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Post-school education

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Abstract

This paper uses data from the Census of Population and Housing to examine trends between 2006 and 2016 in post-school educational attainment and participation among the Indigenous population. Indigenous vocational attainment increased considerably between 2006 and 2016. The gap in vocational attainment between Indigenous and non-Indigenous men shrank considerably and Indigenous women are now more likely than non-Indigenous women to have a vocational qualification. Relatively little of the growth in Indigenous vocational attainment between 2011 and 2016 can be attributed to Indigenous identification change.

While Indigenous university participation has increased over the past decade, Indigenous university participation and attainment has failed to keep pace with non-Indigenous growth. As a result, there is a large and growing gap between Indigenous and non-Indigenous university attendance and attainment of qualifications at degree level and above. A relatively large proportion of the observed growth in Indigenous university attainment between 2011 and 2016 was the result of increasing Indigenous identification in the census.

The importance of vocational-to-university pathways for Indigenous students appears to have been increasing in importance. These types of pathways are particularly important for Indigenous students who face the some of the highest barriers to university participation: those from remote and disadvantaged areas and women with children.

Keywords: Indigenous education, vocational education, tertiary education, university, vocational pathways, census.

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Acronyms

ABS	Australian Bureau of Statistics
ACLD	Australian Census Longitudinal Dataset
ANU	Australian National University
ASCED	Australian Standard Classification of Education
CAEPR	Centre for Aboriginal Economic Policy Research
ENTER	Equivalent National Tertiary Entrance Rank
SEIFA	Socio-Economic Indexes for Areas
TAFE	Technical and Further Education
VET	Vocational Education and Training

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Introduction

As the average level of education of the Australian population increases, obtaining post-school vocational and university qualifications is increasingly seen as necessary to participate in the modern workforce. Post-school educational attainment increases individuals' earnings from employment both by increasing their productivity (as measured by hourly wages) and their likelihood of employment. For example, Leigh (2008) estimates that, compared with Year 12 graduates, holders of diploma-level qualifications earn around 13–14% more per hour and 17–19% more per year, while holder of Bachelor degrees earn 32–35% more per hour and 45–50% more per year. Certificate-level qualification holders do not earn significantly more than Year 12 graduates, but those with a certificate level III or IV qualification earn around 7% more per hour and 17–19% more per year than those who have completed Year 11 and have no post-school qualifications.

Previous research has also highlighted the importance of post-school educational attainment as a determinant of employment success for Indigenous Australians (Stephens 2010; Thapa et al. 2012, Crawford & Biddle 2017). Yet a lower proportion of Indigenous Australians participate in post-school education – particularly at university level – and have lower average levels of post-school attainment than non-Indigenous Australians (Mitrou et al. 2014; Crawford & Biddle 2015). Crawford and Biddle (2015) identify several barriers to young Indigenous people attending university or Technical and Further Education (TAFE) institutions and completing post-school qualifications. These include the relatively high proportion of Indigenous people living in remote and regional areas where education options are fewer (which affects university participation much more than vocational participation), low average household income, low levels of parental education and large numbers with caring responsibilities.

Young Indigenous people are also less likely than young non-Indigenous people to complete Year 12, a prerequisite for most university courses. However, Indigenous Year 12 attainment has increased rapidly in the past decade (Crawford & Venn 2018), potentially opening up pathways and opportunities for further study to a greater proportion of Indigenous school leavers. There is also a growing policy push to increase Indigenous university participation by enabling smoother transitions between vocational and university education (e.g. Behrendt et al. 2012).

This paper uses census data to examine changes between 2006 and 2016 in post-school educational attainment among the Indigenous population, including determining how much of the observed changes are due to increasing Indigenous identification in the census. We then examine post-school education participation by age cohort in order to better understand participation over the life course and how Indigenous educational attainment has evolved over time. Finally, the paper examines the importance of vocational pathways for Indigenous university students and identifies which types of students are more likely to pursue such pathways.

Data and definitions

Data for this paper are taken from the Census of Population and Housing conducted by the Australian Bureau of Statistics (ABS). Data on educational attainment are taken from responses to questions about the highest level of non-school qualification held by respondents, classified using the Australian Standard Classification of Education (ASCED). We define university qualifications as those at the level of Bachelor degree or higher (ASCED levels 1, 2 and 3), while vocational qualifications are defined as those at the certificate, diploma or advanced diploma level (ASCED levels 4 and 5). In some analyses we also cross-reference post-school (i.e. university or vocational) qualifications with data on the highest year of school completed, where we distinguish

between those who have completed Year 12 and those who have not completed Year 12. In all cases, we exclude observations where information on qualifications is missing.¹

Data on post-school education participation are taken from answers to questions about the educational institution that students are currently attending. We define university participation as being a current student at a 'university or other tertiary institution', while vocational participation is defined as being a current student at a 'technical or further education institution (including TAFE college)' or other non-school institution. Again, we exclude those who did not state whether they were currently studying or who did not state their educational institution.

While the census does not provide information on the basis for university admission (e.g. direct entry from Year 12, vocational qualification, mature-age entry), information is available on the highest educational qualification of current university students. We use this data to proxy entry pathways for university students, focusing on the relative importance of previous vocational qualifications for different groups of students.

Using these definitions – and census data more generally – to study Indigenous post-school attainment and participation has advantages and disadvantages (see Crawford and Biddle (2015) for a detailed discussion). The census does not contain information on the type of qualification that students are currently studying for, so we need to use the type of educational institution that they are currently attending as a proxy. However, some degree-level qualifications can be obtained at TAFE colleges, while some universities provide training at certificate or diploma level (as do some secondary schools). Despite these limitations, the main advantage of the census is that it provides data on a very large number of observations for Indigenous and non-Indigenous Australians and allows us to look at variation at a detailed geographical level. In contrast to administrative data sources on education participation, the census has a consistent Indigenous identifier, and also allows us to look at the characteristics of those who don't participate in post-school education to better understand the barriers that individuals may face to obtaining post-school qualifications.

Indigenous status is self-identified in the census household form. We define Indigenous people as those who are identified as either Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander, and non-Indigenous people as those who say they are neither Aboriginal nor Torres Strait Islander. We exclude from our analysis those who have missing data for Indigenous status (see Markham and Biddle (2017) for a discussion of missing data on Indigenous status in the 2016 Census).

We estimate the impact of changes in Indigenous identification in our analysis using data from the 2011–2016 Australian Census Longitudinal Dataset (ACL D). The ACL D takes a random sample of 5% of the 2011 Census and matches it probabilistically with observations from the 2016 Census. We use the ACL D to track changes in post-school educational attainment between 2011 and 2016 for those who identify as Indigenous in both years ('always identified') and compare this to educational attainment for those who identify as Indigenous in either 2011 or 2016.

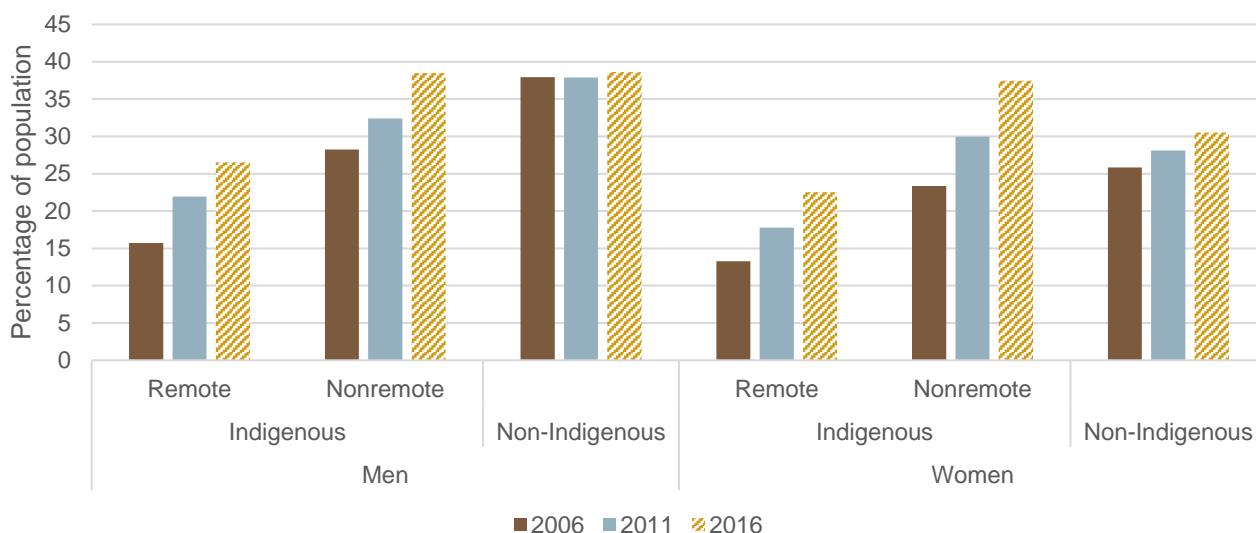
Trends in Indigenous post-school educational attainment

Between 2006 and 2016, there was a considerable increase in the proportion of the Indigenous population with a post-school qualification. Growth was particularly strong in vocational attainment (Figure 1). The proportion of Indigenous men aged 20–64 years with a vocational qualification increased from 16% to 27% in remote areas and from 23% to 39% in nonremote areas. For women, vocational attainment increased from 13% to 23% in remote areas and from 23% to 37% in nonremote areas. There was also some growth in non-Indigenous

¹ To facilitate comparisons between 2006, 2011 and 2016, we do not use the derived variable 'level of highest educational attainment' which combines data on the highest attainment at school and post-school level. This variable is not available for the 2006 Census.

vocational attainment for women over the same period, but at a slower rate than for the Indigenous population. Non-Indigenous men saw little change in vocational attainment. As a result, the gap in vocational attainment between the Indigenous and non-Indigenous population shrank, with Indigenous men in nonremote areas now just as likely, and Indigenous women in nonremote areas more likely, to have a vocational qualification than their non-Indigenous counterparts.

