

# Chapter 10

## Indigenous Family Formation

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### 10.1 Introduction

According to the 2011 Census, there were 548,370 Aboriginal and Torres Strait Islander (Indigenous) Australians counted, making up 2.7 % of the Australian population who answered the Indigenous status question.<sup>1</sup> After taking into account the undercount of the Indigenous population,<sup>2</sup> preliminary estimates of the population by the Australian Bureau of Statistics (ABS 2012a) give an Indigenous population of 669,736, or 3.0 % of the total Australian population. Census data show one third of Australia's Indigenous population lives in the country's capital cities,<sup>3</sup> the inverse to settlement patterns of non-Indigenous Australians of whom only 33 % live outside the capital cities.

Despite Indigenous Australians making up a small share of the total Australian population, the need to understand the dynamics of this population far exceeds its size. As descendants of the original inhabitants of the Australian continent and associated territories, Indigenous Australians have certain native title rights not held by other population groups. Indigenous Australians are also one of the most

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<sup>1</sup>The census question asks, "Is this person of Aboriginal or Torres Strait Islander origin? For persons of both Aboriginal and Torres Strait Islander origin, mark both 'Yes' boxes".

<sup>2</sup>A Post-Enumeration Survey is carried out 1 month after census night and used to determine how many people were missed or double counted in the Census. The results are used to determine the level of undercount, which in turn informs the calculation of population estimates.

<sup>3</sup>Including each state or territory capital and the Australian Capital Territory.

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disadvantaged population groups—if not the most disadvantaged group—within Australia in terms of employment, income, education, housing and health (Steering Committee for the Review of Government Service Provision 2011). This has led to the Council of Australian Governments devoting considerable resources to the policy of ‘Closing the Gap’, which has as its headline target the elimination of the disparity in life expectancy between Indigenous and non-Indigenous Australians within a generation (FaHCSIA 2009).

A detailed understanding of the size and the composition of the Indigenous population is therefore vital to evidence-based policy formulation in Australia. In order to plan for the future and understand the potential impact of past policies, it is important to know how key demographic characteristics are changing. In addition, the structure and composition of the households in which Indigenous children and adults live will influence the financial and other resources to which they have access.

Following a detailed review of Indigenous data issues and sources, this chapter comprises a two-pronged approach to understanding the families of the contemporary Indigenous population of Australia. We begin by exploring Indigenous marriage patterns in twenty-first century Australia. We then turn to the implications of fertility trends for family structures. We draw on available data to explore the timing and quantum of Indigenous fertility and to identify changes in the recent past. While we highlight how underlying fertility patterns contribute to family form, our analysis of standard demographic data is limited by a number data of issues. In the second part of the analysis, we therefore turn to alternative data sources to explore in detail contemporary family living arrangements among Indigenous peoples and the key characteristics of Indigenous families. Our analysis of fertility and families highlights important regional differences. We close by exploring priorities for future research in this area and implications of family structures and dynamics for demography and social policy.

## **10.2 *Caveat Lector*—Indigenous Data Issues**

### **10.2.1 *Indigenous Identification***

The Australian government and relevant statistical agencies use a ‘working’ three-part definition of an Indigenous Australian which requires that an individual:

- is of Aboriginal or Torres Strait Islander descent;
- identifies as an Aboriginal or Torres Strait Islander; and
- is accepted as an Aboriginal or a Torres Strait Islander by the community in which he or she lives.

While the first part of this definition stays reasonably consistent for individuals across time and place, patterns of identification and acceptance are likely to be contingent on social setting and administrative measurement. A unique feature of Indigenous demography, therefore, is the focus on defining who belongs to the group and what membership of that group, as identified in population data sets, means for

demographic analysis (Smith 1980; Gray 1983; Pool 1991; Jackson 1995; Kukutai 2003; Johnstone 2009). This is more than an issue of semantics and ‘proper’ counting and affects any data source on which demographers may rely to understand historical patterns.

In Australia there has been an ever-increasing count of the Aboriginal and Torres Strait Islander population since the 1976 census, beyond what could be expected from births to Indigenous females and deaths alone (Ross 1999; ABS 2012a). This arises from different undercounts of the Indigenous population at each census, changes in non-response to the question asking for respondents’ Indigenous status, and changes in the way the Indigenous status question is both asked on the official form and answered by Indigenous peoples. The birth of Indigenous babies to non-Indigenous women is also a factor contributing to these increasing population counts (Taylor and Biddle 2008).

The 2011 census count of the Indigenous population is the largest ever. In the 5 years from 2006 there has been dramatic growth in the Indigenous Australian population beyond what we would expect from natural increase alone, for the reasons outlined above (Table 10.1). For the Estimated Resident Population,<sup>4</sup> there are also issues about the accuracy of the undercount and how this has been improved by the introduction of Automated Data Linkage to the Census Post-Enumeration Survey in 2011 (ABS 2012b).

Because the census counts and related estimates of the Indigenous population are based on self-identification, it is difficult to mount an argument against using them as the denominator in estimating the most up-to-date fertility rates. For historical fertility research, however, the more difficult question to answer is whether backcast populations<sup>5</sup> should be used as the denominator for estimates of past fertility and whether this will create a consistent time series.

On the one hand, if rapid population growth has been driven by previous census undercounts due to limitations of census coverage, then failure to account for this phenomenon can lead to erroneous over-estimation of historical fertility rates and resultant downward trends through time (Johnstone 2009, 2011a, b). In Australia, the approach has therefore been to use backcast population denominators to calculate historical fertility rates (Wilson and Condon 2006; ABS 2009a; Johnstone 2010, 2011a, b). On the other hand, if rapid population growth was caused by people

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<sup>4</sup>The Estimated Resident Population, the official population count in Australia, is based on the usual resident population as counted in the quinquennial Census, the net undercount derived from the Post-Enumeration Survey, and the inclusion of Australian usual residents who were overseas on census night. As the methods used to create the Estimated Resident Population have changed considerably over the last few censuses (including through the inclusion of a greater Indigenous sample and extension of the Post-Enumeration Survey to remote areas), undercount estimates are not comparable through time.

<sup>5</sup>Backcast populations are estimates created by applying a standard reverse cohort survival of the population from a base point (Condon et al. 2004; Wilson and Condon 2006). This approach is used in Australia in recognition of improvements to Indigenous population counts over time with increased roll out of an Indigenous Enumeration Strategy and the introduction of better estimates of undercount in rural and remote parts of Australia from 2006.

**Table 10.1** The Indigenous denominator: changing population counts 2006 and 2011

	2011	2006	Change
Census <sup>a</sup>	548,370	455,023	20.50 %
Estimated Resident Population <sup>b</sup>	669,736	517,043	29.53 %
Women, 15–49 years <sup>b</sup>	171,661	132,783	29.28 %

<sup>a</sup>Usual residents enumerated 2006 and 2011 censuses

<sup>b</sup>Final estimate 2006, preliminary estimate 2011

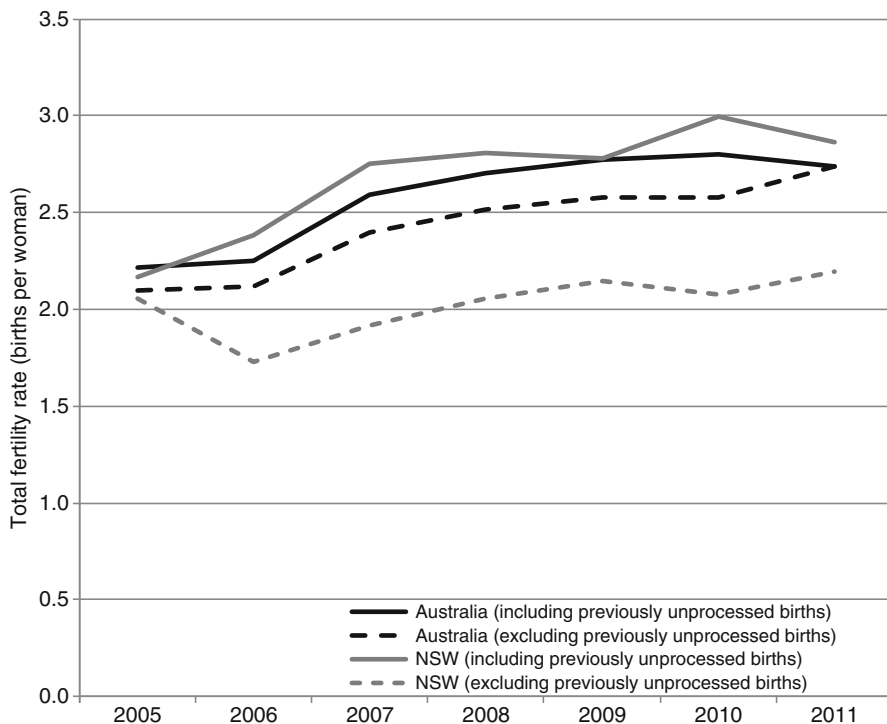
changing the way in which they identify as being Indigenous in both census and administrative data collections, then backcast population estimates will be based on a different population than historic births estimates. In other words, the mechanisms for identifying Indigenous status in the denominators will be different to the mechanisms for identifying Indigenous status in the numerators.

