2006–16 Aboriginal population change in New South Wales

N Biddle, L Allen and F Markham

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Abstract

The New South Wales (NSW) Aboriginal population is one of the fastest growing in the country. Estimates for the total Indigenous population in the state increased from around 189 000 in 2006 to around 267 000 in 2016. This very rapid growth is likely to lead to a significant number of policy challenges, and opportunities. The aim of this paper is to use data from the Census of Population and Housing in 2006, 2011 and 2016, as well as the associated Australian Census Longitudinal Dataset, to analyse the composition and implications of change in the Aboriginal population in NSW. We show that some, but not all, of the growth in the Aboriginal population between 2006 and 2016 was driven by identification change (a net inflow of people who previously did not identify as being Indigenous but now do), as well as contributions from births and interstate migration. We also show that, although the Indigenous population in 2016 in NSW had substantially better socioeconomic outcomes than the 2006 and 2011 populations, a significant component of this improvement was because the newly identified Aboriginal population had more favourable outcomes than the always-identified population.

Acknowledgments

Acronyms

ABS   Australian Bureau of Statistics

ACLD   Australian Census Longitudinal Dataset

ANU   Australian National University

CSRM Centre for Social Research & Methods

NSW   New South Wales

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Tables and figures

1 Introduction and overview

The Aboriginal population of New South Wales (NSW) is the largest in the country. The NSW Aboriginal population is also one of the fastest growing in the country, increasing from around 189 000 people in 2006 to around 267 000 in 2016.

The aim of this paper is to make use of recently released data from the cross-sectional Census of Population and Housing, as well as the linked 2011–16 Australian Census Longitudinal Dataset (ACLD), to understand the changing demographic and socioeconomic characteristics of the NSW Aboriginal population.

As this paper will show, some of the growth in the Aboriginal NSW population is due to natural increase (a greater number of births than deaths during the period), and some is due to net inward migration from other parts of Australia. However, a large part of the growth is due to a net increase in the number of people who identify as being Aboriginal on the census and other data collections.

The Aboriginal population of NSW is socioeconomically diverse. In many areas of the state, the Indigenous population ranks in the bottom half of the socioeconomic distribution relative to the Indigenous population in other areas in Australia. However, NSW also has some of the most socioeconomically advantaged Indigenous populations in the country, in terms of employment, income, education and wealth (though wealth is very difficult to measure in available datasets).

The analyses in this report show complex interactions between the changing patterns of identification and socioeconomic outcomes. There is no evidence that changing one's Indigenous status is associated with improvements or worsening in outcomes at the individual level. There is evidence, however, that those who newly identify during a 5-year period tend to have positive socioeconomic outcomes at the start of that period relative to those who previously identified as being Indigenous, but not relative to those who consistently identified as being non-Indigenous during the period.

The next section of this paper introduces the data and methods used in the remainder of the paper. In Sections 3 and 4, we discuss the changing size and structure of the population, followed by a discussion of the changing socioeconomic outcomes of the population. In Section 5, we introduce the concept of identification change and discuss the implications for understanding changes in other outcomes. Section 6 provides a summary of what the trends mean, and the implications for policy and practice.

2   Data and methods

The data presented in this paper are based on data collected as part of the 2006, 2011 and 2016 censuses. These 5-yearly collections attempt to obtain information on all people in Australia on a single night (in August, for the censuses used in this analysis), including their demographic characteristics, socioeconomic outcomes and geographic location (usual residence on census night, usual residence 1 year ago, usual residence 5 years ago, place of enumeration, and place of work).

We use three main types of data from the census. The first – population estimates – are calculated by the Australian Bureau of Statistics (ABS), and take into account those who are missed from the census entirely, those away from Australia on the night of the census, and those who do not complete particular questions. The second set of data (census counts) is based only on those who complete a census form, and we use these data to create averages and rates. The third set of data (longitudinal) is based on a dataset created by the ABS in which a representative 5% sample from one census is linked with corresponding records from the next census.

The question used in the census to identify whether a person is Indigenous or not has stayed the same since the previous census. In both years, those filling out the household form were asked the following about each individual in the household: 'Is the person of Aboriginal or Torres Strait Islander origin?' Three options were given for the response: No; Yes, Aboriginal; and Yes, Torres Strait Islander. Instructions on the form also indicated that 'For persons of both Aboriginal and Torres Strait Islander origin, mark both "Yes" boxes'.

The first ACLD was released by the ABS in late 2013. According to the ABS (2013), 'a sample of almost one million records from the 2006 Census (Wave 1) was brought together with corresponding records from the 2011 Census (Wave 2) to form the largest longitudinal dataset

in Australia'. In essence, 5% of records from the 2006 Census are linked based on the most likely match, given observed characteristics, with available data from the 2011 Census.

In early 2018, the ABS released the second ACLD, this time linking data from the 2011 Census to the 2016 Census. According to the ABS (ABS 2018):

> In this first release of the 2011–2016 ACLD, a representative sample of over 1.2 million records from the 2011 Census (Wave 2) was linked to corresponding records from the 2016 Census (Wave 3) to form the 2011 Panel of the ACLD. The 2011 Panel includes new births and migrants since the 2006 Census, and is a rich resource for exploring how Australian society has changed between the 2011 and 2016 censuses.

A further dataset will be released (in late 2018 or 2019) with information from the 2006, 2011 and 2016 censuses – that is, three waves of data. For this paper, however, we rely on data from the 2011–16 ACLD, bolstered by some insights from the 2006–11 ACLD, relevant cross-sectional censuses and associated population estimates.

According to ABS (2013), there are four steps to the linking strategy:

1. **Standardisation.** This part of the process ensures that the two datasets are coded in as consistent a way as possible. This is particularly an issue for variables that need to be categorised, such as country of birth, occupation, field and level of qualification, language spoken at home and religion.

2. **Blocking.** Blocking restricts comparisons to those where matches are highly likely to be found – namely, records that agree on a set of chosen variables. This minimises the number of pairs of observations that must be compared.

3. **Record pair comparison.** Subsequent rounds of linking are probabilistic. Probabilistic

linking works when record pairs have missing data. The estimated probability of being a linked pair is used to determine matches.

4. **Clerical review.** ABS staff perform spot checks on a sample of linked pairs to test the quality of the matching.

Of the total linked dataset for the 2006–11 ACLD, around 32.2%, or 393 519 records, were from individuals who lived in NSW in 2011. Of the linked records from NSW, 10 271 were for people who identified as Indigenous in 2011. This is around 31.9% of the total Indigenous linked records, and around 2.6% of the NSW linked records. The NSW Indigenous and total samples are roughly proportional to the share of the total Australian population in NSW. However, for both NSW and Australia, Indigenous Australians are underrepresented in the ACLD.

To take account of underrepresentation of Aboriginal people in the ACLD, we use weighted data in our analysis. That is, the known size and structure of the population in scope is compared with the size and structure of the ACLD sample. This means that, when calculating means and percentages, the characteristics of individuals that make up a smaller share of the sample than we would expect (given the observed distribution in the overall population) are given a higher weight than those who make up a larger or equivalent share of the sample.

The two time points in the ACLD (2011 and 2016) crossed with Indigenous status give four categories for analysis in this paper:

1. Always identified as Indigenous – people who identified as Indigenous in 2011 and 2016.

2. Never identified as Indigenous – people who identified as non-Indigenous or did not state their Indigenous status in both 2011 and 2016.

3. Newly identified as Indigenous – people who identified as non-Indigenous in 2011 or did not state their Indigenous status in 2011, but identified as being Indigenous in 2016.

4. Formerly identified as Indigenous – people who identified as Indigenous in 2011, but identified as non-Indigenous in 2016 or did not state their Indigenous status in 2016.

3 Findings – demographic change and characteristics of the population

An understanding of the characteristics, dynamics and geographic distribution of the Aboriginal population of NSW provides fundamental and powerful information for policy and practice to support and enhance population wellbeing, now and in the future.

Examination of population characteristics reveals the Indigenous population of NSW to be significantly younger than the non-Indigenous population. This young population profile presents many socioeconomic opportunities for individuals, their families and communities, if harnessed and supported effectively.

During the 10 years from 2006 to 2016, the Indigenous population of NSW showed an ageing dynamic, with proportionally fewer children but notable increases in people aged 20–29 years and over 50. This ageing profile reflects changes in health and fertility over the period. The growing propensity to identify, and be recorded in the national census, as Indigenous is also a factor, and is discussed in a subsequent section.

The geographic distribution of the population illustrates relatively rapid growth among Indigenous populations across all regions in NSW, with growth fastest on the coast. Additionally, data on population movements indicate that the greatest share of Indigenous migrants into the state settled in NSW Central and North Coast, followed by Sydney–Wollongong.