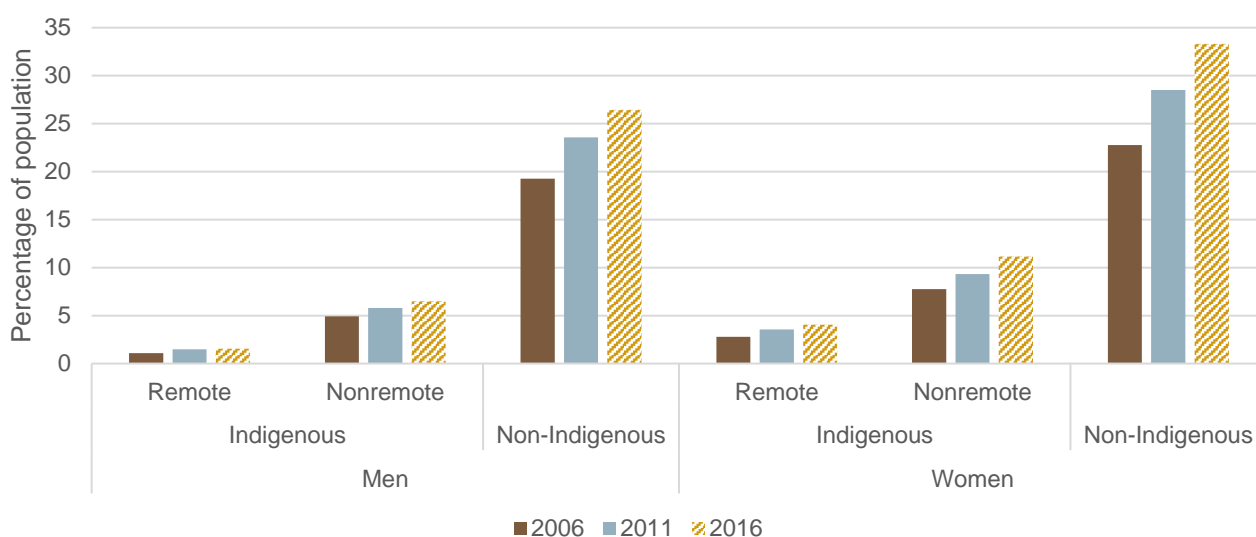
Figure 1 Proportion of population aged 20–64 years with vocational qualifications, 2006–2016



Note: Vocational qualifications include certificate, diploma and advanced diploma qualifications.

Source: Data from the 2006–2016 Censuses.

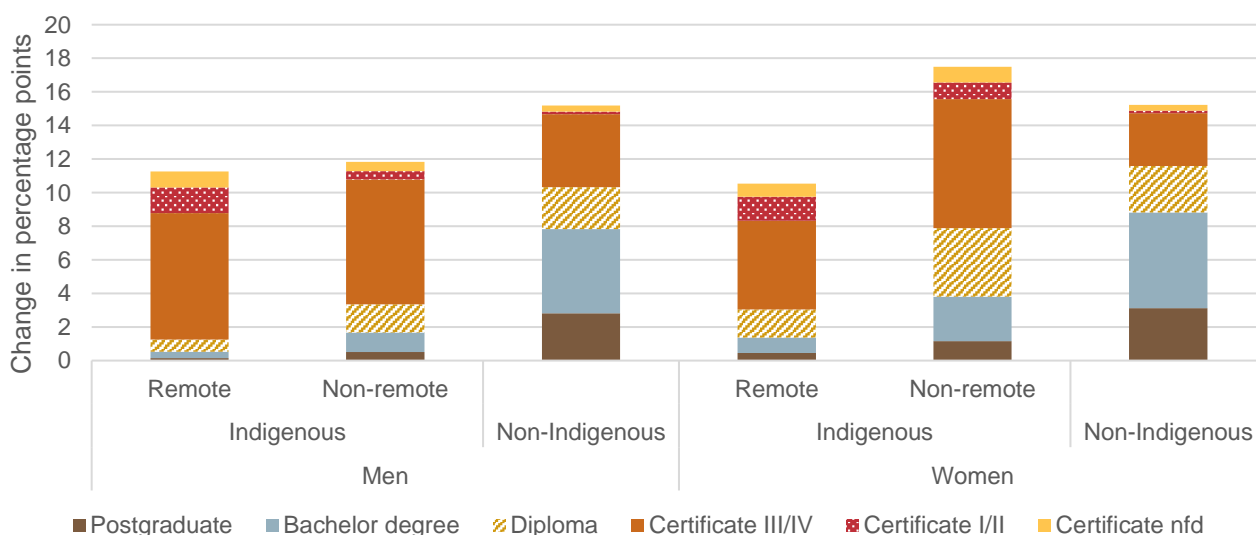
Indigenous university attainment at degree level or higher also increased over the same period (Figure 2). The proportion of Indigenous men with a degree or higher increased from 1.1% in 2006 to 1.6% in 2016 in remote areas and from 5% to 6% in nonremote areas. Indigenous women remain more likely than men to have a degree or higher, increasing from 3% to 4% in remote areas and 8% to 11% in nonremote areas. However, the proportion of the non-Indigenous population with a degree or higher grew even faster, so that the gap in university attainment between the Indigenous and non-Indigenous population widened.

Figure 2 Proportion of population aged 20–64 years with degree or higher, 2006–2016

Note: Degree or higher includes Bachelor degree, graduate certificate, graduate diploma and postgraduate degree qualifications.

Source: Data from the 2006–2016 Censuses.

In total, post-school attainment increased by around 11 percentage points for Indigenous men and for Indigenous women in remote areas (Figure 3). Indigenous women in nonremote areas saw even greater gains, with post-school attainment increasing by almost 18 percentage points. The majority of the gain in attainment was in the proportion holding vocational qualifications, largely at the certificate III/IV or diploma levels.

Figure 3 Change in proportion of population aged 20–64 years with post-school qualifications by detailed qualification, 2006–2016

Note: Postgraduate includes graduate certificate, graduate diploma and postgraduate degree qualifications. Diploma includes diploma and advanced diploma qualifications. nfd = not further defined.

Source: Data from the 2006 and 2016 Censuses.

A much smaller proportion of attainment growth was recorded among those holding university qualifications: ranging from 22% of total growth among Indigenous women in nonremote areas to 5% for Indigenous men in

remote areas. By contrast, 52% of attainment growth for non-Indigenous men and 58% for non-Indigenous women was in degree or postgraduate qualifications.

The growth in Indigenous post-school educational attainment observed when looking at census snapshots can in part be attributed to increasing numbers of people over time who identify as Indigenous when they answer the census questionnaire (see Markham and Biddle (2018) for a general discussion of identification change between the 2011 and 2016 Censuses).

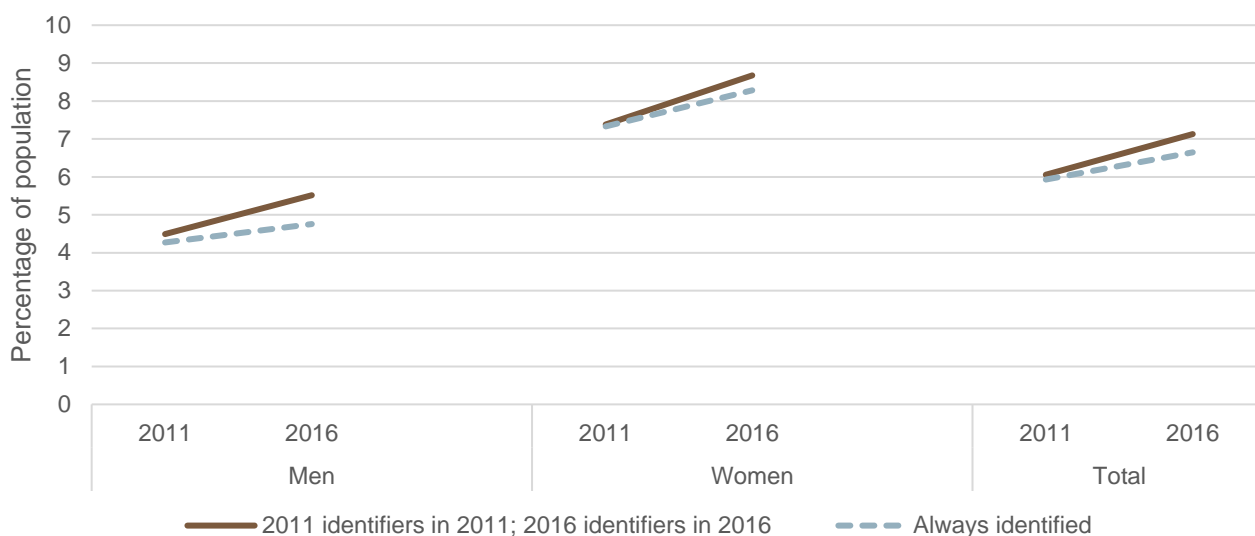
Changes in post-school educational attainment between 2011 and 2016 accounting for changes in Indigenous identification are shown in Figure 4. The proportion of Indigenous people with a degree increased more slowly for the sample that includes people who identified as Indigenous in both 2011 and 2016 (the 'always identified' sample) than it did for the cross-sectional estimates (2011 identifiers in 2011 and 2016 identifiers in 2016). This suggests that the newly-identified Indigenous population is more likely to have a degree or higher qualification than those who identified as Indigenous in both years. In total, 67% of increased university attainment for men and 34% for women can be attributed to identification change. The observed gains in vocational attainment between 2011 and 2016 are much less influenced by identification change. Around 20% of the gain in vocational attainment for Indigenous men and 9% for Indigenous women can be attributed to identification change.

