Indigenous population in their mid- to late-twenties reach a much higher peak than their Indigenous counterparts. For example, around three-quarters of non-Indigenous females aged 25–29 years changed their place of usual residence in the five years that preceded the most recent census. Biddle and Hunter (2006) speculate that this is partly due to lower rates of employment-driven mobility for the Indigenous population.

One of the interesting points to note from Fig. 4.1 is that there are very few ages where the probability of changing usual residence is higher for the Indigenous population compared to the non-Indigenous population. These generally higher age-specific rates of migration are confirmed in the modelling results presented below.

## Modelling residential mobility

The dependent variable for the analysis presented in Table 4.1 is the probability that a person aged 15 years and over changed their place of usual residence between 2001 and 2006. All the explanatory variables are defined based on information from the 2006 Census and hence reflect a person's characteristics after the decision on whether or not to change usual residence has been made. Results are once again presented for four separate models, split across two tables for ease of presentation. A separate set of estimates is given in Table 4.2 for the probability of a person aged 5–14 years having changed their place of usual residence.

**Table 4.1 Factors associated with the probability of changing place of usual residence, population aged 15 years and over, 2001–06****Part A: Demographic and geographic variables**

Explanatory variables <sup>a</sup>	Total population		Indigenous population	
	Model 1	Model 2	Model 3	Model 4
Indigenous	-0.023	-0.034		
Female	0.008	0.017	n.s.	n.s.
Aged 15–19	-0.314	-0.214	-0.090	-0.106
Aged 20–24	-0.175	-0.130	n.s.	n.s.
Aged 25–29	n.s.	0.011	n.s.	n.s.
Aged 35–39	-0.103	-0.106	n.s.	-0.063*
Aged 40–44	-0.224	-0.234	-0.160	-0.160
Aged 45–49	-0.311	-0.326	-0.219	-0.242
Aged 50–54	-0.378	-0.400	-0.305	-0.322
Aged 55+	-0.453	-0.479	-0.345	-0.351
Aged 15–19, female	0.011	n.s.	n.s.	n.s.
Aged 20–24, female	0.065	0.050	0.092	0.101
Aged 25–29, female	0.057	0.044	0.110	0.118
Aged 35–39, female	-0.024	n.s.	n.s.	n.s.
Aged 40–44, female	-0.030	n.s.	n.s.	n.s.
Aged 45–49, female	-0.036	-0.011	0.084	0.099
Aged 50–54, female	-0.025	n.s.	n.s.	n.s.
Aged 55+, female	n.s.	n.s.	n.s.	n.s.
Victoria		-0.016	0.039	0.043
Queensland		0.079	0.044	0.053
South Australia		-0.010	n.s.	n.s.
Western Australia		0.057	0.054	0.073
Tasmania		-0.011*	-0.051	-0.062
Northern Territory		0.035	-0.096	-0.102
Australian Capital Territory		0.022	n.s.	n.s.
Major city		-0.043	n.s.	n.s.
Probability of the base case <sup>b</sup>	0.696	0.767	0.690	0.637
Pseudo R-Squared	0.0903	0.1176	0.1063	0.1164
Number of observations	721 797	590 940	8 989	8 626

## Part B: Socioeconomic and other variables

Explanatory variables <sup>a</sup>	Total population			Indigenous population
	Model 1	Model 2	Model 3	Model 4
Secondary school student		-0.049	n.s.	n.s.
Tertiary student		0.039*	0.044	n.s.
Part-time student		-0.024	n.s.	n.s.
Completed Year 9 or less		-0.022	-0.042	-0.037
Completed Year 10 or 11		-0.006	-0.029	n.s.
Does not have any qualifications		-0.078	-0.102	-0.113
Has a Diploma or Certificate only		-0.046	n.s.	n.s.
Speaks another language and English well		-0.012	-0.207	-0.201
Speaks another language and English not well or not at all		0.040	-0.333	-0.341
Never married		-0.012	0.051	0.069
Divorced, separated or widowed		0.093	0.134	0.163
Has had at least one child (for females)		-0.029	n.s.	n.s.
Has a 'core activity' need for assistance		0.020	n.s.	n.s.
Provides unpaid child care (all)		0.009	0.031	0.028*
Provides unpaid child care for children other than own		0.008	n.s.	n.s.
Provides unpaid assistance for someone with a disability		-0.027	-0.036	-0.035
Not employed		0.022	0.026	0.044
Owner or manager of enterprise or contributing family worker		-0.019	n.s.	n.s.
Employed in the government sector		-0.024	-0.063	-0.053
Employed part-time		-0.019	-0.075	-0.071
Undertook volunteer work		-0.033	n.s.	n.s.
Low individual income (less than \$250pw)		-0.015	-0.084	-0.090
High individual income (\$1,000pw or more)		0.027	0.039	0.037*
Lives in a mixed Indigenous and non-Indigenous household				0.080
Probability of the base case <sup>b</sup>	0.696	0.767	0.690	0.637
Pseudo R-Squared	0.0903	0.1176	0.1063	0.1164
Number of observations	721 797	590 940	8 989	8 626