3.1 Demography

Data from 2016 show that the age composition of the Indigenous population of NSW is significantly younger than that of the non-Indigenous population. In fact, data from the 2016 Census profiles show that the median age of Indigenous people in NSW (22 years) is 23 years younger than that of the total NSW population. In other words, half of the NSW Indigenous population is aged 22 years or younger.

Figure 1 shows the youthful population composition of the Indigenous NSW population and compares it with the non-Indigenous NSW population.

The youthful age distribution of the NSW Indigenous population presents many opportunities. In particular, with a young population comes the potential of a demographic dividend. As NSW Indigenous youth enter employment age, they can take advantage of the increasing need for skilled workers. These socioeconomic conditions could benefit individuals and the economies of their communities. This economically advantageous position is due to the pronounced ageing of the non-Indigenous population in NSW and associated exits from the workforce. Ensuring that education, training and health are maximised among young people is vital to fulfilling the potential of the demographic dividend among NSW Indigenous populations.

The age and sex composition of the Indigenous population of NSW has changed over the 10-year period from 2006 to 2016, as shown in Figure 2.

The most notable change in the age and sex distribution of the NSW Indigenous population is its ageing. The proportion of Indigenous NSW residents aged over 50 has undergone a sizeable increase. Further, there is a more rapid growth of females than males into the upper part of the age distribution in NSW.

While the proportion of the NSW Indigenous population aged over 50 increased between the 2006 and 2016 censuses, so did the proportion of people aged in the peak childbearing and workforce participation ages – 20–29 years. This age distribution is likely to increase the number of Indigenous births in the coming years and

Figure 1   Age structure of Indigenous and non-Indigenous populations, NSW, 2016
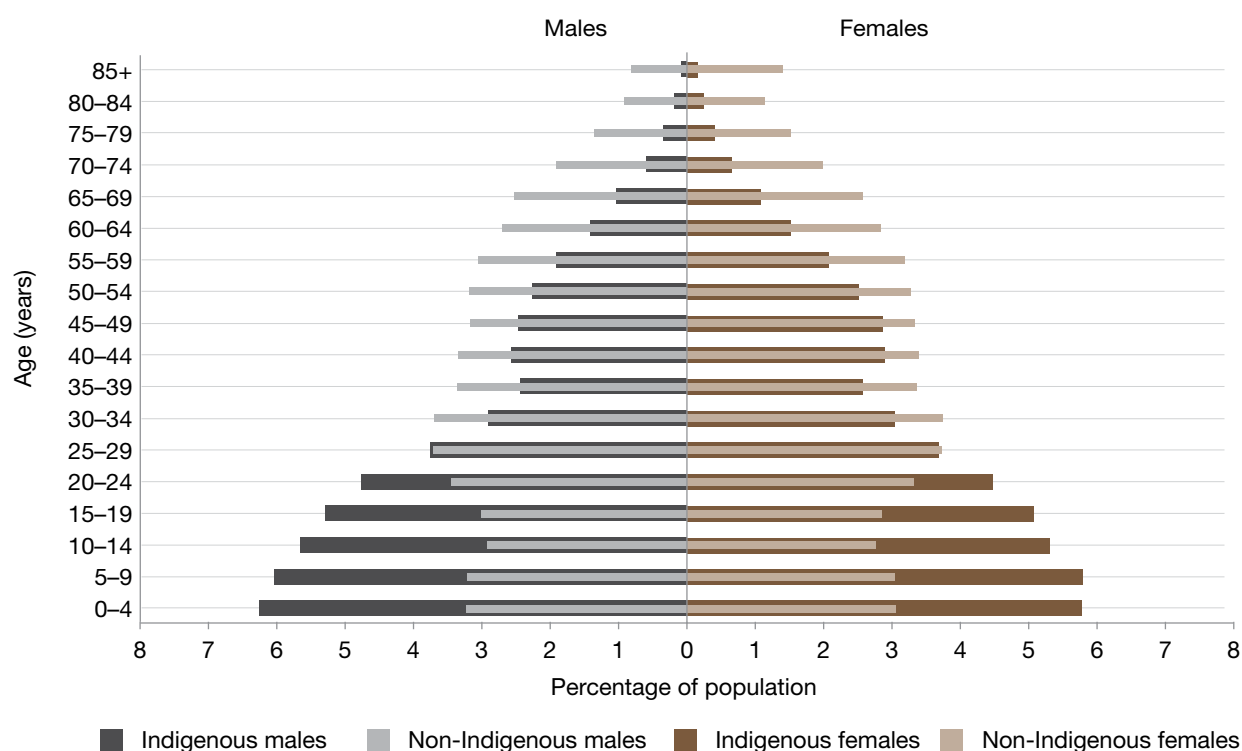
Source: Customised calculations using census-based population estimates from the 2016 Census of Population and Housing, Australian Bureau of Statistics

Figure 2   Age structure of the Indigenous population, NSW, 2006 and 2016
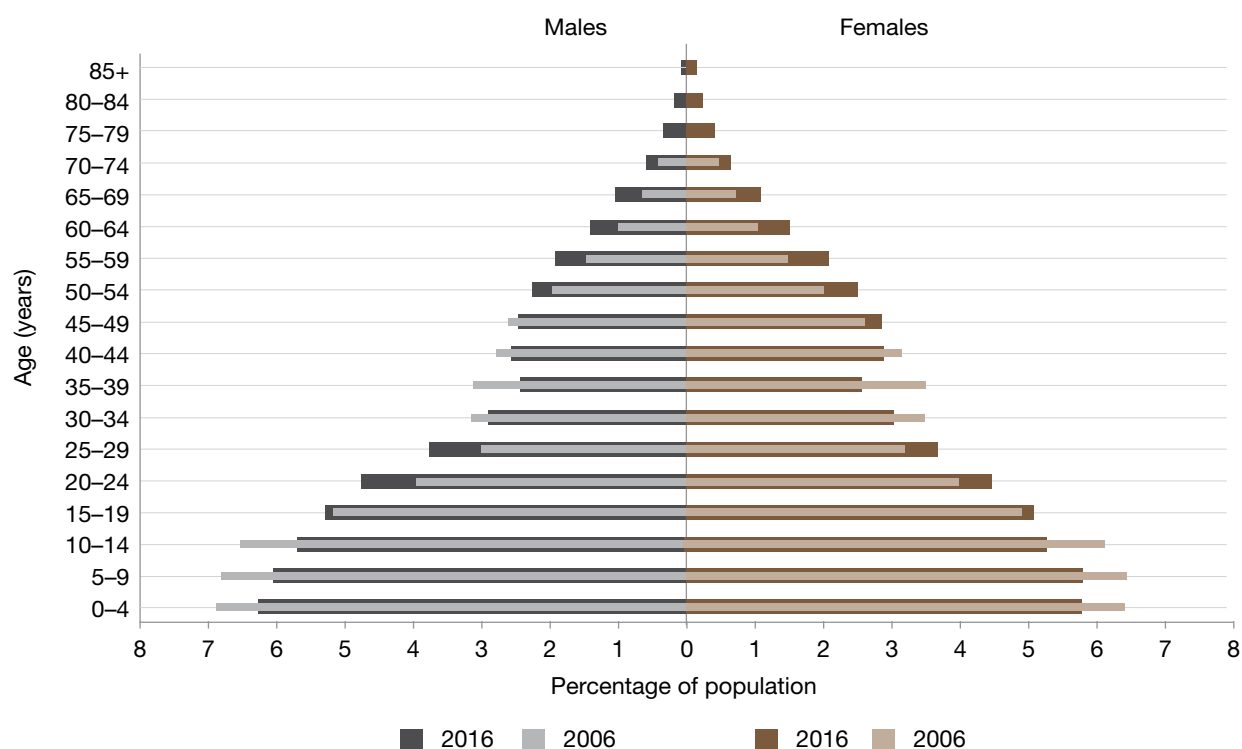
Source: Customised calculations using census-based population estimates from the Census of Population and Housing in 2006 and 2016, Australian Bureau of Statistics

the need to provide opportunities for young Indigenous people to balance work and family.

Increasing ageing from 2006 to 2016 in the Indigenous NSW population is related to increasing life expectancy at birth and declining fertility rates, as shown by the proportional declines in numbers of children. That said, differing rates of identification and enumeration may also be a contributing factor.

Healthy ageing will feature prominently in the coming years for Indigenous populations in NSW. A focus on preventive health would be

most effective in improving health outcomes for Indigenous people of all ages.

3.2 Geography

Indigenous populations across all regions in NSW grew rapidly between 2011 and 2016. Figure 3 shows the percentage population growth between 2011 to 2016 by Indigenous Region across Australia.