The results presented in this section paint quite different stories of gains in vocational and university attainment in recent years. Indigenous vocational attainment grew strongly, so that the gap between Indigenous and non-Indigenous men in the proportion of the working-age population with vocational qualifications fell by close to 5 percentage points for both men and women between 2011 and 2016. Indigenous women are now more likely than their non-Indigenous counterparts to hold a vocational qualification. Only a relatively small amount of the growth in vocational attainment can be attributed to Indigenous identification change, with the gap in attainment falling by about 4 percentage points if only those who identify as Indigenous in both 2011 and 2016 are included.

Trends in university-level attainment are less encouraging. While there was some growth in Indigenous attainment at this level, non-Indigenous attainment grew faster so that the Indigenous–non-Indigenous gap in the proportion of the working-age population with a university qualification increased by around 1 percentage point for men and 3 percentage points for women between 2011 and 2016. The attainment gap increased even more if only those who identified as Indigenous in both 2011 and 2016 are included.

Figure 4 Changes in proportion of Indigenous population aged 20–64 years with post-school qualifications by Indigenous identification status, 2011–2016

(a) University qualification



(b) Vocational qualification



Note: Identifiers include those who identify as Aboriginal and/or Torres Strait Islander. Always identified includes only those who identified as Indigenous in both 2011 and 2016. University qualification includes bachelor degree, graduate certificate, graduate diploma and postgraduate degree qualifications. Vocational qualification includes certificate, diploma and advanced diploma qualifications.

Source: Data from the Australian Census Longitudinal Dataset 2011–2016.

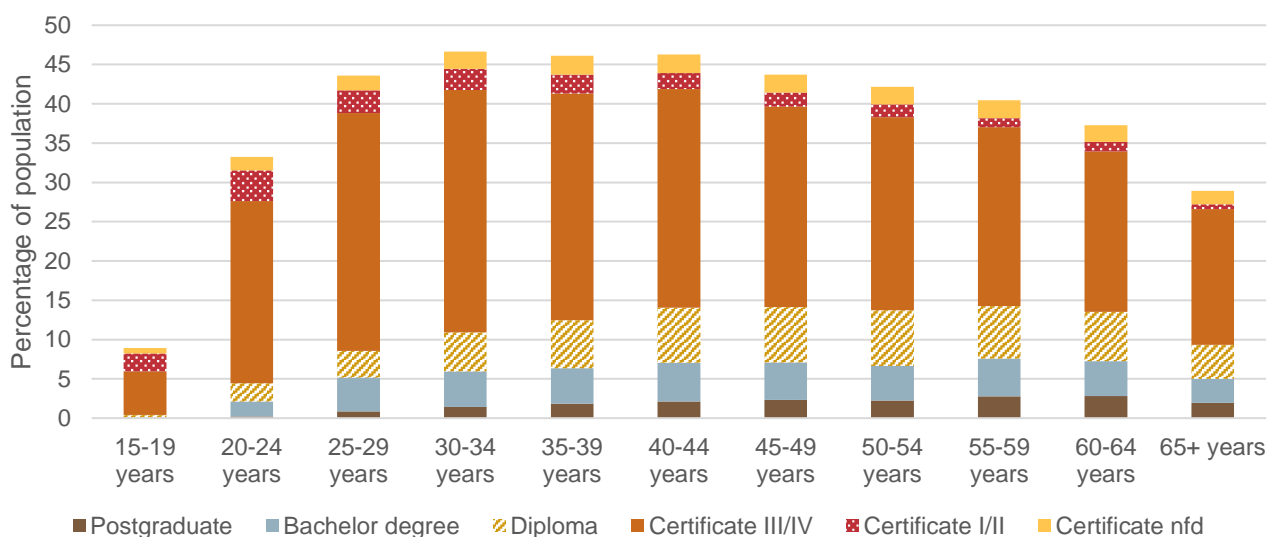
Educational attainment by age cohort

Overall figures on post-school educational attainment are influenced by the age composition of the population, with younger cohorts usually having higher attainment rates than older cohorts. This is important to remember when comparing Indigenous and non-Indigenous attainment as the Indigenous population is, on average, younger than the non-Indigenous population.

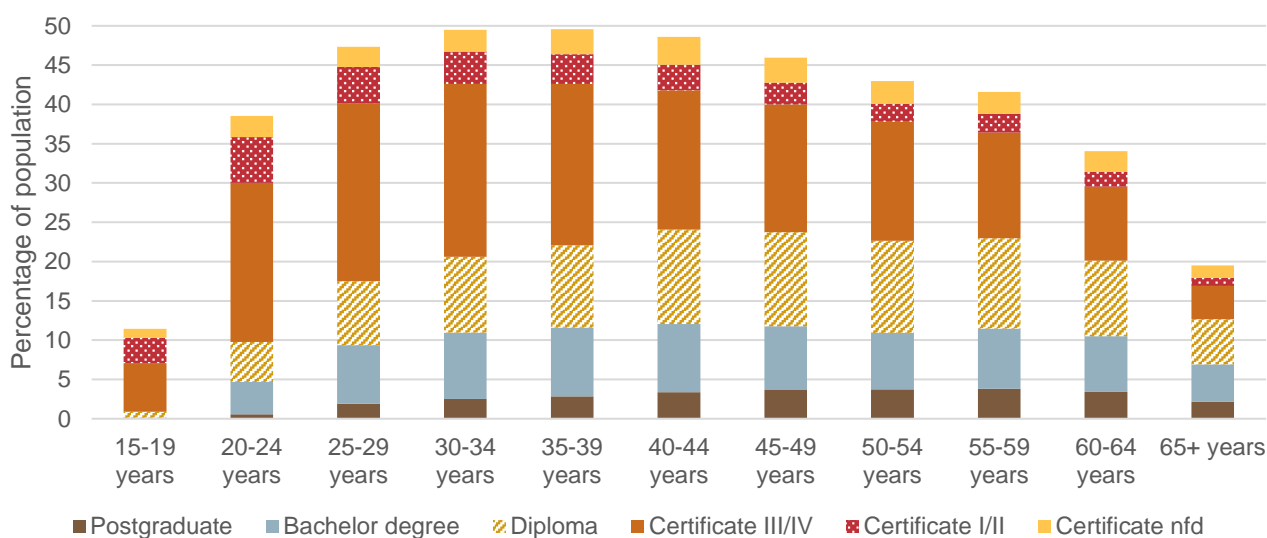
Post-school educational attainment in the Indigenous population across age cohorts is shown in Figure 5. Overall post-school attainment is highest for those in their 30s and early 40s, with women having higher attainment (and higher level qualifications) than men. By contrast with certificate-level attainment, which is considerably higher for those in their 20s than for older cohorts, degree and diploma attainment is similar across age cohorts. Those in their 50s and early 60s are as likely to have a diploma or degree as those in their 30s.

Figure 5 Proportion of Indigenous population with post-school qualifications by highest level of qualification, 2016

(a) Men



(b) Women



Notes: Excludes those where education level was not stated or inadequately described.

