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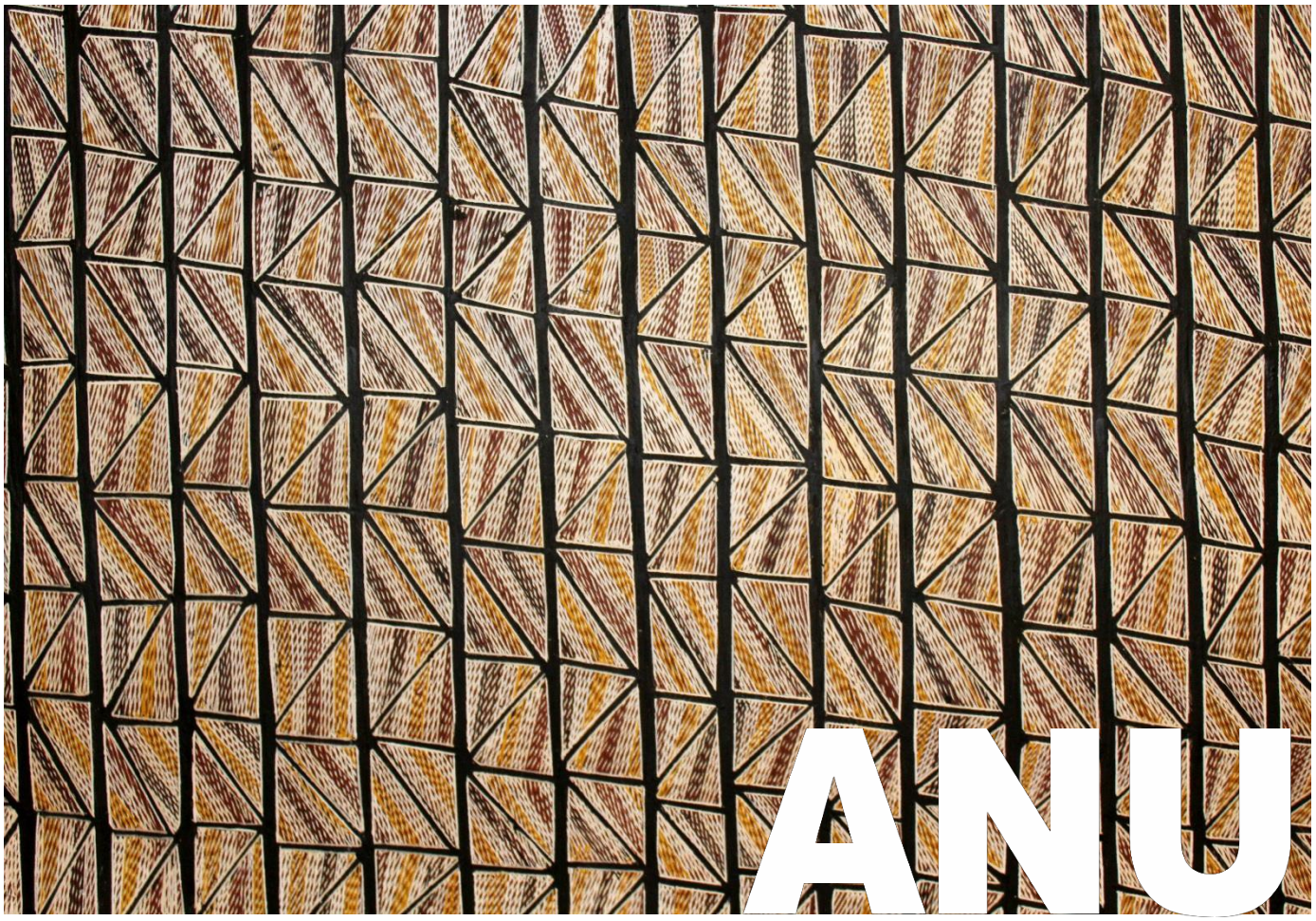


# SCHOOL EDUCATION

H CRAWFORD AND D VENN

2016 CENSUS PAPERS

Centre for
Aboriginal Economic
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2016 CENSUS PAPER NO. 10

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# School education

## H Crawford and D Venn

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## Abstract

This papers uses data from the Census of Population and Housing to examine trends between 2006 and 2016 in two aspects of Indigenous education: school participation and Year 12 attainment. We find that there has been considerable growth in the Indigenous school student population, both at primary and secondary level. Much of the growth in Indigenous student numbers at primary level has been in nonremote areas, particularly in urban areas of Queensland and New South Wales. Growth in the number of secondary school students was also seen in some remote areas of Western Australia, Queensland and the Northern Territory. Over time, more Indigenous students are attending non-government schools. However, the government system remains the most important provider of education for Indigenous students, in both remote and nonremote areas. There has been strong growth in Year 12 attainment among the Indigenous population, in both remote and nonremote areas. Far fewer Indigenous students are dropping out of school to work or inactivity, possibly in part due to weaker labour market conditions and falling teenage fertility rates. A large part of the remaining gap between Indigenous and non-Indigenous students in the likelihood of leaving school without completing Year 12 is attributable to personal, household, school and neighbourhood characteristics.

**Keywords:** Indigenous education, Indigenous policy, school, school dropout, census.

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## Acronyms

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| ACLD | Australian Census Longitudinal Dataset |
| ANU | Australian National University |
| ASGS | Australian Statistical Geography Standard |
| CAEPR | Centre for Aboriginal Economic Policy Research |
| CDEP | Community Development Employment Projects |
| PM&C | Department of the Prime Minister and Cabinet |

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# Tables and Figures

# Introduction

The importance of increased access to educational opportunities, participation in education and improved educational outcomes for Aboriginal and Torres Strait Islander people[1] has been highlighted in numerous reports (see e.g. Behrendt et al. 2012; Bradley et al. 2008; Calma 2009; House of Representatives Standing Committee on Indigenous Affairs 2017). Some potential benefits identified in these reports of increasing educational participation and outcomes among Aboriginal and Torres Strait Islander people range from the fulfilment of individual aspirations to gain employment and take up professional or leadership positions, to greater empowerment and positive outcomes among Aboriginal and Torres Strait Islander communities, to increased national productivity and social progress.

The importance of school education in contributing to welfare outcomes has been recognised in the Closing the Gap policy framework, introduced in 2008, which aimed to support improved health and socioeconomic outcomes for Aboriginal and Torres Strait Islander people.[2] To date, school education has featured prominently in the Closing the Gap framework, featuring in three of the seven targets: student attendance rates; literacy and numeracy levels; and Year 12 or equivalent attainment.

The 2018 Closing the Gap report points to increasing levels of Year 12 or equivalent level attainment among young Aboriginal and Torres Strait Islander people but stalling school attendance rates and more gradual improvement in numeracy and literacy outcomes (Department of the Prime Minister and Cabinet 2018). More broadly, educational participation among Aboriginal and Torres Strait Islander people has been increasing, and educational outcomes improving, in a number of areas including preschool participation (Crawford & Biddle 2018) and attainment of university and higher level vocational qualifications (Crawford & Biddle 2017; Venn & Crawford 2018a). Nevertheless, educational disparities persist. According to the final report of a 2017 parliamentary inquiry into educational opportunities for Aboriginal and Torres Strait Islander students (House of Representatives Standing Committee on Indigenous Affairs 2017):

> The persistent gap in education outcomes between Indigenous and non-Indigenous students indicates that, in many cases, the education system is not meeting the needs of Indigenous students.

In this paper we use data from the Census of Population and Housing to look at two aspects of school education to help us understand trends between 2006 and 2016 and barriers to further improving Indigenous education outcomes:

1. School participation – trends in where Indigenous primary and secondary school students live, at a detailed geographical level, and the distribution of Indigenous students across the public and private school sectors.
2. Year 12 attainment – trends in upper secondary school participation and Year 12 attainment, as well as analysis of the personal, household and geographical characteristics of early school leavers.

While it is in no way a comprehensive source of information on educational participation or outcomes, the census has several attributes which make it a useful and unique source of information for understanding Indigenous educational experience. First, there is detailed geographical information on the location of school students and how their distribution has changed over time. Second, the 2011-16 Australian Census Longitudinal Dataset (ACLD), which links records from the 2011 and 2016 Censuses, allows us to follow the same students over time at the individual level to see how personal, family and neighbourhood characteristics predict the

[1] We acknowledge that Aboriginal and Torres Strait Islander peoples (plural) is a preferred term to refer to the many Aboriginal and Torres Strait Islander peoples, also known as First Nations peoples, within Australia. We have used the terminology of the Australia Bureau of Statistics (ABS) in this paper. The ABS indicates that the best collective descriptors are 'Aboriginal and Torres Strait Islander peoples' or 'the Aboriginal and Torres Strait Islander population' (http://www.abs.gov.au/Aboriginal-and-Torres-Strait-Islander-Peoples). However, the ABS also uses the term 'Aboriginal and Torres Strait Islander people' in the singular to describe individuals living in a locality or to make reference to individual counts or to make a comparative reference in relation to the Aboriginal and Torres Strait Islander population (e.g. one in ten Aboriginal and Torres Strait Islander people).

likelihood of leaving school before completing Year 12. The ACLD is the only available longitudinal dataset

[2] At the time of writing, Australian Governments were undertaking community consultations as part of the Closing the Gap Refresh, ahead of setting a new Closing the Gap framework and targets.

which follows a large and representative sample of Indigenous students over the school-to-work transition period.

The next section describes the census data used in the analysis and the education variables of interest. We go on to examine changes in Indigenous primary and secondary student numbers by geographical area. The following section examines trends in participation in government and non-government schools. The paper then turns to an examination of senior secondary school participation and Year 12 attainment, as well as an analysis of the characteristics of early school leavers. The final section presents a discussion of our findings and some implications for policy and further research.

# Data and definitions

## Census of Population and Housing

Information about whether a person was currently attending primary or secondary school, or another educational institution, has been collected in a reasonably consistent way in the Census since 1986. The relevant questions as they appeared in the 2016 Census Household Paper Form are shown in Figure 1. The same questions are asked on the online version of the form. We use data from these questions to identify students at the primary and secondary level, as well as to distinguish between students attending public, Catholic and other independent schools.

Information about level of educational attainment has been collected reasonably consistently in the Census since 2001. The relevant questions as they appeared in the 2016 Census Household Paper Form are shown in Figure 2, with the same questions once again asked on the online form. We use information from these questions to examine Year 12 attainment. We distinguish between those who had completed Year 12 (Question 27) and those who had not completed Year 12 but had completed a qualification at the Certificate level II or above, which is considered an equivalent qualification for the purposes of reporting on Closing the Gap outcomes, (see page 11 for discussion of this equivalence).

Indigenous status in the census is self-identified based on information from the household form. We use the term ‘Indigenous people’ to refer to those identified as either Aboriginal, Torres Strait Islander, or both Aboriginal and Torres Strait Islander. In our analysis, ‘non-Indigenous people’ to refer to those who did not identify as either Aboriginal or Torres Strait Islander. We exclude from our analysis those who have missing data for Indigenous status (see Markham & Biddle 2017 for a discussion of missing data on Indigenous status in the 2016 census).

As part of the census collection, information is collected about where a person was staying on census night (‘place of enumeration’), where a person usually lives (‘place of usual residence’) and where a person works (‘place of work’). The location information collected in each case is then classified to a range of geographies, described in the Australian Statistical Geography Standard (ASGS) (see Australian Bureau of Statistics 2016a, 2016b). As part of the ASGS, an Indigenous Structure has been developed, that better represents the distribution of the Aboriginal and Torres Strait Islander population and balances the need for spatial information with maintaining confidentiality. However, ‘place of work’, used in the analysis of student-teacher ratios presented in this report, is not classified using the Indigenous Structure. In the section of the paper analysing student-teacher ratios, a different geography was used.