Ultimately, in the absence of longitudinal datasets with Indigenous status collected twice, or more thorough evaluation of the Indigenous enumeration strategy, it will never be possible to know for sure whether changes in identification or changes in enumeration are driving Indigenous population growth. The issues with the Indigenous population denominator therefore mean it is difficult to carry out through-time analysis with any degree of certainty. This chapter therefore focuses on the most recent available data for analysis of levels of fertility but examines the age profile of childbearing over time.

## 10.2.2 Data Sources

In Australia, national reporting of Indigenous fertility from the vital registration system is only available from 1998 (ABS 1999), although some state-based data have been available from 1988 (ABS 1994).<sup>6</sup> The counts of Indigenous birth registrations in Australia are affected by Indigenous births not being accurately identified at the time of registration (Johnstone 2011a, b), by non-registrations of Indigenous births (Gerber 2009; Orenstein 2008), and by late registration of Indigenous births (ABS 2006, 2007). Indigenous birth counts for Australia have also been affected by state registration processing issues in New South Wales and Queensland. In 2009, a “retrospective births project” was undertaken in Queensland to clear registrations with incomplete information received by the Queensland registrar of births, deaths and marriages. Consequently, half of the 4,000 registered Indigenous births for the state of Queensland in 2009 were for births that took place in earlier years. This led to a rise in Indigenous birth counts in Queensland and nationally for that year. Between 2005 and 2010 there were approximately 33,000 late registrations not

<sup>6</sup>In Australia, birth registrations are the responsibility of individual state or territory-based Offices of the Registrar of Births, Deaths and Marriages. National data are compiled by the Australian Bureau of Statistics from records collected and processed by each of these eight states and territories.



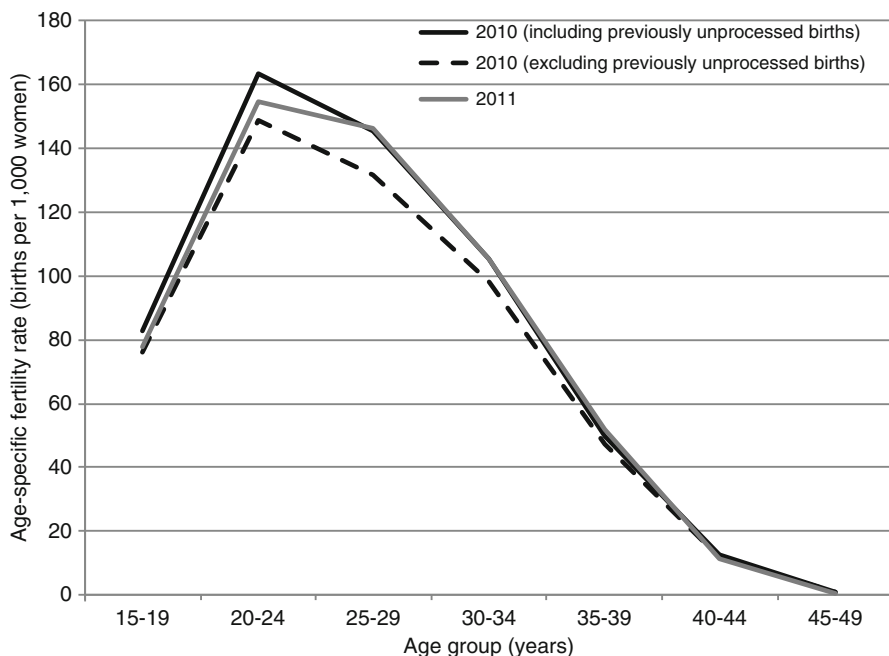
**Fig. 10.1** Total fertility rate, Indigenous Australian women, 2001–2011 (ABS 2013b)

recognised in the New South Wales birth counts due to processing error.<sup>7</sup> Figure 10.1 shows that the inclusion of these previously unprocessed births makes a notable difference to the Total Fertility Rate (TFR) in New South Wales, and also for Australia, because the New South Wales Indigenous population makes up a large proportion of the total Indigenous Australian population.

A positive outcome of the Queensland and New South Wales birth registration processes being improved is that for 2011, the data on fertility levels and patterns across Australia are likely to be more complete than ever before. This provides a greater level of confidence in the accuracy of current data.

While the quantum of births has been under-reported in New South Wales for 2005–2010, the unprocessed births have had little impact on the general age profile of Indigenous childbearing women (Fig. 10.2). Analysis by the ABS shows that including previously unprocessed births does not change the median age at childbearing for Indigenous women across Australia as a whole (just under 25 years), and lowers the median age of mothers in NSW only slightly (just over 25 years) (ABS 2012c). Despite data constraints, then, important aspects of family

<sup>7</sup>These 33,000 births have been incorporated into recast historical population estimates (ABS 2013a) and have been taken into account in birth statistics published by the ABS (2013b).



**Fig. 10.2** Age-specific fertility rates, Indigenous women, Australia, 2010 and 2011 (ABS 2013b)

formation related to the age at which Indigenous Australians become parents may be investigated.

In addition to vital registration data, a question asking all women aged 15 years and over how many live-born children they have ever had has been included in the 1981, 1986, 1996, 2006 and 2011 censuses. While there are issues of changing undercount and differing non-response to this question, it does eliminate issues of numerator/denominator mismatch. It is possible, therefore, to make comparisons between the age profiles of Indigenous mothers as enumerated in each of the four censuses for which data is available (see Fig. 10.5 for data from 2006 to 2011).

In addition to aggregate data, the ABS releases a 5 % Census Sample File (CSF) for each census. This is a household-based random sample of 5 % of occupied private dwellings and individuals in non-private dwellings. The 2006 CSF has information on 1,002,793 respondents, of whom 22,437 were identified as being Indigenous; 913,262 were identified as being non-Indigenous; 56,935 did not give their Indigenous status; and 10,159 were overseas visitors. This CSF was used for the analysis of the partnering and fertility behaviour of Indigenous Australians (see Sect. 10.5). Unfortunately, the 2011 CSF was not available at the time of writing.

Finally, census data may also be used for disaggregating the population by registered marital status or by social marital status. These data are used in our brief discussion of Indigenous marriage by age (see Sect. 10.3).

The issue of who is counted in an Indigenous population adds a temporal complexity to time series data that reflects administrative practices and changing attitudes (both

towards Indigenous peoples, and among Indigenous peoples themselves). It highlights how understandings of demographic transition and family change among Indigenous populations, dependent as they are on longitudinal measures, may change because of data effects. Although the data on which we rely are not immutable, this does not mean the results are invalid. Demographic analysis in Australia, for example, has shown that where Indigenous population measures can be calculated using different data sources or different definitions of Indigenous status, the results show the same general patterns of demographic change (or stasis) (Smith 1980; Condon et al. 2004; Johnstone 2011a, b). We must accept as working principles that Indigenous data will never be perfectly classified, and that classifications may change. While the measures reported in this paper should be read as indicative rather than exact, it is the patterns and their general implications that are the focus of this chapter.