Coastal areas of NSW showed the fasted population growth between 2011 and 2016, and

Figure 3   **Population change by Indigenous Region, 2011–16**
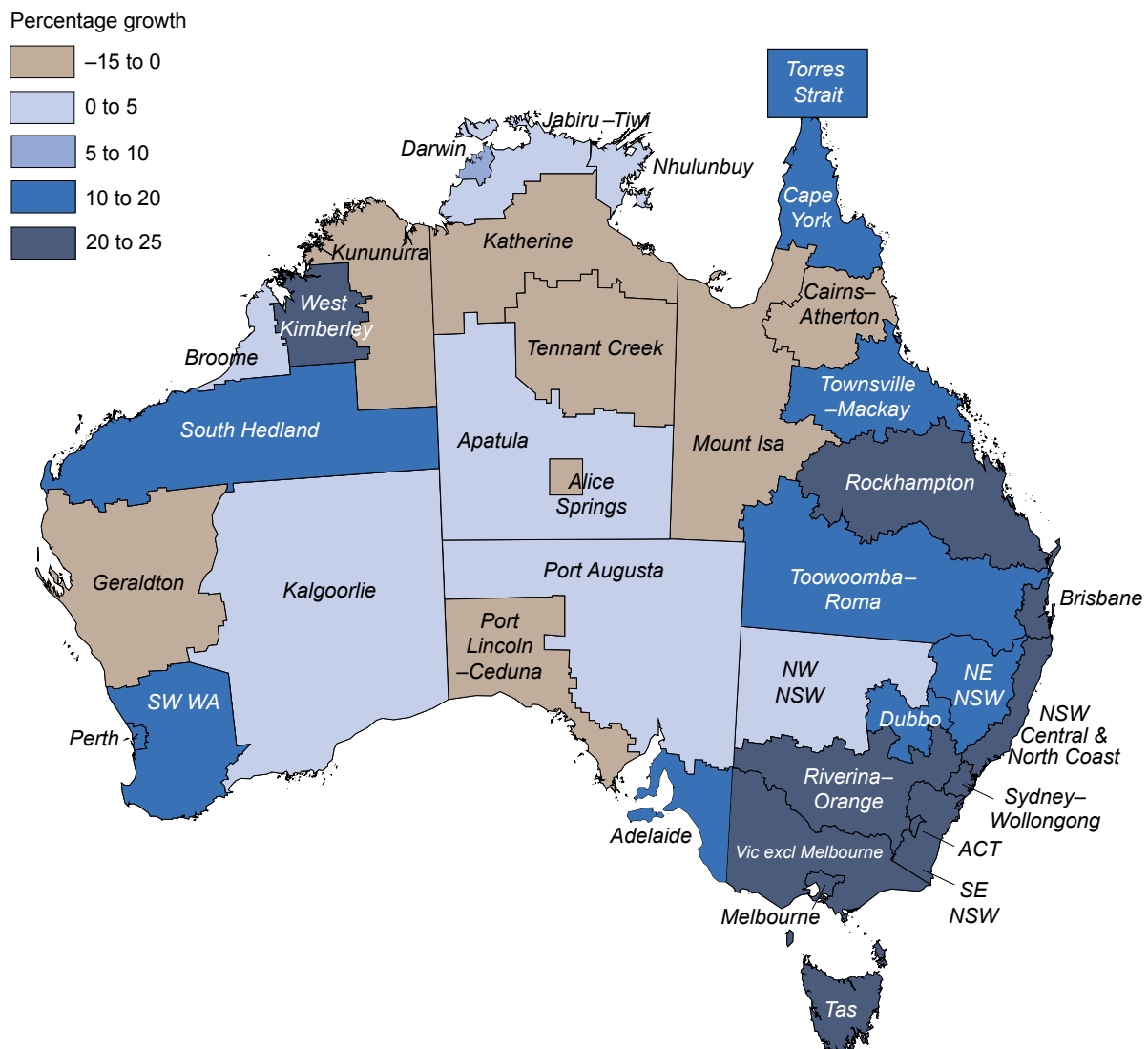
Source: Customised calculations using the Census of Population and Housing in 2011 and 2016, Australian Bureau of Statistics

were also the most densely populated areas, with the exception of Riverina–Orange. That population growth is expected to continue, at least in the short to medium term, at the rate observed during the 5 years to 2016, because of the demographic age and sex composition of the NSW Indigenous population. Such population growth poses challenges to service provision, and opportunities, such as building and strengthening cultural networks.

Population movements also reveal important insights for Indigenous populations in NSW. Data on migration into NSW between 2011 and 2016 by Indigenous Region and Indigenous status (Table 1) indicate that the greatest share of Indigenous migrants into the state settled in NSW Central and North Coast, followed by Sydney–Wollongong. This was very different from the non-Indigenous population that moved into NSW, the vast majority of whom moved into Sydney–Wollongong.

Table 2 analyses migration by Indigenous Region within NSW in more detail. The table gives a migration matrix, with the region of usual residence on the night of the census compared with the region of usual residence 5 years ago for the Indigenous and non-Indigenous populations separately. Results are given for all seven

Indigenous Regions in NSW, as well as the rest of Australia (combined).

The table also gives three sets of summary statistics. First, we give the number of people who moved out of that region between 2011 and 2016, as a percentage of the 2011 usual resident population (outflow). We then give the number of people who moved into that region between 2011 and 2016, as a percentage of the 2011 usual resident population (inflow). The final line gives the difference between these two, or the net flow.

These counts do not add to the totals in Table 1, because of those who stated their state or territory of usual residence in 2011, but not their detailed geography.

Only two regions in NSW experienced a net inflow of Indigenous population: NSW Central and North Coast, and South-Eastern NSW. The largest outflow from a region occurred from North-Western NSW, equivalent to almost 9% of the 2011 usual resident population. There was also, however, a reasonably large net outflow from the Dubbo and Sydney–Wollongong regions, although the motivators for this migration are likely to be very different.

Table 1   Migration into NSW, by Indigenous Region and Indigenous status, 2011–16

Indigenous Region	Count		Fraction of in migrants (%)		Fraction of 2016 usual resident population (%)	
	Indigenous	Non Indigenous	Indigenous	Non Indigenous	Indigenous	Non Indigenous
Dubbo	198	3 095	3.08	0.49	1.55	4.49
North-Eastern NSW	581	10 833	9.03	1.72	2.84	6.23
North-Western NSW	186	1 852	2.89	0.29	2.41	6.73
NSW Central and North Coast	2 173	77 956	33.79	12.35	3.11	5.78
Riverina–Orange	1 008	29 684	15.67	4.70	4.04	7.11
South-Eastern NSW	629	25 677	9.78	4.07	4.63	8.21
Sydney–Wollongong	1 656	482 150	25.75	76.38	2.51	10.79
Total	**6 431**	**631 240**	**100.00**	**100.00**	**2.99**	**9.26**

Source: Customised calculations using the 2016 Census of Population and Housing, Australian Bureau of Statistics

Table 2   Migration within NSW, by Indigenous Region and Indigenous status, 2011–16

Usual residence 5 years ago	Usual residence on census night							
	Dubbo	North Eastern NSW	North Western NSW	NSW Central and North Coast	Riverina Orange	South Eastern NSW	Sydney Wollon gong	Rest of Australia
Indigenous, region by region								
Dubbo	8 938	146	135	349	335	25	209	376
North-Eastern NSW	83	14 333	50	916	122	41	246	890
North-Western NSW	211	158	5 661	153	255	37	132	282
NSW Central and North Coast	181	748	73	51 357	287	160	1 104	2 394
Riverina–Orange	230	140	103	468	17 030	305	480	1 202
South-Eastern NSW	35	42	22	179	199	9 090	490	679
Sydney–Wollongong	177	213	63	1 882	646	616	50 367	1 831
Rest of Australia	190	566	184	1 981	979	588	1 308	342 485
Indigenous summary								
Outflow	15.0	14.1	17.8	8.8	14.7	15.3	9.7	1.7
Inflow	10.5	12.1	9.1	10.5	14.1	16.5	7.1	2.2
Net flow	**−4.5**	**−2.0**	**−8.7**	**1.7**	**−0.5**	**1.2**	**−2.6**	**0.5**
Non-Indigenous, region by region								
Dubbo	53 017	651	249	2 048	2 028	333	1 620	2 379
North-Eastern NSW	531	133 863	272	8 448	1 197	533	3 232	8 584
North-Western NSW	626	455	21 087	809	833	178	487	2 246
NSW Central and North Coast	1 293	6 948	521	1 074 597	4 566	3 197	27 452	54 553
Riverina–Orange	1 425	1 092	351	6 743	321 776	4 719	9 835	26 089
South-Eastern NSW	253	482	100	4 035	3 143	230 013	11 551	20 198
Sydney–Wollongong	2 081	3 757	601	59 433	14 565	21 996	3 547 556	114 802
Rest of Australia	1 891	6 895	1 476	51 251	21 622	20 047	80 303	12 109 326
Non-Indigenous summary								
Outflow	14.9	14.6	21.1	8.4	13.5	14.7	5.8	1.5
Inflow	13.0	12.9	13.4	11.3	12.9	18.9	3.6	1.9
Net flow	**−1.9**	**−1.6**	**−7.7**	**2.9**	**−0.6**	**4.2**	**−2.2**	**0.4**

