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Education Part 3: Tertiary education

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In July 2012, the Australian Bureau of Statistics began releasing data from the 2011 Census of Population and Housing. One of the more important results contained in the release was the fact that the number of people who identified as being Aboriginal and/or Torres Strait Islander (Indigenous) had increased by 20.5 per cent since the 2006 Census. There were also significant changes in the characteristics of the Indigenous population across a number of key variables including language spoken at home, housing, education, and other socioeconomic variables.

In this series, authors from the Centre for Aboriginal Economic Policy Research (CAEPR) document the changing composition and distribution of a range of Indigenous outcomes. The analysis in the series is funded by the Australian Government Department of Prime Minister and Cabinet (PM&C) and formerly by the then Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) through the Strategic Research Project, as well as PM&C/FaHCSIA and State/Territory governments through the Indigenous Population Project.

The opinions expressed in the papers in this series are those of the authors alone and should not be attributed to PM&C or any other government departments.

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Abstract

Using a range of data—including the newly released Australian Census Longitudinal Dataset—this report presents a profile of Indigenous tertiary students and higher educational outcomes. An earlier report in this series reported improvements in the rate of Indigenous high school completion, both in absolute terms and relative to the non-Indigenous population.

This report shows that substantially more people who identified as being Indigenous were undertaking tertiary studies, or had obtained a post-school qualification, in 2011 than in 2006. Despite these improvements, the gap between the proportion of Indigenous and non-Indigenous people with a post-school qualification of any type barely changed between 2006 and 2011; in 2011, Indigenous people remained substantially underrepresented at higher levels of educational attainment.

In more positive findings, although the proportion of Indigenous people in the 15–24-year age group embarking on university-level education was much lower than the proportion of non-Indigenous people in the same age group, those Indigenous students who did embark on university-level studies appeared to complete university at similar rates to their non-Indigenous counterparts. Their success rates gradually increased over time, in terms of the number of subjects passed as a proportion of those attempted.

Acronyms

ABS Australian Bureau of Statistics

ACLD Australian Census Longitudinal Dataset

ASCED Australian Standard Classification of Education

TAFE Technical and Further Education

Acknowledgment

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Introduction and overview

In a national and international labour market where high school is the start, not the end, of a person's learning journey, tertiary education is increasingly important for a well-remunerated and engaging career. Tertiary education is also essential for delivering the skilled labour that contributes to growth in productivity and the delivery of services, at national and regional levels. The 2008 Bradley Review of Higher Education (the Bradley Review) observed that 'the reach, quality and performance of a nation's higher education system will be key determinants of its economic and social progress' (Bradley et al. 2008). The Bradley Review also emphasised 'the rights of all citizens to share in [higher education's] benefits' (2008:xi).

One group within the Australian population who are clearly not benefiting from higher education to the same extent as the rest of the population is Aboriginal and Torres Strait Islander (Indigenous) Australians. Higher education is an important means by which Indigenous Australians can achieve greater individual and social wellbeing across various dimensions, including employment, health, autonomy and social influence. Moreover, greater participation in higher education by Indigenous Australians has the potential to bring wider social and economic benefits to all Australians, by enriching Australian society through the diverse perspectives, experiences and knowledge of Indigenous people (Behrendt et al. 2012:4), as well as mitigating the social and financial costs of Indigenous disadvantage.

The Council of Australian Governments' (COAGs') policy agenda in relation to Indigenous Australians was articulated in six 'Closing the Gap' targets. Previous reports in this series (Biddle 2013a; Biddle & Bath 2013) noted that three of the six targets are education related—namely, geographic access to preschool, literacy and numeracy, and school completion. In 2014, Prime Minister Tony Abbott in his annual report to the Australian Parliament has added a fourth education target related to school attendance. According to Mr Abbott, 'getting children to school is the Australian Government's number one priority in Indigenous affairs' (Australian Government 2014:2).

Missing from these targets is any headline goal relating to tertiary education. However, targets have been proposed in other reports, including the *Review of higher education access and outcomes for Aboriginal and Torres Strait Islander People: final report* (Indigenous Higher Education Report) (Behrendt et al. 2012). That report identified the following targets for Indigenous participation in tertiary education:

'The Panel recommends that the parity target for student enrolments and staff/researcher numbers should be based on the proportion of the total population aged between 15 and 64 who are Aboriginal and Torres Strait Islander people ... For retention and completion rates of students, the Panel has recommended that the parity target be set to match retention and completion rates of non-Indigenous students.' (Behrendt et al. 2012:11)

The Bradley Review suggested a very similar target for Indigenous access to higher education (Bradley et al. 2008:45).

To consider the validity of such a target, as well as what the target might be, it is important to have a detailed picture of those Indigenous students who are currently engaged in tertiary education and the barriers to participation by others. This report draws on recent data, primarily the 2011 Census and the Australian Census Longitudinal Dataset, to provide such a picture. In doing so, it recognises that not all Indigenous Australians need to undertake tertiary education. For some, the costs may be too high; for others, the benefits too low. However, from a policy point of view, the aim should be to make sure that Indigenous Australians have equal access to tertiary education, and that they are able to make informed choices that suit their needs and aspirations.

It has been said that 'a recurring theme in Indigenous affairs in Australia is a tension between maintenance of Indigenous culture and achievement of socioeconomic "equity"' (Dockery 2010). Indigenous culture looms large in major recent reviews of Indigenous participation in higher education. The Indigenous Higher Education Report (Behrendt et al. 2012) makes a number of recommendations aimed at reducing cultural barriers to Indigenous participation in higher education. These include improving the cultural understanding of staff and students, including Indigenous people in leadership positions, continuing to support Indigenous education units to promote a welcoming environment for Indigenous students, and promoting access to information about financial and other supports available.

Another review notes a growing focus on the inclusion of Indigenous knowledge and pedagogies to help increase Indigenous engagement in higher education, as well as calls for Indigenous knowledge and perspectives to be considered in the development of curricula and pedagogies (Kinnane et al. 2014). Although the data sources used as the basis of our report provide little information about these cultural questions, such issues are an essential part of the policy debate about Indigenous participation in higher education.

To contribute to this policy debate, the remainder of this report has the following structure. Following a brief description of tertiary education in Australia and the main data sources used ('Tertiary education in Australia—data and definitions'), we present an overview of the post-school educational attainment levels of Indigenous and non-Indigenous Australians aged 20–64 years (the working-age population), and the characteristics of those with and without qualifications ('Post-school educational attainment'). Differences in the fields of study chosen by Indigenous and non-Indigenous people are also examined. We then examine the relationship between completion of Year 12 (or equivalent) and the attainment of post-school qualifications. 'Higher education students' focuses on current students, beginning with trends in enrolments, retention and attainment, then looking at the demographic characteristics of students—in particular, a comparison of students aged 15–24 with those aged 25–64 ('mature-age students'). The report then looks at some factors associated with educational outcomes for Indigenous people ('Predictors of Indigenous success in education'). 'Discussion' provides some concluding comments.

Tertiary education in Australia—data and definitions

Census of Population and Housing

The Australian Census of Population and Housing is the basis of most of the analyses in this report. This is the only dataset in Australia that supports analysis of very small geographies and population groups. In addition to information about educational participation and attainment, the census contains a wealth of relevant information about demographic and employment characteristics.

Earlier reports in this series have noted that growth in the Indigenous population between 2006 and 2011 was larger than projected (e.g. see Biddle 2013b). The estimated resident population of Indigenous Australians was around 517 000 in 2006, but had increased to about 670 000 by 2011. This population growth was much faster than that obtained by adding the number of births of Indigenous children and subtracting deaths within the population. Potential reasons suggested for the unexplained increase were improved census enumeration methods for the Indigenous population, a decrease in the number of people who did not respond to the census question about Indigenous status, and people being identified as Indigenous in the 2011 Census but not in the 2006 Census (Biddle 2013b). This issue is relevant to analyses in this report that draw on results from the 2006 and 2011 censuses to make comparisons over time. The use of

age standardisation for some analyses (where indicated) facilitates comparisons of different population groups at different points in time.

The census contains a range of information about education (ABS 2011). In the 2011 Census, information about educational attendance was obtained by asking 'Is the person attending a school or any other educational institution?' For those who were attending an educational institution, the next question was 'What type of educational institution is the person attending?' Response options under the heading of tertiary education were 'Technical or further educational institution (including TAFE Colleges)', followed by 'University or other higher educational institution'. Both of these questions included an instruction to 'include external or correspondence students'.

Census information about level of educational attainment was obtained by a further set of questions directed at those aged 15 years and over. The questions that relate to the analysis in this report were 'Has the person completed any educational qualification (including a trade certificate)?' This was followed by questions asking 'What is the level of the highest qualification the person has completed?' and 'What is the main field of study for the person's highest qualification completed?'

Information collected via the above questions is classified according to the Australian Standard Classification of Education (ASCED). This classification follows the concept of 'level of education' as being related to 'gradations of learning experiences' and the 'degree of complexity of the content of the programmes' (ABS 2001:7). Essentially, the different levels of educational attainment are ordered: educational activities at postgraduate degree level represent a higher level of educational attainment than those at bachelor degree level, and so on.

It is noted in ASCED that the situation is more complicated in practice. For example, some certificates or diplomas might be more complex than some bachelor or even postgraduate degrees. Furthermore, especially in an Indigenous context, the content of lower levels of education may be more relevant to the lived reality of the students engaged in them. However, for the most part, the system provides a useful ordering of the value of the various levels of education within the current Australian labour market.