**Figure 1** Questions on school attendance from the 2016 Census of Population and Housing

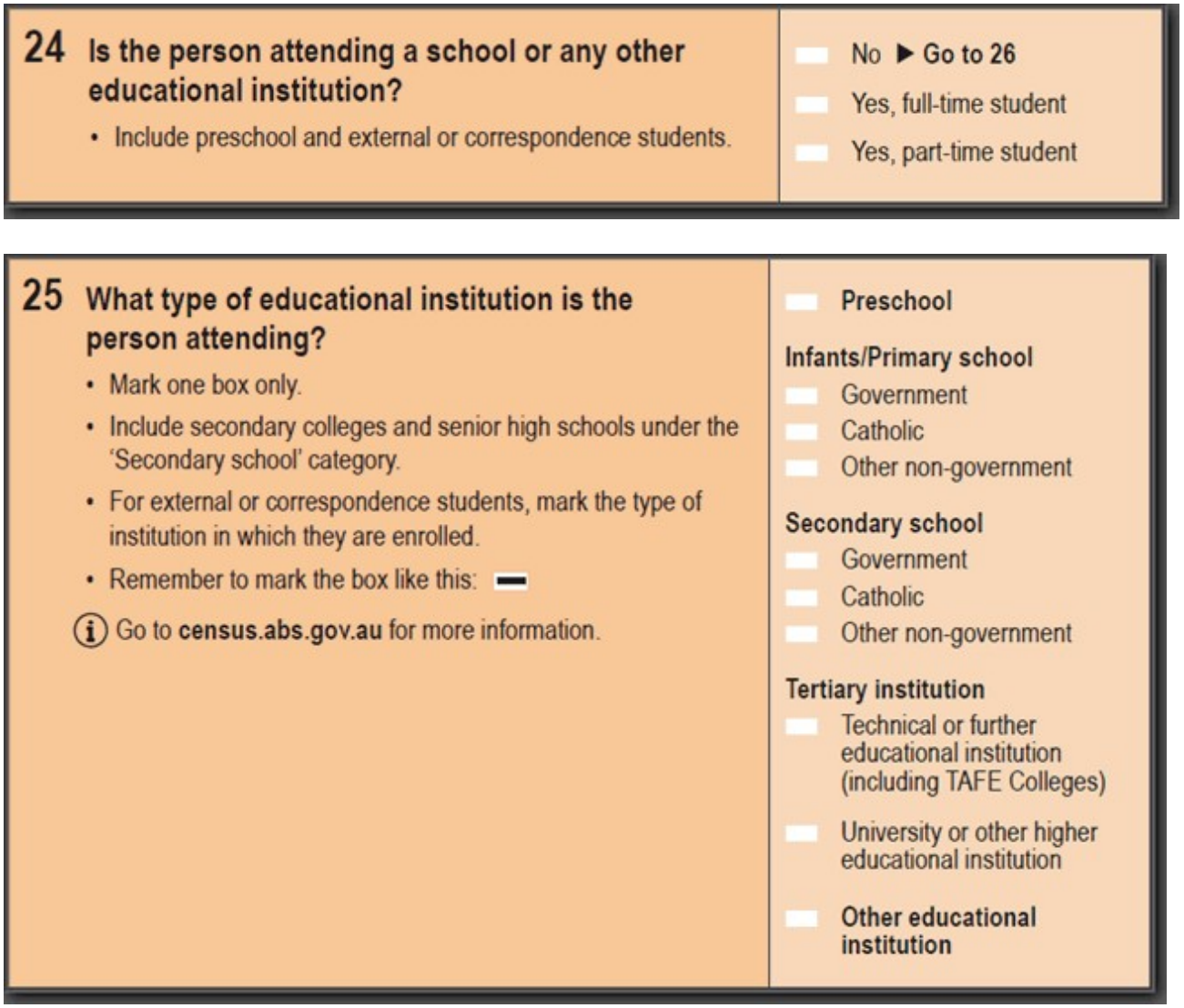
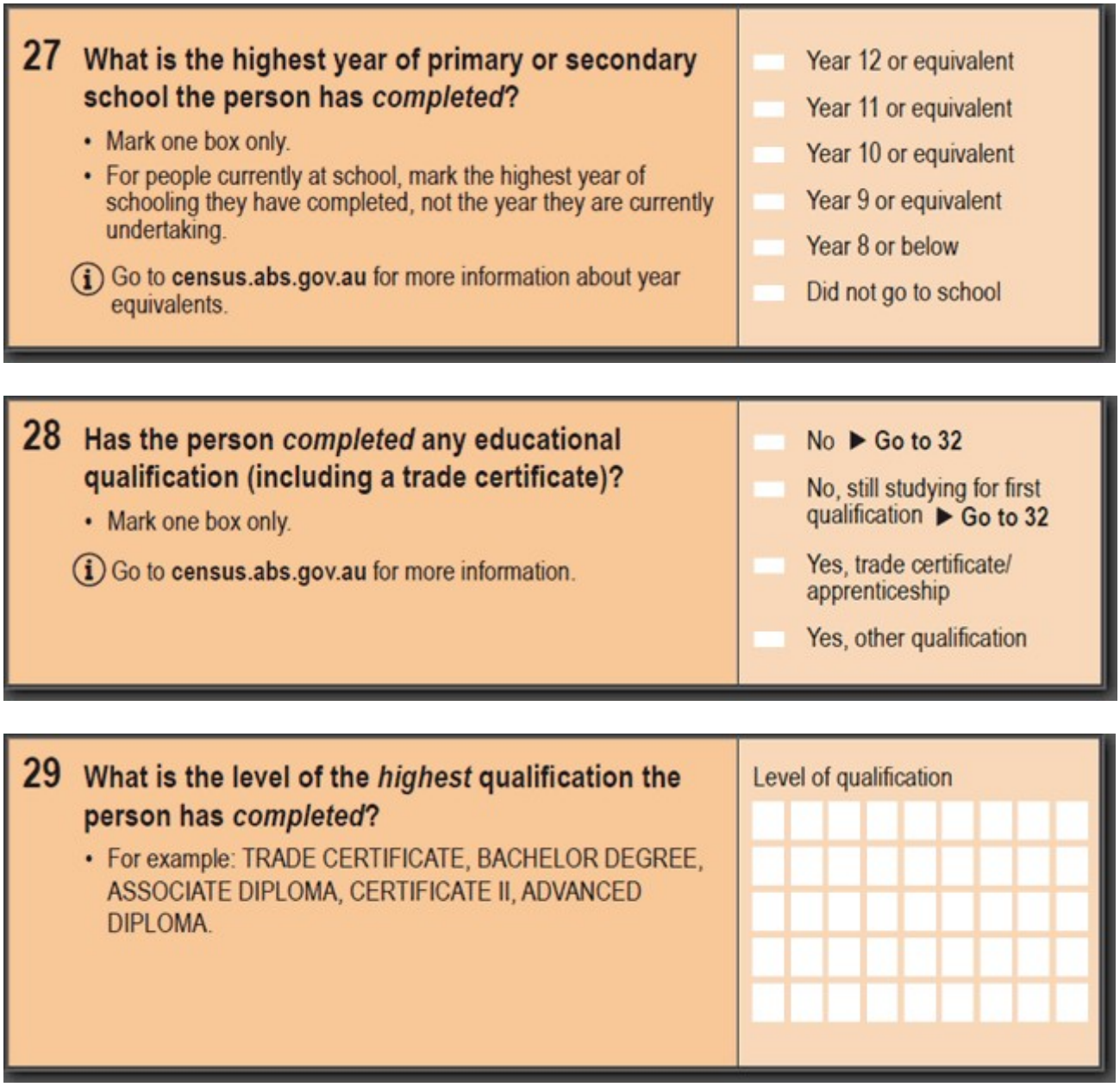


**Figure 2** Questions on educational attainment from the 2016 Census of Population and Housing




## Australian Census Longitudinal Dataset (ACLD)

The ACLD comprises a 5% sample of records from one census brought together with corresponding records from a later census (or censuses). The 2011–2016 ACLD links together over 1.2 million records from the 2011 and 2016 censuses. The main advantage of the ACLD is that it allows us to follow the same children over time. We use data from the 2011–2016 ACLD for two purposes. First, we examine the extent to which increased Year 12 completion rates can be attributed to changing Indigenous identification over time. Second, we examine how characteristics of children and their households in 2011 (when they were aged 10-13 years) affect the likelihood that they will leave school without finishing Year 12 by the time they are aged 15–18 years in 2016.

# Trends in Indigenous student numbers

Understanding trends in Indigenous student numbers is important for informing policy development related to allocation of resources for school buildings and teacher numbers. While these considerations are relevant to the whole student population, a much greater proportion of Indigenous students live in regional and remote areas compared to non-Indigenous students. In some areas, the increasing diversity of student populations raises questions about how best to support a cohesive school culture and meet the needs of individual students (see for example Higgins 2018).

Our analyses of trends in student numbers by geographical area draw on 'place of usual residence' information, classified using the Indigenous Structure of the Australian Statistical Geography Standard (ASGS). The Indigenous Structure is designed to better reflect the distribution of the Aboriginal and Torres Strait Islander peoples and to support the release of useful data on these populations while maintaining confidentiality (ABS 2016). The following analyses use Indigenous Areas. These are medium-sized geographical units that balance spatial detail and population size, supporting more detailed analyses of population characteristics; data for 409 Indigenous Areas were analysed (Christmas Island, Cocos (Keeling) Islands, Norfolk Island and the non-spatial categories 'Migratory-Offshore-Shipping' and 'No usual address' were excluded).

All the estimates presented in this section are raw counts from the Census. The ABS estimates that around 17% of the Indigenous population was not counted in the 2011 and 2016 Censuses (Australian Bureau of Statistics 2017). As such, the estimates in this section are likely to underestimate the true number of Indigenous students in Australia.

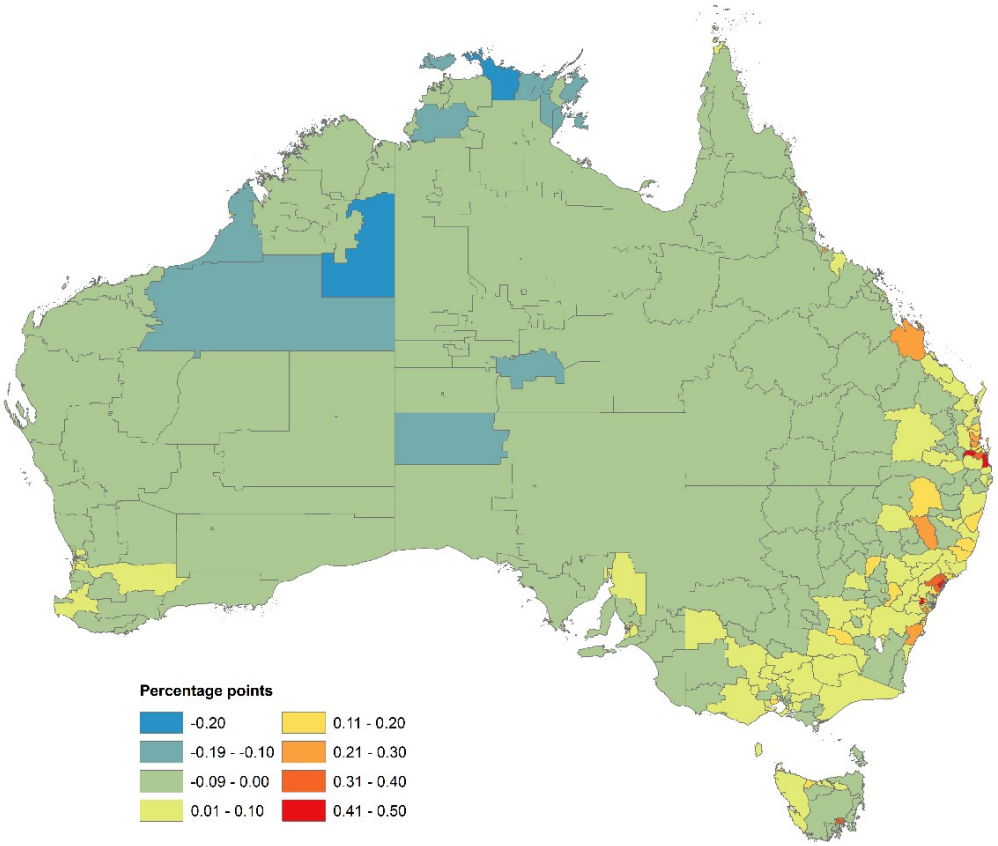
## Primary school students

Based on census data, at the national level the number of Aboriginal and Torres Strait Islander primary school students increased from 81 400 to 97 800 between 2011 and 2016, an increase of 20%.[3]Certain areas accounted for a greater share of this increase, with demographic factors such as population size, age profile, birth rates and between-area migration being important determinants of change in the number of primary school students in an area.