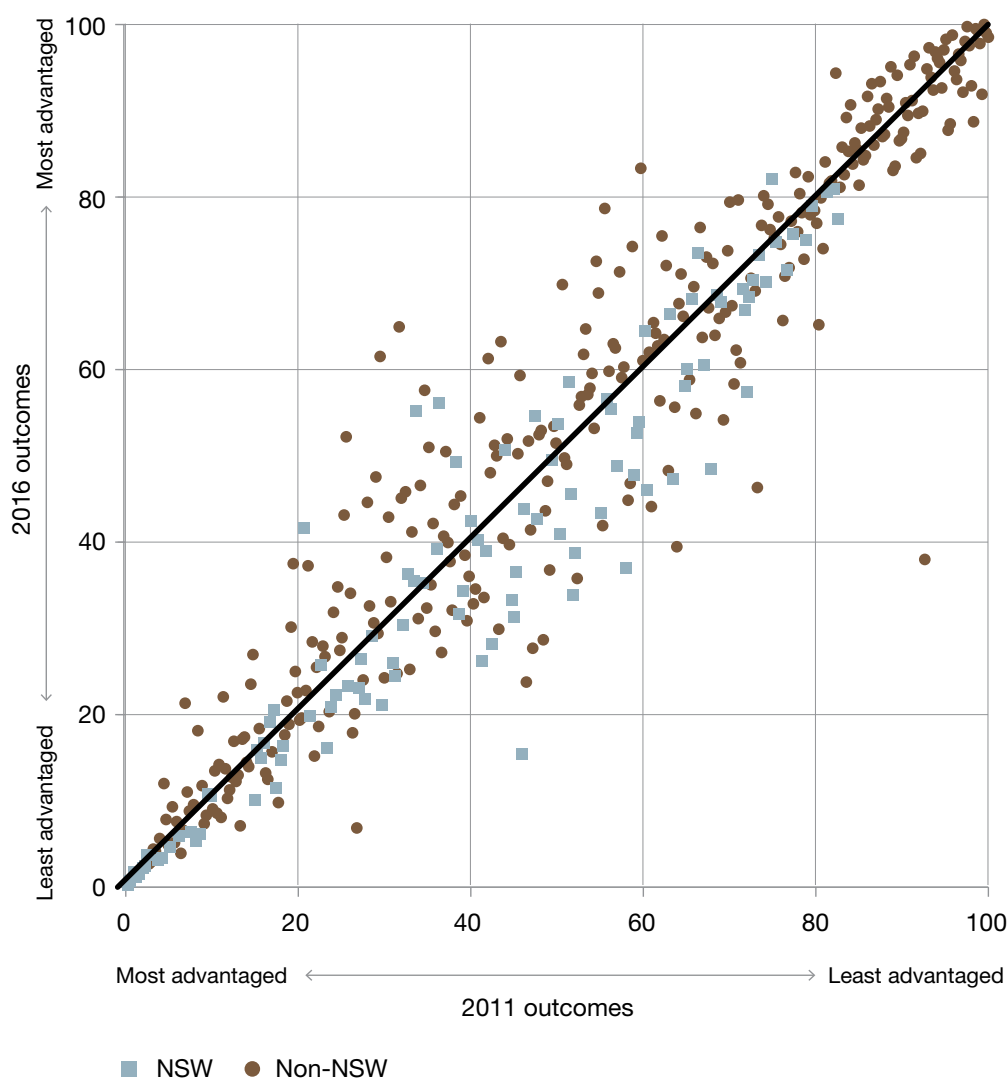Source: Customised calculations using the 2016 Census of Population and Housing, Australian Bureau of Statistics

4 Findings – socioeconomic change

The Aboriginal population in NSW is growing, both in overall number and proportionally to the rest of the Australian Indigenous population. Additionally, the NSW Aboriginal population is becoming more economically prosperous.

Figure 4 summarises some data adapted from Biddle and Markham (2017). These data give the relative socioeconomic statuses of the NSW

Indigenous population by area, in 2011 and 2016. For this analysis, we calculate an Indigenous relative socioeconomic outcomes (IRSEO) index for every Indigenous Area in Australia. The index summarises the distribution of outcomes at the small-area level according to nine socioeconomic measures of the usual resident population of an

Figure 4   Socioeconomic characteristics of Indigenous Areas, NSW and non-NSW, 2011 and 2016

Source: Customised calculations using the Census of Population and Housing in 2011 and 2016, Australian Bureau of Statistics

area. These are the proportion of the population 15 years and older that:

- is 15 years and older and employed
- is 15 years and older and employed as a manager or professional
- is 15 years and older and employed full-time in the private sector
- is 15 years and older and has completed Year 12
- is 15 years and older and has completed a qualification
- is aged 15 to 24 and is attending an educational institution
- is 15 years and older and has an individual income above half the Australian median
- lives in a house that is owned or being purchased
- lives in a house with at least one bedroom per usual resident.

Although the list of variables is not exhaustive, it does reliably capture the main measures and determinants of economic prosperity that are available in the census. After ranking all Indigenous Areas in Australia (there were 106 in NSW and 302 in the rest of Australia), the areas are given a percentile rank from 1 to 100, with 1 being the most advantaged area and 100 the most disadvantaged. The average percentile rank in 2016 for NSW areas is 38.3. The average percentile rank in non-NSW areas is 54.5.

The same process was undertaken for the same set of areas, but using data about the 2011 Indigenous population (adjusting for changes in geographic boundaries). Figure 4 gives the percentile rank in 2011 (plotted on the horizontal axis) against the percentile rank in 2016 (plotted on the vertical axis). The blue squares are for NSW areas, and the brown dots are for the rest of Australia. Any dot above the black 45° line indicates an area that became more disadvantaged between 2011 and 2016 (in relative terms), whereas any dot below the line became more advantaged. Those on the line did not change their relative position.

For areas in NSW, most dots were at or close to the 45° line. This is not surprising, as outcomes change only slowly through time, and an advantaged area in one census is likely to be

advantaged in another. However, areas in NSW tended to improve in their position relative to the rest of the Australian Indigenous population (ie they are more likely to be below the line). Specifically, the average change between 2011 and 2016 in NSW areas is −2.6 percentile places, compared with the average change in non-NSW areas of +1.07.

The IRSEO is a relative ranking. As one area goes up, another area or set of areas must go down by a similar amount. However, Figure 5 shows that, in absolute terms, the Indigenous populations in all regions in NSW are more economically prosperous than they were in 2011.

This map is for Indigenous Regions, of which there were seven in NSW in 2016. The shading of the region gives the change in real household equivalised income (ie after taking into account inflation and the demography of the households) between 2011 and 2016.

Figure 5 shows that there were nine regions across Australia for which median income was lower in 2016 than in 2011 (among the relevant Indigenous populations). None of these regions were in NSW. Rather, there was one region in NSW that had growth in the second-highest income band and a further six that had growth in the top income band. There were only two other regions across Australia (the ACT and South-Western Western Australia) that experienced income growth of this magnitude.