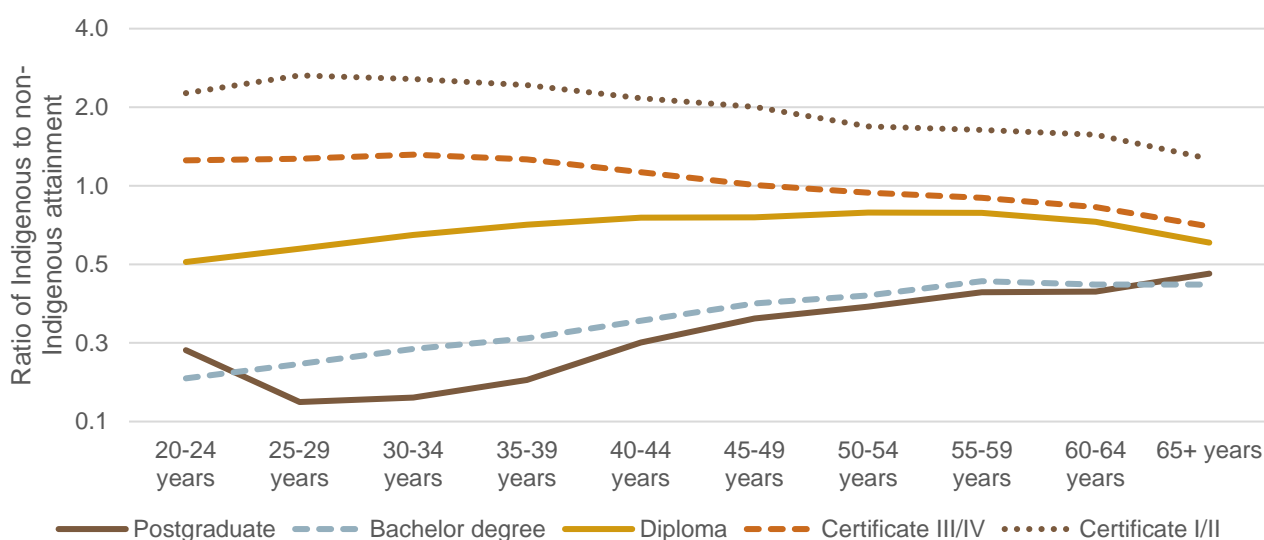
Nfd = not further defined.

Source: Data from the 2016 Census.

Notwithstanding recent growth, overall levels of post-school educational attainment are higher for the non-Indigenous population than for the Indigenous population: 43% of Indigenous people aged 20–64 years have a post-school qualification compared with 65% of non-Indigenous people. However, the Indigenous–non-

Indigenous gap in post-school educational attainment varies considerably over the life course and by level of qualification. The gap is highest at higher levels of qualifications and for younger cohorts (Figure 6). Indigenous people in their 20s and 30s are around five times less likely than non-Indigenous people to have a bachelor or postgraduate degree (ratio of 0.2 in Figure 6), and around 1.7 times less likely to have a diploma (ratio of 0.6). The gap is smaller for older cohorts, but Indigenous people in their 40s and 50s are still less than half as likely to have a university qualification as non-Indigenous people of the same age. At lower levels of qualification, Indigenous attainment is higher than non-Indigenous attainment, especially for younger cohorts. Indigenous people in their 20s and 30s are more than twice as likely to have a certificate level I or II as non-Indigenous people and around 1.3 times more likely to have a certificate level III or IV. Again, this gap reduces with age, so that older Indigenous cohorts are slightly less likely than non-Indigenous cohorts to have certificate-level qualifications.

Figure 6 Ratio of Indigenous to non-Indigenous educational attainment by level of highest qualification, 2016



Note: Ratio of the proportion of the Indigenous population with a particular qualification to the proportion of the non-Indigenous population with the same qualification.

Source: Data from the 2016 Census.

Education participation by age cohort

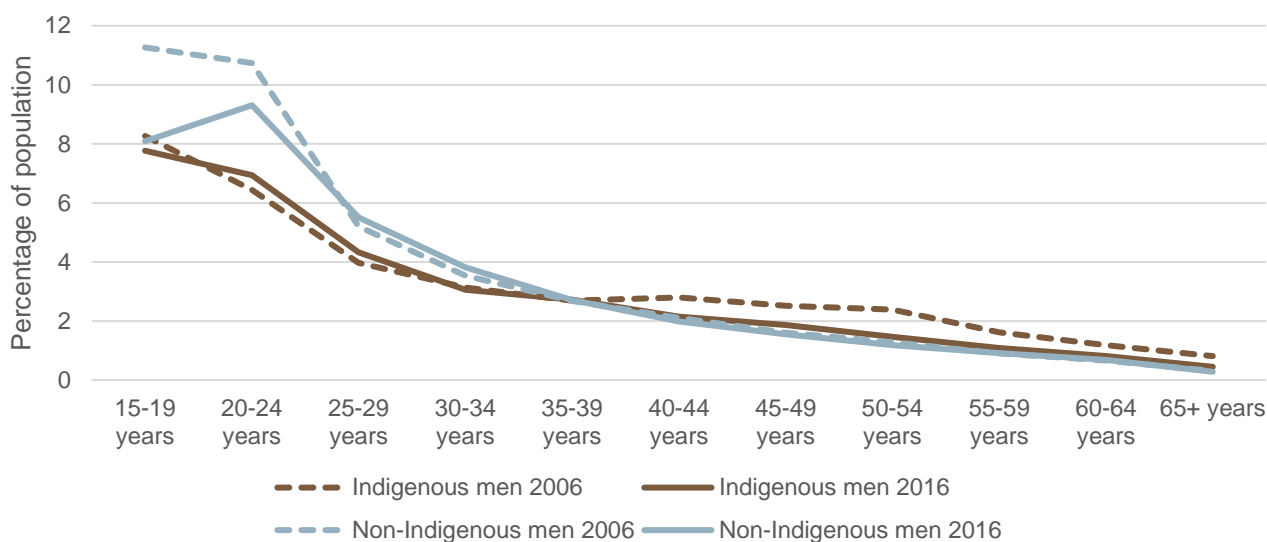
The patterns of educational attainment identified in the previous section are influenced by current and past educational participation of each cohort, as well as the likelihood that students enrolled in post-school education complete their qualifications. The issue of course completion is not easily addressed using census data and is beyond the scope of this paper. However, understanding patterns of education participation among the Indigenous population provides some important insights into factors affecting educational attainment.

In 2016, 4% of Indigenous men aged 15–64 years and 6% of Indigenous women were studying at a vocational institution. This is slightly higher than the proportion among the non-Indigenous working-age population (4% of men and 5% of women), in part reflecting differences in the age profile of the two populations. Looking across age cohorts (Figure 7), vocational participation in 2016 was higher for non-Indigenous than Indigenous men in younger cohorts and slightly higher for Indigenous than non-Indigenous men in older cohorts. Indigenous women had slightly higher vocational participation than non-Indigenous women across all age cohorts in 2016, with the difference most pronounced for teenagers and those in their 40s and 50s. Since 2006, Indigenous

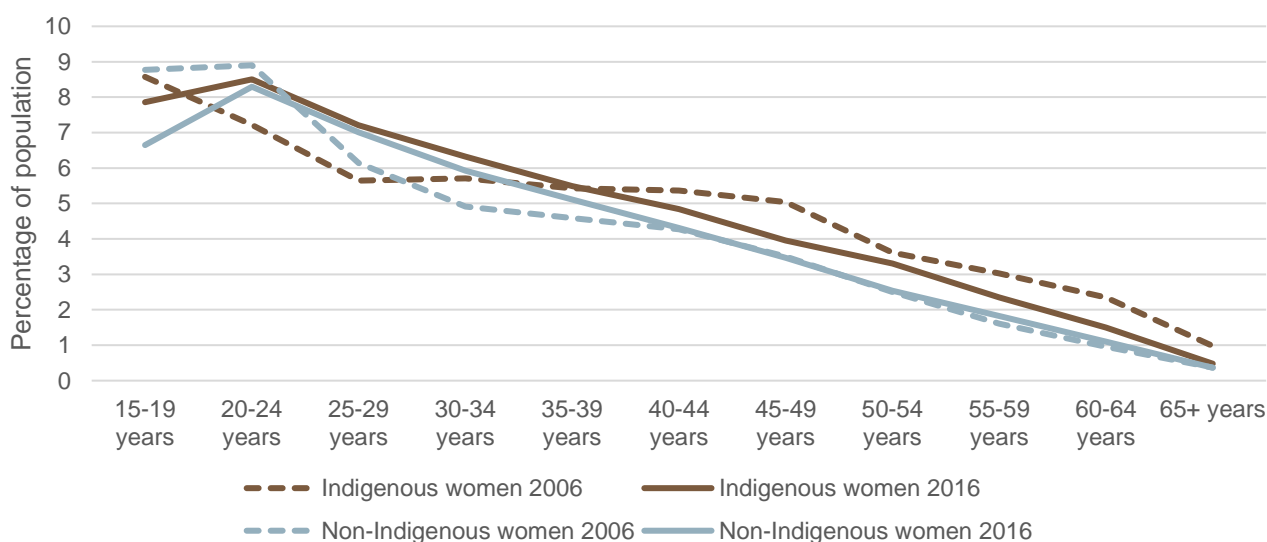
vocational participation has fallen for people aged 40 years and over, as well as for teenagers (possibly as a result of higher school retention rates). There was a substantial increase in the proportion of Indigenous women in their 20s participating in vocational education and a smaller increase for Indigenous men in the same age group.

Figure 7 Proportion of population attending a vocational institution, 2006 and 2016

(a) Men



(b) Women



Note: Vocational institutions include TAFE colleges and other non-university institutions.

Source: Data from the 2006 and 2016 Censuses.