Australian Census Longitudinal Dataset

Because it is cross-sectional, the census gives us very little information on how an individual's outcomes are changing over time (including their level of educational attainment), or what might be associated with this change. For this

analysis, we need longitudinal data. However, there are no purposefully constructed longitudinal datasets containing information on a sufficiently large sample of Indigenous Australians across the life course (Biddle 2014).

Recognising the need for longitudinal data for a range of small population groups, the Australian Bureau of Statistics (ABS) has constructed the Australian Census Longitudinal Dataset (ACL D) by linking records from the 2006 and 2011 censuses. According to the ABS (2013a), 'a sample of almost one million records from the 2006 Census (Wave 1) was brought together with corresponding records from the 2011 Census (Wave 2) to form the largest longitudinal dataset in Australia'. In essence, 5% of records from the 2006 Census are linked probabilistically to the most likely match from the 2011 Census, based on selected observed characteristics in the available data.

Because the linking of the ACL D was done without the aid of the individual's exact name and address, a minority of linked pairs are not the same individual. This needs to be kept in mind when making conclusions based on the data, since it is not possible to control for it in the data available. The ACL D has other limitations, including an underrepresentation of the Indigenous population. This was foreseeable and could potentially have been overcome by oversampling within the original 5% sample. Furthermore, the use of Indigenous status as one of the variables in the linking process limits (although does not negate) what we can say about those whose identification changes over time.

Despite the limitations of the ACL D, for the first time it is possible to analyse individuals' likely transitions over time in standard census measures of demographic, socioeconomic and geographic characteristics. The ACL D will be the focus of the next report in this series

In this report, unless otherwise stated, observations containing 'not stated' and 'inadequately described' responses were excluded from census and ACL D analyses. Those living in migratory, offshore and shipping zones, and those with no usual address have been excluded from the geographical area analyses.

Defining tertiary education

Education that extends beyond the school system can be defined in several ways. One way is to focus on institutions. Universities deliver higher education, while other institutions—including technical and further education (TAFE) institutions—deliver vocational education and training. The main alternative approach distinguishes between different levels of tertiary education on the basis of programs. Certificates I, II, III and IV, as well as diplomas

and advanced diplomas, are generally considered as tertiary qualifications in Australia; they are considered to be vocational qualifications, although, strictly speaking, according to the International Standard Classification of Education and Australian institutional peak bodies, Certificates I–IV fit into the category of 'post-secondary non-tertiary education'. Bachelor degrees, higher-level degrees (including masters and doctoral degrees) and other postgraduate qualifications (such as graduate certificates and graduate diplomas) are classified as 'higher education' (Moodie 2010:1–2).

Boundaries are blurred with respect to both institutions and programs. Some TAFE institutions offer degree programs, and some universities offer diploma or certificate programs. These issues are discussed in the Bradley Review (2008:xvi), which articulates the need for a more coherent approach to the provision of tertiary education in Australia. For the purposes of this report, two important questions are:

- How do the available data align with these different definitional approaches?
- What terminology should be used to refer to different levels of education, from the institutional or program perspective?

The census obtains information about educational attendance and level of educational attainment. The educational attendance questions refer to attendance at particular types of institutions (either a university or a TAFE institution), reflecting the institutional perspective. On the other hand, data on level of educational attainment from the census are program based—if a student attained a diploma, they are classified accordingly, irrespective of the type of institution from which the qualification was obtained. The census does not provide detailed information about the different types of programs currently being undertaken in particular institutional settings—for example, vocational educational programs undertaken at university or even at secondary school. This is something to keep in mind but is not a crucial limitation for the analyses reported here.

Throughout this report, we generally refer to types of institution as 'university' and 'TAFE institution'. However, in some cases, they are grouped together for the purposes of analysis and referred to collectively as 'tertiary institutions'. For level of educational attainment, the analyses generally distinguish between separate categories, such as bachelor degree level and above, diploma and advanced diploma level, and certificate level. The term 'higher education' refers to attendance at a university or attainment of bachelor degrees and above, and the term 'vocational education' refers to attendance at a TAFE institution or attainment

of certificates and diplomas. We have also used the term 'post-school qualifications' to cover all of these educational qualifications, recognising that such qualifications may sometimes be obtained in a secondary school setting.

Post-school educational attainment

Overview

In 2011, about 42 000 Indigenous males and 48 000 Indigenous females aged 15 years and over were recorded in the Census as having some form of post-school qualification.

Furthermore, from 2006 to 2011, the proportion of the Indigenous working-age population with a post-school qualification increased from 39% to 44% (Table 1). This reflects a remarkable investment in education by a population that, until relatively recently, was excluded from formal education, and even now reports a high level of discrimination and locational disadvantage in the education system (Biddle et al. 2013).

Although the growth in Indigenous education has been positive, it has occurred alongside similarly rapid growth for the non-Indigenous population. Specifically, the proportion of non-Indigenous Australians with a qualification increased between 2006 and 2011, from 56% to 61%. As these data are age standardised to the 2011 total population,¹ this means that the gap of 17 percentage points between the proportions of Indigenous and non-Indigenous Australians with a post-school qualification barely changed between 2006 and 2011.

Among Indigenous people, most of the growth in the proportion with post-school qualifications between 2006 and 2011 was due to an increase in the proportion with certificate-level qualifications. Among non-Indigenous people, most of the increase was in the proportion with a bachelor degree or above. Therefore, almost all of the gap between Indigenous and non-Indigenous attainment in post-school qualifications can be attributed to the disparity in the proportions attaining a bachelor degree or above.

TABLE 1 Percentage of the working-age population with a post-school qualification, by Indigenous status and sex, 2006 and 2011 (age-standardised data)

Indigenous status	Qualification	2006 Census (%)			2011 Census (%)		
		Male	Female	Total	Male	Female	Total
Indigenous	With a post-school qualification	41	37	39	45	42	44
	Bachelor degree or above	6	10	8	6	10	9
	Diploma or advanced diploma	5	8	7	5	9	7
	Certificate	30	19	24	33	23	28
	No qualification	59	63	61	55	58	56
	Total	100	100	100	100	100	100
Non-Indigenous	With a post-school qualification	60	53	56	63	59	61
	Bachelor degree or above	21	26	23	24	30	27
	Diploma or advanced diploma	8	12	10	9	12	11
	Certificate	30	16	23	30	17	23
	No qualification	40	47	44	37	41	39
	Total	100	100	100	100	100	100

Note: Respondents who reported having completed an educational qualification but did not state or adequately describe the level of their highest qualification are proportionately allocated to qualification categories. Age standardisation is based on the estimated resident population in June 2011.

Sources: Australian Bureau of Statistics, using customised calculations from the 2006 and 2011 censuses; ABS (2013b).

1. Age standardisation is recommended for 'national reporting where indicators of advantage and disadvantage are compared over time and between populations', specifically where the aim is 'to compare the gap in wellbeing between Indigenous and non-Indigenous Australians' (AIHW 2011). Age standardisation accounts for differences in the age distributions of different populations or the same population at different points in time. Where indicated, results in this report have been age standardised using the direct method, based on the estimated resident population of Australia in June 2011.

In 2011, Indigenous people continued to be substantially underrepresented among holders of bachelor degrees and higher-level qualifications. The proportion of Indigenous people aged 20–64 years with a bachelor degree or above was 9% in 2011 (an increase from 8% in 2006), compared with 27% for the non-Indigenous working-age population (an increase from 23% in 2006)—a gap of 18 percentage points. There was a smaller gap between the proportions of Indigenous and non-Indigenous people with a diploma or advanced diploma in 2011 (7% and 11%, respectively), but the gap was no narrower than in 2006. The proportion of Indigenous people with certificate-level qualifications exceeded the proportion of non-Indigenous people with these qualifications in 2006 and increased in 2011, whereas for non-Indigenous people there was little change in this category overall between 2006 and 2011.

The data presented in Table 1 can also be viewed in terms of parity targets (Table 2). The key target for assessing progress towards goals for Indigenous participation in higher education identified by the Indigenous Higher Education Report (Behrendt et al. 2012) is ‘parity for Aboriginal and Torres Strait Islander students and staff in the higher education sector’. The parity rate is defined as ‘the proportion of the population aged between 15 and 64 years that is Aboriginal and/or Torres Strait Islander according to ABS population statistics’ (Behrendt et al. 2012:xvii). Because relatively few people aged 15–19 years have completed a degree, we use a slightly older cohort (20–64 years—the working-age population) as our parity population. According to the most recently available ABS population estimates, based on the 2011 Census, the Indigenous population aged 20–64 years represented 2.5% of the total Australian population aged 20–64 years (ABS 2013b), so that is the parity target used here.

In 2011, working-age Indigenous people represented 1.6% of working-age Australians who had a post-school educational qualification, below the parity rate of 2.5% and almost unchanged from 2006. Indigenous people represented 2.7% of the working-age population with a certificate-level qualification in 2011, an increase from 2.2% in 2006 and the only category in which the parity target was exceeded. However, Indigenous people were substantially underrepresented in higher categories of educational qualifications. Indigenous people of working age represented 1.4% of those with a diploma or advanced diploma, and 0.7% of those with a bachelor degree or higher-level qualification; these are very slight increases over the five years from 2006 to 2011 (Table 2).

TABLE 2 Percentage of the working-age population with post-school qualifications who were Indigenous, 2006 and 2011 (age-standardised data)

Qualification	2006 Census (%)			2011 Census (%)		
	Male	Female	Total	Male	Female	Total
Bachelor degree or above	0.5	0.7	0.6	0.6	0.7	0.7
Diploma or advanced diploma	1.1	1.3	1.2	1.2	1.5	1.4
Certificate	2.0	2.7	2.2	2.4	3.3	2.7
Any qualification	1.3	1.4	1.4	1.5	1.6	1.6

Note: Respondents who reported having completed an educational qualification but did not state or adequately describe the level of their highest qualification were proportionately allocated to qualification categories. Age standardisation is based on the estimated resident population in June 2011.