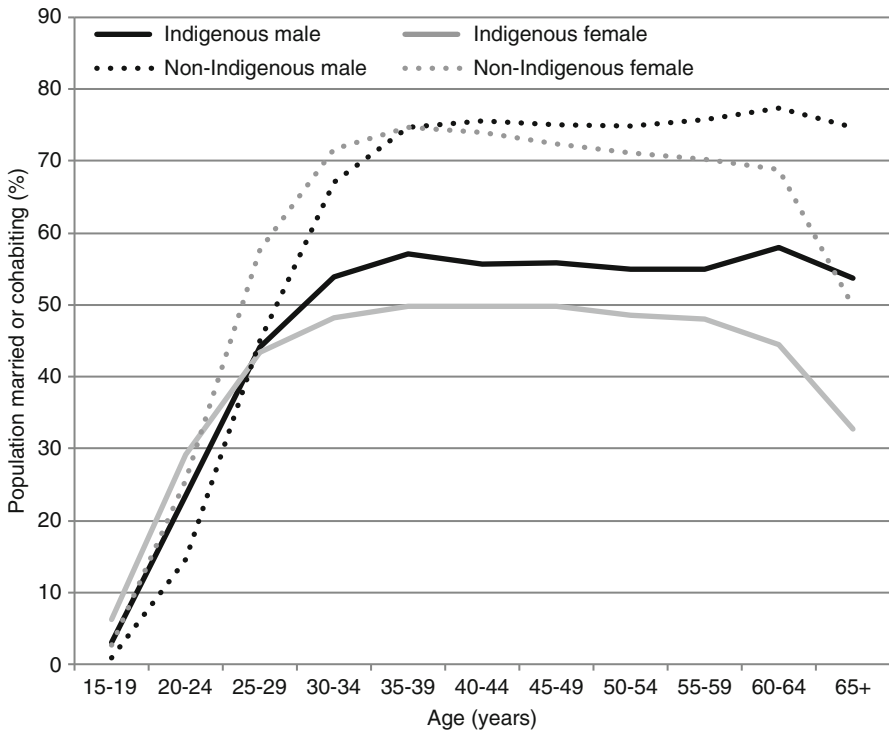
### 10.3 Indigenous Marriage Patterns

Marriage is a central feature of traditional Indigenous societies and has importance for family formation and cultural maintenance (Berndt and Berndt 1985). We look at marriage initially as it provides context for the fertility analysis in the next section. While the data suggest that Indigenous males and females are less likely to be legally married, it is important to keep in mind that the notion of marriage is different in some Indigenous societies (Australian Law Reform Commission 1986). Of those who were living in residential partnerships, Indigenous men and women were less likely than their non-Indigenous counterparts to be in registered—as opposed to de facto—marriages. In 2011, 23 % of Indigenous Australians aged 15 years and over reported being in a registered marriage, compared to 49 % of the non-Indigenous population. On the other hand, 16 % of Indigenous Australians reported cohabiting, compared to 9 % of non-Indigenous Australians.

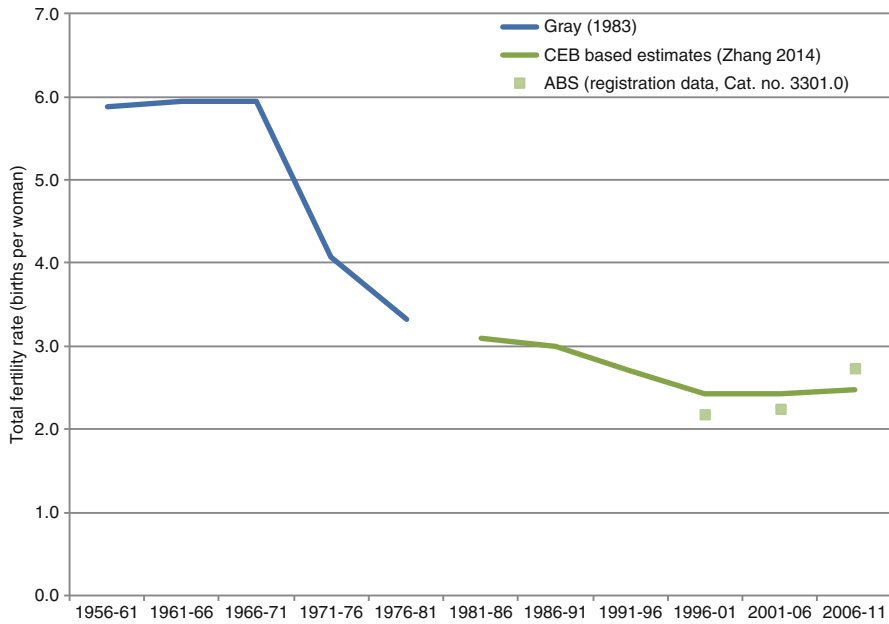
Some of these differences are driven by the younger age profile of the Indigenous population. Indigenous Australians are much more likely to be found in age groups where marriage has not yet occurred and where those partnered are more likely to be cohabiting than married. However, as shown in Figs. 10.3 and 10.4, there are also differences within particular age groups. Figure 10.3 shows the Indigenous and non-Indigenous male and female populations in 5 year age groups who were married or cohabiting, expressed as percentages of the total age group.

There are three notable features in Fig. 10.3. First, Indigenous Australians are slightly more likely to be partnered when young, but substantially less likely to be partnered from the 30–34-year age group and onwards. Second, Indigenous females aged under 25 years are more likely to be partnered than males, but the reverse is true for those aged 30 years and over. The final point to note is the significant drop in proportions partnered among older women, beginning slightly earlier (from 55 to 59 years) for Indigenous women than for non-Indigenous women (from 60 to 64 years), and reflecting the lower life expectancy for males relative to females.

Age is not the only determinant of marital status, with other factors such as geography and socioeconomic status also likely to be important. Biddle and Yap (2010)



**Fig. 10.3** Percentage of Indigenous and non-Indigenous males and females who were married or cohabiting, 2011 (calculations from the 2011 census)



**Fig. 10.4** Estimated TFRs, Indigenous women, Australia, 1950s to 2011



found that the probability of being married increased with age (not surprisingly, given Fig. 10.3) and that after controlling for age, females tended to have a higher probability of being partnered than males. After controlling for these differences across the life course by age and sex, Indigenous Australians were found to be less likely to be in a registered or de facto marriage than non-Indigenous Australians. An estimated marginal effect of  $-0.198$  relative to the predicted probability of the base case of  $0.454$  suggested that these differences are quite large. For the Indigenous population, living in a major city was associated with a lower probability of being partnered, as was having a relatively low level of education.

## 10.4 Indigenous Fertility Patterns

Despite data constraints, several efforts have been made to estimate Indigenous fertility at a national level (Gray 1983; Kinfu and Taylor 2002; Smith 1980; Tesfaghiorghis 1996). These estimates (documented in Fig. 10.4) show a probable decline in Indigenous fertility in the last few decades, from around three to four births per woman in the 1970s and 1980s to between two and three births per Indigenous woman in the first decade or so of the twenty-first century.

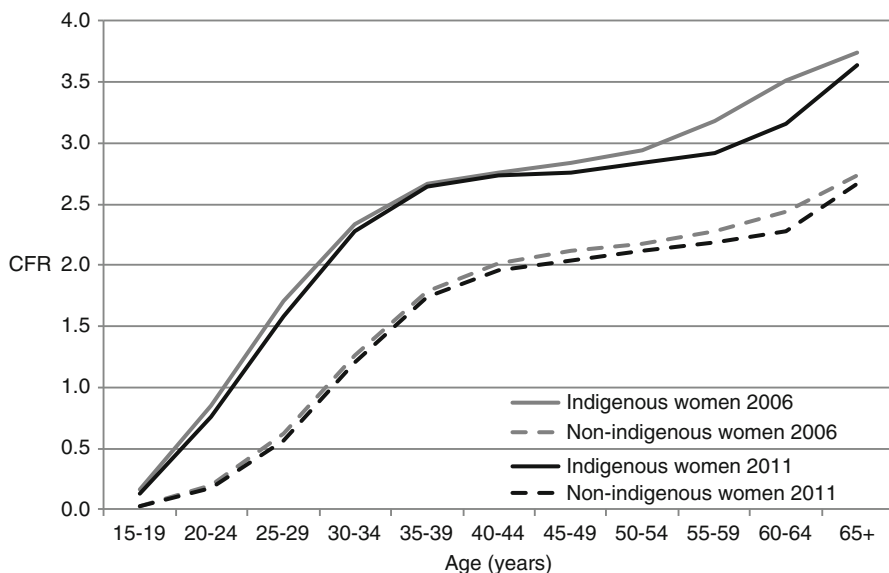
The issues relating to birth registration data are not insignificant. They raise serious doubt about whether the increase in TFRs observed in the second half of the last decade is 'real' or an artifact of the data. In 2011, when we can be more confident of data reliability, the Indigenous TFR was 2.7 births per woman, higher than the TFR of 1.9 for non-Indigenous women. Despite this difference, the Indigenous rate is not exceptionally high and is commensurate with Maori fertility in Aotearoa/New Zealand and Inuit fertility in Canada (Johnstone 2011b).