Most of the areas that accounted for large shares of national growth in the number of Indigenous primary school students were in urban areas of Queensland (Gold Coast, Ipswich and Logan) and New South Wales (Lake Macquarie, Penrith and Wyong) close to capital cities (Figure 3). In contrast, there were declines in Indigenous primary school student numbers in areas such as the Great Sandy Desert, Broome and South Hedland regions of Western Australia, North-West Arnhem and Maningrida regions in the Northern Territory, and the APY Lands in South Australia. Mostly these patterns reflect patterns of population change reported by Markham and Biddle (2017), with the greatest increases in population occurring on the eastern seaboard and population declines in relatively remote areas of Queensland, Northern Territory, Western Australia and South Australia.

[3] This compares with an increase in the total Indigenous population count between the 2011 and 2016 Censuses of 18.4%. See Markham and Biddle (2017) for a more detailed examination of Indigenous population changes between the 2011 and 2016 Censuses.

**Figure 3** Contribution to total change in number of Indigenous primary school students by Indigenous area, 2011–16




Source: Data from the 2011 and 2016 censuses.

## Secondary school students

As well as the same set of demographic factors underpinning change in the number of primary school students (population size, age profile, birth rates and between-area migration), the number of secondary school students is also affected by changing rates of student retention, particularly at senior secondary levels (see section below titled Senior secondary school participation). Inter-area migration is also likely to be a more significant factor among Indigenous than non-Indigenous students in this age group living in remote areas, which may affect both the distribution of Indigenous children between areas (i.e. if students move between areas but continue to attend school, such as when students move to boarding schools), or the aggregate retention rate, as moving is associated with a higher probability of dropping out of school (South et al. 2007), as some are likely to move – mostly to metropolitan areas, sometimes interstate – to attend boarding schools.[4]

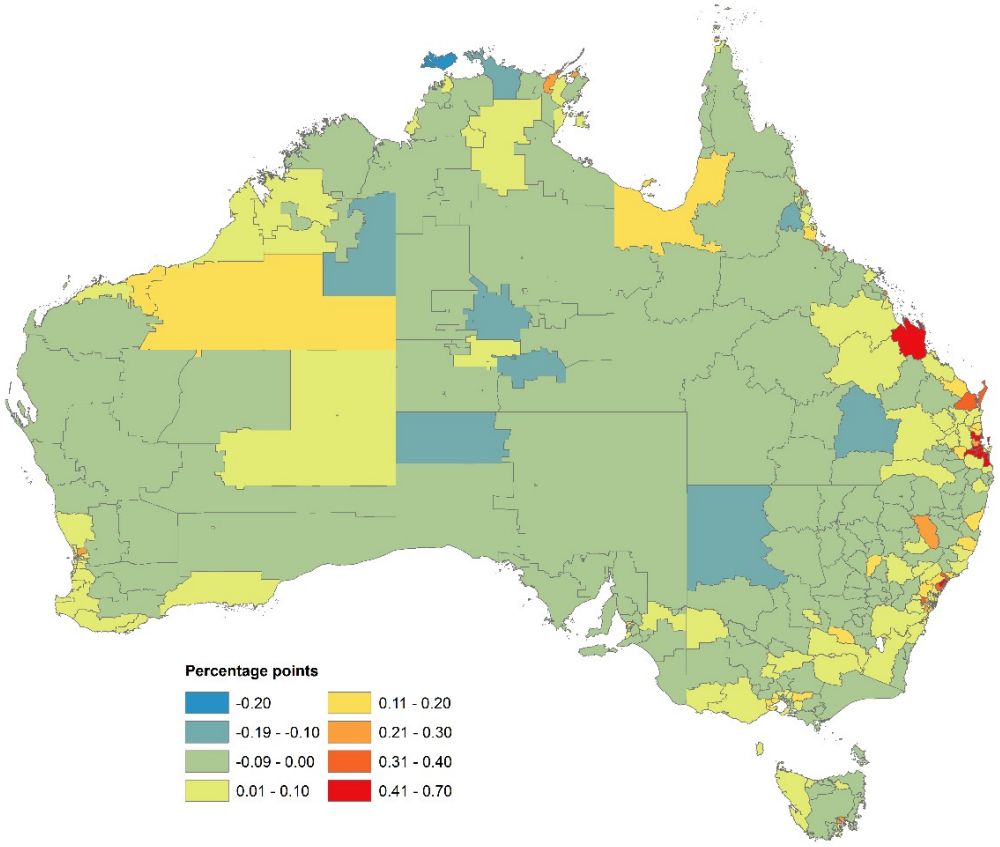
The number of Aboriginal and Torres Strait Islander secondary school students increased (nationwide) from 50 900 to 65 100 between 2011 and 2016, an increase of 28%, much larger than the growth in the total Indigenous population of 18.4% over the same period. In many cases, areas that accounted for large shares of national growth in the number of Indigenous secondary school students were similar to those accounting for large shares

[4] We are not able to accurately estimate from the census how many children attend boarding schools. While those who live in boarding houses are captured in information about non-private dwellings, many students will board privately. The discrepancy between place of usual residence and place of enumeration on census night is also not useful in identifying boarding students as respondents are instructed to consider the boarding school as their place of usual residence if they live there for at least six months of the year.

of growth in the number of primary school students. However, a number of additional regional and remote areas also made a large contribution (Figure 4).

Figure 4 shows that beyond areas in metropolitan and regional areas of New South Wales, Victoria, Queensland, Western Australia and Tasmania, some remote areas also accounted for relatively large shares of the national growth between 2011 and 2016 in the number of Indigenous secondary students. These areas included Karratha in Western Australia, and Marthakal Homelands-Galiwinku in the Northern Territory. At the time of the 2011 Census, the minimum school leaving age was 17 years in all States and Territories, after increasing in most jurisdictions between 2006 and 2011 (Table 2). Western Australia was the only state where the minimum school leaving age increased further after 2011, to 17.5-18 years from 2014.

**Figure 4** Contribution to total change in number of Indigenous secondary school students by Indigenous area, 2011–16



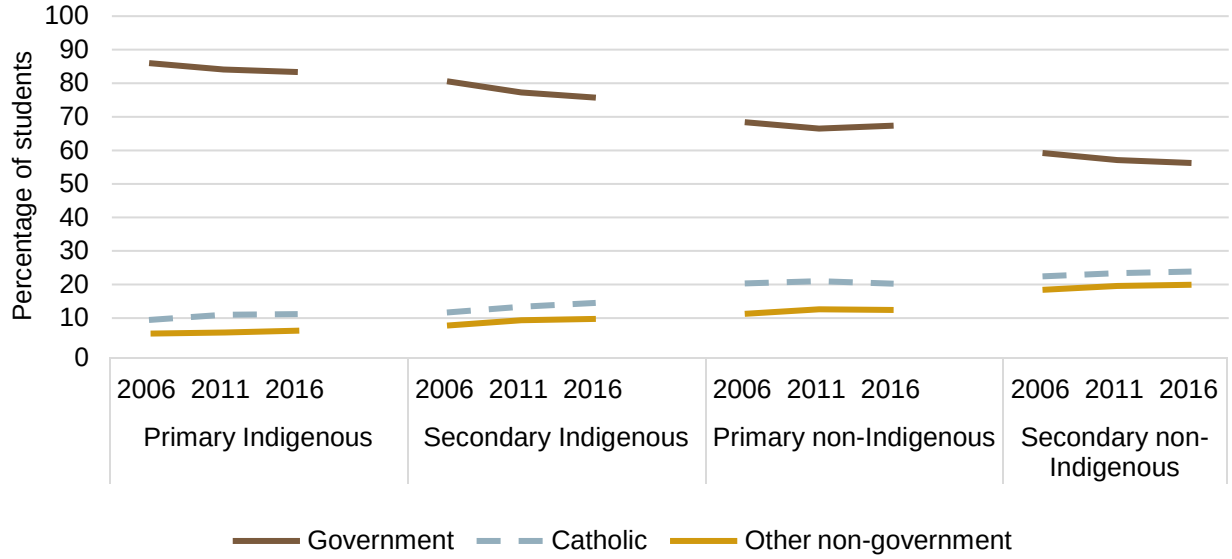

Source: Authors' calculations using data from the 2011 and 2016 censuses.

## School sector

The census also contains information about school sector in relation to infants/primary and secondary students, using the categories 'Government', 'Catholic' and 'Other non-government'. Trends in participation among infants/primary and secondary students in different school sectors over the period 2006-2016 (Figure 5) show that reliance on the government sector continues to fall among Indigenous students, especially secondary students. This is similar to the longer-term trends for non-Indigenous students, although the proportion of non-Indigenous primary school students attending government schools increased slightly between 2011 and 2016. Even so, the government sector continues to play the most important role in the schooling of Indigenous

students, with much larger percentages of Indigenous primary and secondary students attending government schools than their non-Indigenous counterparts.

**Figure 5** Proportion of school students by school sector, 2006–2016




Source: Authors' calculations using data from the 2006–2016 censuses.

Part of the difference between Indigenous and non-Indigenous students' school sector is due to differences in their geographical distribution between remote and non-remote areas. Higher proportions of students attend government schools in remote and very remote areas than in regional areas or major cities (Table 1). Indeed, there are only small differences in the proportion of Indigenous and non-Indigenous students attending government schools in remote and very remote areas, presumably because school choice is more limited in these areas.