Sources: Australian Bureau of Statistics, using customised calculations from the 2006 and 2011 censuses; ABS (2013b).

Post-school educational attainment by demographic characteristics

The following profile of people with post-school qualifications covers all age groups.

Among Indigenous Australians with higher levels of education (including both bachelor degree and above, and diploma or advanced diploma), there were about twice as many women as men (Table 3). Although non-Indigenous graduates were also more likely to be females, the gender difference was much greater for Indigenous than for non-Indigenous Australians.

The age composition of those with a degree or above also differed according to Indigenous status. Indigenous people with a degree tended to be older, on average. The proportion of Indigenous people with a degree who were aged 15–24 years was similar to that of non-Indigenous people, at about 6%, but a smaller proportion were aged 25–34 (24% compared with 29%), and larger proportions were aged 35–44 and 45–54.

The proportion of Indigenous people living in the major cities was greater among those with higher levels of education than among the general population. This reflects easier access to higher education for those already living in major cities, as well as relocation by those from remote areas to pursue their studies. About 21% of all Indigenous people without a post-school qualification were living in remote or very remote areas, compared with just 9% of those with a bachelor degree or above.

TABLE 3 Characteristics of people aged 15 years and over with post-school qualifications, by Indigenous status, 2011

Indigenous status	Characteristic	Diploma or advanced diploma				Total (%)
		Bachelor degree or above (%)	(%)	Certificate (%)	No qualification (%)	
Indigenous	Male	34	34	53	49	49
	Female	66	66	47	51	51
	15–24 years	6	7	23	36	30
	25–34 years	24	20	28	18	20
	35–44 years	29	29	23	17	19
	45–54 years	24	25	16	14	15
	55 years and over	17	17	10	16	15
	Major cities of Australia	55	47	39	33	35
	Inner regional Australia	21	23	24	22	22
	Outer regional Australia	15	19	21	22	22
	Remote Australia	4	5	6	7	7
	Very remote Australia	4	6	10	15	14
	Total	100	100	100	100	100
Non-Indigenous	Male	45	43	65	47	50
	Female	55	57	35	53	50
	15–24 years	6	8	12	25	16
	25–34 years	29	19	20	11	17
	35–44 years	25	23	21	13	18
	45–54 years	19	21	20	15	17
	55 years and over	21	29	28	36	31
	Major cities of Australia	82	76	65	69	71
	Inner regional Australia	12	16	22	20	18
	Outer regional Australia	5	7	10	10	9
	Remote Australia	1	1	1	1	1
	Very remote Australia	0	0	1	0	0
	Total	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Year 12 completion and attainment of post-school qualifications

Attainment of Year 12 or equivalent provides a solid foundation for individual transitions from secondary to tertiary education and employment (Bradley et al. 2008:17–18). Halving the gap in Year 12 (or equivalent) attainment rates for Indigenous students by 2020 is one of six targets for addressing Indigenous disadvantage through the Closing the Gap initiative; this target is on track to being met (Biddle 2013a).

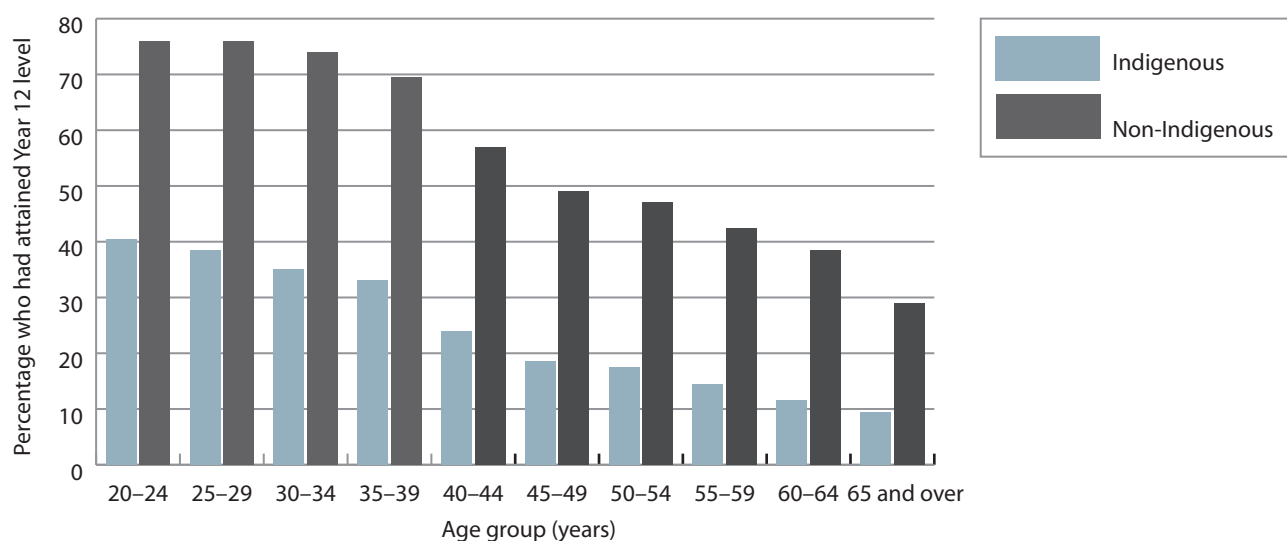
Results from the census show that, although there is still a substantial gap in the Year 12 attainment rates of Indigenous and non-Indigenous people, the proportion of Indigenous people who had completed Year 12 or equivalent increased in each younger age group and was largest, at 41%, among those aged 20–24 years. For non-Indigenous people, the pattern is similar, but the proportion plateaus at around 76% in the youngest age groups (Fig. 1).

Some of the difference in the rates of attainment of higher-level educational qualifications by Indigenous and

non-Indigenous people can be attributed to these lower (although increasing) rates of Year 12 attainment. However, the lack of any relative improvement in Indigenous rates of attainment of higher-level educational qualifications, despite the recent improvement in Year 12 completion rates, suggests that many of the young Indigenous people who do complete Year 12 do not go on to attain a higher educational qualification—at least, not immediately.

Analysis of census data confirms this. Among Indigenous people aged 15 years and over who had completed Year 12, 15% had attained a bachelor degree or above, compared with 39% of non-Indigenous people who had completed Year 12 (Table 4). This disparity is not simply an artefact of historical differences in Indigenous and non-Indigenous participation in higher education, which is evident among older people. The gap is even greater among the relatively young. Among Indigenous people aged 15–29 years in 2011 (i.e. born since 1980) who had completed Year 12 or equivalent, just 7% had attained a bachelor degree or above, compared with 27% of their non-Indigenous counterparts.

FIG. 1 Percentage of people who had attained Year 12 or equivalent level, by Indigenous status and age group, 2011



Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

TABLE 4 Attainment of post-school qualifications by people aged 15 years and over, by Year 12 level attainment, Indigenous status and sex, 2011

Indigenous status	Qualification	Did not attain Year 12 or equivalent (%)			Attained Year 12 or equivalent (%)		
		Male	Female	Total	Male	Female	Total
Indigenous	Bachelor degree or above	1	3	2	12	17	15
	Diploma or advanced diploma	2	4	3	7	9	8
	Certificate	21	16	18	27	24	25
	No qualification	76	78	77	55	50	52
	Total	100	100	100	100	100	100
Non-Indigenous	Bachelor degree or above	2	3	3	37	40	39
	Diploma or advanced diploma	4	6	5	12	14	13
	Certificate	35	16	26	19	12	16
	No qualification	58	75	67	33	33	33
	Total	100	100	100	100	100	100
Total	Bachelor degree or above	2	3	3	37	40	38
	Diploma or advanced diploma	4	6	5	12	14	13
	Certificate	35	16	25	19	13	16
	No qualification	59	75	67	33	33	33
	Total	100	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

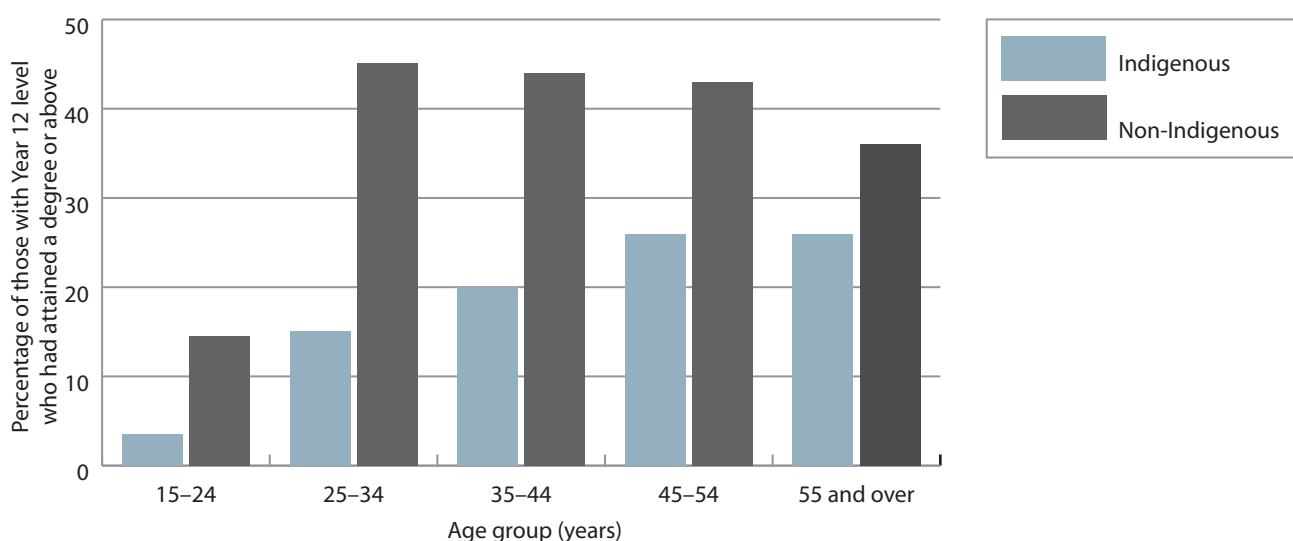
This illustrates that the disparity between Indigenous and non-Indigenous participation in higher education is only partly due to differences in Year 12 completion rates. Although Year 12 completion is (virtually) a necessary condition for making a direct transition from secondary to tertiary education, for young Indigenous people it is clearly not sufficient.