### 10.4.1 Age Profile of Childbearing Women

In addition to the quantum of births, the key differences between Indigenous and non-Indigenous fertility in Australia are in the age profiles. Among Indigenous mothers, peak childbearing is at 20–24 years. Of note is the high rate of teenage fertility (78 births per 1,000 Indigenous girls aged 15–19 years). This pattern of young childbearing stands out in Australia, where the majority population has an older fertility profile, and is also seen among Indigenous minority populations in other developed countries (Johnstone 2011b).

These different age profiles of Indigenous and non-Indigenous mothers are reinforced by results from the last two censuses in Australia (Fig. 10.5), which give the average number of children ever born by age for Indigenous and non-Indigenous females in 2006 and 2011.

Results presented in Fig. 10.5 show that there was a very small decrease in the number of children ever born to Indigenous females aged 15–34 in 2011 (compared



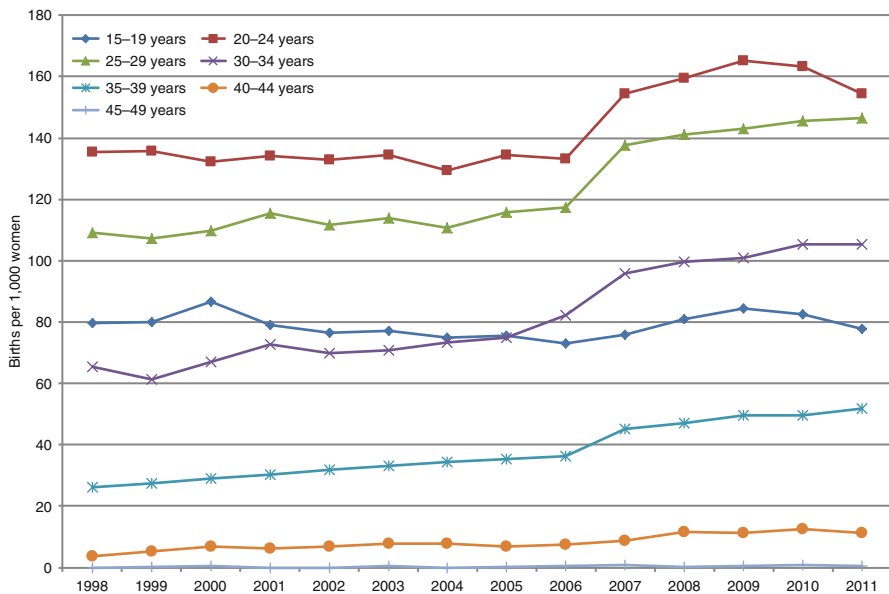
**Fig. 10.5** Average number of children per woman by age group and Indigenous status, 2006 and 2011 (calculations based on 2006 and 2011 census data)

to women of the same age in 2006). However, the largest decrease is amongst those 55–64 years and over, well beyond the standard childbearing age. This implies that there was a small decrease in the average number of children ever born for Indigenous females between 2006 and 2011, mainly driven by fertility decisions 20 or more years ago. The current cohorts of Indigenous females aged 55–59 years and 60–64 years had fewer children across their childbearing years than those born 5 years earlier.

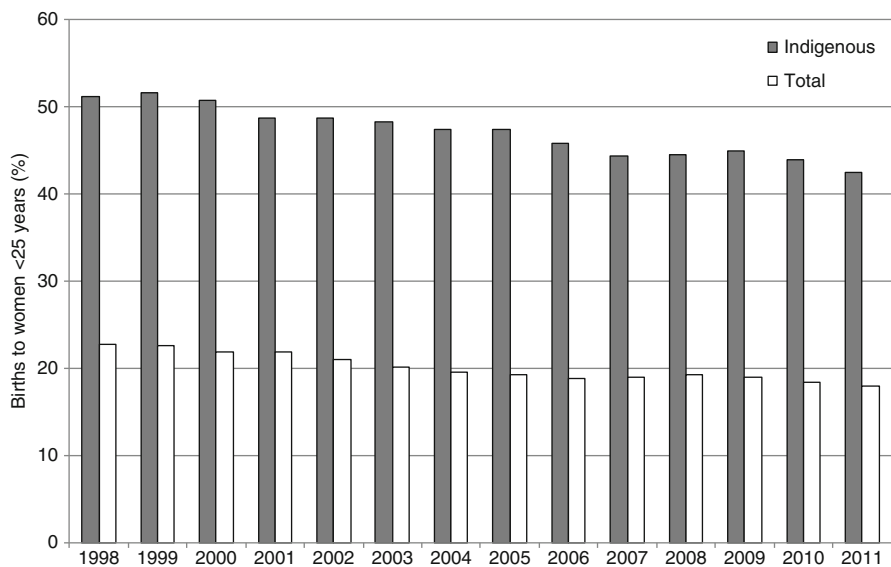
Increasing birth counts because of data capture mean changes to age-specific birth rates could reflect both real changes in fertility or simply better capture of Indigenous status of babies and their parents over time. Between 1998 and 2011 there have been increases in all age-specific fertility rates for babies born to Indigenous women (Fig. 10.6). Early childbearing thus remains an important characteristic of Indigenous mothers.

The early force of childbearing (ETFR) is a measure used in some contexts to study early childbearing (Jackson et al. 1994). It is the proportion of the TFR that is attributable to women aged 25 years or less in the year of interest. It is a useful measure in this context because it allows us to focus on the age of mothers without being distracted by data counting issues. For the 14 years that we have data disaggregated by Indigenous status, there has been a decline in the proportion of women having children before 25 years of age (Fig. 10.7). This proportion has been below 50 % for 11 consecutive years and reached 42 % in 2011, compared to 12 % for the entire female population.

If we look at early childbearing by state and territory across Australia, there is considerable variation (Table 10.2). Notably, even where young mothering is less prevalent, at least one-third of Indigenous mothers are having their babies under the age of 25 years.



**Fig. 10.6** Age-specific fertility rates, Indigenous women, Australia, 1998–2011 (ABS, catalogue no. 3301.0, various years)

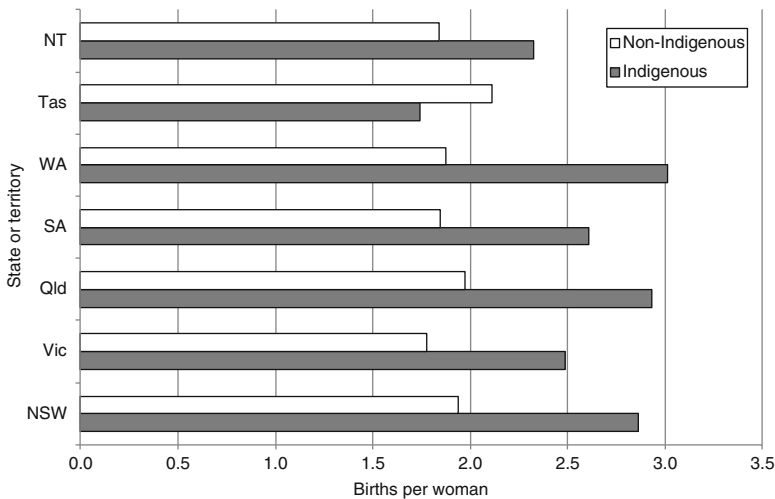


**Fig. 10.7** Early force of childbearing, Indigenous and all mothers, Australia, 1998–2011 (calculated from ABS, catalogue no. 3301.0, various years)

**Table 10.2** Early childbearing among Indigenous women, states and territories, 2011

State/Territory	Proportion (%) of TFR attributable to women aged less than 25 years
New South Wales	39.8
Victoria	34.3
Queensland	42.3
South Australia	42.9
Western Australia	47.5
Tasmania	39.2
Northern Territory	48.4
<b>Australia<sup>a</sup></b>	<b>42.4</b>