<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, is not a student, has completed Year 12, has a university degree, speaks English only, is currently married, has not had any children, did not change usual residence in the last five years, 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

The results for Model 1 confirm that the relatively high rates of residential mobility recorded for the Indigenous population nationally are a result of Indigenous Australians being disproportionately found in the age groups who are more likely to change usual residence. Once differences across the lifecourse have been controlled for, Indigenous Australians are actually significantly less likely to change usual residence over a five-year period than the non-Indigenous population. After controlling for the other characteristics included in Model 2, the difference between Indigenous and non-Indigenous Australians in the predicted probability of moving is even greater still.

There are a number of interesting marginal effects from the Model 3 estimates, especially when compared to the results for the total population. For the total population, living in a major city is associated with a lower probability of having changed usual residence compared to the base case. For the Indigenous population, however, there was no significant difference. Aggregate results presented in Biddle (2009a) showed a large difference between the remote and non-remote population in terms of the propensity to move. It would appear that this difference may be driven by other observed characteristics.

Indigenous tertiary students are more likely to have changed their place of usual residence than non-students. This was also the case for the total population and is not surprising given the uneven geographic spread of tertiary institutions in Australia. However, there was no significant difference between secondary school students and non-students for the Indigenous population. For the total population, attendance at secondary school appears to impose a large cost on residential mobility. This does not appear to be the case for the Indigenous population.

Other apparent constraints on residential mobility for the total population, namely having had children (for females) and undertaking voluntary work, were also not found to be significant for the Indigenous population.

The set of variables with the largest marginal effects for the Indigenous population are the for language spoken at home, with those who speak a language other than English much less likely to have changed usual residence. The greatest difference is for those who are also reported to either not speak English well or not speak it at all. It may be the case that these individuals genuinely have much lower movement propensities. However, the size of the marginal effect may also have been driven by the way in which the concept of usual residence is framed on the census form.

The final Model 4 presented in Table 4.1 includes an additional variable on whether a particular Indigenous Australian lives in a household that contains non-Indigenous usual residents. Indigenous Australians who do live in such households have a significantly higher probability of having changed usual residence than those who live in households with Indigenous residents only. Not only do the results in Table 4.1 show that non-Indigenous Australians have a higher rate of residential mobility than Indigenous Australians once other characteristics are controlled for, they also show that Indigenous Australians who live with non-Indigenous Australians also have a higher probability of changing usual residence than those who live in Indigenous-only households.

The key determinants of residential mobility are likely to be very different for children as opposed to adults. In particular, mobility decisions are likely to be made on their behalf by parents or guardians. While these decisions may take into account the particular characteristics of the child (including their educational attendance), they are also likely to be influenced by the employment, family and social circumstances of responsible adults.

The results presented in Table 4.2 are based on analysis of the same dependent variable as Table 4.1 (the probability of changing usual residence between 2001 and 2006). However, the analysis is restricted to people aged 5–14 years at the time of the 2006 Census. Clearly, a number of the explanatory variables that were applicable for adults are not applicable for children – marriage, employment, high school completion – and these are left out of the models.

A number of additional characteristics – like whether or not the child lives in a single-parent family – have been included. There are three things to keep in mind when interpreting these household or family-level variables that bear repeating. Firstly, they are only defined for people who were enumerated in a private dwelling that is their own place of usual residence. People in non-private dwellings and those away from their place of usual residence are therefore excluded from the analysis in Models 2, 3 and 4. Secondly, the household characteristics are defined at the end of the period, rather than at the start. This is of course true for a number of other explanatory variables, however, it is a particular issue for the analysis of migration as the very act of migration can have significant impacts on family structure.