**Table 1** Proportion of school students by school sector and remoteness, 2016

| | | Primary | | | | Secondary | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Government | Catholic | Other | Total | Government | Catholic | Other | Total |
| Very remote | Indigenous | 87.4 | 8.4 | 4.2 | 100.0 | 80.2 | 9.2 | 10.6 | 100.0 |
| | Non-Indigenous | 82.7 | 11.7 | 5.6 | 100.0 | 83.9 | 6.6 | 9.5 | 100.0 |
| Remote | Indigenous | 78.9 | 16.6 | 4.4 | 100.0 | 73.6 | 17.6 | 8.9 | 100.0 |
| | Non-Indigenous | 75.2 | 18.6 | 6.2 | 100.0 | 70.3 | 17.1 | 12.6 | 100.0 |
| Outer regional | Indigenous | 83.7 | 11.2 | 5.1 | 100.0 | 78.2 | 13.1 | 8.6 | 100.0 |
| | Non-Indigenous | 69.2 | 21.8 | 9.0 | 100.0 | 67.0 | 21.6 | 11.4 | 100.0 |
| Inner regional | Indigenous | 82.7 | 11.4 | 5.9 | 100.0 | 76.7 | 14.7 | 8.6 | 100.0 |
| | Non-Indigenous | 67.0 | 21.0 | 11.9 | 100.0 | 57.6 | 24.6 | 17.8 | 100.0 |
| Major cities | Indigenous | 83.0 | 11.1 | 5.9 | 100.0 | 73.1 | 15.9 | 10.9 | 100.0 |
| | Non-Indigenous | 67.1 | 20.0 | 13.0 | 100.0 | 54.5 | 24.0 | 21.4 | 100.0 |

Note: 'Other' refers to other non-government schools. Remoteness based on area of usual residence.
Source: Data from the 2016 Census.

However, in major cities, and to a lesser extent inner and outer regional areas, Indigenous students are far more likely to attend government schools than non-Indigenous students. For example, in major cities 83% of Indigenous primary students and 73% of Indigenous secondary students attend government schools compared with 67% of non-Indigenous primary students and 55% of non-Indigenous secondary students. Non-Indigenous students living in major cities are more likely to attend both Catholic and other non-government schools than Indigenous students, at both primary and secondary level. At least some of the Indigenous–non-Indigenous difference in the likelihood of private school attendance is due to the characteristics of Indigenous compared with non-Indigenous students. Previous research suggests that private school attendance is highest for students in high-income or high-wealth households, with fewer sibling, whose parents attended a private school and whose father has a higher-status occupation (Dearden et al. 2011; Le & Miller 2003).

## Senior secondary school participation

Under the National Partnership on Youth Attainment and Transitions, agreed to by the Council of Australian Governments in 2009, all states and territories increased their school leaving age to 17 from 2010 (Table 2). The Commonwealth Government also required 15-20 year olds who had not completed Year 12 or equivalent to engage in education, training or employment as a condition of receiving Youth Allowance (Other) or as an eligible child receiving Family Tax Benefit Part A.

Typically, students are now required to complete Year 10. Those who have completed Year 10 are required to stay at school until they have reached 17 years of age (from 2014, Western Australian students are required to stay at school until the end of the year in which they turn 17.5 years or until they are 18, whichever is first). Exemptions from the requirement to stay at school until 17 can be granted for young people who are engaged in non-school education, training or work for at least 25 hours per week or more.

**Table 2** Minimum school leaving age by state/territory, 2006–2016

| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NSW | 15 | 15 | 15 | 15 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Vic | 15 | 16 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Qld | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| SA | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| WA | 15 | 15 | 17 | 17 | 17 | 17 | 17 | 17 | 17.5–18 | 17.5–18 | 17.5–18 |
| Tas | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| NT | 15 | 15 | 15 | 15 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| ACT | 15 | 15 | 15 | 15 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |

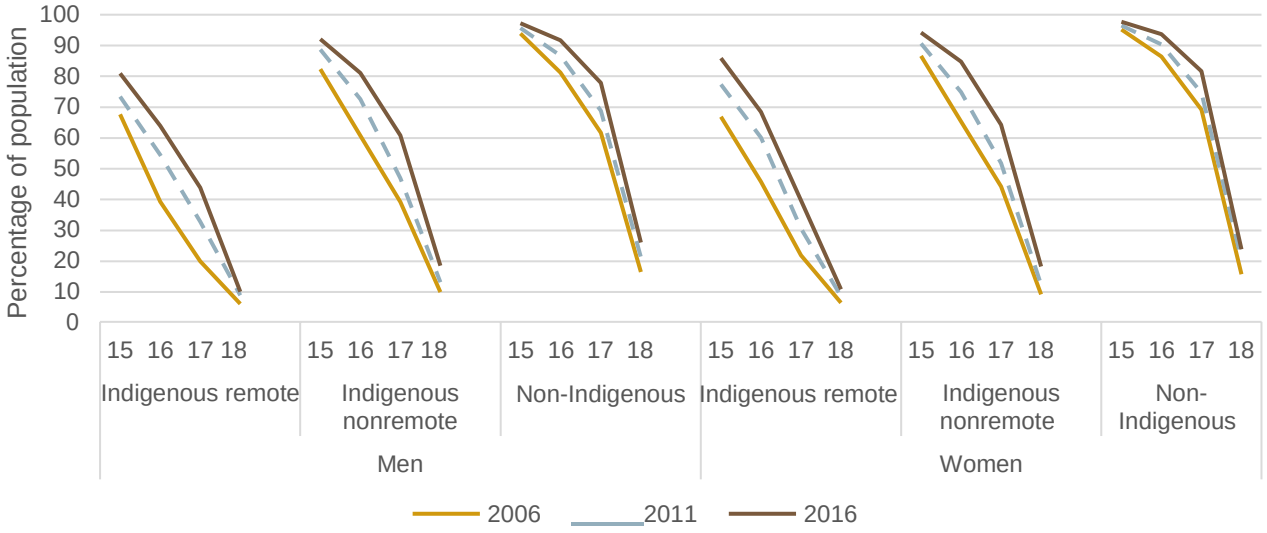
Source: ACARA National Report on Schooling in Australia, various editions. Census years shown in bold.

Indigenous participation in senior secondary school has risen considerably since 2006 (Figure 6).[5] The largest gains have been for 16 and 17 year olds. Between 2006 and 2016 the proportion of Indigenous 16-year-old men at school increased from 39% to 64% in remote areas and from 61% to 81% in nonremote areas. For women, the proportion increased from 46% to 68% in remote areas and 65% to 84% in nonremote areas over the same period. Among 17 year olds, the proportion of Indigenous men in school increased from 20% to 44% in remote areas and 39% to 61% in nonremote areas, while for women the proportion increased from 22% to 44% in

[5] The analysis in this section does not examine how many young people who are not attending secondary school may have received an exemption from the requirement to stay at school until age 17 by working or studying. This issue will be examined in more detail in the next section.

remote areas and from 44% to 64% in nonremote areas. Substantial gains in school participation were also seen for Indigenous 15 year olds, particularly those living in remote areas where men's participation increased from 68% to 81% and women's from 46% to 68%.

**Figure 6** Proportion of 15–18 year olds attending secondary school, by age, 2006–2016

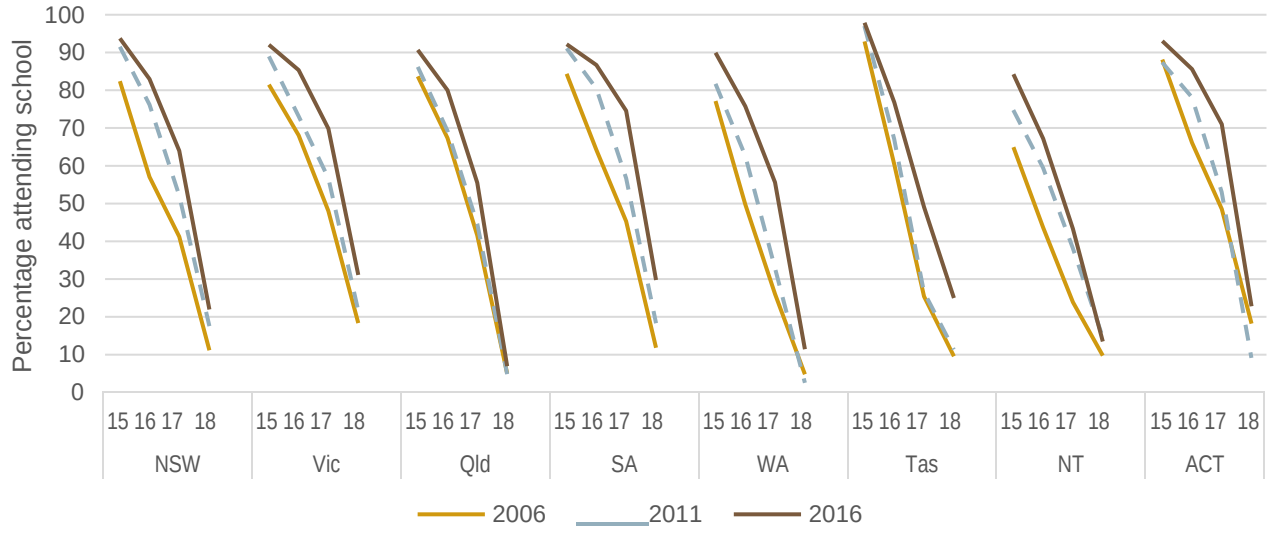



Source: Data from the 2006–2016 censuses

Secondary school participation also increased among the non-Indigenous population over the same period, with men's participation increasing by around 10 percentage points for 16 year olds and 15 percentage points for 17 year olds and women's participation increasing at a slightly lower rate.

Some of the increases in school participation among Indigenous teenagers are likely to have been the result of increases in the school leaving age and changes to income support eligibility rules that increased incentives for teenagers to complete Year 12, although there appears to be little or no existing empirical evidence of the impact of the policy changes. While changes to income support eligibility applied nation-wide, different states and territories increased their school leaving age to 17 years at different times (see Table 2). For example, in Queensland, the school leaving age was already 17 years in 2006, while it did not increase from 15 to 17 years in New South Wales until 2010. The effect of these changes can be seen in Figure 7, where there was little change in the likelihood of 15–17 year olds being at school in Queensland between 2006 and 2011, but participation in New South Wales increased considerably for the same age groups. However, there were also strong gains in school participation in most states and territories between 2011 and 2016 when the school leaving age was unchanged in all except Western Australia. These results suggest that changes to the school leaving age have likely had some impact on increased school participation in the past decade—particularly between 2006 and 2011 when the school leaving age increased in most states and territories—but that other factors are also at play.