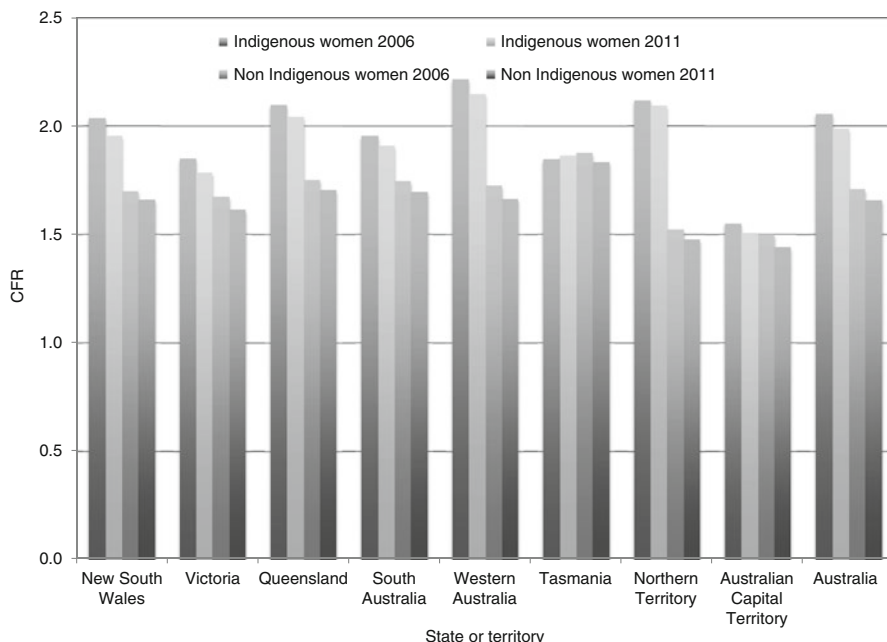
<sup>a</sup>Includes births to Indigenous women in the Australian Capital Territory (ACT). Numbers were too small to calculate separate Indigenous rates for the ACT



**Fig. 10.8** Total fertility rates, Indigenous and non-Indigenous women, states and territories, 2011 (calculated from data published in ABS 2012a, c) (Numbers are too small for release of Indigenous births for the Australian Capital Territory)

### 10.4.2 Regional Variation in Indigenous Fertility

Fertility rates are not uniform across Australia. State/territory comparisons show that the states with the largest Indigenous populations have the highest Indigenous fertility (Fig. 10.8). In Tasmania, Indigenous fertility is lower than non-Indigenous fertility, which is likely an indicator of the smaller population and very high levels of exogamous partnerships (documented later in this chapter).

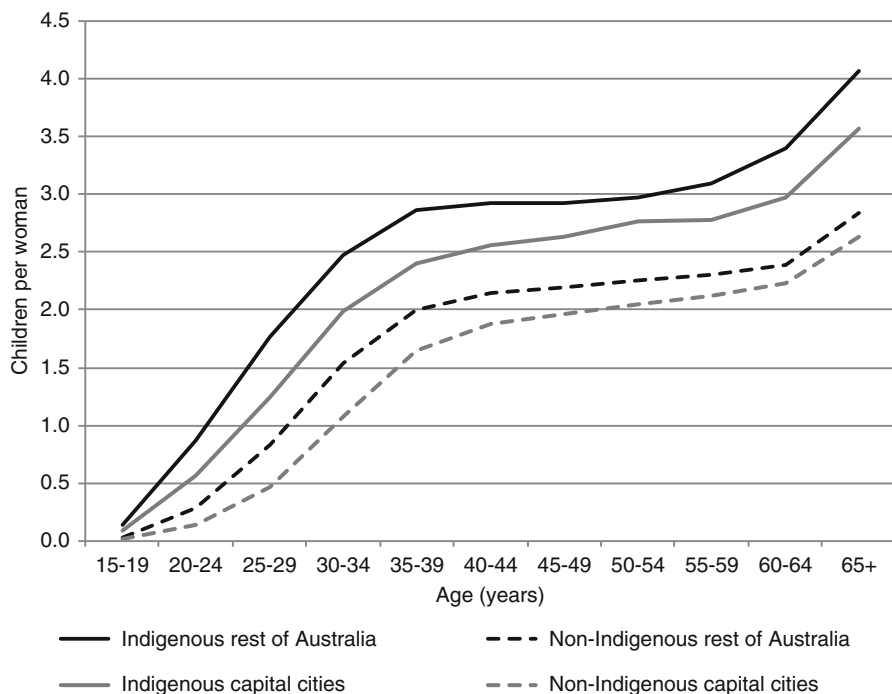


**Fig. 10.9** Average number of children per woman aged 15 years and over by state or territory and Indigenous status, 2006 and 2011 (calculations based on the 2006 and 2011 censuses)

Figure 10.9 uses census data to make three important points. First, there were only two jurisdictions (ACT and Tasmania) for which the average number of children ever born was similar for Indigenous and non-Indigenous females (aged 15 years and over). The second point to note is that there is substantial variation across jurisdictions, with the average number of children close to, or above, two in New South Wales, Queensland, Western Australia and the Northern Territory, but somewhat lower in Victoria, South Australia, Tasmania and the ACT. Finally, in all jurisdictions apart from Tasmania, there was a decline in the average number of children ever born between 2006 and 2011.

Setting aside jurisdictional boundaries, a comparison of the average number of children ever born shows important differences between the capital cities of Australia<sup>8</sup> and the rest of the country. Figure 10.10 shows that urban/regional fertility differences feature for all Australian women and have been consistent across cohorts. For Indigenous women, however, the urban/regional differences are greater at all ages. Notable also is the higher number of children reported by Indigenous women regardless of where they lived compared to all non-Indigenous women regardless of where they lived.

<sup>8</sup>Including each state or territory capital and the Australian Capital Territory.



**Fig. 10.10** Average number of children per woman by age group, Indigenous status and place of usual residence, 2011 (calculations based on the 2011 census)

### 10.4.3 Indigenous Babies

Births to Indigenous mothers only tell part of the story as many children are born to an Indigenous father and a non-Indigenous mother. It is therefore important to look at Indigenous births to both Indigenous and non-Indigenous mothers in order to understand current and future Indigenous birth cohorts, and the family dynamics of Indigenous Australians.

In 2011, 27 % of Indigenous babies in Australia were born to non-Indigenous mothers. Indigenous babies were most likely to have a non-Indigenous mother in New South Wales, Victoria and Tasmania. In contrast, it was very uncommon for Indigenous babies to be born to non-Indigenous mothers in the Northern Territory. Also of note was the high proportion of births to Indigenous mothers but not an Indigenous father. Except in the Northern Territory and Western Australia, this was the most common category. These data do need to be interpreted with some care because the category of ‘Mother only’ Indigenous includes registrations where the paternity of the father was unknown (Table 10.3).

**Table 10.3** Indigenous births in Australia by Indigenous status of parents (%), 2011 (n=17,621) (ABS 2013b)

State/Territory	Both parents Aboriginal and/or Torres Strait Islander	Mother only	Father only	
New South Wales	22.7	44.1	33.2	100.0
Victoria	19.3	46.6	34.1	100.0
Queensland	32.1	42.2	25.7	100.0
South Australia	34.2	39.6	26.2	100.0
Western Australia	43.5	35.2	21.3	100.0
Tasmania	11.9	47.7	40.3	100.0
Northern Territory	50.3	41.9	7.8	100.0
<b>Australia</b>	<b>30.9</b>	<b>42.1</b>	<b>26.9</b>	<b>100.0</b>

## 10.5 Regression Analysis of the Partnering and Fertility Decisions of Indigenous Australians

From the fertility data presented in Sect. 10.4 we can infer that, on average, families of Indigenous Australians have young parents, and more siblings than families of non-Indigenous Australians. We now turn to other census data to look at Indigenous families in more detail. We extend the analysis in Biddle and Yap (2010) by using a similar methodology (regression analysis) applied to the CSF, but focusing on the characteristics of an Indigenous person's partner (conditional on being married) and the number of children born.

The first equation analysed (Sect. 10.5.1) is the probability that an Indigenous person who is married has a non-Indigenous partner. This component of the analysis may be considered complementary to the analysis (using a different method) of partnering between Indigenous and non-Indigenous Australians that is included in Chap. 4.

The explanatory variables in the equation include a person's state or territory of usual residence, whether or not they live in a major city, their education level (both high school and post-school qualifications), whether or not they changed usual residence in the last 5 years or in the last year (their migration status) and whether or not they are employed. Although these variables are not of particular interest themselves, they are included as proxies (albeit imperfect) for an ongoing attachment to a traditional Indigenous lifestyle.

There are two additional variables used to proxy the exposure an Indigenous person might have to Indigenous as opposed to non-Indigenous Australians. The first of these is the percentage of the population identifying as Indigenous in the area in which a person lives. This is based on the 64 regions included in the CSF. This geographic classification includes some large areas (including all of the Northern Territory). There is also substantial variation in population size across the areas; the

smallest being Central Metropolitan (Perth) with 0.62 % of the total sample (5,767 observations) and the largest being Outer Western Melbourne with 3.07 % of the sample or 28,770 observations. The exposure that a particular Indigenous person in these areas will have to others in their area is therefore likely to vary quite substantially. Unfortunately, this is the only geographic variable available on the CSF.