Focusing on those who completed Year 12, an analysis of higher educational attainment by age shows different results for Indigenous and non-Indigenous Australians (Fig. 2). For the Indigenous population, the proportion with a bachelor degree or above increases with increasing age. In comparison, for non-Indigenous people, the proportion with a bachelor degree or above peaks in the 25–34-year age group, the group in which there is the greatest disparity between Indigenous and non-Indigenous Australians in higher-level educational attainment. These results are indicative of a relative delay in educational attainment for Indigenous Australians (Biddle 2006). This may be a result of differences in the duration and timing of participation in higher education—for example, if higher education takes longer because it is part-time, is started at a later stage in the life course, or has been taken up by older Indigenous people in recent years because of more opportunities.

There are a number of possible reasons why Year 12 completion is not sufficient for Indigenous participation in higher education. First, higher education is less accessible for Indigenous people because they are more likely than non-Indigenous people to live in more remote parts of Australia (Biddle 2012). In particular, although ‘a total of 49 cities and towns across Australia host a university or one of its campuses and offer degree-level courses ... it is significant to note that only 45 per cent of Indigenous people live within one of these 49 cities and towns compared to 73 per cent of the non-Indigenous population’ (Taylor et al. 2011).

A second possible reason is low expectations among the Indigenous population, due in part to a lack of role models who have been successful in their own educational careers. According to data from the 2009 Longitudinal Survey of Australian Youth, reported in Sikora and Biddle (2015), Indigenous students aged 15 years are much less likely to expect to complete a degree than the rest of the sample; only 32% of Indigenous students have that relatively high expectation, compared with 56% for the total population.

FIG. 2 **Percentage of people with Year 12 level attainment who had completed a degree or above, by Indigenous status, 2011**



Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

The gap is not just explained by different high-school expectations or background characteristics such as remoteness, school sector or parental education. Although these play a part, Sikora and Biddle (2015) also showed that there is a large, statistically significant difference in expectations of completing a degree once these characteristics are controlled for. The majority of the gap is, however, explained by the English, mathematics and science test scores of the students. An Indigenous student with the same standardised test scores as a non-Indigenous student is only slightly less likely to expect to complete a degree. Year 12 completion is important, but so are the marks that the student obtains.

Other studies show that, even among Indigenous students with high levels of secondary achievement, a much smaller percentage continue directly into higher education than their non-Indigenous counterparts (Nguyen 2010, cited in Behrendt et al. 2012:17).

A final reason why Year 12 completion may not be translating into higher education participation and attainment is caring responsibilities. Women who are primary carers have been identified as a group that is underrepresented within the Indigenous population engaged in higher education (Kinnane et al. 2014:22). Peak fertility for Indigenous females is in the 20–24-year age group (ABS 2010), much earlier than for non-Indigenous females (30–34 years). For the Indigenous population, this overlaps with the timing of the transition from secondary to tertiary education, which means that young Indigenous women and men are much more likely than their non-Indigenous counterparts to have family responsibilities that may be difficult to combine with full-time study (Yap

& Biddle 2012). This issue is discussed in more detail in ‘Caring responsibilities as an educational barrier’.

Taking the age and Year 12 completion results in Table 4 together, it would appear that low rates of Year 12 completion provide a temporal barrier to higher levels of educational achievement. It would also appear that some Indigenous Australians are able to find alternative pathways to higher levels of educational attainment, and this should be acknowledged and celebrated. However, these alternative pathways are not sufficient to bridge the gap in younger age groups. It is true that those who study later in life may be better able to make informed choices about their studies, and choose a field and program that are suited to their needs and preferences (Krause et al. 2005:13–15). However, this must be counterbalanced against the fact that the later a person obtains qualifications, the less time they have to accrue the benefits.

Field of study

All degrees, diplomas and certificates are not created equal. Not only do institutions differ, but so do the costs and benefits of particular fields of study. These costs and benefits interact with personal and community preferences. As a result, different groups of university or TAFE graduates are likely to have very different educational profiles. Information about the distribution of graduates by field of study can highlight the extent to which different groups have access to different employment opportunities and different standings within the community (Taylor et al. 2011).

This difference can be formalised by looking at segregation indices. Broadly speaking, a segregated education profile is one in which a member of a particular population

subgroup (in this case, Indigenous Australians) is more likely to have the same education type as other members of that population subgroup. There are many measures of segregation, which focus on different aspects of the distribution of the population (Massey & Denton 1988). One of these measures, the dissimilarity index, measures how evenly the Indigenous population is spread across fields of study relative to the non-Indigenous population.

The dissimilarity index ranges in value from 0, where the two groups have the same distribution, to 1, where the two groups are completely segregated. For example, a value of 1 for Indigenous and non-Indigenous male graduates would imply that there are no Indigenous males with a qualification in the same field of study as non-Indigenous males, whereas a value of 0 would suggest that Indigenous graduates have the same field of study profile as non-Indigenous graduates. Values between these upper and lower bounds can be interpreted as the proportion of one of the subgroups who would have to change their field of study to achieve a distribution equivalent to that of the other (or vice versa).

Table 5 shows that the greatest segregation into different fields of study is among males with a bachelor degree or above. That is, the fields of study undertaken and completed by Indigenous males for a bachelor degree or above tend to differ from the fields of study undertaken by their non-Indigenous counterparts. In comparison, there is less segregation by field of study between Indigenous women and non-Indigenous women with a bachelor degree or above. Among holders of diplomas or advanced diplomas, there are also differences by Indigenous status in the distributions across fields of study. Among those with certificates, the distributions across fields of study are more similar for Indigenous and non-Indigenous people; in particular, Indigenous females have roughly the same distribution as their non-Indigenous counterparts.

TABLE 5 Dissimilarity indices across fields of study, by level of post-school qualification, 2011

Gender	Bachelor degree or above	Diploma or advanced diploma	Certificate
Male	0.29	0.26	0.13
Female	0.19	0.28	0.08

Note: The dissimilarity index is calculated by summing the absolute difference between the percentage of Indigenous and non-Indigenous people in each field of study for each of the post-school qualification categories and dividing the result by two. The index presented here was calculated using the broadest level of Australian Standard Classification of Education categories for field of study.

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

The specific fields of study undertaken by those with a bachelor degree or above are illustrated in Fig. 3 for Indigenous and non-Indigenous males, and in Fig. 4 for Indigenous and non-Indigenous females. Among Indigenous males who had attained a bachelor degree or above, the two most common fields of study were society and culture (23%), and education (21%). These were followed by management and commerce (17%), and health (12%). In comparison, about one-quarter (25%) of non-Indigenous males with a degree or above had studied management and commerce. For non-Indigenous males, the next most common fields of study were engineering (15%), and society and culture (15%), and there was a fairly even spread across natural and physical sciences, information technology, health, and education (all in the range of 8–9%).

Among Indigenous women who had a bachelor degree or above, there was substantial concentration in three fields: education (35%), society and culture (24%), and health (21%). Among non-Indigenous women with a bachelor degree or above, there was a more even spread across these three subjects, as well as management and commerce (all around 20%).

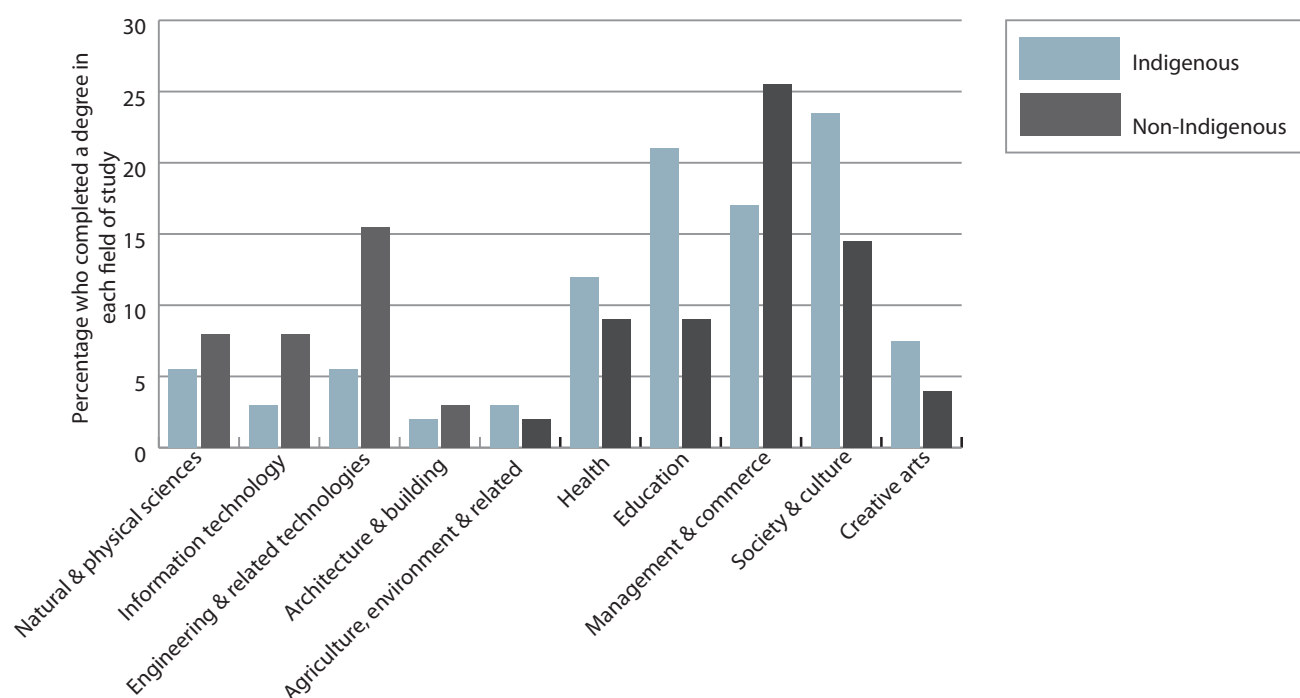
Overall, Indigenous males and females with educational qualifications at the level of bachelor degree or above were underrepresented in several fields of study—including management and commerce, engineering, natural and physical sciences, and information technology, and were more likely than their non-Indigenous counterparts to have studied education, or society and culture.