Unequivocally, the Aboriginal population of NSW in 2016 was more economically prosperous than the Aboriginal population of 2011.
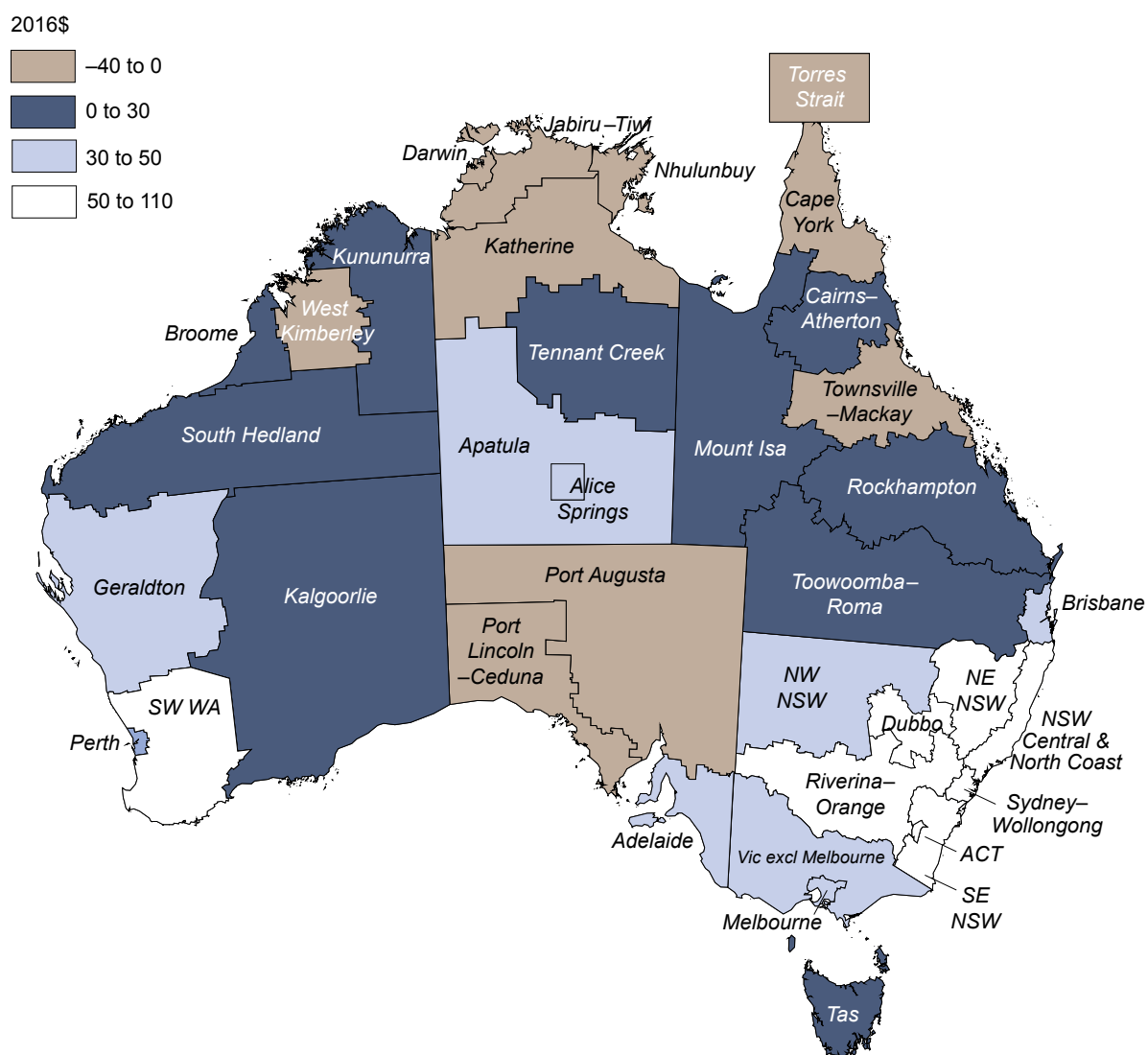
Source: Customised calculations using the Census of Population and Housing in 2011 and 2016, Australian Bureau of Statistics

5 Findings – identification change and the relationship with socioeconomic outcomes

The Aboriginal population of NSW is growing, and it is more economically prosperous than ever before. To what extent are the two related? Quite a lot, as this section will show.

In previous analysis for Aboriginal Affairs NSW by the Australian National University, it was shown that (Biddle 2015):

> … 'a large churn' occurred between 2006 and 2011 in the NSW Indigenous population – changing from being identified as non-Indigenous to Indigenous and changing from being identified as Indigenous to non-Indigenous. However, in net terms, a greater number of people were newly identified [as Indigenous] than formerly identified. Furthermore, NSW recorded one of the highest levels of net change. This undoubtedly contributed to the very rapid growth in the Indigenous population over the period for Australia as a whole, but for NSW in particular.

The release of data from the 2011 and 2016 censuses allows us to revisit this issue, consider whether the trends have continued, and summarise new data on the implications of that change.

## 5.1 Patterns of identification change

Figure 6 shows the expected or projected population growth between 2011 and 2016 (based on estimates of births, deaths and internal migration) compared with the measured population growth. The brown bars give the best estimates of the excess of births over deaths, as well as net migration flows into and out of each of the states and territories. The blue bars give the changes that were actually observed over the period.

The results presented in Figure 6 for NSW are striking. They show that population growth was much larger in NSW than in any other state or territory. Furthermore, of the large states and territories, NSW had by far the biggest difference between expected and estimated population growth. In Queensland and Western Australia, there was a slightly larger growth than projected, whereas, for South Australia, Western Australia and the Northern Territory, growth was lower than projected. These latter states and territories probably experienced lower than projected growth due to lower rates of inward migration and higher rates of outward migration than projected (the projections were based on flows from the peak of the mining boom in 2006–11, which did not continue over the most recent intercensal period). For the other states and territories, either migration was higher than expected or there were significant inflows into the Indigenous population from identification change.

We can decompose the flows into and out of the NSW Indigenous population. There were more births than deaths between 2011 and 2016, and more Indigenous people moving into than out of the state (Figure 7). However, the biggest net flow into the NSW Indigenous population was through identification change.

In Figure 7, the size of each of the ribbons is proportional to the population flow that occurred between 2011 and 2016. On the left-hand side, we show that there were 199 100 Indigenous Australians in NSW in 2011, the majority of whom were still alive in 2016, identified as being Indigenous and were still in NSW. However, there were also a sizeable number (the bottom four ribbons that end on the right-hand side) who did not survive over the period, who no longer identified as being Indigenous, or who had left the state.

Figure 6   Expected and unexpected Indigenous population change, 2011–16
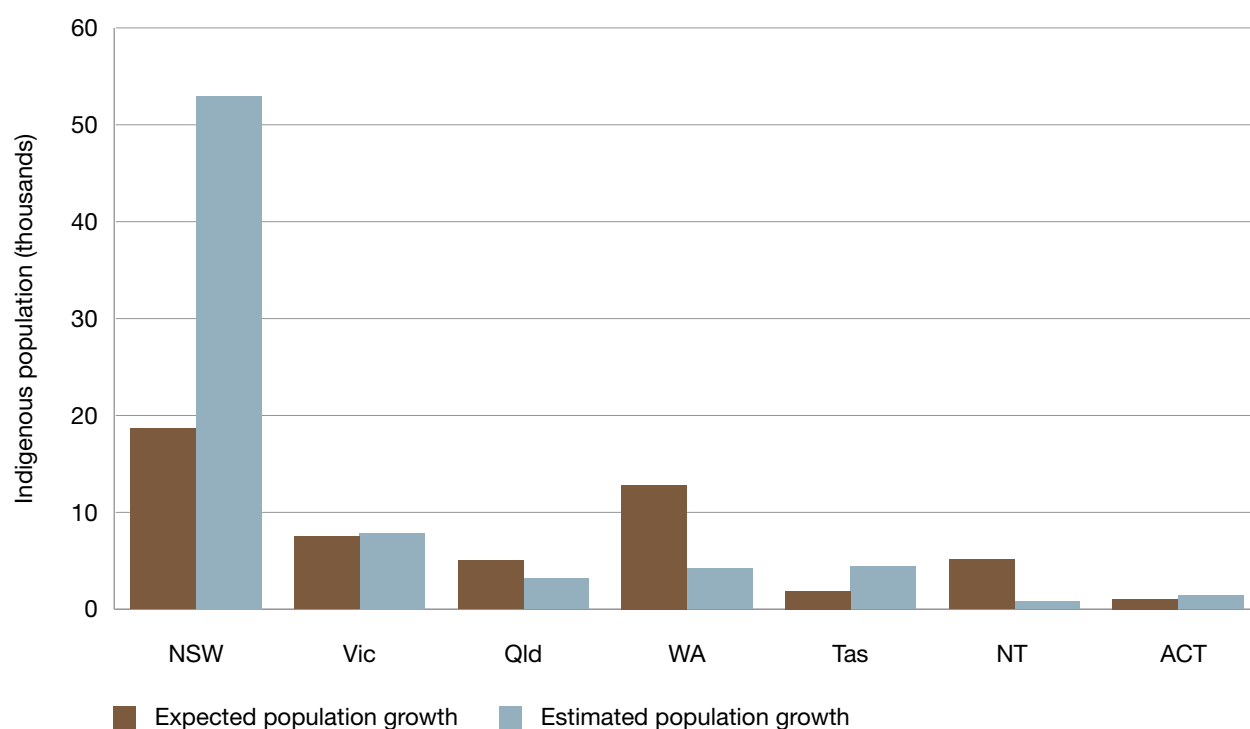
Source: Customised calculations based on the 2011–16 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