To measure exposure to other Indigenous Australians in the workplace, we use the Indigenous proportion of the population who work in the individual's industry. One would expect individuals to be more likely to interact with those within their own industry as opposed to their occupation. For example, managers in the accommodation industry are more likely to interact with other occupations in that industry than they would with managers in the finance industry (conditional on education). Industry is defined using the modified two-digit industry classification, also outlined in ABS (2009b), and once again categories vary quite considerably in size. There are a number of industries which make up less than 0.05 % of the employed sample including 'Agriculture, Forestry and Fishing not further defined (n.f.d.)', 'Accommodation and Food Services n.f.d.', 'Information Media and Telecommunications n.f.d.', 'Professional, Scientific and Technical Services n.f.d.', and 'Other Services n.f.d.' At the other end of the distribution, 6.0 % of the employed sample was working in 'Other Retailing'.

Having identified the characteristics that are associated with whether or not a married Indigenous Australian has a non-Indigenous partner, we next consider the characteristics of these non-Indigenous partners (Sect. 10.5.2). These are compared with the characteristics of Indigenous partners of Indigenous Australians, Indigenous partners of non-Indigenous Australians and non-Indigenous partners of non-Indigenous Australians. Characteristics that are considered include employment (paid, unpaid and voluntary), education and income.

One particularly important characteristic for the purposes of this chapter is the number of children that a person has had. This not only influences the rate and composition of population growth, but also other socioeconomic characteristics at the individual level. The census contains information on the number of children ever born to each female 15 years and over. While information on the number of children that males in the sample had fathered would also be useful, having children when young can seriously affect the education and skills development of females in particular. Females who have children when they are young are less likely to complete high school and post-school qualifications (de Vaus 2002). They also have lower levels of employment participation throughout their lives and lower incomes (Caldas 1993). Focusing on females, therefore, the third set of results (Sect. 10.5.3) looks at the factors associated with the number of children ever born.

The interaction between one's own Indigenous status and the Indigenous status of one's partner is incorporated using three dummy variables indicating that either the female is non-Indigenous whereas her partner is Indigenous, she is Indigenous with an Indigenous partner or that she is Indigenous with a non-Indigenous partner. The base case is therefore a non-Indigenous female with a non-Indigenous partner.



In the final set of results (Sect. 10.5.4), we consider the household characteristics of Indigenous children conditional on the Indigenous status of adults in their family. Three types of families are considered—couple families with Indigenous adults only, couple families with an Indigenous and non-Indigenous adult and single parent families. Characteristics that are considered are whether:

- household equivalised income is in the lowest quartile;
- the home is owned or being purchased by a usual resident;
- the household does not have an employed adult; and
- the household does not have an adult that has completed Year 12.

### ***10.5.1 The Partners of Indigenous Australians***

Focusing on those who are in either a marital or de facto relationship, the analysis in Table 10.4 summarises the factors associated with being in an exogamous relationship for Indigenous Australians. It is carried out using a regression-style approach, with the probability of an Indigenous person having a non-Indigenous partner as the dependent variable and the probit model used to fit the data. Four separate models are estimated. In the first model, the only explanatory variables are a person's sex, age (in 5-year age groups up to 55 years or more), State/Territory of usual residence and whether or not they live in a major city. The second model includes a wider range of individual and area-level explanatory variables (including the proportion of people living in a person's own area who identify as being Indigenous). The final two models include this expanded set of explanatory variables but are estimated separately for males and females. As a similar style of analysis is used in Biddle and Yap (2010), further details of the data used in the current analysis are available there.

Results are presented as marginal effects, or the difference in the probability of being in an exogamous relationship from changing that particular variable after holding all else constant. This difference is expressed relative to the 'base case' person, a hypothetical individual with a defined set of characteristics given underneath the table with p-values also available in the notes for the table.

The results in the first column of Table 10.4 tend to support previous research. Females were found to be significantly more likely to have a non-Indigenous partner than males, though the size of the marginal effect was not large. There were some differences also by age. Partnered Indigenous Australians aged 15–19 years were significantly less likely to have a non-Indigenous partner than someone aged 30–34 years (the base case), as were those aged 55 years and over. The first of these results is likely to reflect a higher rate of marriage for Indigenous youth in general (compared to non-Indigenous youth, as documented in Biddle and Yap 2010), whereas the latter marginal effect becomes positive once other characteristics are controlled for (in Model 2).

After controlling for age, sex and state or territory, those Indigenous Australians who live outside major cities were significantly less likely to have a non-Indigenous

**Table 10.4** Factors associated with having a non-Indigenous partner, partnered Indigenous Australians, 2006 (calculations using the 2006 5 % CSF)

Explanatory variables	Males and females		Males	Females
	Model 1	Model 2	Model 2	Model 2
Female	0.027***	0.046***		
Aged 15–19	-0.153**	-0.184**	-0.261**	-0.138
Aged 20–24	-0.022	-0.081**	-0.069*	-0.069
Aged 25–29	-0.011	-0.056**	-0.076**	-0.023
Aged 35–39	-0.011	-0.016	-0.035	0.005
Aged 40–44	0.022	0.042*	0.011	0.070**
Aged 45–49	0.038*	0.078***	0.060**	0.077**
Aged 50–54	0.010	0.065**	0.015	0.100***
Aged 55+	-0.045**	0.064***	0.020	0.099***
Victoria	0.087***	0.009	-0.034	0.058
Queensland	-0.069***	-0.056***	-0.079***	-0.019
South Australia	-0.042	-0.116***	-0.086**	-0.128**
Western Australia	-0.233***	-0.199***	-0.192***	-0.174***
Tasmania	0.100***	0.058*	0.038	0.079*
Northern Territory	-0.451***	0.098**	0.036	0.124**
Australian Capital Territory	0.044	0.021	0.032	-0.005
Lives outside a major city	-0.277***	-0.083***	-0.063***	-0.095***
Completed Year 9 or less		-0.144***	-0.087***	-0.170***
Completed Year 10 or 11		-0.033*	-0.016	-0.043
Does not have any qualifications		-0.039	-0.098**	0.011
Has a Diploma or Certificate only		-0.003	-0.015	-0.012
Changed usual residence in the last 5 years		0.010	0.000	0.023
Changed usual residence in the last year		0.097***	0.070***	0.101***
Not employed		-0.186***	-0.151***	-0.197***
Per cent of population in area who are Indigenous		-0.104***	-0.089***	-0.097***
Per cent of population who work in same industry who are Indigenous (for those who are employed)		-0.059***	-0.041***	-0.062***
Probability of base case	0.812	0.797	0.875	0.779
Number of observations	4,493	3,678	1,758	1,920
Pseudo R-Squared	0.1635	0.2485	0.2912	0.2234

Note: The base case individual is: male; aged 30–34 years; lives in a major city in New South Wales; has completed Year 12 and has a degree; did not change usual residence in the last 5 years; and is employed. The base case person is also assumed to live in an area where 2.5 % of the population is Indigenous and to work in an industry where 1 % of workers are Indigenous. Variables that are significant at the 1 % level of significance are labelled \*\*\*, those significant at the 5 % level of significance only are labelled \*\*, whereas those significant at the 10 % level of significance only are labelled \*

partner than those living in a major city. While this finding reinforces the results found in Heard et al. (2009) and in Chap. 4 of this volume, it is interesting to note that the association becomes substantially smaller once other characteristics of the individual are controlled for. Additional modelling shows that this is mainly due to controlling for the Indigenous population share of the area in which the individual lives. Specifically, and in keeping with the explanation suggested in Sect. 10.4, those who live in an area with a relatively high Indigenous population share are significantly less likely to have a non-Indigenous partner than those who live in areas with a lower share. In addition, those who have relatively low levels of education and those who were not employed are less likely to have a non-Indigenous partner, reflecting once again differences in the exposure of Indigenous individuals to non-Indigenous individuals.

### ***10.5.2 Characteristics of Partners of Indigenous and Non-Indigenous Australians***

In Table 10.5 we summarise the characteristics of the partners of Indigenous and non-Indigenous Australians by their sex and their own Indigenous status. The table is broken into two sections—the first for male partners and the second for female partners. In each of these tables, the first column is for non-Indigenous partners of non-Indigenous Australians, whereas the second column is for non-Indigenous partners of Indigenous Australians. The third column is for Indigenous partners of Indigenous Australians, whereas the final column is for Indigenous partners of non-Indigenous Australians. The asterisks between the columns are used to identify the significance of the differences between the two columns on either side.