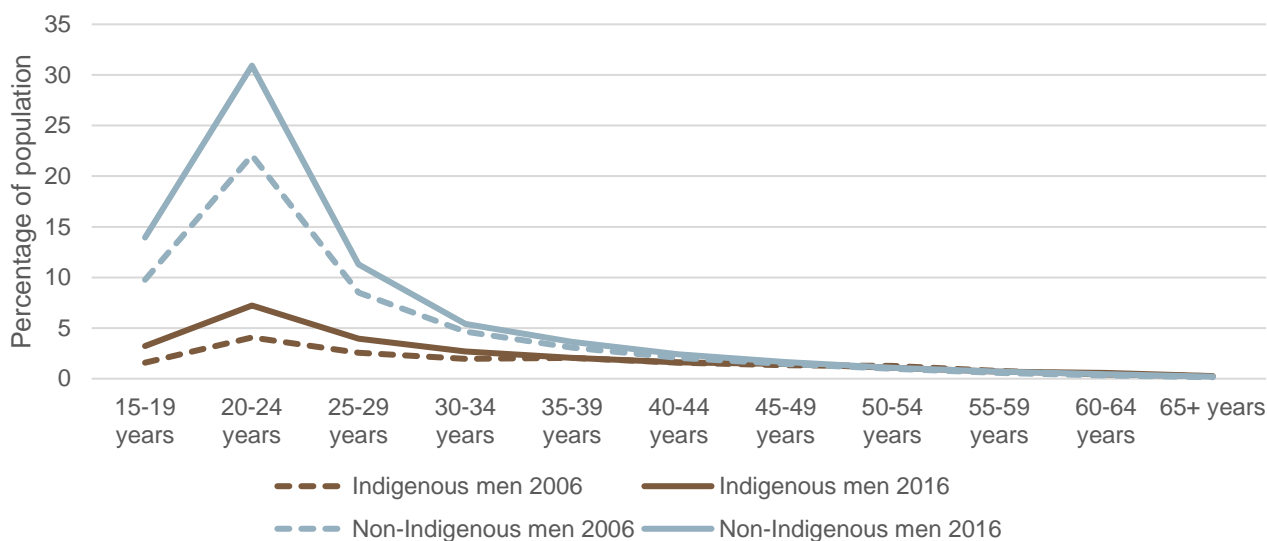
The reduction in vocational participation among older Indigenous cohorts observed between 2006 and 2016 continues a longer-term trend. Hunter and Schwab (2003) estimate that around 7% of Indigenous men and more than 8% of Indigenous women aged 30–59 were studying at vocational institutions in the 1990s. Based on a comparison of Hunter and Schwab (2003) and the 2016 Census, vocational participation among those in their 20s also appears to have fallen since the 1990s for Indigenous men, but increased slightly for Indigenous women. The result of these trends is that the proportion of Indigenous vocational students who are aged under

30 years or older has risen from 58% in 2006 to 62% in 2016 (compared with a drop from 56% to 53% for non-Indigenous vocational students).

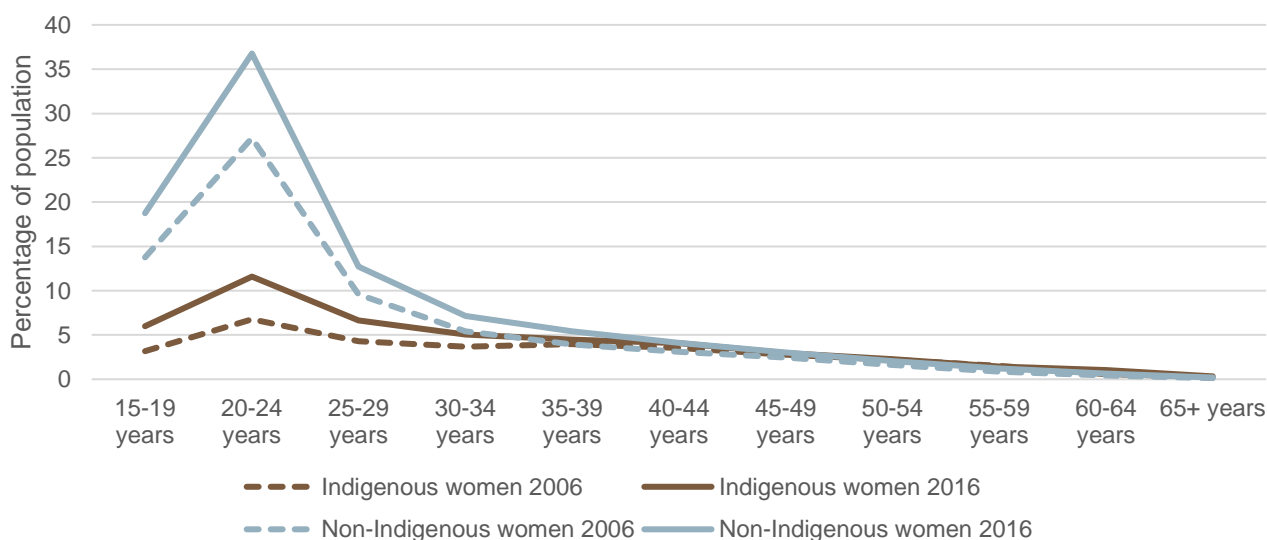
Indigenous university participation has increased substantially in recent years (albeit from a low base), with the proportion of Indigenous 15–64 year olds attending university increasing from 2% to 3% for men and from 4% to 5% for women. Participation grew sharply for those in their early 20s, increasing from 4% to 7% for men and from 7% to almost 12% for women (Figure 8). However, non-Indigenous university participation increased even more rapidly, and Indigenous 20–24 year olds remain 3–4 times less likely to be attending university than non-Indigenous 20–24 year olds in 2016. Among older Indigenous cohorts, university participation increased for those in their 20s and 30s but fell slightly or was unchanged for those aged over 40. While rates of university participation are similar for Indigenous and non-Indigenous people aged over 40, the relatively low rates of Indigenous participation for younger cohorts mean that a larger proportion of Indigenous (33%) than non-Indigenous (25%) university students are aged 30 years or older.

Figure 8 Proportion of population attending university, 2006 and 2016

(a) Men



(b) Women



Source: Data from the 2006 and 2016 Censuses.

Education participation by Year 12 graduates

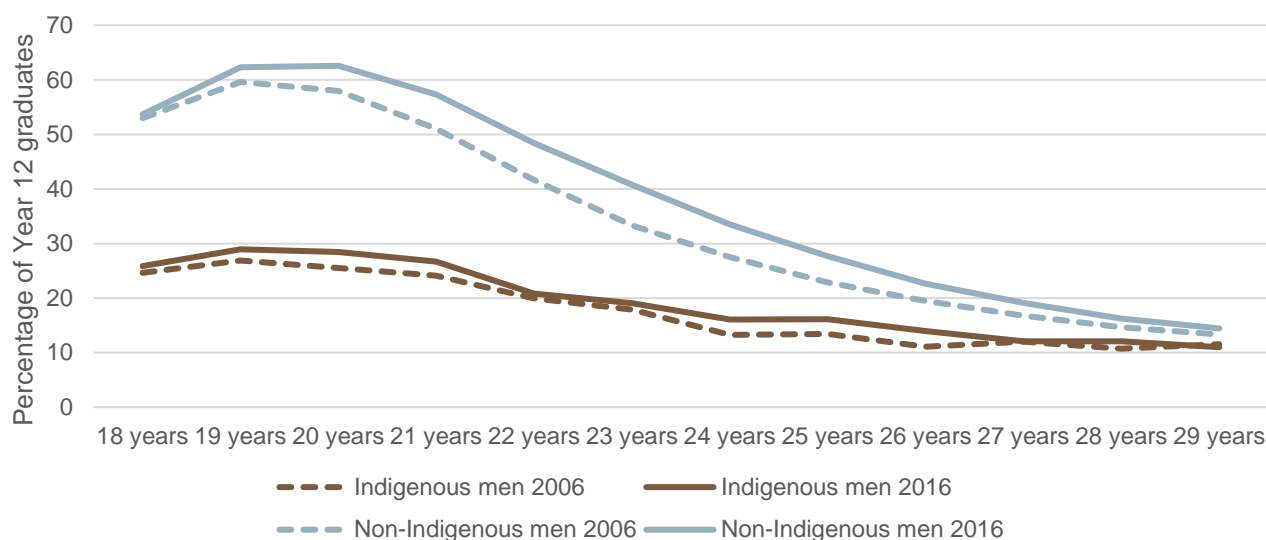
Historically, low Year 12 completion rates have been one reason that Indigenous post-school educational attainment – particularly university attainment – has been lower than for the non-Indigenous population. However, Year 12 attainment is increasing rapidly for the Indigenous population. Between 2006 and 2016, the proportion of 20–24 year olds who had completed Year 12 increased from 36% to 51% (Crawford & Venn 2018). In this section, we examine post-school education participation by Year 12 graduates. We focus on those aged 15–29 years as the previous section has shown that this is the age group where the bulk of students lie and where recent gains in Year 12 completion are likely to have had their greatest effect.