Figure 7   Flows into and out of the NSW Indigenous population, 2011–16
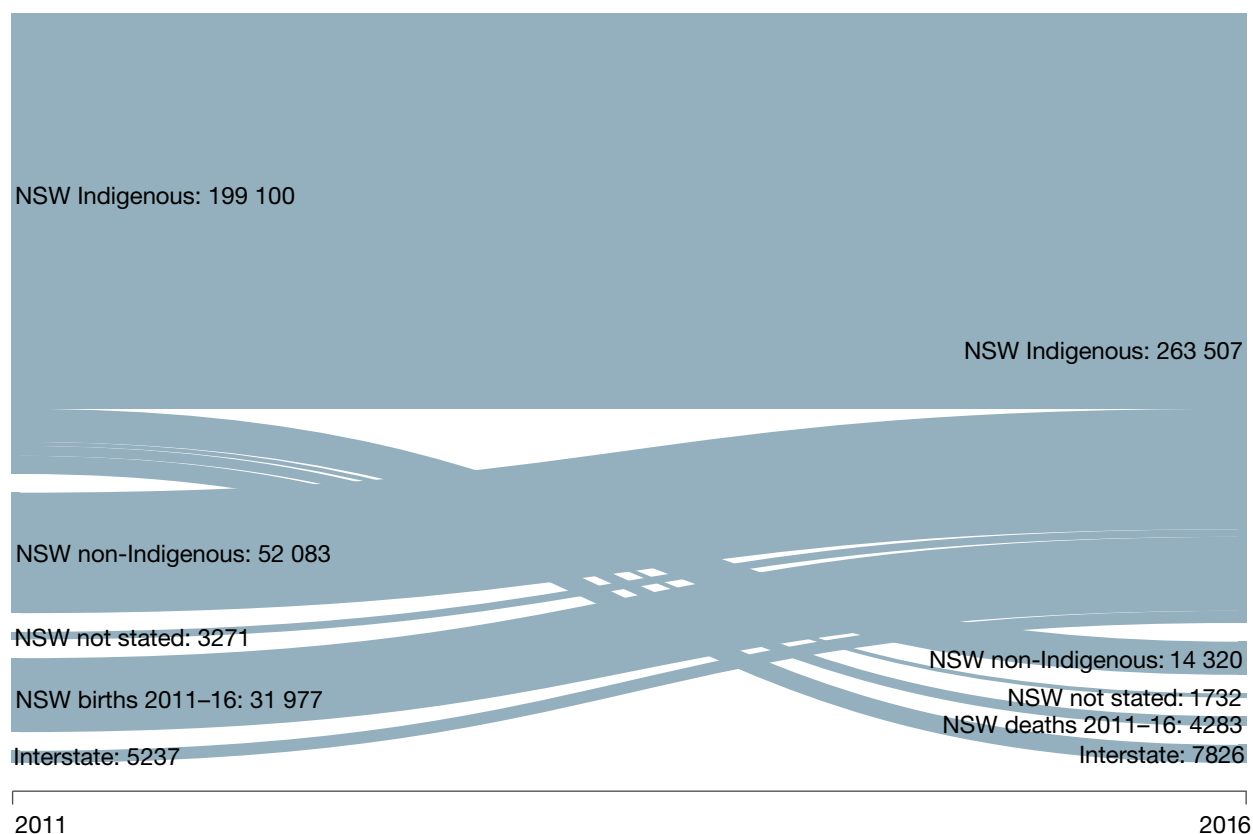
Source: Customised calculations based on the 2011–16 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

On the right-hand side, there were 263 507 people who identified as Indigenous in NSW in 2016. The majority of these come from the 2011 NSW Indigenous population. However, there was a sizeable inflow into the population (the bottom four ribbons starting on the left-hand side) of people who were born during the period, moved into the state or changed identification.

Specifically, there were 14 320 people estimated to identify as Indigenous in 2011 but non-Indigenous in 2016, alongside 1732 who identified as being Indigenous in 2011 but did not state their Indigenous status in 2016. These fall into the category of the 'formerly identified' in the four-category typology outlined in Section 2.

While large, the formerly identified were far outweighed by the 52 083 and 3271 non-Indigenous and not stated populations in 2011 (respectively) who identified as being Indigenous in 2016. This 'newly identified' population of a little over 55 000 people is equivalent to 27.6% of the baseline population of 200 832 Indigenous Australians in NSW in 2011 who survived to 2016, or a net inflow of 19.6%. Figure 8 shows that this identification change was similar to that estimated for Victoria and the ACT, and substantially larger than in all other states and territories.

It is very hard to overstate the demographic significance of this net identification change. The net inflow from identification change of 39 302 people is roughly 1.4 times the net inflow from

births minus deaths, and more than 15 times the net inflow from migration. To put this another way, 60.9% of the growth of the Indigenous population of NSW between 2011 and 2016 was due to net identification change. This is on top of a very similar rate of identification change between 2006 and 2011.

The identification change that occurred between 2011 and 2016 was not evenly geographically spread across the state. We show this by looking at identification change by Indigenous Region (Figure 9).

The NSW Central and North Coast, and the Sydney–Wollongong regions had the largest newly identified Indigenous populations in 2016 (in absolute terms). However, net flows were also large (above 20%) in the Riverina–Orange and South-Eastern NSW regions. Net flows were lowest in North-Western NSW (5.9%).

5.2 Identification change by demographic characteristics

In discussing net identification change by demographic characteristics (within NSW), we begin with the distribution of net identification change by age cohort.

Figure 10 shows that net change between 2011 and 2016 was greatest among children (around 25%), and those aged 25–34 years and

Figure 8   Net identification change by state and territory, 2011–16
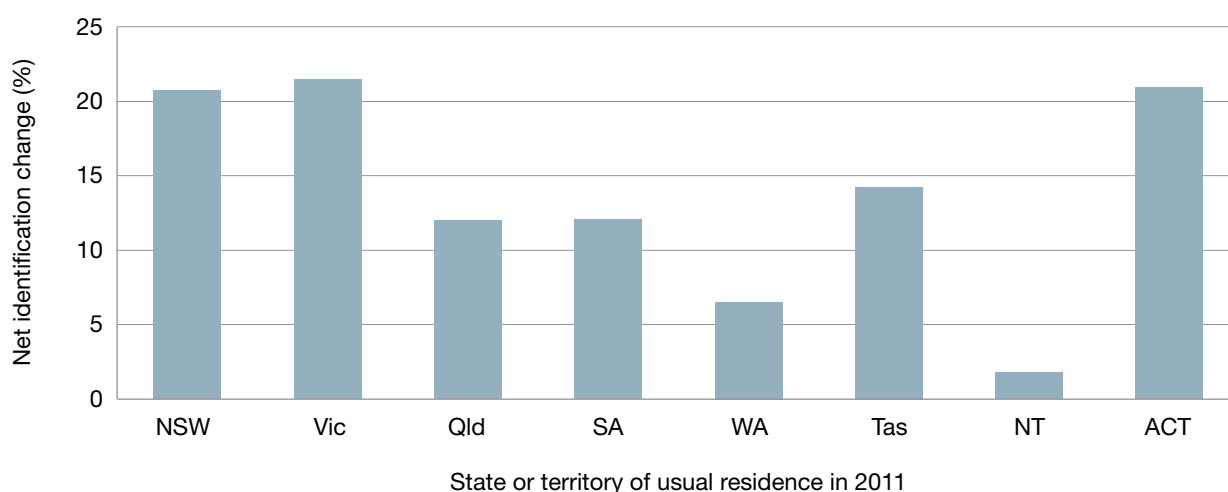
Source: Customised calculations based on the 2011–2016 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