Higher education students

Higher education enrolment, retention and completion

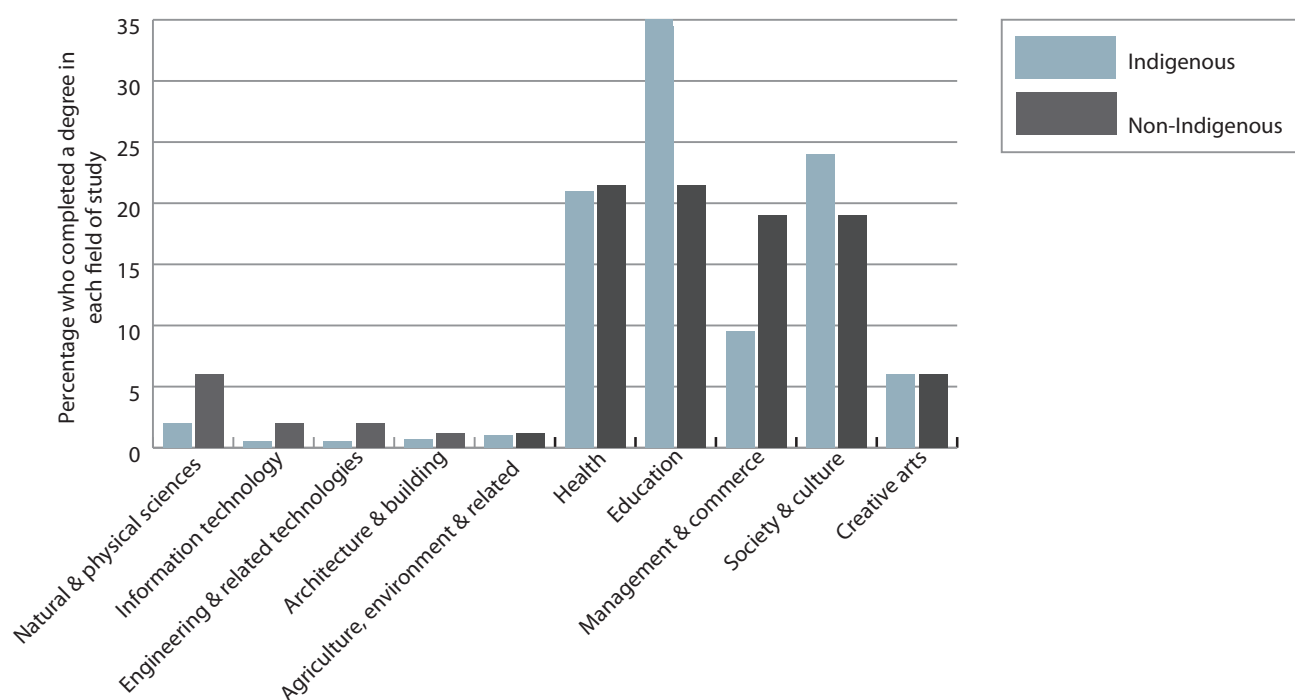
Analysis thus far in this report has shown that there has been little improvement in Indigenous attainment of higher-level educational qualifications, despite evidence of improvements in Year 12 completion rates presented earlier in this series of reports. The pathway to attainment of an educational qualification involves three stages: embarking on a course of study (enrolment), continuing a course of study (retention), and completing a course of study through satisfying the requirements to pass the course. These different stages are all important in addressing the underrepresentation of Indigenous people in higher education (Bradley et al. 2008:32).

FIG. 3 Percentage of males aged 20–64 years with a bachelor degree or above in each field of study, by Indigenous status, 2011



Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

FIG. 4 Percentage of females aged 20–64 years with a bachelor degree or above in each field of study, by Indigenous status, 2011



Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Understanding the relative importance of enrolment, retention and completion can assist in the targeting of policies to encourage and support Indigenous participation in higher education. If differences in levels of educational attainment were mainly due to different levels of enrolment, this might suggest that issues of access should be the focus of policy attention. On the other hand, if differences in levels of educational attainment were due to withdrawal from courses or failure to achieve the required grades, the policy focus might be on other issues, such as experience of discrimination, or student preparedness for tertiary study.

This section of the report draws on administrative data to examine trends in higher education enrolments, retention and course completions. In essence, this examines the flows of students through time that contribute to the stock of educational qualifications presented previously.

Table 6 draws together a number of equity measures that are released annually as part of the Higher Education Statistics Collection.² This collection pools data from higher education institutions about students, including enrolments, retention and completion. A key variable for the purposes of this report is the student's Indigenous status, which is reported by the student on commencement.

The results in Table 6 cover domestic students of all ages for the period 2007–12. They show that the number of commencing Indigenous students increased every year

between 2007 and 2012, as did the number of commencing non-Indigenous students. The Indigenous access rate³—the number of commencing Indigenous students expressed as a percentage of all commencing domestic students—increased gradually from 1.5% to 1.7% over this period. This measure is substantially lower than the benchmark parity rate of 2.8%⁴ for those aged 15 years and over.

The retention rate is a measure of the proportion of students who continued their studies from the previous year (students who completed their studies are excluded from the calculations). In 2011, the Indigenous retention rate was 69%, compared with the non-Indigenous rate of 81%. For both groups, these rates showed very little change between 2007 and 2011.

The Indigenous attainment rate—the number of Indigenous students completing an award course as a percentage of all domestic students completing an award course—was 0.8%. This covers all age groups, but is broadly comparable with the census result, reported in 'Post-school educational attainment: Overview', that Indigenous people represented 0.7% of all those aged 20–64 years with a degree.

Among those Indigenous higher education students who had completed their qualifications, the success rate (broadly, a measure of subjects passed in relation to

TABLE 6 Measures of access, retention and attainment for students at higher education institutions

Measure	2007	2008	2009	2010	2011	2012
Indigenous commencements at higher education institutions ('000)	4.0	4.3	4.8	5.0	5.4	5.8
Non-Indigenous commencements at higher education institutions ('000)	272.8	278.5	305.2	326.8	335.1	360.0
Total commencements at higher education institutions ('000)	276.8	282.8	309.9	331.9	340.4	365.9
Indigenous access rate (%)	1.5	1.6	1.6	1.6	1.6	1.7
Indigenous attainment rate (%)	0.8	0.8	0.8	0.8	0.8	0.8
Indigenous retention rate (%)	67.2	69.6	69.0	69.2	68.5	n.a.
Non-Indigenous retention rate (%)	80.3	81.1	81.0	80.2	80.7	n.a.
Indigenous success rate (%)	69.3	70.1	69.6	71.7	71.5	72.4
Non-Indigenous success rate (%)	88.0	88.2	88.2	87.9	87.7	87.4

n.a. = not available

Source: Higher Education Statistics Collection, Australian Government Department of Education.

2. The Higher Education Group of the Australian Government Department of Education manages the collection and dissemination of the Higher Education Statistics Collection relating to the provision of higher education in Australian universities (<https://education.gov.au/higher-education-statistics>). The data presented in Table 6 were obtained from the student data webpage (<https://education.gov.au/selected-higher-education-statistics-2012-student-data>), especially Appendix 5—Equity performance data (<https://docs.education.gov.au/node/34993>).

3. Detailed information about the calculation of these measures is provided in the notes that accompany the data in the Higher Education Statistics spreadsheet (<https://docs.education.gov.au/node/34993>). The measures presented here relate to Table A providers only (public universities).

4. Calculated using the most recently available ABS population estimates, based on the 2011 Census and ABS (2013b).

subjects attempted) increased gradually between 2007 and 2012, from 69% to 72%. The success rate for non-Indigenous students, on the other hand, remained steady at 87%.

These results illustrate that the disparity in attainment of higher educational qualifications between Indigenous and non-Indigenous people is due to a combination of lower enrolment rates and lower retention rates among Indigenous people. Both these measures remained relatively unchanged between 2007 and 2012.