Looking at the first row of results, there was no significant difference in employment rates between male non-Indigenous partners of non-Indigenous and Indigenous Australians. Around three-quarters of both populations were employed. However, this proportion fell to 0.601 for male Indigenous partners of Indigenous Australians, significantly lower than the two columns that it is compared against. Non-Indigenous partners of non-Indigenous Australians were, however, significantly and substantially more likely to be employed as managers or professionals compared to partners of Indigenous Australians. In general, compared to partners of Indigenous Australians, male non-Indigenous partners of non-Indigenous Australians tended to have higher levels of education, were less likely to have a ‘core activity’ need for assistance (in their day to day lives because of a disability, long-term health condition, or old age), were less likely to have low personal income and were more likely to have undertaken voluntary work. They were, however, less likely to currently be students.

While male non-Indigenous partners of Indigenous Australians tended to have poorer socioeconomic outcomes than male partners of non-Indigenous Australians, they tended to have better outcomes than male Indigenous partners of Indigenous Australians. The difference is most stark for the measure of low income (defined as the income groups that are less than half the Australian median income

**Table 10.5** Proportion of population with particular socioeconomic characteristics by sex and Indigenous status of respondent and partner, 2006 (calculations using the 2006 5 % CSF)

	Male						
	Non-Indigenous partner of:			Indigenous partner of:			
	Non-Indig.		Indig.		Indig.		Non-Indig.
Employed	0.745		0.751	***	0.601	***	0.748
Employed as a manager or professional	0.455	***	0.324	***	0.120	***	0.292
Undertook 5 h or more of unpaid work in last week	0.501		0.490	***	0.375	***	0.513
Has completed Year 12	0.465	***	0.300	***	0.175	***	0.286
Has a degree or higher	0.204	***	0.071	***	0.020	***	0.081
Is currently a student	0.038	***	0.044		0.046	***	0.060
Has a 'core activity' need for assistance	0.036	***	0.055	***	0.046	**	0.051
Has an income less than \$250 per week	0.164	***	0.197	***	0.490	***	0.199
Undertook voluntary work for an organisation or group	0.194	***	0.141		0.148	***	0.173
	Female						
	Non-Indigenous partner of:			Indigenous partner of:			
	Non-Indig.		Indig.		Indig.		Non-Indig.
Employed	0.598	***	0.645	***	0.423	***	0.580
Employed as a manager or professional	0.291	***	0.242	***	0.092	***	0.189
Undertook 5 h or more of unpaid work in last week	0.822		0.824	***	0.597	***	0.776
Has completed Year 12	0.492	***	0.410	***	0.192	***	0.278
Has a degree or higher	0.221	***	0.119	***	0.034	***	0.087
Is currently a student	0.057	***	0.080	***	0.062	***	0.088
Has a 'core activity' need for assistance	0.027	***	0.031	***	0.040		0.039
Has an income less than \$250 per week	0.358	***	0.312	***	0.467	***	0.371
Undertook voluntary work for an organisation or group	0.241	***	0.211	***	0.161	***	0.189

Note: Variables that are significant at the 1 % level of significance are labelled \*\*\*, those significant at the 5 % level of significance only are labelled \*\*, whereas those significant at the 10 % level of significance only are labelled \*

of \$250 per week in 2006). Around one in five male non-Indigenous partners of Indigenous Australians had this measure of low income. This rises to almost one in two Indigenous partners of Indigenous Australians. Assuming income is shared within the family, this assortative mating (Mare 1991) has clear implications for the

economic resources available to Indigenous females. In essence, those Indigenous females with a non-Indigenous partner are likely to have access to a much greater level of income than those Indigenous females with an Indigenous partner.

The patterns for female partners are reasonably similar to those of male partners. Non-Indigenous female partners of non-Indigenous Australians tend to have the most favourable socioeconomic outcomes. Female Indigenous partners of Indigenous Australians, on the other hand, tend to have the least favourable outcomes. There was, however, one major exception to this general pattern, with female non-Indigenous partners of Indigenous Australians more likely to be employed on average than non-Indigenous partners of non-Indigenous Australians. This may reflect the slightly lower income for the male Indigenous partner of non-Indigenous Australians identified in the first part of the table, meaning there is greater pressure on the non-Indigenous female in these partnerships to be working.

### ***10.5.3 Number of Children Ever Born***

In the previous section of results, we presented variation in the socioeconomic outcomes of Indigenous and non-Indigenous Australians depending on their sex, as well as their own and their partner's Indigenous status. In this section, we return to the issue of fertility and consider the factors associated with the number of children ever born to a female, conditional on her Indigenous status and that of her partner. Data on the CSF is right-censored at four or more children ever born. Around 31.8 % of Indigenous females and 11.7 % of non-Indigenous females were in this last category. However, according to data from the full census sample in 2006, 10.3 % of Indigenous females had four children, 5.7 % had five children and 7.3 % had six or more. While there is no simple solution to this right-censoring without any additional information, it is likely to have the effect of artificially reducing the estimated differences between Indigenous females (who have larger families on average) and non-Indigenous females. This potential bias should be kept in mind when interpreting the results.

Parameters are estimated through maximum likelihood estimation of the Poisson model after testing for and rejecting over-dispersion. Results are presented as marginal effects (or the difference in the predicted number of children ever born relative to the base case), with the statistical significance of the relevant coefficients identified with asterisks as in Table 10.6.

The first model shows that all three combinations of partner and own Indigenous status result in a higher average number of children ever born relative to the base case (non-Indigenous females with a non-Indigenous partner) after controlling for age, State or Territory and whether or not a person lives in a major city. Of the three groups, Indigenous females with an Indigenous partner were predicted to have had the greatest number of children ever born.

What is perhaps of greatest interest is the finding that non-Indigenous females with an Indigenous partner had slightly fewer children than an Indigenous female with

**Table 10.6** Factors associated with the number of children ever born, partnered Indigenous and non-Indigenous females, 2006 (calculations using the 2006 5 % CSF)

Explanatory variables	Model 1	Model 2
Non-Indigenous female with Indigenous partner	0.223***	0.163***
Indigenous female with Indigenous partner	0.623***	0.398***
Indigenous female with non-Indigenous partner	0.302***	0.197***
Aged 15–19	-1.050***	-0.966***
Aged 20–24	-0.895***	-0.827***
Aged 25–29	-0.573***	-0.516***
Aged 35–39	0.527***	0.429***
Aged 40–44	0.756***	0.602***
Aged 45–49	0.818***	0.641***
Aged 50–54	0.880***	0.666***
Aged 55+	1.080***	0.627***
Victoria	-0.023***	-0.021***
Queensland	0.007	0.017***
South Australia	-0.011	-0.018**
Western Australia	0.022***	0.030***
Tasmania	-0.070***	-0.073***
Northern Territory	-0.119***	-0.073***
Australian Capital Territory	-0.029*	0.025
Lives outside a major city	0.159***	0.129***
Completed Year 9 or less		0.149***
Completed Year 10 or 11		0.118***
Does not have any post-school qualifications		0.139***
Has a diploma or certificate only		0.107***
Changed usual residence in the last 5 years		-0.065***
Changed usual residence in the last year		-0.091***
Not employed		0.231***
Number of children for the base case	1.296	1.183
Number of observations	198,054	172,047
Pseudo R-Squared	0.0611	0.0732

Note: The base case individual is: non-Indigenous with a non-Indigenous partner; aged 30–34 years; lives in a major city in New South Wales; has completed Year 12 and has a degree; did not change usual residence in the last 5 years; and is employed

Variables that are significant at the 1 % level of significance are labelled \*\*\*, those significant at the 5 % level of significance only are labelled \*\*, whereas those significant at the 10 % level of significance only are labelled \*

a non-Indigenous partner. While this difference was small, it was still statistically significant (in Model 1 at least). So, while the Indigenous status of both the male and female partners has a significant association with fertility, it would appear that the Indigenous status of the female is slightly more important.