**Figure 7** Proportion of Indigenous 15–18 year olds attending secondary school by state/territory, 2006–2016




Source: Data from the 2006–2016 censuses

## Year 12 completion

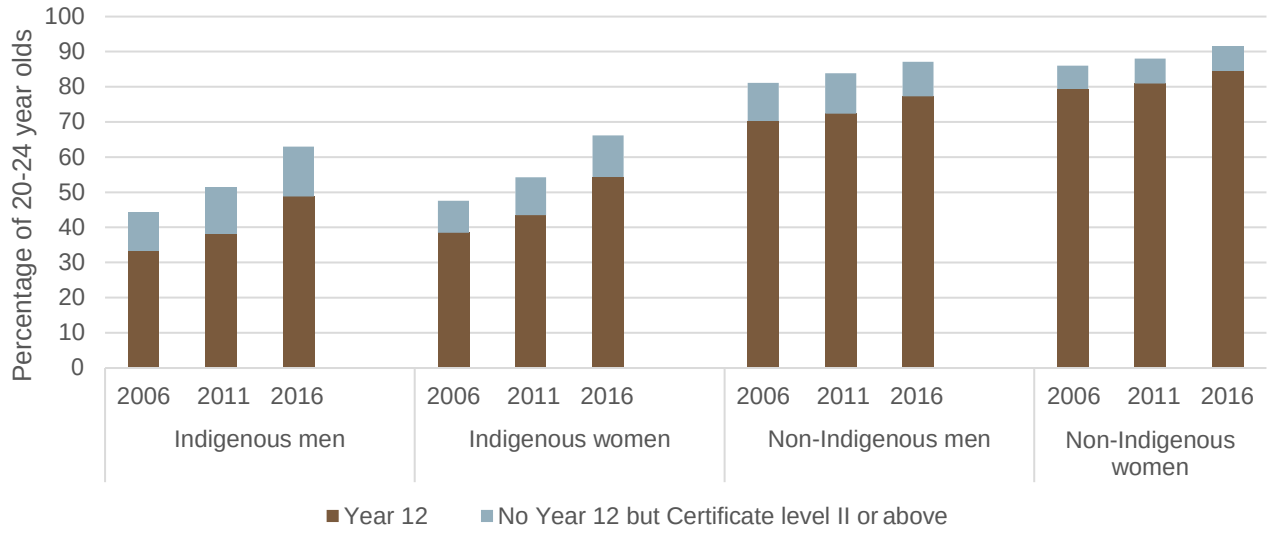
Under the National Indigenous Reform Agreement, 'Year 12 or equivalent attainment' is measured as the proportion of 20–24 year olds who have completed Year 12 or a qualification at certificate level II or above (Australian Bureau of Statistics 2018). However, there is growing evidence that completing certificate II qualifications does not provide an equivalent volume of learning as completing Year 12. Lim and Karmel (2011) examine the volume of learning (measured in median hours) for Year 12 and certificate-level qualifications. They find that Year 12 and certificate level III are roughly equivalent, but Year 12 involves 'substantially more' hours than a certificate I or II level qualification (Lim & Karmel 2011, p. 13). Labour market outcomes also tend to be worse for certificate II holders compared with Year 12 graduates. For example, Ryan (2011) finds that Australian students with certificate II and III qualifications have significantly poorer post-education transitions than those with Year 12, notably less likelihood of full-time employment and lower wages. Looking specifically at the Indigenous population, Crawford and Biddle (2017) find that Indigenous people with a certificate I or II qualification are significantly less likely to move from non-employment to employment over a five year period than those with a Year 12 qualification in both urban and regional areas.

As the focus of our report is school education, we are interested in distinguishing between completion of Year 12 and certificate qualifications, so we present data on the proportion of 20–24 year olds who have completed Year 12, as well as the proportion who have not completed Year 12 but have completed qualifications at certificate level II and above. In order to calculate these measures separately for the same population, we exclude those with missing data on school completion as well as those whose highest level of post-school qualification was not stated or inadequately described for certificate level II and above to be identified.

Year 12 completion rates have increased considerably for the Indigenous population since 2006 (Figure 8). Between 2006 and 2016, the proportion of Indigenous 20¬–24 year olds who had completed either Year 12 or Certificate II or above increased from 44% to 63% for men and from 48% to 66% for women. More than 80% of the increase in attainment was due to an increasing proportion of the Indigenous population having completed Year 12, rather than due to increasing attainment at Certificate level II or above. Year 12 completion rates also increased for non-Indigenous 20¬–24 year olds over the same period although the gains were slower than for

the Indigenous population, reducing the Indigenous–non-Indigenous gap in school completion rates. Nevertheless, Indigenous 20–24 year olds remain considerably less likely to complete Year 12 than their non-Indigenous counterparts.

**Figure 8** Proportion of 20-24 year olds who have completed Year 12 or Certificate level II or above[a], 2006–2016

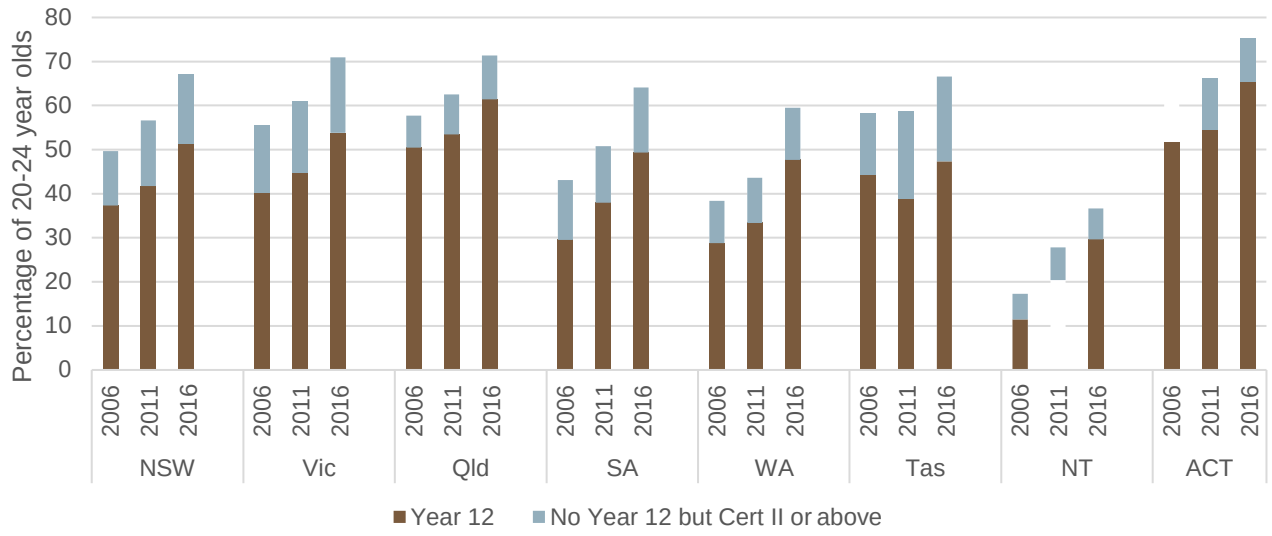



a. Excludes those whose highest level of post-school qualification was not stated or inadequately described for certificate level II and above to be identified.
Source: Data from the 2006–2016 censuses

Increases in Indigenous Year 12 completion rates were seen across all states and territories between 2006 and 2016 (Figure 9). In the Northern Territory, the proportion of Indigenous 20–24 year olds with Year 12 or Certificate II level qualifications or above increased from 17% to 37%, while the proportion with Year 12 almost tripled from 11% to 30%. With the exception of Tasmania, the bulk (typically 80-90%) of the gains in Year 12 or Certificate II completion were due to an increased proportion of 20–24 year olds having completed Year 12 rather than Certificate II and above.[6] The growth (in percentage points) in Indigenous Year 12 or Certificate II attainment between 2006 and 2016 outpaced that for the non-Indigenous population in every state and territory, with the percentage point increase in attainment for the Indigenous population typically 2-3 times that of the non-Indigenous population.

[6] Unfortunately it is not possible to examine changes in Year 12 attainment for 20¬–24 year olds by remoteness of the area in which they lived five years ago (when they would have been completing school) because information on geographical location five years ago is not available by remoteness area.

**Figure 9** Proportion of Indigenous 20-24 year olds who have completed Year 12 or Certificate level II and above[a] by state/territory[b], 2006–2016

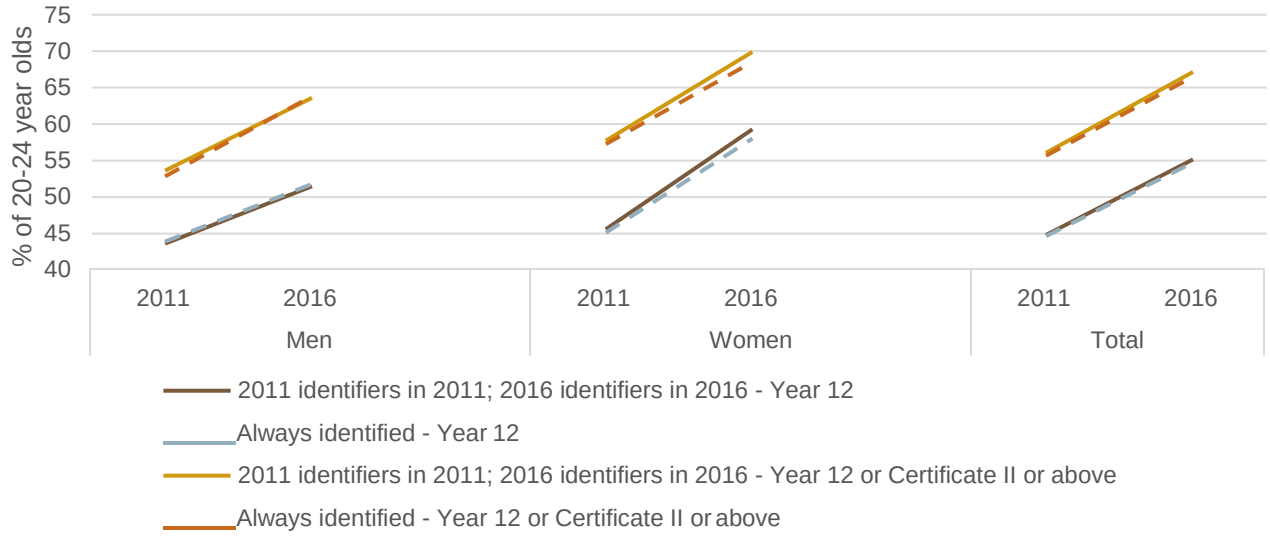



a. Excludes those whose highest level of post-school qualification was not stated or inadequately described for certificate level II and above to be identified.
b. State/territory of usual residence five years ago.
Source: Data from the 2006–2016 censuses

Very little of the observed increase in Indigenous Year 12 completion between 2011 and 2016 appears to be driven by changes in the propensity of people to identify as Indigenous between the 2011 and 2016 censuses.[7] Figure 10 shows that the increase in the proportion of Indigenous 20–24 year olds who have completed Year 12 or Certificate II or above is very similar for those that identify as Indigenous in both census years ('always identified') and for the cross-sectional estimates ('2011 identifiers in 2011; 2016 identifiers in 2016').

[7] Over time, a larger proportion of the population are identifying as Indigenous. The 'newly-identified' population tend to be more urbanised and have higher socioeconomic outcomes, on average, than the 'always identified' population. See Markham and Biddle (2018) for a full discussion of identification change between the 2011 and 2016 census years.

**Figure 10** Proportion of Indigenous 20-24 year olds who have completed Year 12 or Certificate II or above by Indigenous identification status, 2011–2016




a. Excludes those whose highest level of post-school qualification was not stated or inadequately described for certificate level II and above to be identified. 'Always identified' is the group of respondents who identify as Aboriginal and/or Torres Strait Islander in both 2011 and 2016.
Source: Data from the 2011-2016 Australian Census Longitudinal Dataset (ACLD).

## Early school leavers

To better understand the factors that may be driving rapid increases in Year 12 attainment—as well as barriers to further gains—in this section, we examine the characteristics of early school leavers aged 15–18 years, as well as their educational and employment outcomes after leaving school. There are several advantages of looking at early school leavers, rather than 20–24 year olds who have completed Year 12, to examine the characteristics that affect the likelihood of school completion. First, we can observe the main activity (work, study, inactivity) of early school leavers to get some insight into their motivations and outcomes. Second, by using linked data from the 2011 and 2016 Censuses we can observe the characteristics of early school leavers at around the time they make their decision to drop out of school (aged 15-18 years) and five years earlier when most are living with their parents or other family members (aged 10-14 years)[8] in order to understand the personal, family, school and neighbourhood characteristics associated with early school leaving.