Profile of current Indigenous and non-Indigenous students

Results presented in Table 7 show that university students, whether Indigenous or non-Indigenous, were more likely to be female than male. The difference was particularly pronounced among Indigenous university students—twice as many women as men were studying at university. Despite the Indigenous population being a relatively young one (Biddle 2012), Indigenous university students were older, on average, than non-Indigenous university students. Less than half (46%) were aged 15–24 years, compared with 59% of non-Indigenous university students. The pattern for TAFE students was the reverse, although the difference was much smaller—52% of Indigenous TAFE students were aged 15–24 years, compared with 45% of non-Indigenous TAFE students.

The experience and benefits of tertiary education are likely to vary substantially according to the age of the student. Transitions from secondary education to tertiary education typically occur at ages of 15–24 years. People in this age group also experience other lifecourse transitions as they become adults—these may include leaving the parental home, entering the workforce, partnering and having children.

According to the 2011 Census, 4 700 Indigenous people aged 15–24 years were attending university, and 6 900 were attending TAFE institutions. In comparison, 538 700 non-Indigenous people aged 15–24 years were attending university, and 205 900 were attending TAFE institutions. Table 8 shows that the majority of young university students—83% of Indigenous students and 89% of non-Indigenous students—were attending full-time, and there was little difference in full-time or part-time attendance by gender. In contrast, among TAFE students, full-time or part-time attendance varied by gender, with male students more commonly attending part-time than female students. The proportions of Indigenous and non-Indigenous males attending TAFE institutions part-time were very similar, at about 60%. In comparison, among female TAFE students, a larger proportion of Indigenous students (52%) than non-Indigenous students (47%) were studying part-time.

TABLE 7 Gender and age of tertiary students, by Indigenous status, 2011

Gender or age	Indigenous (%)			Non-Indigenous (%)			Total (%)		
	University	TAFE	Total	University	TAFE	Total	University	TAFE	Total
Male	33	42	38	43	47	44	43	47	44
Female	67	58	62	57	53	56	57	53	56
Total	100	100	100	100	100	100	100	100	100
Age									
15–24	46	52	49	59	45	54	59	45	54
25–34	24	20	22	23	24	24	23	24	24
35–44	17	15	16	10	16	12	10	16	12
45–54	10	9	9	5	10	7	5	10	7
55 and over	3	4	3	2	5	3	2	5	3
Total	100	100	100	100	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

TABLE 8 Full-time or part-time study status of tertiary students aged 15–24 years, by Indigenous status, 2011

Indigenous status	Study status	University (%)			TAFE (%)		
		M	F	Total	M	F	Total
Indigenous	Full-time	84	83	83	40	48	44
	Part-time	16	17	17	60	52	56
	Total	100	100	100	100	100	100
Non-Indigenous	Full-time	90	89	89	41	53	46
	Part-time	10	11	11	59	47	54
	Total	100	100	100	100	100	100

F = female; M = male

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Whereas gender patterns of full-time versus part-time study status were broadly similar for young Indigenous and non-Indigenous students (although at different levels), patterns of labour force participation were more complex (Table 9).

Among university students aged 15–24 years, part-time work was the most common form of labour force participation (38% of Indigenous students, 46% of non-Indigenous students). The proportions working part-time were larger for females than males. Young male Indigenous university students were more likely to work full-time than their non-Indigenous counterparts (11% compared with 7%), with little variation by gender. The proportion not in the labour force—neither working nor looking for work—ranged from 32% to 39% for both Indigenous and non-Indigenous people of both genders.

Among TAFE students aged 15–24 years, Indigenous female students were much less likely to be participating in the labour force than their non-Indigenous counterparts: 44% were not in the labour force, compared with 30% of non-Indigenous females.

A key issue in relation to the participation of young Indigenous people in higher education is geographical access. Although most young Indigenous people live in urban areas of Australia, the proportion of Indigenous people living in remote or very remote areas is much larger than the proportion of non-Indigenous people. The census contains information about usual residence, and collects information retrospectively about place of usual residence one year and five years earlier. Although this information is potentially useful, the ACLD provides the opportunity to compare information on the place of usual residence collected at two points in time (2006 and 2011), showing the extent to which young students moved from more remote areas to more urban areas to attend university. The results of this analysis are presented in Table 10.

Table 10 shows that, of those who were aged 10–19 years in 2006 and were studying at university five years later, the vast majority who had been living in major cities in 2006 were also living in major cities (although not necessarily the same city) in 2011. There were differences in the proportions of young Indigenous and non-Indigenous students who were living in regional or remote areas in 2006. A much larger proportion (68%) of young Indigenous students who were living in regional areas in 2006 were also living in regional areas (although not necessarily the same region they had lived in five years earlier) while attending university in 2011, compared with 49% of non-Indigenous students who had been living in regional areas in 2006.

While this analysis looks at changes in place of residence among those who were attending university, analysis presented in ‘Geography as a predictor or barrier of success’ shows that, of all young people in the population, the proportion attending university declined with increasing remoteness. There are some options for undertaking higher education while living in remote areas—for example, the University of Notre Dame in Broome is located in a very remote area, and there are also options for students to undertake higher education by distance—but these options are limited compared with the options available to those living in less remote areas.

The experiences of mature-age students participating in tertiary education are often different from those of younger people. Mature-age students may be established in a career and are more likely to have family commitments. The analyses of mature-age students reported here focus on those aged 25–64 years.

Table 11 shows that a larger proportion of mature-age tertiary students were women, irrespective of Indigenous status or type of educational institution. The imbalance between female and male students was particularly pronounced among mature-age Indigenous university students; women accounted for 70% of these students.

TABLE 9 Labour force status of tertiary students aged 15–24 years, by Indigenous status and sex, 2011

Type of institution	Labour force status	Indigenous (%)			Non-Indigenous (%)		
		Male	Female	Total	Male	Female	Total
University	Employed full-time	11	10	11	7	7	7
	Employed part-time	34	41	38	41	50	46
	Employed, away from work	6	6	6	4	4	4
	Unemployed	10	9	9	9	7	8
	Not in the labour force	38	35	36	39	32	35
	Total	100	100	100	100	100	100
TAFE	Employed full-time	39	18	29	46	22	36
	Employed part-time	11	18	15	19	34	25
	Employed, away from work	4	3	4	4	4	4
	Unemployed	12	17	14	8	11	9
	Not in the labour force	34	44	39	23	30	26
	Total	100	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

TABLE 10 Remoteness area in 2006 and 2011 for people aged 10–19 years in 2006 who were attending university in 2011

Place of usual residence 2011	Place of usual residence 2006: Indigenous				Place of usual residence 2006: Non-Indigenous			
	Major cities (%)	Regional (%)	Remote or very remote (%)	Total (%)	Major cities (%)	Regional (%)	Remote or very remote (%)	Total (%)
Major cities	95	33	57	67	97	51	58	86
Regional	4	68	19	34	3	49	30	14
Remote or very remote	0	0	24	4	0	0	12	0
Total	100	100	100	100	100	100	100	100

Note: The sum of the components does not necessarily add to the total because of random confidentialisation procedures applied at the time the table was produced.

Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

TABLE 11 Selected characteristics of tertiary students aged 25–64 years, by Indigenous status, 2011

Characteristic	University (%)			TAFE (%)		
	Indigenous	Non-Indigenous	Total	Indigenous	Non-Indigenous	Total
Male	30	41	41	34	38	38
Female	70	59	59	66	62	62
Total	100	100	100	100	100	100
25–34 years	44	58	57	43	44	44
35–44 years	32	25	26	32	30	30
45–54 years	19	13	13	19	19	19
55–64 years	5	4	4	6	7	7
Total	100	100	100	100	100	100
Major cities of Australia	54	81	80	39	72	71
Inner regional Australia	21	13	13	28	18	19
Outer regional Australia	17	5	6	20	8	9
Remote Australia	4	1	1	5	1	1
Very remote Australia	4	0	0	8	0	1
Total	100	100	100	100	100	100
Full-time student	46	42	42	33	28	28
Part-time student	54	58	58	67	72	72
Total	100	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Among mature-age TAFE students, the age distributions of Indigenous and non-Indigenous students were similar. However, among mature-age university students, Indigenous students tended to be older, with a much smaller proportion in the 25–34-year age group (44%, compared with 58% of their non-Indigenous counterparts) and larger proportions in older age groups.

Part-time study was much more common among mature-age students, whether studying at university or a TAFE institution, and whether Indigenous or non-Indigenous. This is not surprising, since older students are more likely to combine study with full-time work and family commitments. However, 46% of Indigenous university students aged 25–64 years and 42% of their non-Indigenous counterparts were studying full-time. Similarly, compared with younger TAFE students, mature-age students less commonly studied full-time, although the difference was not as marked as for university students.

Mature-age students may also follow alternative learning pathways that diverge from the typical model of Year 12 completion followed by a direct transition into tertiary education. This is of particular interest in relation to Indigenous people because of the results presented earlier in this section that show that Indigenous students tend to be older than their non-Indigenous counterparts. Table 12 shows that it was not uncommon for those who had already attained a post-school qualification to be enrolled in a university or TAFE institution—this might be to upgrade their qualifications or undertake a different type of course. Among those who had already attained a post-school qualification, the proportions enrolled in a university or TAFE institution were larger among Indigenous people aged 25–64 years than among non-Indigenous people, perhaps indicating that one qualification may serve as a stepping-stone to other, including higher-level, educational qualifications.