The likelihood of Indigenous Year 12 graduates participating in post-school education increased between 2006 and 2016 (Figure 9). For Indigenous men, most of the increase was for those in their early and mid-20s,

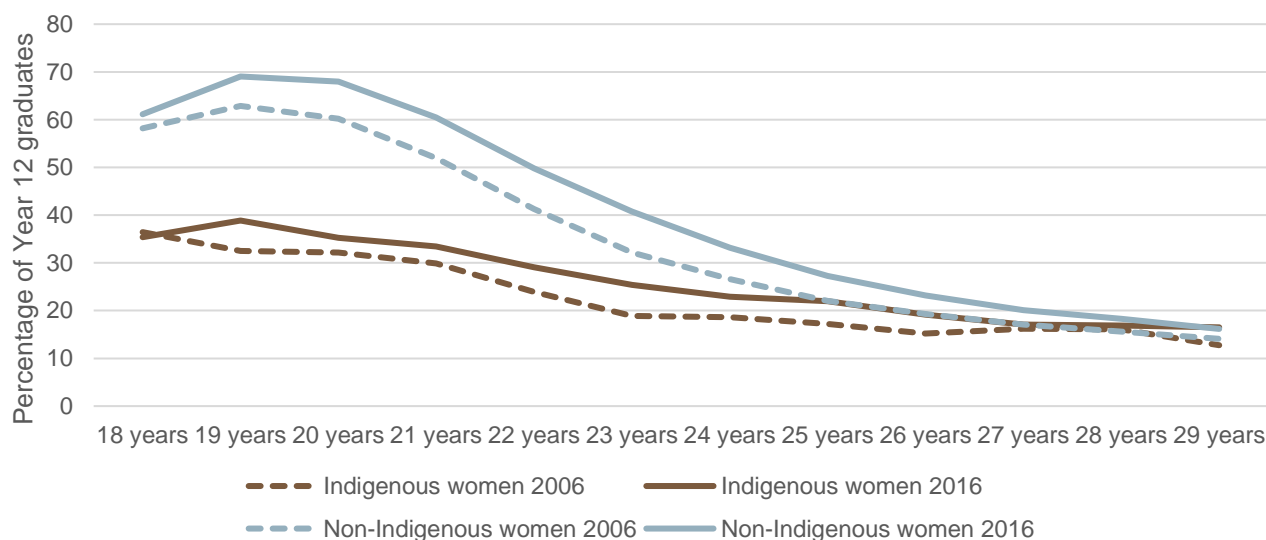
whereas for Indigenous women, there was an increased likelihood of post-school study for all age groups. Despite these gains, Indigenous Year 12 graduates remain considerably less likely to go on to further study than their non-Indigenous counterparts. There were considerable increases in the likelihood of post-school education for non-Indigenous Year 12 graduates over the same period with the gains particularly large for those in their early 20s.

Figure 9 Proportion of Year 12 graduates undertaking post-school education by age, 2006 and 2016

(a) Men



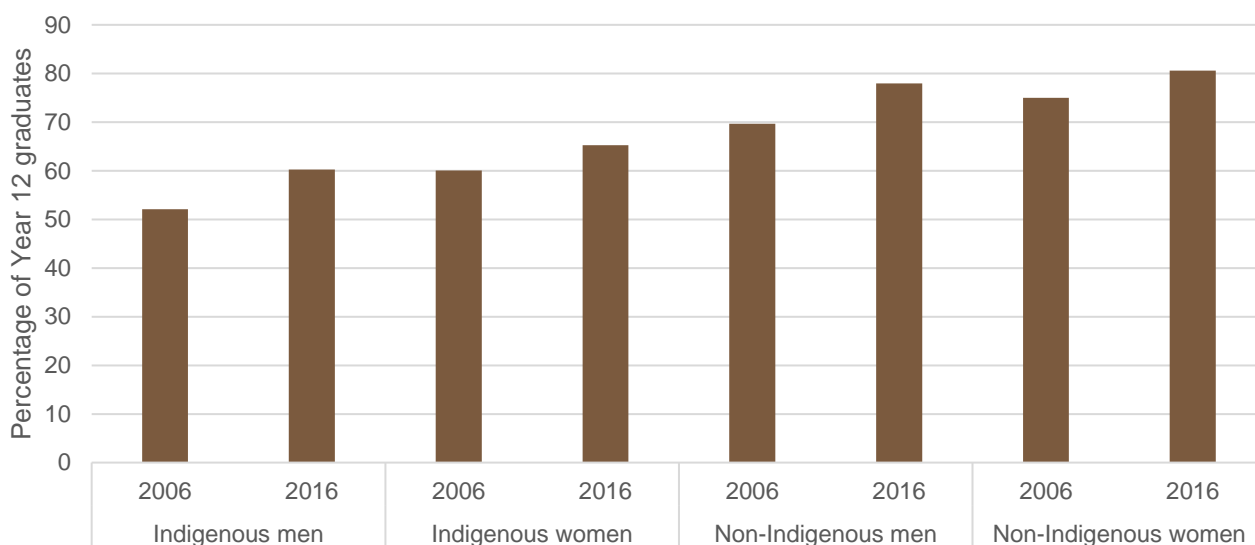
(b) Women



Note: Year 12 graduates are those with highest level of school completed of Year 12 or equivalent, regardless of post-school attainment.
Source: Data from the 2006 and 2016 Censuses.

Indigenous Year 12 graduates who do go on to further study are increasingly likely to attend university (Figure 10). The proportion of Indigenous men who are Year 12 graduates currently studying who are studying at university increased from 52% in 2006 to 60% in 2016, while the proportion of Indigenous women increased from 60% to 65%. There were also increases in the likelihood of non-Indigenous students being at university, with the rates remaining considerably higher than for the Indigenous population.

Figure 10 Proportion of Year 12 graduates aged 15–29 years currently studying who are studying at university, 2006 and 2016



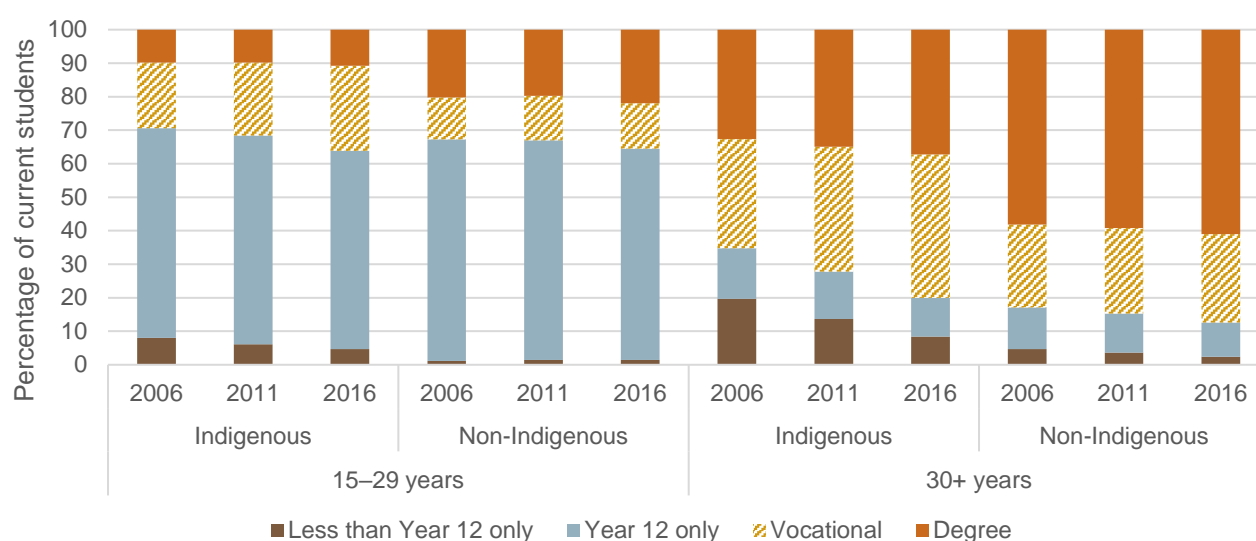
Note: Year 12 graduates are those with highest level of school completed of Year 12 or equivalent, regardless of post-school attainment.
Source: Data from the 2006 and 2016 Censuses.

Post-school education pathways

The 2008 Bradley Review of higher education highlighted the importance of alternative entry pathways in increasing the participation of under-represented groups – including Indigenous Australians – in university education (Bradley et al. 2008). Establishing clear pathways between vocational and university courses was also a recommendation of the Behrendt Review into Indigenous participation in higher education in 2012 (Behrendt et al. 2012).

While most domestic university students are admitted to university on the basis of a previous university qualification or secondary school completion alone, a growing proportion are admitted on the basis of a previous Vocational Education and Training (VET) qualification (Chesters et al. 2013). While census data do not contain information on the basis for university admission, we can examine the previous highest educational attainment of current university students to get an idea of the importance of pathways between vocational and university education.

One-quarter of Indigenous 15–29 year old university students have an existing vocational qualification, compared with 14% of non-Indigenous students, and this proportion has increased since 2006 (Figure 11). While the bulk of 15–29 year old university students have just a Year 12 qualification, this method of entry is less prominent for Indigenous students (59%) than non-Indigenous students (63%) and has been decreasing in importance over time for all students. Around one in ten young Indigenous students already has a degree qualification or higher, compared with almost 22% of non-Indigenous students. A small number (5%) of Indigenous students enter university without completing Year 12, but this proportion has fallen since 2006.

Figure 11 Highest educational attainment of current university students, 2006–2016

Note: Excludes those whose highest educational attainment was not stated or inadequately described. Degree includes bachelor degree or higher. Vocational includes certificate, diploma or advanced diploma level qualification, regardless of Year 12 completion.