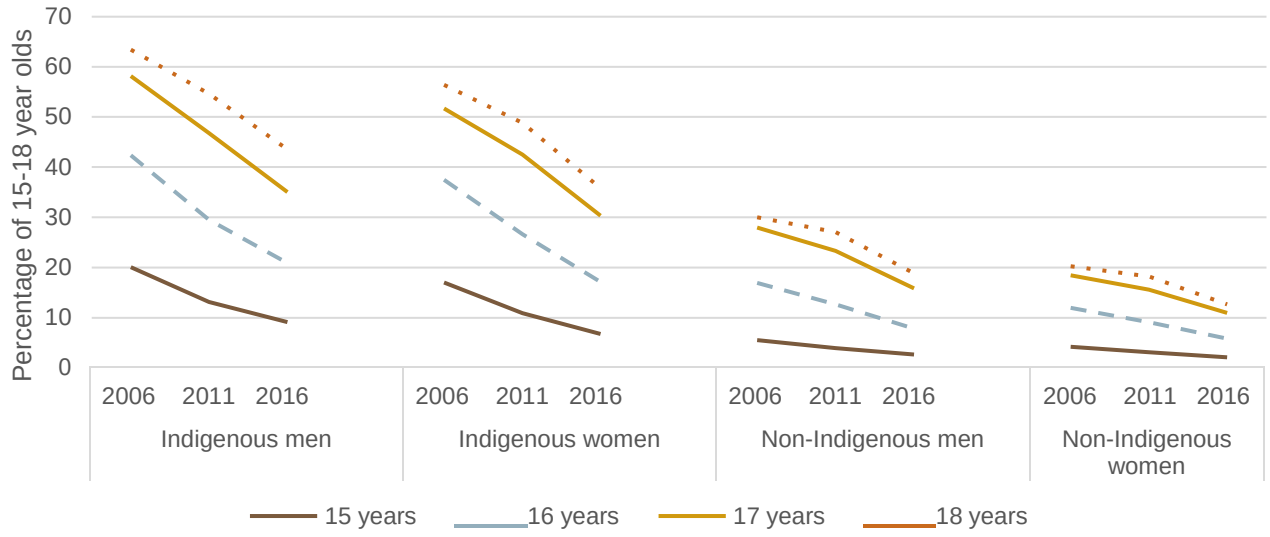
Early school leavers are defined as people aged 15–18 years who are no longer studying at school and who have not completed Year 12.[9] We divide early school leavers into those who are studying (at non-school institutions including TAFE colleges and universities, and who may also be working), those who are in paid work (but not studying) and those who are neither working nor studying.

As expected given rising secondary school participation and Year 12 completion rates documented in the previous sections, the proportion of 15–18 year olds who have left school without completing Year 12 has dropped dramatically since 2006 (Figure 11). Overall, the proportion of 15–18 year olds who were early school leavers fell from 46% to 27% for Indigenous men and from 41% to 23% for Indigenous women between 2006

[8] Approximately 95% of Indigenous 10-14 year olds and 98% of non-Indigenous 10-14 year olds in 2011 were identified as a natural or adopted child, step-child, foster child, grandchild or other related child in their household. The bulk of the remainder of 10-14 year olds were living in non-household settings, such as boarding schools or other institutional settings.
[9] We do not include attainment at Certificate level II or above in our measure of Year 12 attainment as our primary interest is in explaining Year 12 completion which appears to be the major driver of increasing attainment at Year 12 or Certificate level II and above.

and 2016. The fall in early school leavers was particularly rapid for Indigenous 16–18 year olds, but less steep for 15 year olds. There was also a reduction in early school leaving among the non-Indigenous population, more so for men than women.

**Figure 11** Proportion of 15-18 year olds who are early school leavers by age, 2006–2016



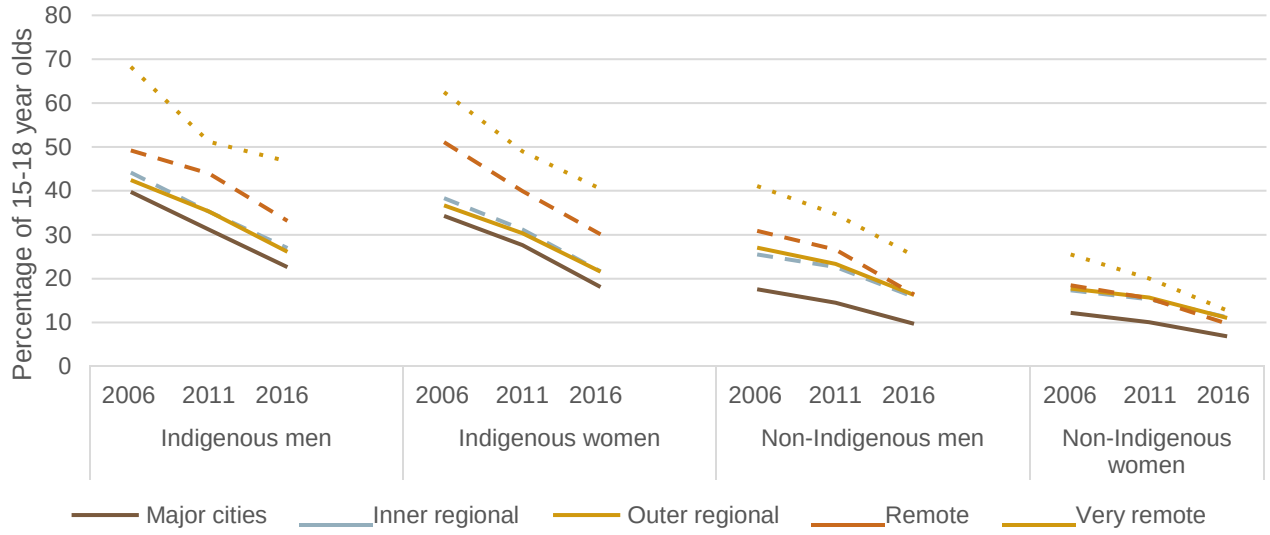

Source: Data from the 2006–2016 censuses

The fall in early school leaving rates was observed for Indigenous teenagers across all regions of Australia, with the largest falls in remote areas.[10] The proportion of Indigenous teenagers living in remote and very remote areas who left school before finishing Year 12 fell by around 20 percentage points between 2006 and 2016 and by around 15 percentage points in major cities and regional areas (Figure 12). Indigenous teenagers in very remote areas remain about twice as likely to have left school early as those in major cities, while those in regional areas are only slightly more likely to have left school early.

The largest falls in early school leaving for non-Indigenous teenagers were in remote and regional areas (although it is important to note that a very small proportion of non-Indigenous teenagers live in remote and very remote areas).

[10] It is important to note that the region observed at the time of the 2016 Census (when respondents are aged 15¬–18 years) may not be the same region where the respondent attended school. Around 24% of Indigenous early school leavers and 25% of non-Indigenous early school leavers had changed address in the previous year, compared with 19% of Indigenous students or Year 12 graduates and 14% of non-Indigenous students or Year 12 graduates. Many of those that changed address within the previous year may have remained in the same geographical or remoteness area.

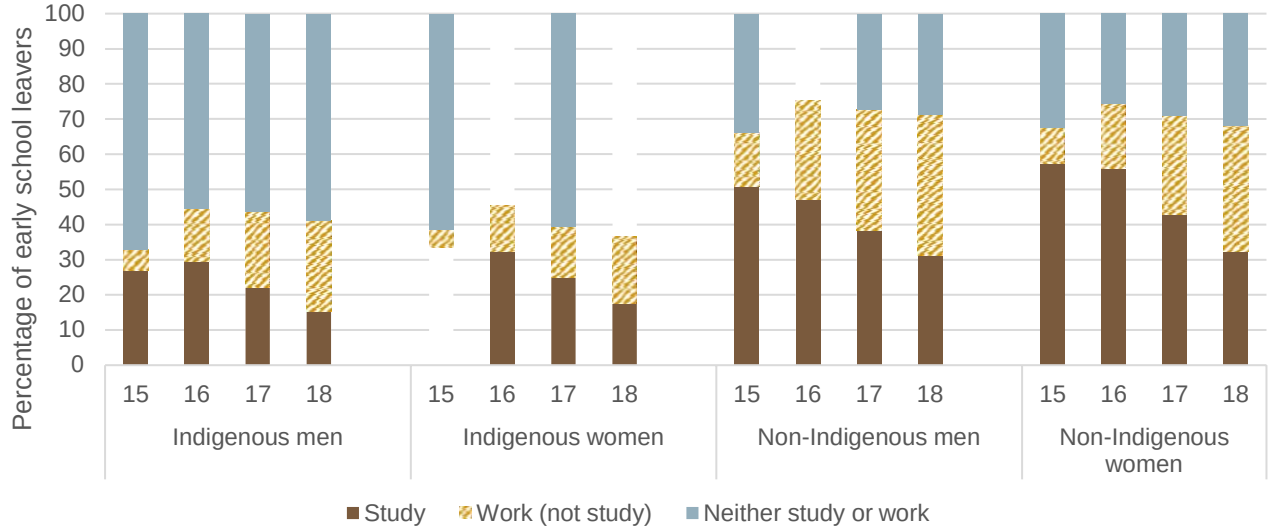
**Figure 12** Proportion of 15–18 year olds who are early school leavers by remoteness, 2006–2016




Source: Data from the 2006–2016 censuses

When we look at what early school leavers are doing in 2016, we find that Indigenous early school leavers are less likely to be studying and working than their non-Indigenous counterparts (Figure 13). More than half of Indigenous early school leavers in 2016 were neither working nor studying, compared with less than 30% of non-Indigenous early school leavers. The level of inactivity was similar across all age groups, but the likelihood of studying falls and the likelihood of working increases with age.

**Figure 13** Main activity of 15–18 year old early school leavers by age, 2016




Source: Data from the 2016 Census

Figure 14 shows the total reduction in the probability of 15–18 year olds being early school leavers between 2006 and 2016 broken into the change in each major activity type. For example, there was a reduction in the proportion of Indigenous men aged 15 years who were early school leavers of 10.8 percentage points, of which 0.7 percentage points was due to a reduction in the proportion leaving school to study, 2.5 percentage points

was due to a reduction in the proportion leaving school to work and 7.6 percentage points was due to a reduction in the proportion leaving school and remaining inactive.

A large part of the reduction in early school leaving among Indigenous teenagers aged 16–18 years between 2006 and 2016 was due to a reduction in the proportion of teenagers—particularly men—leaving school to work. This accounted for 66% of the total reduction in early school leaving for Indigenous men aged 16–18 years and 42% for Indigenous women. There was also a considerable reduction in the proportion of Indigenous men aged 15–16 years and Indigenous women aged 15–18 years leaving school to inactivity. In fact, 54% of the total reduction in early school leaving by Indigenous women aged 15–18 years was due to a reduction in the proportion of teenagers leaving school to inactivity. This coincides with a big reduction in Indigenous teenage fertility over the same time period (Venn & Crawford 2018b). By contrast, there was little change in the proportion of Indigenous teenagers leaving school to study. Falling rates of early school leaving among non-Indigenous teenagers were also largely due to fewer 16–18 year olds leaving school to work.