TABLE 12 **Attendance at tertiary institutions of people aged 25–64 years with post-school qualifications, by Indigenous status, 2011**

Indigenous status	Attendance status	Bachelor degree and above (%)	Diploma or advanced diploma (%)	Certificate (%)	No qualification (%)
Indigenous	Attending university	12	7	3	1
	Attending TAFE	2	6	5	2
	Not attending university or TAFE	86	87	92	96
	Total	100	100	100	100
Non-Indigenous	Attending university	8	5	2	2
	Attending TAFE	2	3	3	2
	Not attending university or TAFE	91	92	95	96
	Total	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Predictors of Indigenous success in education

Each census dataset contains a snapshot of information at a point in time. Although this enables analysis of change at the aggregate level over time, without a longitudinal dimension it is not possible to assess individual transitions and outcomes. The ACLD, on the other hand, provides the opportunity to analyse such transitions. Furthermore, by comparing these transitions with other characteristics or circumstances, we can build a picture of what predicts Indigenous success in education and what barriers might place a particular burden on the Indigenous population.

Age and completion of qualifications

We begin this analysis by looking at the educational outcomes in 2011 for those who, five years earlier, were tertiary students (Table 13). We do this for all students (aged 15–64 years) and those of prime education age (15–24 years). We also look at those attending a university separately from those attending a TAFE institution. This analysis includes people who already had a post-school qualification of some type, as many mature-age students, in particular, have already attained a qualification of some type.

Table 13 shows that, over a five-year period, the proportions of Indigenous university students who had attained a bachelor degree or above were lower than the corresponding proportions for non-Indigenous students, for both younger and mature-age students. At least some of this gap is explained by the fact that a larger proportion of Indigenous students undertake part-time studies, and a part-time undergraduate degree typically lasts for at least six years. The gap appears to be slightly wider among mature-age students; this is unlikely to be explained by part-time studies as Indigenous mature-age students were more likely to be studying full-time than their non-Indigenous counterparts. However, this finding needs to be regarded with some caution. As a result of random confidentialisation procedures automatically applied by the table software, the sum of the components for Indigenous university students aged 25–64 years is about 95% instead of 100%, and so the percentages for each level of education should be regarded as broadly indicative.

TABLE 13 Post-school qualification attainment in 2011 among those attending a tertiary educational institution in 2006, by age

Type of institution attended in 2006	Level of post-school qualification in 2011	15–24 years		25–64 years	
		Indigenous (%)	Non-Indigenous (%)	Indigenous (%)	Non-Indigenous (%)
University	Bachelor degree or above	61	74	52	75
	Advanced diploma or diploma	3	5	8	9
	Certificate	17	5	13	7
	No post-school qualification	20	16	22	9
	Total	100	100	100	100
TAFE	Bachelor degree or above	6	12	8	19
	Advanced diploma or diploma	7	18	13	25
	Certificate	36	44	37	35
	No post-school qualification	53	26	39	21
	Total	100	100	100	100

Note: The sum of the components does not necessarily add to the total because of random confidentialisation procedures applied at the time the table was produced.

Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

TABLE 14 Post-school qualification attainment in 2011 among those with no previous qualification attending a tertiary educational institution in 2006, aged 15–24 years

Type of institution attended in 2006	Level of post-school qualification in 2011	Indigenous (%)	Non-Indigenous (%)
University	Bachelor degree or above	73	72
	Advanced diploma or diploma	0	4
	Certificate	7	5
	No post-school qualification	26	19
	Total	100	100
TAFE	Bachelor degree or above	3	10
	Advanced diploma or diploma	5	16
	Certificate	41	44
	No post-school qualification	52	30
	Total	100	100

Note: The sum of the components does not necessarily add to the total because of random confidentialisation procedures applied at the time the table was produced.

Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

These census results align very broadly with a recent cohort analysis of higher education students, which showed that 46% of Indigenous students completed their studies by 2012, compared with 73% of non-Indigenous students. That report included students from publicly funded universities who commenced in 2005, whereas the census results reported above cover those who were studying at any higher education institutions in 2006, including those who had commenced studying earlier, so the results are not directly comparable. The report also showed that 9% of Indigenous students had not completed their studies but were still enrolled, compared with 5% of non-Indigenous students (DoE 2014).

Given that Indigenous students are older on average than non-Indigenous students, it is important to know whether mature-age Indigenous students are less likely to be successful at completing a degree than younger Indigenous students. More research is needed to understand the factors that contribute to any such relative disadvantage for older Indigenous students.

The census results for those who had been attending TAFE institutions are more difficult to interpret, because typically TAFE courses take less time to complete and, in the five-year period between censuses, people may have completed a TAFE course and gone on to further study. The data presented here also capture any TAFE courses completed before 2006. Even so, it is worth noting that more than half (53%) of young Indigenous people who were TAFE students in 2006 reported that they had not attained any post-school qualification five years later—this is double the proportion for their non-Indigenous counterparts and

larger than the corresponding proportion for mature-age Indigenous TAFE students.

To remove the potentially confounding issue of courses completed before 2006, we now focus on outcomes for university students aged 15–24 years who had no prior post-school qualification. These results are presented in Table 14.

The main finding from Table 14 is that these young Indigenous university students had a similar rate of degree attainment to that of young non-Indigenous students. Among Indigenous students who were attending university in 2006, aged 15–24 years, who had no post-school qualifications at that time, the proportion who had attained a degree by 2011 was 73%,⁵ similar to the proportion for their non-Indigenous counterparts. This may indicate that this group, which appears to have launched directly into university studies, was more prepared to undertake university studies—the reasons might include previous levels of academic achievement, access to financial resources, parental experience of higher education and geographical location.

5. This percentage needs to be considered with some caution in light of the caveat that the data in this table are subject to random confidentialisation procedures, particularly affecting estimates relating to Indigenous people, and the sum of the individual components in this instance is greater than 100%. However, even if we subtract the entire extra amount from the degree category, the result would still be 68% of young Indigenous university students in 2006 attaining a degree by 2011.

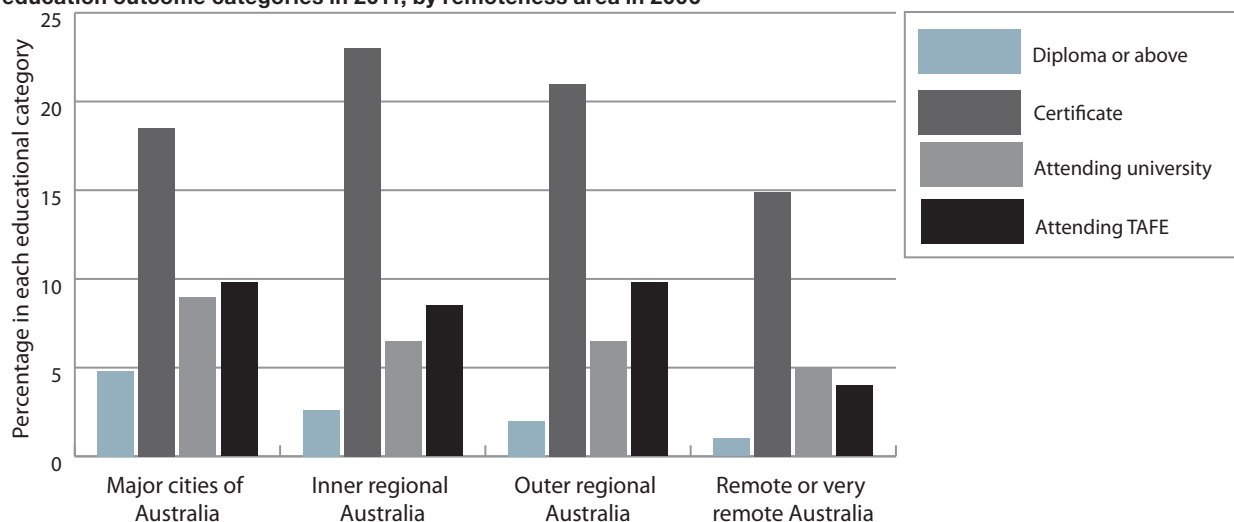
Geography as a barrier or predictor of success

One of the reasons why Indigenous students may be less likely to both start and complete post-school education is geography and other characteristics that correlate with location. Analysis of the effect of geography has not previously been possible because it requires information about where a student lived before taking up tertiary studies. The following analysis uses the ACLD to focus on those who, in 2006, were aged 10–19 years, living in areas of Australia with different levels of remoteness and did not already have a post-school qualification. We then examine their educational outcomes five years later, in 2011. Those who had attained a post-school qualification by 2011 were classified to the level of their highest qualification.

Diploma and higher-level qualifications were combined into a single category because of the small sample size in these categories, and those who had not attained a post-school qualification were assigned to a category indicating whether they were attending university or a TAFE institution, or not attending any type of educational institution. The analysis excludes those who were attending secondary school in 2011. Finally, the categories ‘remote’ and ‘very remote’ were combined because of the small numbers in these categories.

The results of this analysis are illustrated in Fig. 5 (for the Indigenous population) and Fig. 6 (for the non-Indigenous population). The proportions attending secondary school are not included in the graphs.