The final thing to keep in mind when interpreting the household or family-level variables is that households or families are delineated by the ABS using definitions that do not necessarily reflect the diversity of Indigenous experiences. This is a point that will be returned to in subsequent chapters, especially in Chapter 9 which focuses on outcomes across the Indigenous childhood. These limitations aside, there are a number of insights that one can gain by analysing residential mobility for Indigenous and non-Indigenous children.

**Table 4.2 Factors associated with the probability of changing place of usual residence, population aged 5–14 years, 2001–06**

Explanatory variables <sup>a</sup>	Total population			Indigenous population
	Model 1	Model 2	Model 3	Model 4
Indigenous	0.027	-0.062		
Female	0.009	0.010	n.s.	n.s.
Aged 5–9	0.085	0.074	n.s.	n.s.
Aged 5–9, female	n.s.	n.s.	0.072	0.070
Victoria		-0.041	n.s.	n.s.
Queensland		0.116	n.s.	n.s.
South Australia		-0.034	0.072*	0.068*
Western Australia		0.106	0.083	0.094
Tasmania		n.s.	n.s.	n.s.
Northern Territory		n.s.	-0.127	-0.101
Australian Capital Territory		n.s.	n.s.	n.s.
Major city		-0.041	0.050	n.s.
Speaks another language and English well		0.031	-0.254	-0.193
Speaks another language and English not well or not at all		0.128	-0.418	-0.330
Preschool student		0.065	n.s.	n.s.
Primary or infants student		0.038	n.s.	n.s.
Not a student		n.s.	n.s.	n.s.
Non-government student		-0.041	-0.085	-0.080
Lives in a single-parent family		0.127	0.037	0.054
Lives in a household without anyone employed		0.065	0.035*	0.051
Lives in a household where no-one has completed Year 12		-0.020	n.s.	n.s.
Lives in a household with Indigenous and non-Indigenous adults				0.112
Lives in a household with non-Indigenous adults only				0.204
Probability of the base case <sup>b</sup>	0.430	0.390	0.447	0.352
Pseudo R-Squared	0.0052	0.0310	0.0543	0.0674
Number of observations	101 903	99 137	3 819	3 815

<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 10–14 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, speaks English only, is a high school student, attends a government school, lives in a couple family with children, has someone in the household employed, and has someone in the household who has completed Year 12. 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

Perhaps the most interesting result from Table 4.2 is the difference in the Indigenous coefficient between Models 1 and 2. When only age and sex are controlled for, Indigenous children were more likely to have changed their place of usual residence over the previous five years. However, after controlling for geography and a limited set of individual, family and household variables, Indigenous children were estimated to have a lower predicted probability than an otherwise identical non-Indigenous child. In other words, the higher observed residential mobility for Indigenous children and Indigenous males in particular that was shown in Fig. 4.1, is driven mainly by other observed characteristics.

Indigenous children are less likely to be attending a non-government school, as shown later in this monograph and in Biddle (2007). This variable was found to have a negative association with migration. On the other hand, Indigenous children are more likely to live in a single-parent family or a household without anyone employed. Both of these characteristics were associated with a higher probability of changing usual residence.

There were two major differences between the results from the estimates for Indigenous children only (Model 3) and children from the total population aged 5–14. For the total population, living in a major city was associated with a lower probability of changing usual residence. However, the situation was reversed for the Indigenous population, who had a significantly higher probability. The interaction between remoteness and residential mobility is clearly different for the Indigenous compared to the non-Indigenous population. In addition, speaking a language other than English was associated with a substantially lower probability of having changed usual residence for Indigenous children, whereas for the total population the association was positive.

The final Model presented in Table 4.2 contains two variables that control for the Indigenous status of adult members of the household. Compared to an Indigenous child who lives in a household where all adults are Indigenous, a child who lives in a household with both Indigenous and non-Indigenous adults, or (especially) a child who lives in a household with non-Indigenous adults only, is significantly and substantially more likely to have changed usual residence over the previous five years. As was found with adults, not only does being Indigenous reduce the level of residential mobility (once other characteristics are controlled for) – so too does living in a household with Indigenous adults.