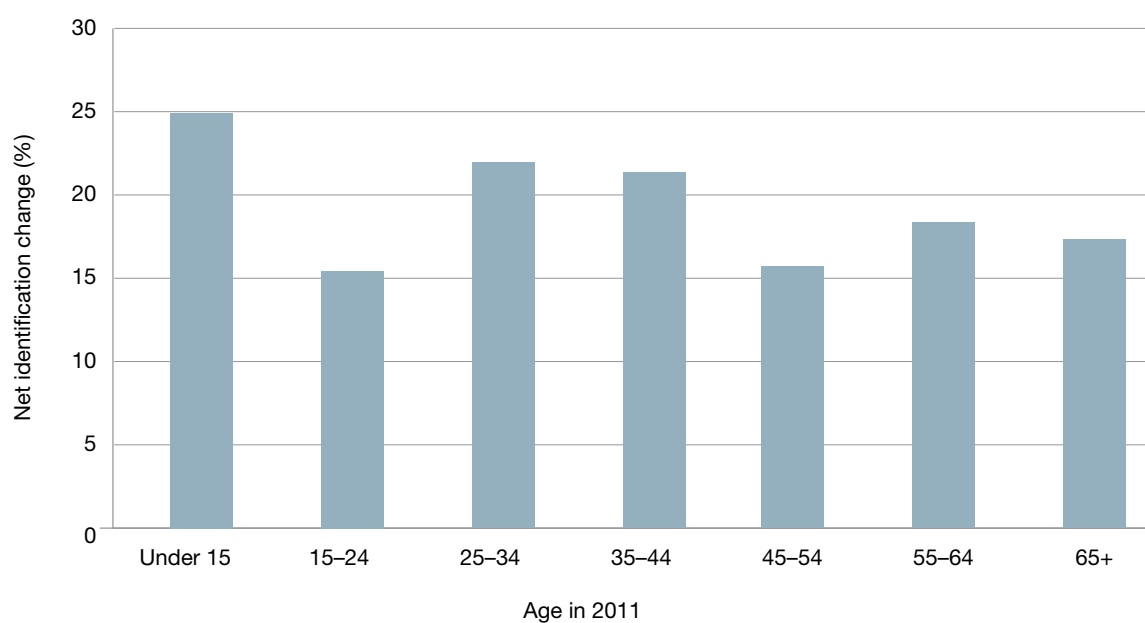**Figure 9   Net identification change by Indigenous Region, 2011–16**
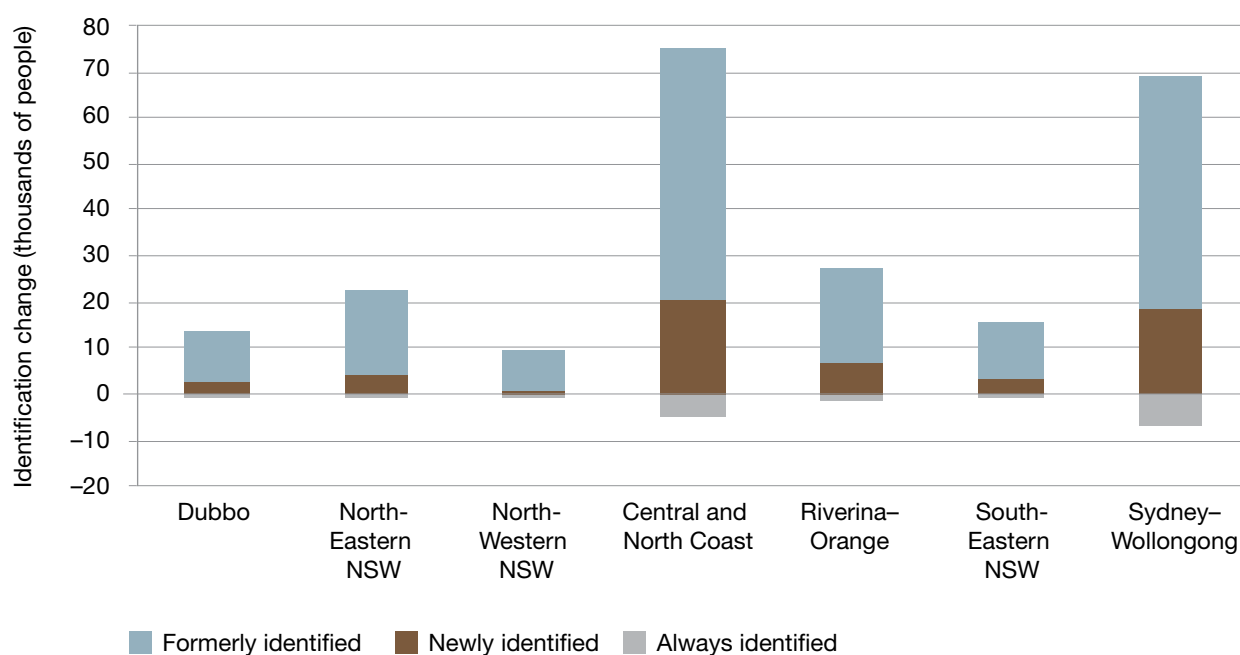
Source: Customised calculations based on the 2011–16 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

Figure 10   Net identification change by age, NSW, 2011–16

Source: Customised calculations based on the 2011–16 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

35–44 years in 2011. These latter two age groups are those most likely to have children, giving very strong evidence that identification change is associated with family formation.

For adults, the characteristics of a person's partner are associated with their probability of identification change (Table 3).

The first column of numbers in Table 3 looks at adults who identified as being Indigenous in 2011. The first line in that column gives the percentage of the Indigenous population that has a non-Indigenous partner and whose identification changed to be either Indigenous or not stated (8.18%). This is slightly higher than the percentage of the Indigenous population that has an Indigenous partner and whose identification changed (7.91%), but lower than the probability of someone without a partner changing from being Indigenous to non-Indigenous (11.45%).

The differences in the probability of a person's identification changing are much greater, however, when we look at changes between 2011 and 2016 for those who did not identify as being Indigenous in 2011. The probability is relatively low for those who had a non-Indigenous partner (0.48%) or had no partner (0.86%). Because the baseline numbers for these populations are so much larger than the baseline Indigenous population, there is still a net flow into the Indigenous population. However, it is even more important to note that the probability of a person who was not Indigenous changing to Indigenous between 2011 and 2016 was much higher if that person had an Indigenous partner in 2011 (2.70%) than for the other two categories. Family status clearly matters.

5.3 Identification change by socioeconomic characteristics

Here we examine the relationship between identification change and socioeconomic outcomes. If there was no relationship between identification change and socioeconomic background, the changes outlined in this section would have implications for the size of the population, but not for our understanding of the economic prosperity or policy requirements for the population. However, the results show that this clearly is not the case.

One of the main determinants of an individual's economic wellbeing is the income received by the household. That is not to say that wealth or expenditure requirements (eg on housing) are unimportant. Nor is it to say that financial wellbeing is the only (or even the most important) determinant of a person's wellbeing. In Figure 11, we show that net identification change in NSW was highest among those at the upper end of the income distribution, particularly in the $65 000–78 000 (equivalised household) income range. For this group, there was a net inflow into the Indigenous population of more than 40%.

In general, apart from the upper income category (for which there were very few Indigenous people in NSW in 2011), there was a general increase in the inflow into the Indigenous population for all incomes. This does *not* show that changing one's Indigenous status is associated with improvements in economic circumstances. The income bands are based on incomes from *before* the identification changes occurred. Rather, the

Table 3 **Identification change by characteristics of partner, for people aged 15 and older, NSW, 2011–16**

Partner status	Change from Indigenous to non Indigenous		Change from non Indigenous to Indigenous	
	(%)	Number	(%)	Number
Non-Indigenous partner	8.18	2 694	0.48	14 005
Indigenous partner	7.91	820	2.70	686
No partner	11.45	8 956	0.86	19 832
All adults	10.27	12 490	0.65	34 386

Figure 11 Net identification change by household equivalised income, NSW, 2011–16
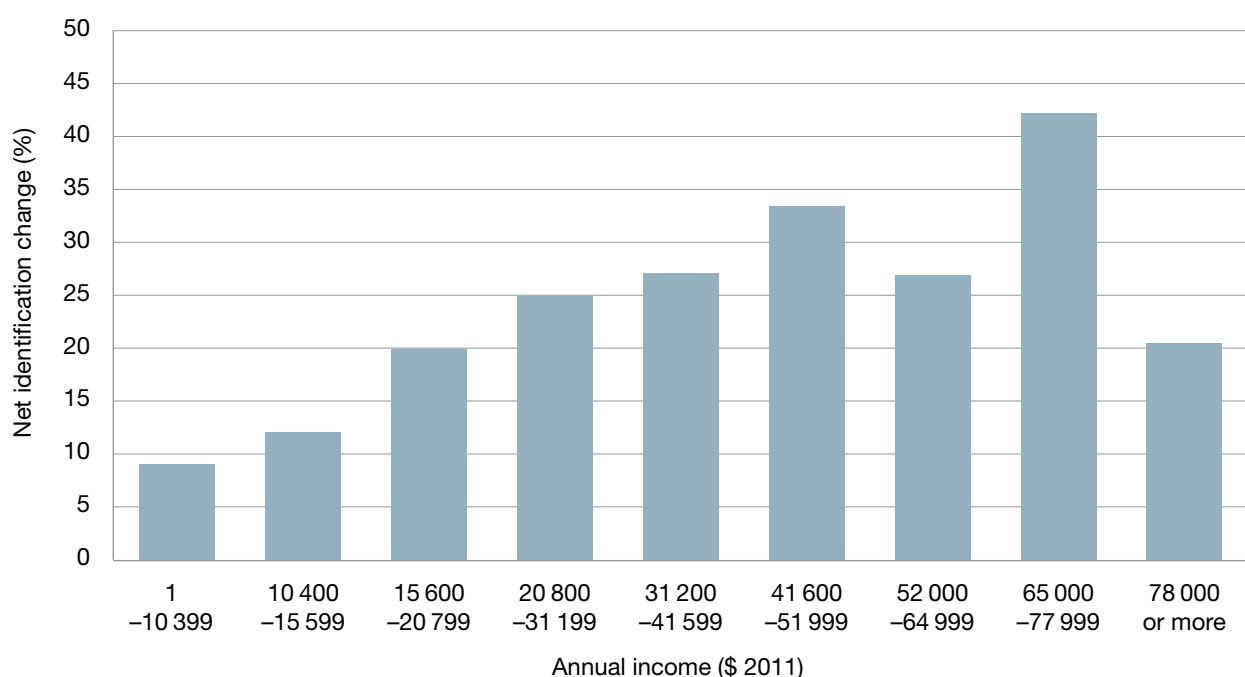
Source: Customised calculations based on the 2011–16 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

results show that there was a greater inflow into the Indigenous population of those who were already relatively well off. This will increase the measured economic prosperity of the NSW Aboriginal population far more strongly than improvements in the economic prosperity of individual Aboriginal people and their households.