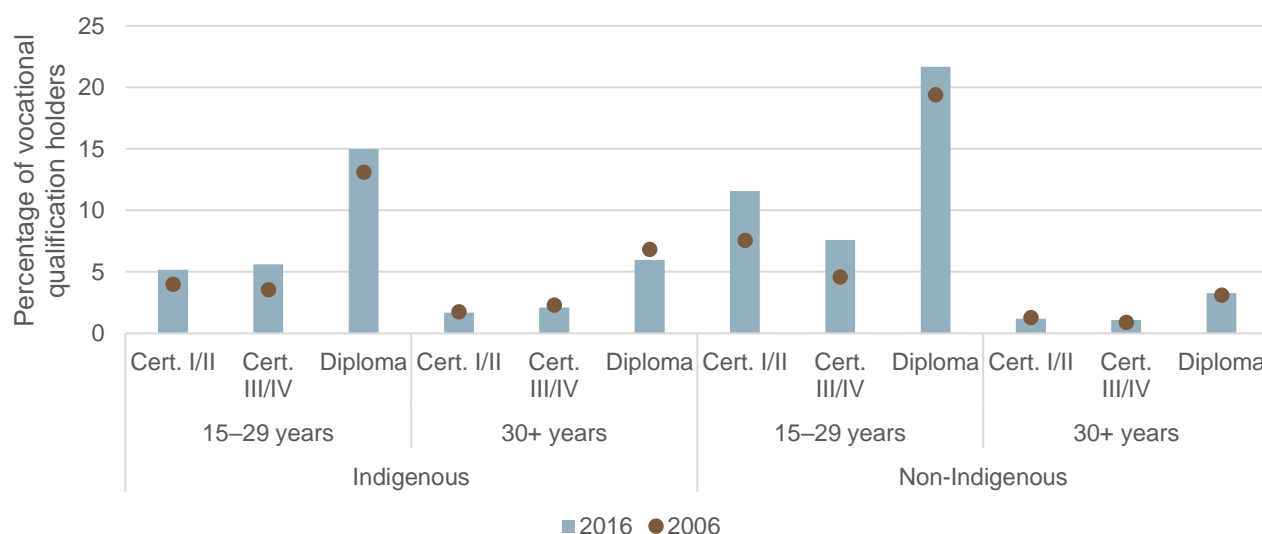
Source: Data from the 2006–2016 Censuses.

Vocational qualifications are also common among Indigenous university students aged over 30, with almost 43% holding a vocational qualification, compared with 26% of non-Indigenous students. Among older students, previous university qualifications are very common, less so for Indigenous (37%) than non-Indigenous (61%) students. The proportion of Indigenous university students who have not completed Year 12 more than halved between 2006 and 2016 to 8%. This may reflect fewer university applications from those without Year 12 being accepted, or fewer university applicants having less than Year 12 qualifications because of high rates of growth of Year 12 and post-school attainment over this period.²

Looking at the proportion of vocational qualification holders who are currently studying at university (Figure 12), it is clear that having a diploma or advanced diploma rather than a certificate-level qualification increases the probability of going on to study at university. University study is an increasingly important destination for Indigenous vocational graduates aged 15–29 years, with the proportion of diploma holders studying at university increasing from 13% to 15% between 2006 and 2016 and of certificate level III or IV holders increasing from 4% to 6%. Young Indigenous vocational education graduates remain less likely to go on to university study than non-Indigenous graduates, but older Indigenous vocational education graduates are more likely to do so than their non-Indigenous counterparts. Among those aged 15–29 years, the gap between Indigenous and non-Indigenous university participation is smaller for those with vocational qualifications than for those with Year 12 alone.

² Very little data are available on the previous qualifications of Indigenous university applicants which would allow us to determine which of these explanations are more likely. Data on university admissions suggest that the offer rate to Australian (Indigenous and non-Indigenous combined) students who are not current Year 12 students increased slightly between 2008 and 2016 (Department of Education, Employment and Workplace Relations 2008; Department of Education and Training 2016).

Figure 12 Proportion of vocational qualification holders who are currently studying at university, by level of vocational qualification, 2006 and 2016



Source: Data from the 2006 and 2016 Censuses.

The highest educational attainment of current Indigenous university students, for all students as well as first-time university students (defined as students who do not already hold a Bachelor degree or higher qualification) is shown in Table 1. The proportion of Indigenous university students with only a Year 12 qualification is lowest for women with children and those living in remote and disadvantaged areas. Indigenous university students in major cities are generally more likely to hold a previous degree qualification than those in regional and remote areas.

Those living in areas of high socioeconomic disadvantage are around half as likely to have an existing degree qualification as those in the most advantaged areas. Among first-time university students, vocational pathways are most important for women (especially those with children), and those living in regional, remote and disadvantaged areas. The same groups also have relatively high rates of admission to university without Year 12 or higher qualifications.

Table 1 Highest educational attainment of current Indigenous university students, by characteristics, 2016

	15–29 years							30+ years						
	All university students			First-time university students				All university students			First-time university students			
	Degree	Vocational	Year 12 only	<Year 12 only	Vocational	Year 12 only	<Year 12 only	Degree	Vocational	Year 12 only	<Year 12 only	Vocational	Year 12 only	<Year 12 only
Gender														
Men	10.0	22.4	63.2	4.6	24.8	70.1	5.1	39.5	40.0	13.4	7.2	44.3	14.9	8.0
Women	11.3	27.2	56.7	4.8	30.7	63.9	5.4	36.4	44.1	10.6	9.0	49.7	12.0	10.1
With children	12.3	44.9	29.1	13.1	51.5	33.4	15.0	32.6	46.6	12.5	8.0	53.5	14.4	9.2
Without children	11.2	25.0	60.2	3.7	28.1	67.7	4.2	39.7	41.7	8.9	9.9	46.9	10.0	11.1
Remoteness														
Major cities	11.7	23.7	60.8	3.7	26.9	68.9	4.2	41.0	40.4	11.6	6.9	45.8	13.2	7.8
Inner regional	8.8	27.8	57.3	6.2	30.4	62.8	6.8	34.2	46.7	10.5	9.0	51.2	11.5	9.9
Outer regional	8.6	29.4	55.7	6.1	32.2	61.1	6.7	32.1	45.2	13.0	10.5	49.6	14.3	11.5
Remote/V. remote	11.1	37.3	37.3	14.3	42.0	42.0	16.1	30.5	42.8	10.8	14.9	48.1	12.1	16.8
Area disadvantage														
Most disadvantaged	8.6	30.4	53.7	7.4	33.2	58.7	8.1	26.9	50.8	11.1	11.6	55.5	12.1	12.7
Quintile 2	9.1	28.6	56.4	6.2	31.4	61.8	6.8	32.6	47.2	11.1	9.3	51.8	12.2	10.2
Quintile 3	9.3	27.4	59.5	4.0	30.1	65.5	4.4	38.4	41.3	13.2	7.4	45.4	14.5	8.1
Quintile 4	13.7	23.0	59.9	3.8	26.5	69.1	4.4	45.0	37.1	10.4	6.4	42.8	12.0	7.4
Most advantaged	16.5	19.0	61.0	2.9*	22.9	73.6	3.5*	53.3	31.5	10.4	4.2*	38.0	12.5	5.1*

Notes: Rows may not sum to 100% due to rounding and data perturbation by the ABS. First time university students are those who are currently attending university but do not already have a degree qualification or higher. With children = provides unpaid care to own child/ren; area disadvantage is measured as quintiles of the ABS Socio-Economic Indexes for Areas (SEIFA Index of Socioeconomic Advantage and Disadvantage; degree = bachelor degree or higher; vocational = certificate, diploma or advanced diploma level qualification, regardless of Year 12 completion. * these values are based on a sample size of 25–50 people and should be treated with some caution.

Source: Data from the 2016 Census.

Indigenous university students with previous vocational qualifications are less likely than non-Indigenous students to have finished Year 12 and to have a vocational qualification at diploma level (Table 2). Indeed, the bulk of young Indigenous university students with a vocational qualification have a certificate level III or IV. However, despite being relatively less educated than non-Indigenous students with a vocational qualification, the main fields of study for the vocational qualifications are very similar, with around half of all university students with vocational qualification having previously studied either management and commerce or society and culture.

Table 2 Characteristics of current university students with vocational qualifications, 2016

	Indigenous		Non-Indigenous	
	15–29 years	30+ years	15–29 years	30+ years
Highest year of school completed				
Less than Year 12	20.5	46.1	9.6	24.6
Year 12	79.3	53.9	90.4	75.4
Level of vocational qualification				
Diploma/Advanced Diploma	27.4	50.5	49.2	60.7
Certificate III/IV	56.0	42.0	39.6	33.3
Certificate I/II	11.4	3.9	7.1	2.1
Field of vocational qualification				
Management and commerce	27.0	26.8	29.0	28.6
Society and culture	24.1	25.4	16.9	18.9
Health	10.9	16.3	10.2	14.2
Food, hospitality and personal services	9.4	5.8	9.0	6.4
Creative arts	6.5	3.4	9.4	5.1
Engineering	5.0	5.1	7.9	9.7
Education	4.4	7.3	2.8	5.4
Other fields	12.7	9.9	14.8	11.5

Note: Columns may not sum to 100% due to rounding and data perturbation by the ABS.

Source: Data from the 2016 Census.

By contrast, Indigenous university students who enter university already having a degree qualification have a similar level of education as non-Indigenous students, but very different fields of previous qualification (Table 3). More than 60% of Indigenous students with a degree qualification studied society and culture, health or education.