## Temporary mobility

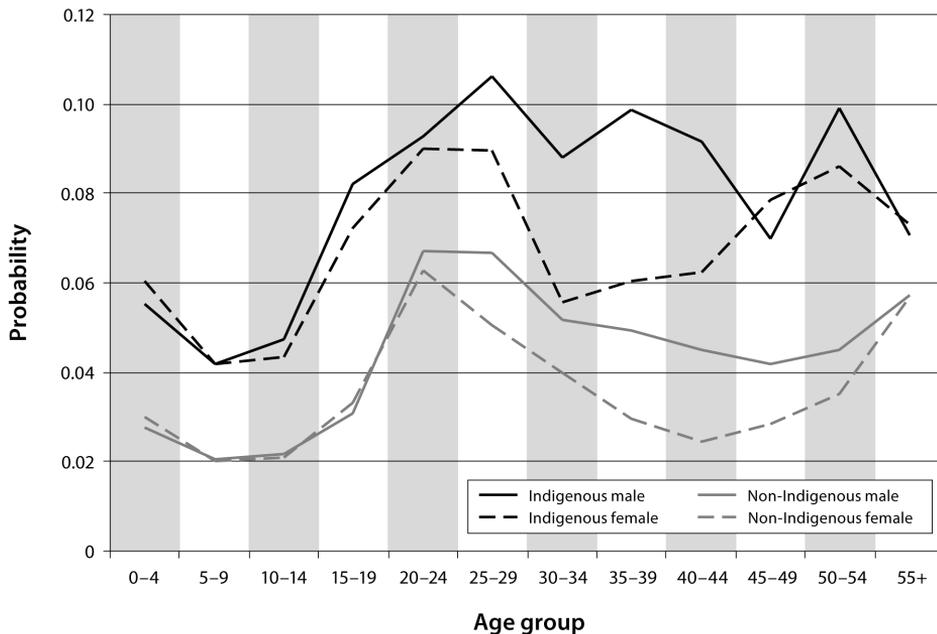
Not all population movement involves a permanent change in a person's place of usual residence. Rather, people are often away from their place of usual residence for a night or more on a temporary basis. This could be for work, to

visit family or as part of a holiday. For the Indigenous population, ceremonial practices and duties, seasonal factors and the lack of mainstream services in their area of usual residence also create a need and desire to be temporarily away from home (Prout 2008).

Like long-term residential mobility, temporary mobility also has implications for the provision of services. Furthermore, there are distinctive patterns to temporary mobility across the lifecourse that impact on, or are driven by the types of services demanded by people away from their place of usual residence.

Patterns in temporary mobility across the lifecourse are summarised in Fig. 4.2. The measure used – the proportion of the population away from their place of usual residence – is a crude proxy for a few reasons. Firstly, the definition of usual residence is problematic for the Indigenous population in general and the remote Indigenous population in particular (Morphy 2006). Secondly, the census is deliberately set at a time when the number of people away from home is likely to be minimised (that is, outside of school holidays and major sporting events). Thirdly, because the census is a snapshot at a particular point in time, it is likely to miss any seasonal variation. These caveats aside, the census snapshot does show some interesting lifecourse variation (conditional on the collection methodology).

**Fig. 4.2 Probability of being away from place of usual residence, 2006**



Source: Customised calculations using the 2006 5% CSF

The patterns of temporary mobility are similar to patterns for residential mobility, at least up until a person's late-twenties. Rates start off reasonably high, decline during school age and then reach a peak in a person's mid- to late-twenties. Rates of temporary mobility then decline only slightly for Indigenous and non-Indigenous males, but then decline sharply for females. Beyond the peak child-bearing and child-rearing age (around 45 years) the rates of temporary mobility then increase for females, reaching rough parity with males aged 55 years and over.

Apart from the divergence between males and females between the ages of 30 and 44, the other major difference between the results presented in Fig. 4.2 and results presented earlier in Fig. 4.1 is the consistent gap between the respective Indigenous and non-Indigenous populations. While the Indigenous population has higher rates of residential mobility for only a few age cohorts, they have higher rates of temporary mobility across the lifecourse.

## Modelling temporary mobility across the lifecourse

The dependent variable for the analysis of temporary mobility is the probability of a person aged 15 years and over<sup>3</sup> being away from their place of usual residence on the night of the census. As it is not possible to create household-level variables for people away from their place of usual residence, it is not possible to include a fourth model with household-level explanatory variables.