This effect on the measurement of economic prosperity is highlighted in Figure 12. The first bar gives the percentage of Indigenous people in NSW in 2011 who were employed. Using the ACLD sample, the second bar gives the percentage of Indigenous people in 2016 who were employed, an apparent increase of a little under 4 percentage points. In the absence of longitudinal data, this would be the best estimate of employment change and, by extension, the effectiveness of policy (national, and state and territory) as applied to the Aboriginal population of that jurisdiction.

The final bar in Figure 12 shows that this picture would be an exaggeration. Specifically, the percentage of the 2011 Indigenous population who were employed in 2016 is much less than the percentage of the 2016-based population who were employed in the same year. There is still a measured improvement in employment of that

group by a little under 2 percentage points. This change is not negligible, and initial analysis of the individual-level data suggests that it is statically significant. Figure 12 makes it clear that repeated cross-sectional data that do not take into account identification change overstate improvements in economic prosperity by a considerable amount.

Figure 12 Employment change with and without identification change, NSW, 2011–16
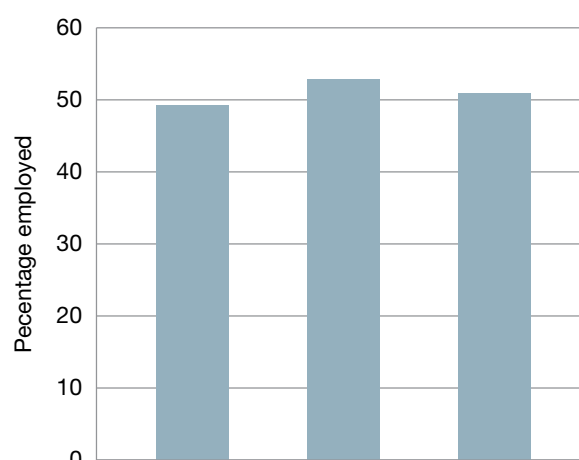
Source: Customised calculations based on the 2011–16 Australian Census Longitudinal Dataset, Australian Bureau of Statistics

6 Summary, discussion and implications

The NSW Aboriginal population is one of the fastest growing in the country. Estimates for the total Indigenous population in the state increased from around 189 000 in 2006 to around 267 000 in 2016. This is a very rapid growth, and is likely to lead to a significant number of policy challenges and opportunities. Not only is the population growing, it is also changing.

The age structure in 2016 relative to the non-Indigenous population shows that the Indigenous population of NSW is significantly younger than the non-Indigenous NSW population. This has implications for the types of services that are required for the Aboriginal population of NSW. For the non-Indigenous population, an increasing focus is on retirement savings and prolonging workforce participation; for the Indigenous population, the focus is much more on human capital development (early childhood education, schools and higher education), family formation, and transition from study to work.

While the population is younger cross-sectionally, the Aboriginal population is also ageing. Specifically, a smaller proportion of the population was aged 0–14 years, and a greater proportion was aged 20–29 years and 50 years and over in 2016 compared with 2006. So, while the young Aboriginal population must take on greater focus now, this population will soon be demanding the types of government services that those at the upper end of the age distribution demand. Regrettably, this demand may take place in the absence of the types of financial savings that the rest of the NSW population can access.

This raises the issue of demographic dividend versus demographic disaster. For many countries through history, rapid economic growth has coincided with the time when a bulge in the population entered prime working age. At this point and before the population ages dramatically, there are more people willing and able to work relative to those who are too young or too old to do so. This demographic dividend, if managed well, has long-term payoffs. But there are long-term costs if those who are willing and able to work are unable to find and maintain employment because of a lack of jobs, a lack of skills, or unfair treatment in the labour market.

Growth in the NSW Indigenous population was not evenly distributed by region. Although all regions in NSW have grown relatively rapidly, growth was fastest on the coast. One reason for this was interstate migration. The greatest share of Indigenous migrants into the state moved into the NSW Central and North Coast, followed by Sydney–Wollongong.

The types of services provided in major cities are somewhat different from those provided in regional areas, and even more different from those provided in remote areas. Perhaps more importantly, the growth in the Aboriginal population of NSW is occurring in regions and areas where the Aboriginal population makes up a relatively small share of the overall population. The urban conglomeration from Wollongong to Sydney to Newcastle is experiencing rapid international migration, as well as growth of the Indigenous population. Providing services in an equitable way in a situation where the surrounding population is also growing is always going to be a challenge.

The NSW Aboriginal population is (on average) more economically prosperous than the rest of the Australian Indigenous population. There are other parts of the country where the Indigenous population is also relatively well off (eg the ACT and other large urban areas). But, on average, the NSW Aboriginal population is more socioeconomically advantaged than in other parts of the country. That is not to say that there is not severe disadvantage in parts of NSW, or that the Aboriginal population in NSW is equitably sharing in the economic resources of that state. But, relative to the rest of the country, economic prosperity is high and improving.

We showed this growth using two figures. One showed that NSW areas were more advantaged than the rest of Australia in 2016 (on average) and more advantaged than the equivalent position in 2011. Again, that does not mean that the Aboriginal population in NSW is more advantaged than the non-Aboriginal population. The paper from which those data came showed that there was no area in NSW (or Australia) for which the Indigenous population was more advantaged than (or even similarly advantaged to) the non-Indigenous population.

In absolute terms, the Aboriginal population of NSW has become more economically prosperous. Median household equivalised income – our best summary of economic prosperity available for the Indigenous population – increased in all regions of NSW. Income increased faster in NSW than in any other state or territory except for the ACT. This is not inevitable. There were many regions in Australia for which median household equivalised income was lower in 2016 than in 2011. None of these were in NSW.

These two sets of analyses – population change and economic prosperity – are intimately related. And they are related through identification change, which occurs when people who did not identify as Aboriginal (or Torres Strait Islander) in one year identified as such in a subsequent year.

Aboriginal identification in the census has always been uncertain. Many Aboriginal people are missed from the census entirely, and many do not answer the Indigenous status question. For a given individual, sometimes the census form is filled out for them (by a parent, a partner or a household member), and sometimes they fill it out themselves. This is one reason why individuals identified as being Indigenous in one year may not be identified as such in a subsequent year.

What is different about the past few intercensal periods, and what is different for NSW (alongside Victoria and the ACT), is that those who newly identified as being Indigenous far outweigh those who previously identified. There were 14 320 people estimated to have identified as Indigenous in 2011 but non-Indigenous in 2016, alongside 1732 who identified as being Indigenous in 2011 but did not state their Indigenous status in 2016. This was substantially less than the 52 083 and

3271 non-Indigenous and not stated populations in 2011 who identified as being Indigenous in 2016.

We estimate that more than 60% of the growth in the Aboriginal population over the period was due to identification change – that is, more than the growth in the NSW population due to births exceeding deaths and in-migration exceeding out-migration combined.

On balance, we feel that this identification change shows a greater willingness of the NSW population to identify as being Indigenous, in many ways a good-news story. But identification change is a complicated process that requires careful attention and a sensitive response. First, identification change was not consistent across NSW. It was greatest in absolute terms in the more urban parts of the state, and greatest among two age cohorts: the very young, and those in prime child-rearing years.

In and of itself, identification change has important implications for policy and service delivery. Some of the newly identified population may have changed their own view of their Indigenous status. Another group may have changed the way in which they are willing to identify to service providers at the same time as they changed the way they identify to the ABS. These two groups of individuals may not be aware of the types of Aboriginal-specific services that are available to them, or how to access them. As they begin to access Aboriginal-specific services, this may overwhelm service providers if funding and direct support do not increase accordingly.

Perhaps even more complicated from a policy perspective is that the newly identified population tends to have a higher level of socioeconomic outcomes than the always-identified and the formerly identified. This does not mean that identification change improves a person's outcomes. Rather, it is the outcomes preceding identification change that are more favourable (although still less favourable than the never-identified).

From a measurement point of view, this makes it hard to gauge the change in outcomes for jurisdictions or regions where identification change is most rapid. Outcomes can be better

for a snapshot in one year relative to a snapshot in previous years without the outcomes of individuals and their families actually improving. It would appear (from data presented in this paper) that around half of measured employment growth was due to identification change. So, employment outcomes did improve. But they did not improve as rapidly as the headline figures suggest.

A more complicated question relates to the way in which resources and services are allocated to a population where identification is increasing. There are really only a few options: increase the overall funding for Aboriginal-specific services, provide services to the always-identified population only, decrease the level of funding per person, or ration that funding based on other characteristics of the individual or their family.

As researchers, it is not our place to say which combination of options is preferable. There are trade-offs with all four options, and which is best will differ between service types. The data presented in this paper show that the decision must be tackled. We would argue that this must be done using the best available evidence and in a way that, as far as possible, takes into account the views of all Aboriginal people in NSW.

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