**Figure 14** Change in proportion of 15–18 year olds who are early school leavers by age and main activity, 2006–2016

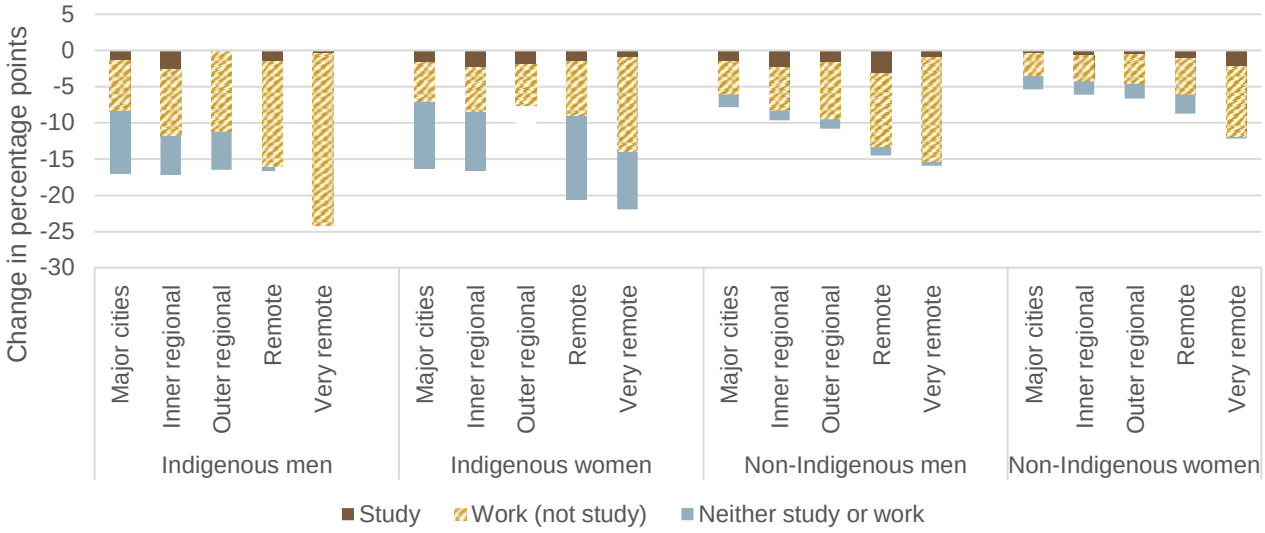

Source: Data from the 2006 and 2016 censuses

When we look at the same measures by region, it is evident that the largest fall in the proportion of Indigenous 15–18 year olds who have left school and are working has been among those who live in remote areas (Figure 15). For Indigenous men in major cities, the decline in school leaving rates in major cities was due equally to declining numbers leaving school to work or inactivity, whereas in remote and very remote areas, almost all of the decline was due to fewer people leaving school to work (and in very remote areas, there was a small increase in the proportion of teenagers who have left school and are inactive). For Indigenous women, there was a considerable decline in the proportion leaving school to inactivity across all regions—possibly due to falling teenage fertility rates—but in very remote areas, there was also a considerable fall in the proportion of teenagers who had left school to work. Similar trends were also seen for non-Indigenous teenagers: school leaving rates fell more in regional and remote areas than in major cities, with the difference largely due to a larger decline in the proportion of teenagers leaving school to work in regional and remote areas.

These trends occurred at a time when the Community Development Employment Projects (CDEP) scheme—participation in which was considered employment in censuses prior to 2016—was being wound back, initially in nonremote areas and by 2013 in remote areas . The labour market situation for non-Indigenous people in

remote areas of Australia also appears to have deteriorated in recent years (Venn & Biddle 2018). It may be that, faced with fewer employment opportunities, teenagers in remote areas who may have otherwise left school to work decided to remain at school instead.

**Figure 15** Change in proportion of 15–18 year olds who are early school leavers by remoteness and main activity, 2006–2016




Source: Data from the 2006 and 2016 censuses

A wide literature points to the importance of personal, family, school and neighbourhood characteristics in influencing school-leaving decisions (e.g. Crowder & South 2003; De Witte et al. 2013; Marks 2007). In Australia, previous research has found that being from a single-parent family, speaking English at home, living outside a capital city, attending a government school, coming from a low socioeconomic background, having lower test scores at school and poor attitudes to school and teachers all increase the likelihood of school dropout (Marks 2007). Local labour market conditions may also influence students' decisions to leave school early, as students weigh the long-term returns to education against the opportunity cost of staying at school beyond the compulsory school leaving age (Petrongolo & San Segundo 2002; Ryan & Watson 2004; von Simson 2015)

Using the Australian Census Longitudinal Dataset for 2011–2016, we examine how much of the higher incidence of early school leaving among Indigenous students can be explained by their observable characteristics. We model the likelihood that people aged 15-18 years in 2016 have left school early to work, study or be inactive (rather than staying at school) using a multinomial logit regression model. As well as a control for Indigenous status, the explanatory variables included in the model describe the personal, household, school and neighbourhood characteristics of the students when they were aged 10–13 years in 2011. We also include controls for local labour market conditions in the area where respondents live in 2016. The unskilled youth unemployment rate (unemployment rate for people aged 15-29 years who have not completed Year 12) is a proxy for the opportunity cost of staying at school. The skilled adult unemployment rate (unemployment rate for people aged 30+ years with at least Year 12 education) is a proxy for the returns to education. Each unemployment rate is calculated separately for the Indigenous and non-Indigenous population at the SA2 level of the Australian Standard Geographical Classification.

The results are shown in Table 3 (for men) and Table 4 (for women). Model 1 presents the baseline estimates of the likelihood of early school leaving for Indigenous compared with non-Indigenous students, controlling only for age. Indigenous students are around twice as likely to leave school to work, 1.5-2 times more likely to leave school to study and 6-7 times more likely to leave school to inactivity as non-Indigenous students.

Model 2 includes controls for personal, household and school characteristics. As expected, being from a high income or more highly educated household, speaking a language other than English at home and attending a non-government school is associated with lower rates of school dropout. Coming from a jobless household is associated with a higher chance of leaving school to study or inactivity for men and women, but a lower chance of men leaving school to work. Children from single parent families are also more likely to leave school to study or inactivity than those from couple families. After controlling for all these characteristics, there is no longer any significant difference between Indigenous and non-Indigenous students in the likelihood of men leaving school to work or women and men leaving school to study. Indigenous students remain around 2.7 times more likely to leave school to inactivity than non-Indigenous students, although this is greatly reduced from the 6-7 times in Model 1.

In Model 3, additional controls for remoteness, area disadvantage and local labour market conditions are included. For men, the likelihood of leaving school to work or inactivity increases with remoteness, while the relationship is less clear for women. Students living in the most advantaged areas are much less likely to leave school to inactivity than those living in the most disadvantaged areas. Even after controlling for these factors, local labour market conditions are also correlated with school leaving decisions. Higher youth unemployment rates and lower adult unemployment rates are associated with a lower likelihood of leaving school to work, consistent with expectations. After controlling for neighbourhood and local labour market effects, the increased likelihood of Indigenous compared with non-Indigenous students leaving school early is greatly reduced. Indigenous men and women remain around 1.7-1.8 times more likely than non-Indigenous students to leave school to work, while Indigenous women are about 1.8 times more likely than non-Indigenous women to leave school to inactivity. However, there is no longer any significant impact of Indigenous status on leaving school to study, nor for men on leaving school for inactivity.

**Table 3** Odds ratio of 2011 characteristics on likelihood of being an early school leaver rather than being at school, 15–18 year old men in 2016

| | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Employed | Studying | Inactive | Employed | Studying | Inactive | Employed | Studying | Inactive |
| Indigenous 2016 | 1.90*** | 1.45*** | 5.95*** | 1.24 | 1.06 | 2.67*** | 1.81** | 1.28 | 1.25 |
| Low income (ref) | | | | -- | -- | -- | -- | -- | -- |
| Medium income | | | | 0.93 | 1.01 | 0.70*** | 0.99 | 1.03 | 0.75** |
| High income | | | | 0.66*** | 0.72** | 0.46*** | 0.72** | 0.79* | 0.57*** |
| Missing income data | | | | 0.93 | 0.80 | 0.69** | 0.93 | 0.83 | 0.74** |
| Jobless household | | | | 0.56*** | 1.25* | 1.50*** | 0.57*** | 1.24* | 1.40*** |
| Household educ. < Yr 12 (ref) | | | | -- | -- | -- | -- | -- | -- |
| Year 12 | | | | 0.47*** | 0.86 | 0.53*** | 0.49*** | 0.88 | 0.57*** |
| Vocational | | | | 0.62*** | 0.95 | 0.55*** | 0.64*** | 0.97 | 0.62*** |
| University | | | | 0.15*** | 0.45*** | 0.23*** | 0.16*** | 0.49*** | 0.29*** |
| Couple family (ref) | | | | -- | -- | -- | -- | -- | -- |
| Single family lone parent family | | | | 1.02 | 1.29*** | 1.71*** | 1.07 | 1.29*** | 1.70*** |
| Other household/family type | | | | 1.36 | 0.87 | 2.43*** | 1.33 | 0.85 | 2.06*** |
| Speaks LOTE at home | | | | 0.21*** | 0.39*** | 0.59*** | 0.23*** | 0.41*** | 0.47*** |
| Government school (ref) | | | | -- | -- | -- | -- | -- | -- |
| Catholic school | | | | 0.67*** | 0.70*** | 0.44*** | 0.71*** | 0.72*** | 0.44*** |
| Other non-government school | | | | 0.67*** | 0.80** | 0.55*** | 0.76** | 0.85*** | 0.61*** |
| 2016 unskilled youth unemp. rate | | | | | | | 0.92*** | 0.97* | 1.00 |
| 2016 skilled adult unemp. rate | | | | | | | 1.16*** | 1.03 | 1.09*** |
| Major city (ref) | | | | | | | -- | -- | -- |
| Inner regional | | | | | | | 1.22** | 1.12 | 1.16 |

| | | | | |
|---|---|---|---|---|
| Outer regional | | | 1.38*** | 1.07 | 1.13 |
| Remote | | | 1.87** | 0.81 | 1.82** |
| Very remote | | | 3.81*** | 1.26 | 2.78*** |
| Most disadv. SEIFA quintile (ref) | | | -- | -- | -- |
| SEIFA quintile 2 | | | 1.26** | 1.08 | 0.90 |
| SEIFA quintile 3 | | | 1.02 | 0.30* | 0.65*** |
| SEIFA quintile 4 | | | 0.96 | 0.67 | 0.58*** |
| Most advantaged SEIFA quintile | | | 0.83 | 1.26 | 0.38*** |
| Age controls | Yes | Yes | | Yes | |
| State/territory controls | No | Yes | | Yes | |
| Pseudo $R^2$ | 0.0670 | 0.1381 | | 0.1489 | |
| Sample size | 22383 | 22383 | | 22383 | |

Note: Early school leavers are people aged 15–18 years who are not studying at school and have not completed Year 12. SEIFA quintile is defined based on the Index of Socioeconomic Advantage and Disadvantage. All variables are 2011 values (when aged 10-13 years) except where noted otherwise. ***, ** and * indicate that the odds ratios are significantly different from one at the 99%, 95% and 90% confidence level, respectively.
Source: Data from the 2011–2016 ACLD.