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<sup>3</sup> Because it was not possible to use household-level variables for the temporary mobility estimations, there were very few explanatory variables available for 0–14 year olds, and hence a separate estimate is not presented. A simple analysis that controls for age, geography and education attendance showed a significant positive difference between Indigenous and non-Indigenous children. The base case and Indigenous marginal effects for these estimations is given in Table 10.1.

**Table 4.3 Factors associated with the probability of being away from place of usual residence on census night, 2006****Part A: Demographic and geographic variables**

Explanatory variables <sup>a</sup>	Total population		Indigenous population
	Model 1	Model 2	Model 3
Indigenous	0.039	0.024	
Female	-0.013	-0.004*	-0.036
Aged 15–19	-0.021	n.s.	n.s.
Aged 20–24	0.016	0.017	n.s.
Aged 25–29	0.015	0.011	n.s.
Aged 35–39	n.s.	n.s.	n.s.
Aged 40–44	-0.006	n.s.	n.s.
Aged 45–49	-0.010	-0.008	-0.024*
Aged 50–54	-0.007	-0.006	n.s.
Aged 55+	0.005	0.004	-0.023*
Aged 15–19, female	0.020	0.013	n.s.
Aged 20–24, female	0.011	n.s.	0.046*
Aged 25–29, female	n.s.	n.s.	n.s.
Aged 35–39, female	-0.011	-0.009	n.s.
Aged 40–44, female	-0.014	-0.012	n.s.
Aged 45–49, female	-0.005	n.s.	0.125
Aged 50–54, female	n.s.	n.s.	0.051*
Aged 55+, female	0.015	0.013	0.090
Victoria		n.s.	n.s.
Queensland		n.s.	n.s.
South Australia		0.004	0.025
Western Australia		0.010	0.039
Tasmania		-0.006	n.s.
Northern Territory		0.009	0.022
Australian Capital Territory		0.009	n.s.
Major city		-0.020	-0.021
Probability of the base case <sup>b</sup>	0.051	0.053	0.065
Pseudo R-Squared	0.0104	0.0348	0.0456
Number of observations	733 982	580 455	8 946

## Part B: Socioeconomic and other variables

Explanatory variables <sup>a</sup>	Total population		Indigenous population
	Model 1	Model 2	Model 3
Secondary school student		-0.028	-0.025
Tertiary student		0.005	0.024*
Part-time student		-0.008	-0.025*
Completed Year 9 or less		n.s.	n.s.
Completed Year 10 or 11		n.s.	n.s.
Does not have any qualifications		-0.006	n.s.
Has a Diploma or Certificate only		n.s.	n.s.
Speaks another language and English well		-0.018	n.s.
Speaks another language and English not well or not at all		-0.027	n.s.
Never married		0.014	0.016
Divorced, separated or widowed		0.011	n.s.
Has had at least one child (for females)		-0.005	n.s.
Changed usual residence in the last 5 years		n.s.	n.s.
Changed usual residence in the last year		0.013	0.046
Has a 'core activity' need for assistance		-0.003	n.s.
Provides unpaid child care (all)		-0.017	n.s.
Provides unpaid child care for children other than own		0.024	n.s.
Provides unpaid assistance for someone with a disability		n.s.	n.s.
Not employed		0.025	0.022
Owner or manager of enterprise or contributing family worker		0.002	n.s.
Employed in the government sector		-0.002	n.s.
Employed part-time		-0.007	-0.020
Undertook volunteer work		0.005	0.019
Low individual income (less than \$250pw)		-0.007	-0.013
High individual income (\$1,000pw or more)		0.028	0.030
Probability of the base case <sup>b</sup>	0.051	0.053	0.065
Pseudo R-Squared	0.0104	0.0348	0.0456
Number of observations	733 982	580 455	8 946

<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 male and aged 30–34 years and in addition, for Models 2–3 and for the Indigenous estimates, the base case lives in New South Wales, outside a major city, is not a student, has completed Year 12, has a university degree, speaks English only, is currently married, has not had any children, did not change usual residence in the last five years, 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.