Comparing results from Models 1 and 2 show similar patterns for Indigenous status. However, the marginal effects are much smaller in the second model compared

to the first. This implies that many, but not all, of the differences found in Model 1 are due to observable socioeconomic characteristics. It is possible, though not certain, that the differences may reduce even further if other characteristics not available in the census could be controlled for. In particular, if the next version of the ABS' National Aboriginal and Torres Strait Islander Social Survey were to include information on the number of children ever born, then it would be possible to test associations with variables including recognition of homelands, experience of arrest, continuous income, and measures of wealth.

### ***10.5.4 Household Characteristics by Indigenous Status of Family***

As mentioned earlier, the most obvious effect of relatively high rates of exogamy is a higher number of births of children who are registered as being Indigenous than the fertility rates of Indigenous women would suggest. The extent to which the children of mixed Indigenous and non-Indigenous parentage continue to identify as being Indigenous will determine whether Australia (and urban areas in particular) continues to experience high rates of Indigenous population growth. However, this high rate of intermarriage can also have implications for the calculation of dependency ratios (O'Reilly 1994: 154). In particular, the dependency of Indigenous children cannot simply be related to aggregates such as the number of working-age Indigenous parents, as significant numbers of non-Indigenous parents also contribute to the support of Indigenous children.

High rates of exogamy also affect the ability of government and other providers to target services to Indigenous children. In order to improve outcomes for Indigenous children, it is not sufficient to target Indigenous mothers. Doing so in isolation may result in the children of Indigenous fathers and non-Indigenous mothers missing out on the services required to meet the government's 'Closing the Gap' targets.

This issue is mitigated to a certain extent by the fact that children in families with both Indigenous and non-Indigenous adults tend to have better outcomes across a number of dimensions than those in families with Indigenous adults only. This is demonstrated in Table 10.7, which gives the proportion of Indigenous children aged 14 years and under in four types of households by three family types. The first family type is single Indigenous parent families. The second is couple families with Indigenous adults only, and the third is couple families with Indigenous and non-Indigenous adults.<sup>9</sup> The statistical significance of the difference between columns 1 and 2 as well as columns 2 and 3 is also given (based on the aforementioned notation).

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<sup>9</sup>Children living in 'other' family types as well as those in families with non-Indigenous adults only are excluded from the analysis.

**Table 10.7** Household characteristics of Indigenous children aged 14 years and under by family type, 2006 (calculations using the 2006 5 % CSF)

	Single Indigenous parent family		Couple family with Indigenous adults only		Couple family with Indigenous and non-Indigenous adults
Household with equivalised income in lowest quartile	80.9	***	73.6	***	38.8
Home owned or being purchased	14.8	*	15.6	***	53.6
Household with no employed adults	60.9	***	34.4	***	20.3
Household with no adult that has completed Year 12	74.1	***	68.4	***	51.5

Variables that are significant at the 1 % level of significance are labelled \*\*\*, while those significant at the 10 % level of significance only are labelled \*

In general, Indigenous children living in single parent families tended to be living in households with the worst socioeconomic outcomes. However, compared to those in couple families with Indigenous adults only, those Indigenous children who live in a couple family with Indigenous and non-Indigenous adults are less likely to be in a household with an equivalised income in the lowest quartile, more likely to live in a home that is owned or being purchased, and less likely to live in a household that did not have an employed adult.

It is important to be careful when interpreting these results. They do not in any way suggest that Indigenous-only families should be discouraged. Indeed, for Indigenous-specific measures of wellbeing such as language and cultural maintenance, Indigenous-only households and families are likely to do better, on average. Rather, the results simply show that for certain outcomes, relatively advantaged non-Indigenous partners tend to mitigate household-level socioeconomic disadvantage.

## 10.6 Implications and Concluding Comments

The intersection of issues around data quality and Indigenous identification means we will never have immutable measures relating to the fertility and families of Indigenous Australians. The social context within which analysis of Indigenous demographic data takes place means care is needed when interpreting results, with consideration of the purposes for which data may be used:

1. Basic demography—we look to fertility and family data to understand population dynamics. Understanding family formation and fertility patterns gives us important clues for how to project future populations and understand future population dynamics, including ageing and dependency.
2. Linked to this, the development of theoretical foundations for Indigenous demographic transitions and family formation.



3. The study of family dynamics—including intergenerational dependency and support, family size, family resilience and family vulnerability to social and economic stressors.
4. Informing policy decisions affecting Indigenous people, and more broadly for parents and their children, as well as policy provisions specifically targeting Indigenous people.

To understand current and future Indigenous population dynamics requires an almost forensic use of a range of data sources informing fertility and family formation patterns, and how these may be changing over time. Our standard practice as demographers is to use Indigenous status as an independent variable and apply demographic methods. This has been particularly important in addressing the ‘frank failure’ of Australia’s statistical system to illuminate Indigenous population dynamics (Smith et al. 2008) and has been a critical plank in linking demography to Indigenous affairs and ‘Closing the Gap’ policies (Taylor 2009). Data issues and the changing ways Indigenous people engage with data collection tools mean we are unlikely ever to have ‘definitive’ population measures. But the young age profiles of Indigenous childbearing women, as well as their fertility rates, provide important insights into future population dynamics.

In Australia and elsewhere, the focus has been on statistically or administratively defined indigenous populations (as in this chapter). An emerging critical indigenous demography, however, has highlighted complex theoretical arguments about indigeneity and the rights of indigenous peoples (Kukutai 2011). Moreover, persistent differences between indigenous and non-indigenous fertility patterns point to the need for a theory of demographic change constructed by Indigenous theorists (Johnstone 2011b; Kukutai and Pool 2008; Taylor 2009). There is a common theme of young childbearing and higher fertility compared to the total population in developed countries where there are colonizing majority populations and indigenous minorities, particularly in North America and Australasia (Johnstone 2011b). In these regions, the young age profile of indigenous childbearing women persists (Martin et al. 2010; Ram 2004) even when fertility declines, indicating that explanations other than conventional transition theory are required.

Rigney (1997) has written of the need to promote indigenous methods as the first step to assisting Indigenous theorists. To this end, indigenisation of official statistics could offer a useful way forward. Key principles posited by Kukutai (2011) for Māori in New Zealand include explicit recognition of rights-bearing indigenous peoples separately from other ethnic groups; relevance—that is, data should reflect the diverse realities of indigenous peoples and be relevant to their evolving needs; inclusiveness—that is, not treating indigenous characteristics as fixed but rather as flexible; and capability—among indigenous peoples but also among users of the data, statistical agencies and policy makers.

The challenge for analysts and users of their research, who are seeking to understand the dynamics of contemporary Indigenous families, is not to ‘substitute demography for anthropology’ (Langton 1981: 20). To reiterate an earlier warning, our findings in relation to exogamous partnerships for Indigenous Australians

and socio-economic status should not be interpreted as a negative reflection on Indigenous families. Rather, these findings imply acute need among Indigenous families and significant barriers to accessing education, employment and income.

These findings contribute to the evidence base for policy and practice settings. The young age at childbearing and higher fertility among Indigenous women has wide-ranging policy implications. Shepherd and Zubrick (2012: 97), for example, view the ‘treatment’ for poor Indigenous child health outcomes as primarily demographic. That is, policy should encourage Indigenous women to delay first pregnancy and concurrently increase the proportion of Indigenous children that receive high quality educational daycare and support into primary school.

As Jackson (1998, 2008) has written regarding Australia and New Zealand, there are implications for the exacerbation of disadvantage for a young minority population characterised by young childbearing, when policy is directed at an older majority. There is a potentially disparate impact of mainstreaming Indigenous-specific policies when large cohorts are entering education and employment. Younger parents face interruptions to schooling, university or work early in their careers. The cost of private sector child care is also likely to have a greater impact on younger parents who are less likely to have capital and savings behind them, or the experience that will see them in higher paid jobs.

Despite the data issues discussed in this paper, there are clear differences in the fertility and family circumstances of Indigenous Australians compared to their non-Indigenous counterparts. Indigenous Australians partner and have children at younger ages than their non-Indigenous peers and Indigenous women have a greater number of children over their reproductive lives.

It would be misleading, however, to assume a homogeneous experience across the Indigenous population. Those who live in the south and east of the country exhibit demographic patterns that are more similar to those of the non-Indigenous population. More importantly, this chapter has demonstrated a high level of interaction with the non-Indigenous population in terms of family formation. It is true that the socioeconomic outcomes of the non-Indigenous partners of Indigenous Australians are different in key respects to the outcomes of non-Indigenous partners of non-Indigenous Australians. However, the results clearly show that the circumstances of many Indigenous adults and children are intimately tied to the circumstances of the broader Australian population, covered in the rest of this book.

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