**Table 4** Odds ratio of 2011 characteristics on likelihood of being early school leaver rather than being at school, 15–18 year old women in 2016

| | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Employed | Studying | Inactive | Employed | Studying | Inactive | Employed | Studying | Inactive |
| Indigenous 2016 | 2.04*** | 2.15*** | 7.28*** | 1.69*** | 1.33 | 2.77*** | 1.67* | 1.33 | 1.77** |
| Low income (ref) | | | | -- | -- | -- | -- | -- | -- |
| Medium income | | | | 1.27* | 1.03 | 0.79* | 1.29* | 1.05 | 0.86 |
| High income | | | | 0.90 | 0.67** | 0.49*** | 0.99 | 0.75 | 0.62** |
| Missing income data | | | | 1.35* | 1.10 | 0.71* | 1.42** | 1.16 | 0.83 |
| Jobless household | | | | 1.19 | 1.34* | 1.48*** | 1.18 | 1.28* | 1.40** |
| Household educ. < Yr 12 (ref) | | | | -- | -- | -- | -- | -- | -- |
| Year 12 | | | | 0.49*** | 0.61*** | 0.43*** | 0.50*** | 0.62*** | 0.45*** |
| Vocational | | | | 0.65*** | 0.66*** | 0.50*** | 0.66*** | 0.68*** | 0.55*** |
| University | | | | 0.26*** | 0.44*** | 0.21*** | 0.28*** | 0.48*** | 0.25*** |
| Couple family (ref) | | | | -- | -- | -- | -- | -- | -- |
| Single family lone parent family | | | | 1.08 | 1.47*** | 1.67*** | 1.08 | 1.42*** | 1.63*** |
| Other household/family type | | | | 1.32 | 1.69** | 2.54*** | 1.27 | 1.66** | 1.97*** |
| Speaks LOTE at home | | | | 0.22*** | 0.28*** | 0.44*** | 0.21*** | 0.27*** | 0.32*** |
| Government school (ref) | | | | -- | -- | -- | -- | -- | -- |
| Catholic school | | | | 0.61*** | 0.60*** | 0.41*** | 0.62*** | 0.62*** | 0.43*** |
| Other non-government school | | | | 0.51*** | 0.74** | 0.49*** | 0.55*** | 0.77* | 0.56*** |
| 2016 unskilled youth unemp. rate | | | | | | | 0.97* | 0.99 | 1.00 |
| 2016 skilled adult unemp. rate | | | | | | | 1.09* | 1.02 | 1.04 |
| Major city (ref) | | | | | | | -- | -- | -- |
| Inner regional | | | | | | | 1.03 | 1.07 | 0.79* |
| Outer regional | | | | | | | 1.15 | 0.77* | 0.73* |

| | | | | | |
|---|---|---|---|---|---|
| Remote | | | 0.74 | 0.70 | 1.33 |
| Very remote | | | 1.39 | 0.24 | 2.78*** |
| Most disadv. SEIFA quintile (ref) | | | -- | -- | -- |
| SEIFA quintile 2 | | | 1.09 | 0.89 | 0.83 |
| SEIFA quintile 3 | | | 1.05 | 0.72** | 0.64*** |
| SEIFA quintile 4 | | | 0.94 | 0.84 | 0.37*** |
| Most advantaged SEIFA quintile | | | 0.70* | 0.52*** | 0.33*** |
| Age controls | Yes | Yes | | Yes | |
| State/territory controls | No | Yes | | Yes | |
| Pseudo $R^2$ | 0.0631 | 0.1318 | | 0.1401 | |
| Sample size | 21605 | 21605 | | 21605 | |

Note: Early school leavers are people aged 15–18 years who are not studying at school and have not completed Year 12. SEIFA quintile is defined based on the Index of Socioeconomic Advantage and Disadvantage. All variables are 2011 values (when aged 10-13 years) except where noted otherwise. ***, ** and * indicate that the odds ratios are significantly different from one at the 99%, 95% and 90% confidence level, respectively.
Source: Data from the 2011–2016 ACLD.

## Discussion and conclusion

This paper uses data from the 2006, 2011 and 2016 Censuses to examine trends in school participation and Year 12 attainment among the Indigenous population. The analysis is necessarily limited by the scope of questions on education included in the census. A growing body of literature is highlighting the fact that Indigenous educational needs and aspirations may differ from that of other Australians, and that broader measures of educational attainment and value are needed to fully understand and measure progress in this field (e.g. Guenther et al. 2016; Kral 2010). Nevertheless, the paper provides several novel findings and highlights promising areas for future research.

Our analysis of educational participation and Year 12 attainment among Aboriginal and Torres Strait Islander students shows that rapid change occurred over the decade 2006–2016. There has been strong growth in the number of Indigenous school students between the 2006 and 2016 censuses. However, the growth in student numbers has not been geographically uniform, with disparities reflecting changing fertility patterns, migration, identification change and—at the secondary level—increasing retention beyond mandatory school age.

New South Wales has experienced particularly strong growth in student numbers. The diversity of local demographics and population change is recognised in the approach articulated in OCHRE, the NSW Government Plan for Aboriginal affairs: education, employment & accountability (NSW Government 2013). The Connected Communities initiative has a number of features that relate to recommendations of the parliamentary inquiry into educational opportunities for Aboriginal and Torres Strait Islander students (House of Representatives Standing Committee on Indigenous Affairs 2017). These include 'partnerships and co-leadership with the Aboriginal community'; locally-delivered cultural awareness training for staff; teaching Aboriginal language and culture; schools as service delivery hubs; and school to post-school transitions (NSW Government 2013). There were substantial increases in the percentage of Indigenous 12–17 year olds attending secondary school in areas where the program has been operating, for example Bourke and Moree. However it is difficult using census data to assess the extent to which this can be attributed to the program or whether other factors, including local labour market conditions, have also come into play.

In 2009, Tom Calma, the then Aboriginal and Social Justice Commissioner, contended that debates about various education approaches were 'a distraction from a simple truth; that there are some very large gaps in the provision of education services in remote Australia' (Calma 2009). The delivery of educational services for Indigenous students living in remote areas has been the subject of ongoing debate and inquiry (e.g. Department of the Prime Minister and Cabinet 2017; Wilson 2014) often with a focus on 'whether it is better to educate Indigenous children in their own communities or whether it is better to remove Indigenous children to boarding schools where they can access western style education' (Calma 2009).

More recently, the report of an independent review into Regional, Rural and Remote Education noted 'a persistent relationship between location and educational outcomes' (Halsley 2018, p. 4) and remote education was a major focus of the recent parliamentary inquiry into educational opportunities for Aboriginal and Torres Strait Islander students (House of Representatives Standing Committee on Indigenous Affairs 2017). That report made a number of recommendations relating to aspects of educational access for Aboriginal and Torres Strait Islander students. Placing an emphasis on cultural responsiveness and strong relationships between students, families, communities and schools, the recommendations address issues relating to access to education in remote areas, boarding school funding, the needs of young mothers and students with hearing or learning difficulties, co-location of schools and health services, curriculum design and pedagogy, and teacher education. Recent research by Crawford and Schwab (2017) highlighted myriad concerns about some aspects of ABSTUDY administrative processes and the adequacy of ABSTUDY for Indigenous students from remote areas attending boarding school. Halsey highlights the importance of the transition from school to work or to

further study or training, noting that students from regional, rural or remote areas who are near the stage of making that transition 'are often confronted with issues and costs which their counterparts in urban areas do not have to worry about' (Halsley 2018, p. 4). At the same time it is recognised that many Aboriginal and Torres Strait Islander students living in urban and metropolitan areas also continue to face a range of challenges.

With its detailed geographical information, the census is an important tool for understanding the links between location and education outcomes. Future research could use detailed geographical information on the location of schools matched to census data to explore the relationships between student and school location more thoroughly. Using the ACLD, it may also be possible to examine the links between school access and student mobility. Further analysis of the Indigenous education workforce (including teachers and other support staff) by location would also be informative.

A growing proportion of Indigenous students are staying on into senior secondary school and completing Year 12. Year 12 attainment among Indigenous 20–24 year olds increased rapidly between 2006 and 2016 in all states and territories and the gap in Year 12 attainment between Indigenous and non-Indigenous people has narrowed as a result. Increases in the proportion of 20–24 year olds with Year 12 or Certificate II and higher qualifications have been driven mainly by increased Year 12 completion rather than by growing numbers of student completing post-school qualifications, and appear to be relatively unaffected by increased Indigenous identification in the census over time.

While it is difficult with the data currently available to determine causation, it is likely that policy changes since 2006 have had an impact on senior secondary school participation and Year 12 completion rates. All states and territories now require students to stay at school until at least age 17 unless they are leaving to pursue further study or paid employment and gains in senior secondary participation between 2006 and 2011 were particularly strong for 15 and 16 year olds, and in New South Wales and the Northern Territory where the school leaving age rose from 15 to 17 years in 2010. However, there was also growth in Year 12 completion in states such as Queensland where the school leaving age was unchanged over the period examined, and for 17 year olds who are legally allowed to leave school in all states and territories. It may be that other policy changes, such as requiring Youth Allowance recipients to engage in study or work if they have not completed Year 12, have also had an impact in addition to changes to school leaving ages. Future research using detailed data on location and date of birth could examine the causal effects of the changes to school leaving ages on school completion and other outcomes (such as employment or teenage fertility) by comparing students who were aged just over and just under the compulsory schooling thresholds and exploiting geographical differences in changes to the thresholds.

The policy push to encourage students to stay at school longer also appears to have been reinforced by relatively weak labour market conditions for youth since 2006. The proportion of teenagers who are leaving school to work before completing Year 12 has plummeted since 2006, driving down school dropout rates for Indigenous and non-Indigenous students alike. The fall in the number of teenagers leaving school to work has been largest in remote areas, coinciding with the demise of the CDEP scheme and general labour market weakness in remote areas (Venn & Biddle 2018), which are likely to have reduced employment opportunities for would-be school leavers—both Indigenous and non-Indigenous—in remote areas. Previous research for Australia has found that poor labour market conditions for teenagers in the early 1990s were responsible for pushing up Year 12 retention rates and that retention rates did not fall symmetrically when labour market conditions improved (Ryan & Watson 2004). International research also suggests that labour market conditions can play an important role in school-leaving decisions (Petrongolo & San Segundo 2002; Tumino & Taylor 2015; von Simson 2015). Our regression analysis shows that students react to local labour market conditions in two ways. First, higher unskilled youth unemployment reduces the likelihood that students will drop out of school to work as the opportunity cost of staying at school falls. Second, higher skilled adult unemployment rates increase

the likelihood that students will drop out of school to work, possibly due to reductions in the perceived benefit of education.

Our results also show a large decline in the proportion of Indigenous women leaving school for inactivity between 2006 and 2016 across all regions and age groups. This coincided with a marked reduction in Indigenous teenage fertility rates across the same period (Venn & Crawford 2018b). While the relationship between education and fertility is complex and multi-directional, it is likely that policies to increase the school leaving age have had flow-on effects in reducing teenage fertility. There is also evidence that fewer teenage mothers are dropping out of school before finishing Year 12 (Venn & Crawford 2018b).

Despite the impressive fall in school dropout rates, Indigenous students remain much more likely to leave school without completing Year 12 than non-Indigenous students. Our analysis suggests that a large part of this differential can be explained by differences in household characteristics (particularly parents' educational attainment), neighbourhood disadvantage and geographical location, highlighting the importance of providing adequate support to Indigenous and non-Indigenous students from disadvantaged backgrounds to encourage them to remain at school.

Even after controlling for observable (in the census) differences, Indigenous students remain around 1.7-1.8 times more likely to leave school to work than non-Indigenous students, and Indigenous women are around 1.8 times more likely than non-Indigenous women to leave school to inactivity. Teenage fertility rates are likely to explain part of the difference for women. In addition, previous research has pointed to the importance of students' experiences in earlier years of school in driving dropout decisions, including prior academic achievement, attitudes to school and engagement in school (Fullarton et al. 2003; Hillman 2010; McMillan & Marks 2003; Polidano et al. 2013). The availability of data that link the census with indicators of students' achievement and attendance, as well as school-level information, would greatly improve our understanding of what drives the remaining differences in school completion between Indigenous and non-Indigenous students.[11] More broadly, data that link educational attainment with other measures of education quality (such as test scores or tertiary entrance rankings) alongside socioeconomic controls would allow us to better understand how Year 12 completion is contributing to improving the skills of Indigenous youth.

[11] Many of the studies cited in this paragraph use data from the Longitudinal Survey of Australian Youth (LSAY). However, the sample of Indigenous students in the LSAY is too small and attrition rates too high to provide reliable estimates of these relationships for Indigenous students specifically.

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