Unlike the analysis of residential mobility presented in Table 4.1, the results presented in Table 4.3 show that Indigenous Australians have a significantly higher probability of being temporarily mobile (that is, away from their place of usual residence on the night of the census) compared to the non-Indigenous population. While the size of the marginal effect declines slightly when other characteristics are controlled for (in Model 2), the difference between Indigenous and non-Indigenous Australians is still significant and quite large relative to the probability of the base case.

There are a number of other characteristics that have a significant and reasonably large association with the probability of being away from one's place of usual residence. Secondary students have a significantly lower probability than those not participating in education, whereas Australians not in a registered marriage have a significantly higher probability than people who are. Interestingly, Australians not employed have a higher probability of being away from their place of usual residence than those who are employed. It would appear that the fact that many people travel for work does not outweigh the stronger ties to an area that results from being not employed.

A female who has had a child is estimated to have a lower probability of being away from her place of usual residence than a female who has not. The size of the marginal effect, however, is quite small. On the other hand, the (negative) marginal effect for providing unpaid child care is substantially larger. Given females are substantially more likely to provide such care, it would appear that it is current responsibilities as opposed to historical fertility decisions that is driving the difference between males and females in the rates of temporary mobility between the ages of 25 and 54, shown in Fig. 4.2.

Unlike the previous tables in this and other chapters, there were no individual-level variables that have an association in the opposite direction for the Indigenous population compared to the total population. There are, however, a few variables for which the magnitude of the marginal effect is much larger for the Indigenous estimates.

Across the total population, having changed usual residence in the preceding year is associated with a higher probability of being away from that new place of usual residence on census night. However, the marginal effect for the Indigenous population is more than three times as large, showing that residential mobility has a much greater association with temporary mobility for the Indigenous population. Similarly, those who undertook voluntary work in the 12 months preceding the census are much more likely to be away from their usual residence. Given age and employment status is controlled for, this may be because some of this volunteer work is undertaken away from a person's area of usual residence. If so, then this is much more likely to be the case for Indigenous Australians.

Despite the above insights, a quick look at the Pseudo R-Squared values for the estimates in Table 4.3 show that much of the variation in rates of temporary mobility remains unexplained. A more accurate measure that would arguably reduce the amount of unobservable variation is the number of nights a person spent away from their place of usual residence over a 12-month period. On the other hand though, such a measure would be prone to substantial recall bias. Ultimately, as discussed in Bell (2004) and taken in this paper from Biddle and Prout (2009: 322) ‘the census will never be able to measure the duration of stay, frequency of movement, periodicity and seasonality – components of such population dynamics that have critical importance for policy makers’. These caveats notwithstanding, the results presented in this section show important lifecourse variation and significant differences between Indigenous and non-Indigenous Australians.

## **Migration and mobility across the Indigenous lifecourse**

One of the major complicating factors for service delivery and program evaluation is residential and temporary mobility. In planning the type and location of capital expenditure, it is important to know not only how many people are in a particular area at a particular point in time (current demand), but also how many people are likely to be there over the life of the infrastructure (future demand). Furthermore, it is not only residents of an area that demand services, but also people who are there on a temporary basis – hence the importance of the concept of a service population.

There is a stereotype that Indigenous Australians are highly mobile. This is certainly true in aggregate terms, with Indigenous Australians more likely to have changed their place of usual residence over a five-year period, and more likely to be away from their place of usual residence on the night of the census. However, these aggregate figures hide significant variation by geography (Biddle 2009; Biddle and Prout 2009) and, as shown in this chapter, by demography and socioeconomic outcomes. Once age is controlled for, Indigenous adults are in fact less likely to have changed their place of usual residence than non-Indigenous Australians. This is also true for Indigenous children once other socioeconomic characteristics have been controlled for. Indigenous Australians still have higher rates of temporary mobility once other characteristics have been controlled for, although the difference is dramatically reduced.

Ultimately, what the results in this chapter show is that there is more difference across the lifecourse and by socioeconomic status within the Indigenous population than there are differences between Indigenous and non-Indigenous

Australians. If other characteristics beyond those controlled for in the census were explored, it is likely that this observation would be strengthened. The census is somewhat of a blunt instrument for capturing Indigenous mobility processes. Nonetheless, it is clear that if service providers want a good prediction in terms of mobility of the demand for services now and into the future factors like education participation, employment and child rearing responsibilities are a much better guide than Indigenous status.