Table 3 Characteristics of current university students with existing university qualifications, 2016

	Indigenous		Non-Indigenous	
	15–29 years	30+ years	15–29 years	30+ years
Level of existing university qualification				
Bachelor degree	83.4	59.6	84.3	56.7
Postgraduate degree	16.9	40.5	15.7	43.3
Field of existing university qualification				
Society and culture	26.5	27.8	17.1	21.1
Health	22.4	21.3	13.2	17.3
Education	13.3	20.7	4.9	12.7
Management and commerce	8.0	12.5	22.7	19.2
Creative arts	8.9	5.3	6.2	5.0
Natural and physical sciences	9.9	4.1	14.5	7.8
Other fields	11.0	8.3	21.4	16.9

Note: Columns may not sum to 100% due to rounding and data perturbation by the ABS.

Source: Data from the 2016 Census.

Summary and conclusions

Indigenous vocational attainment increased considerably between 2006 and 2016. The gap in vocational attainment between Indigenous and non-Indigenous men shrank considerably and Indigenous women are now more likely than non-Indigenous women to have a vocational qualification. Relatively little of the growth in Indigenous vocational attainment between 2011 and 2016 can be attributed to Indigenous identification change. Younger Indigenous cohorts are more likely than their non-Indigenous counterparts to participate in vocational education and have higher attainment of certificate-level qualifications. However, the historical pattern of older Indigenous cohorts having very high participation rates in vocational education (e.g. Hunter & Schwab 2003) seems to be dissipating over time.

The 2018 Closing the Gap report cited Department of Education data showing that Indigenous enrolment in higher education award courses has more than doubled from 8,803 in 2006 to 17,728 in 2016 (Department of the Prime Minister and Cabinet 2018: 68). Despite this impressive growth, there is a large and growing gap between Indigenous and non-Indigenous university attendance and attainment of qualifications at degree level and above. While Indigenous university participation has increased over the past decade, Indigenous university participation and attainment has failed to keep pace with non-Indigenous growth. A relatively large proportion of the observed growth in Indigenous university attainment between 2011 and 2016 was the result of increasing Indigenous identification in the census. Identification change is also likely to be affecting administrative estimates of growth in Indigenous university enrolment such as those reported in the Closing the Gap report (Department of the Prime Minister and Cabinet 2018: 68).

Crucially, Indigenous young people remain 3–4 times less likely to attend university than non-Indigenous young people. This is likely to be the result of a myriad of factors. Crawford and Biddle (2015) identify some of these, including geographical location, low levels of household income and parental educational attainment, and caring responsibilities. Some of the difference is also likely to be associated with lower rates of Year 12 completion by Indigenous compared with non-Indigenous students.

Indigenous Year 12 graduates remain considerably less likely than their non-Indigenous counterparts to undertake post-school study and those that do are more likely to take up vocational courses. Despite increases in the proportion of Indigenous Year 12 graduates who are going on to further study, and in the proportion of students who are studying at university rather than TAFE, these results suggest that increasing Year 12 attainment alone is not going to address the under-representation of Indigenous people in universities, nor lower rates of post-school educational attainment more broadly.

Census data on Year 12 attainment do not allow us to identify which Indigenous Year 12 graduates have obtained an Equivalent National Tertiary Entrance Rank (ENTER) score, allowing them to apply to university. Previous research has shown that Indigenous Year 12 graduates are less likely to be eligible for university based on their school exam results than non-Indigenous Year 12 graduates (Pechenkina & Anderson 2011). It may be that the barriers to university participation identified above similarly impact on school results (and therefore on eligibility for university) rather than (or as well as) on university participation per se. For example, Cardak and Ryan (2009) find that students from low socioeconomic backgrounds are just as likely to attend university as students from high socioeconomic backgrounds with the same ENTER score. Improving school results, as well as Year 12 completion rates, will be vital if Indigenous university participation rates are to increase further.

Encouraging the development of non-traditional pathways to university entrance for those who may not otherwise meet entry requirements has been identified as an important way to increase university participation among under-represented groups including Indigenous Australians (Bradley et al. 2008; Behrendt et al. 2012). Our analysis shows that Indigenous university students are more likely than non-Indigenous university students to possess a vocational qualification and that the importance of vocational-to-university pathways for Indigenous students appears to have been increasing in importance over the period 2006–2016. These types of pathways are particularly important for Indigenous students who face some of the highest barriers to university participation: those from remote and disadvantaged areas and women with children. Indigenous university students with previous vocational qualifications tend to have lower levels of qualification than non-Indigenous students with vocational qualifications, although the fields of study are quite similar for both groups.

More research is needed on whether vocational pathways indeed provide greater access to university for Indigenous students. Wheelahan (2009) finds that vocational-to-university pathways increase university participation by those in the middle of the socioeconomic distribution, but not those at the bottom because of relatively low levels of attainment at diploma level among this group. She also finds that vocational pathways are more likely to lead to participation at ‘second tier’ universities rather than at the elite ‘Group of Eight’ universities, and so do little to reduce inequality within the university sector.

Even if vocational pathways are increasing access to university for Indigenous students, there is no guarantee of successful outcomes. Further research is needed on course retention and completion by entry pathway, for both Indigenous and non-Indigenous students. Frawley et al. (2017) argue that students who have entered university via vocational pathways may have different support needs to other students and discuss the merits of enabling programs in helping more Indigenous vocational students from all backgrounds make successful transitions to university.

Overall, Indigenous vocational education success provides a promising avenue for further increasing university attendance. However the relatively large numbers of current Indigenous university students who already possess vocational qualifications or degree qualifications in health and education also raise questions about whether Indigenous students are receiving adequate career advice when making decisions about further education at the point of leaving school, a point highlighted in the Behrendt review (Behrendt et al. 2012: 21). Further research is needed to better understand transitions between school, vocational education and university

and determine whether Indigenous students are undertaking courses – and spending time and money doing so – that could have been avoided if they had been supported at school to allow them to enter their preferred university course directly.

References

- Behrendt L, Larkin S, Griew R & Kelly P (2012). *Review of higher education access and outcomes for Aboriginal and Torres Strait Islander people*, Report to the Minister for Tertiary Education, Skills, Science and Research, Australian Government, Canberra.
- Bradley D, Noonan P, Nugent H & Scales B (2008). *Review of higher education in Australia, final report*, Department of Education, Employment and Workplace Relations, Canberra.
- Cardak BA & Ryan C (2009). Participation in higher education in Australia: equity and access. *Economic Record* 85(271): 433–448.
- Chesters J, Watson L & Hagel P (2013). *A half-open door: pathways for VET award holders into Australian universities*, National Centre for Vocational Education Research, Adelaide.
- Crawford H & Biddle N (2015). *Education Part 3: tertiary education*, 2011 Census Paper 17, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- (2017). *Vocational education participation and attainment among Aboriginal and Torres Strait Islander Australians: trends 2002–2015 and employment outcomes*, Working Paper 114, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Crawford H & Venn D (2018). *School education*, 2016 Census Paper 10, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Department of Education, Employment and Workplace Relations (2008). *Undergraduate applications, offers and acceptances 2008*, Department of Education, Employment and Workplace Relations, Canberra.
- Department of Education and Training (2016). *Undergraduate applications and offers, February 2016*, Department of Education and Training, Canberra.
- Department of the Prime Minister and Cabinet (2018). *Closing the Gap Prime Minister's report 2018*, Commonwealth of Australia, Canberra.
- Frawley J, Smith JA, Gunstone A, Pechenkina E, Ludwig W & Stewart A (2017). Indigenous VET to Higher Education pathways and transitions: A literature review. *International Studies in Widening Participation* 4(1): 34–54.
- Hunter B & Schwab RG (2003). Practical reconciliation and recent trends in Indigenous education. *The Drawing Board: A Journal of Public Affairs* 4(2): 83–98.
- Leigh A (2008). Returns to education in Australia. *Economic Papers* 27(3): 233–249.
- Markham F & Biddle N (2017). *Indigenous population change in the 2016 census*, 2016 Census Paper 1, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

- (2018). *Indigenous identification change between 2011 and 2016: evidence from the Australian Census Longitudinal Dataset*, Topical Issue 1/2018, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Mitrou F, Cooke M, Lawrence D, Povah D, Mobilia E, Guimond E & Zubrick SR (2014). Gaps in Indigenous disadvantage not closing: a census cohort study of social determinants of health in Australia, Canada, and New Zealand from 1981–2006. *BMC Public Health* 14(1): 201.
- Pechenkina E & Anderson I (2011). *Background paper on Indigenous Australian higher education: trends, initiatives and policy implications*, Department of Education, Employment and Workplace Relations (DEEWR), Canberra.
- Stephens BJ (2010). The determinants of labour force status among Indigenous Australians. *Australian Journal of Labour Economics* 13(3): 287–312.
- Thapa P, Shah Q & Ahmad S (2012). What are the factors determining Indigenous labour market outcomes? In: Hunter B & Biddle N (eds), *Survey analysis for Indigenous policy in Australia: social science perspectives*, ANU Press, Canberra.
- Wheelahan L (2009). Do educational pathways contribute to equity in tertiary education in Australia? *Critical Studies in Education* 50(3): 261–275.

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