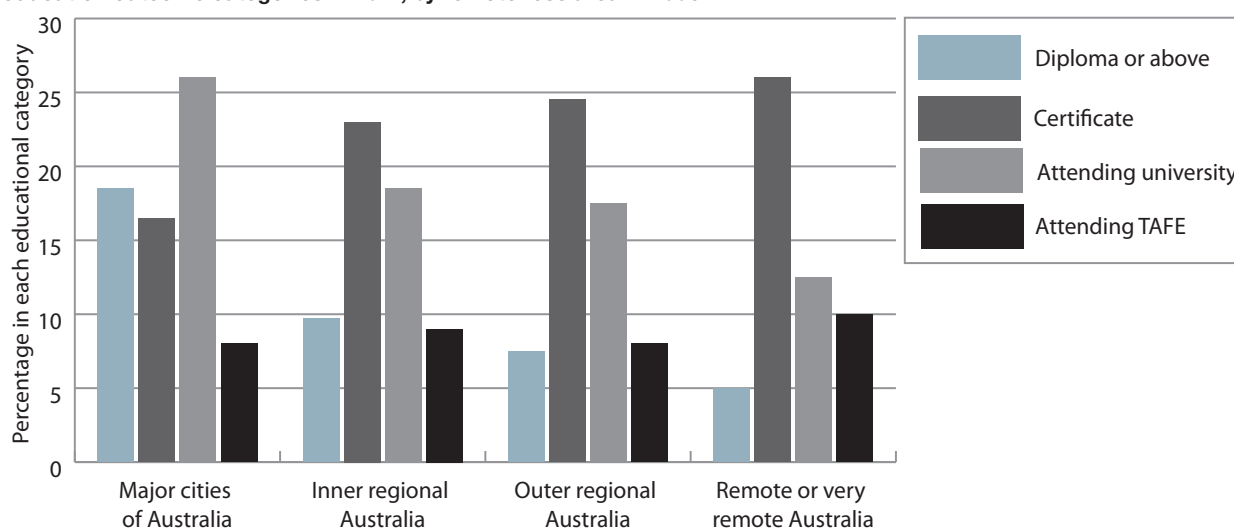
FIG. 5 Percentage of Indigenous people who in 2006 were aged 10–19 years, with no post-school qualifications, in education outcome categories in 2011, by remoteness area in 2006



Note: The category containing those who had not attained a post-school qualification and were not attending a tertiary institution is not included, to highlight differences between the categories shown.

Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

FIG. 6 Percentage of non-Indigenous people who in 2006 were aged 10–19 years, with no post-school qualifications, in education outcome categories in 2011, by remoteness area in 2006



Note: The category containing those who had not attained a post-school qualification and were not attending a tertiary institution is not included, to highlight differences between the categories shown.

Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

University attendance and attainment of a diploma or higher-level qualification decline with increasing remoteness. Although this was true for both Indigenous and non-Indigenous people, locational disadvantage has an effect on more Indigenous people because a much greater proportion of Indigenous people live in remote areas.

Vocational education appeared to be more accessible to young people in regional and remote areas. Generally, there was less difference across geographical areas in the proportions of young people who had attained a certificate, or were attending a TAFE institution, than for higher levels of educational attainment or attendance. Indeed, for non-Indigenous people, the proportion with a certificate was largest in the most remote areas. However, among the Indigenous population living in remote or very remote areas, the proportions that had attained a certificate or were attending TAFE institutions were smaller than for any other geographical area.

Financial resources as a barrier to participation

Financial hardship has been identified as a barrier to participation and continuation in higher education for Indigenous students (Pechenkina et al. 2011, Behrendt et al. 2012). Although the financial circumstances of all higher education students, including Indigenous students, are diverse, Indigenous students are less likely to receive financial support from family and are more likely to be supporting dependents (Bexley et al. 2013).

Table 15 focuses on the living arrangements of young students. It shows that 51% of non-Indigenous students in the 15–24-year age group were living with their parents (dependent students), compared with 40% of Indigenous students. Indigenous students in this age group were more likely than their non-Indigenous counterparts to be living with a partner (11% compared with 6%) or to be a lone parent (3% compared with less than 1%).

The ACLD provides the opportunity to look at the extent to which participation in higher education is associated with the socioeconomic circumstances of the student's family while growing up. The following analysis looks at young people who were aged 12–16 years in 2006. This five-year age group was chosen because most of these young people would be living at home in 2006 and, five years later (in 2011), would be in the age group associated with higher education participation for those who move directly from secondary education to university.

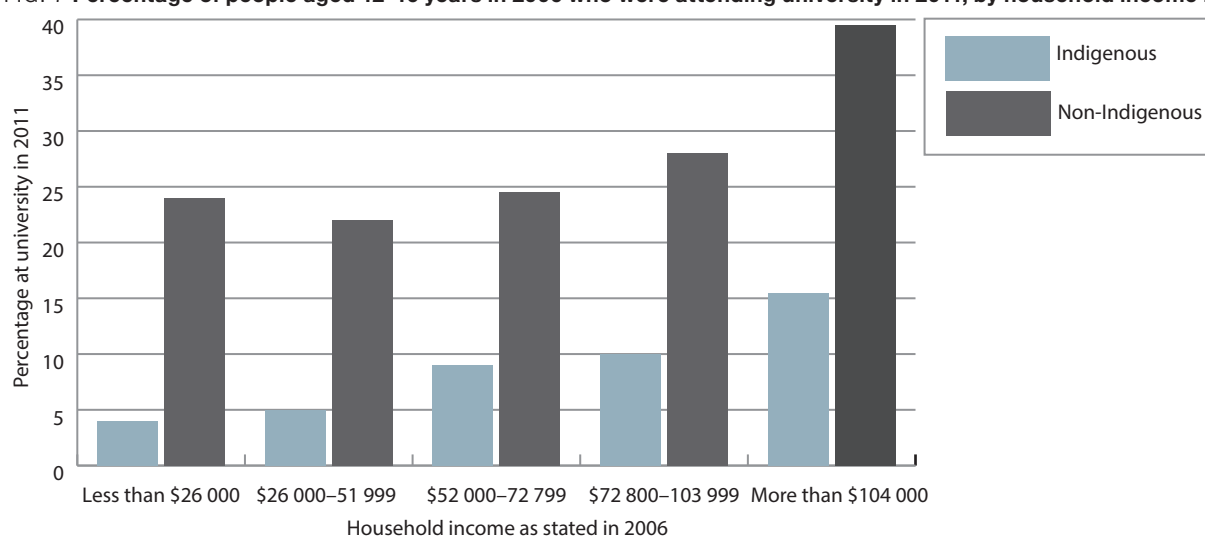
TABLE 15 **Living arrangements of university students aged 15–24 years, by Indigenous status, 2011**

Living arrangement	Indigenous (%)	Non-Indigenous (%)
Husband, wife or partner	11	6
Lone parent	3	<1
Dependent student	40	51
Nondependent child	8	6
Other relative	8	6
Group household member	15	18
Lone person	5	4
Unrelated individual living in family household or visitor (from within Australia)	11	8
Total	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

There are two main findings from Fig. 7. First, irrespective of their family's income in 2006, Indigenous young people were much less likely to be studying at university five years later than their non-Indigenous counterparts. It seems somewhat surprising that, even among those Indigenous young people whose family had an annual household income of \$104 000 or more in 2006, the percentage who were attending university five years later was less than half the corresponding percentage for non-Indigenous young people. Second, this fairly basic analysis suggests that any increase in household income makes a difference to participation in higher education for Indigenous young people. This is less obvious for non-Indigenous young people, with little difference in participation levels (22–24%) up to an income of \$72 000–\$104 000. However, these results need to be considered in the context of the different income distributions for the Indigenous and non-Indigenous populations of interest for this analysis. For example, 26% of non-Indigenous children aged 12–16 years in 2006 were living in a household with an income of \$104 000 or more, compared with just 10% of Indigenous children in the same age group.

FIG. 7 Percentage of people aged 12–16 years in 2006 who were attending university in 2011, by household income in 2006



Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

Parental education as a predictor of success

One of the potential reasons for ongoing low levels of education for the Indigenous population is the intergenerational transfer of educational disadvantage. Seeing one's parents or primary caregivers achieving educational success can make such achievements seem both realistic and desirable. Until now, it has not been possible to examine the extent to which this has been a cause of differences between the Indigenous and non-Indigenous populations because of the lack of longitudinal

data. For those who were living at home, however, the ACLD has information about each person's parents, as recorded in the census. This has been attached to the person's record, facilitating analysis of individuals' outcomes with reference to their parents' characteristics or living arrangements. Table 16 shows the relationship between mother's education level in 2006 and educational outcomes in 2011 of those aged 10–19 years in 2006.

TABLE 16 Educational outcomes in 2011 for people aged 10–19 years in 2006, by mother's educational level in 2006 and Indigenous status

Indigenous status	Highest level of post-school qualification in 2011 of those who were aged 10–19 in 2006	Mother's educational level in 2006 (%)		
		Diploma or higher	Certificate	No post-school qualification
Indigenous	Bachelor degree or above	4	1	2
	Diploma or advanced diploma	0	2	1
	Certificate	26	27	21
	Attending university	23	9	5
	Attending TAFE	9	13	6
	Not attending tertiary institution	38	52	66
	Total	100	100	100
Non-Indigenous	Bachelor degree or above	16	8	10
	Diploma or advanced diploma	5	6	5
	Certificate	14	23	22
	Attending university	38	20	17
	Attending TAFE	7	10	8
	Not attending tertiary institution	21	33	38
	Total	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the Australian Census Longitudinal Dataset.

Table 16 shows that, for Indigenous children aged 10–19 years in 2006, larger proportions of those whose mothers had attained a diploma or higher level of post-school qualification had attained a degree by 2011 (4%) or were attending university (23%) than for those whose mothers had not attained that level of education. This shows the potential benefits to future generations of adults of investing in the current generation. However, it does not explain the entire gap between Indigenous and non-Indigenous youth and young adults. Even within each category of mother's education, Indigenous children were less likely to have completed a bachelor degree or above, or be attending university.

Caring responsibilities as an educational barrier

Table 17 shows that Indigenous people aged 15–24 years were much more likely than non-Indigenous people in the same age group to have caring responsibilities, with Indigenous females, in particular, facing a heavy burden. These responsibilities (discussed in more detail in Yap & Biddle [2012]), include caring for their own children, caring for other children (such as siblings), and providing unpaid assistance to family members or others because of a disability, a long-term illness or old age.

TABLE 17 **Caring responsibilities of people aged 15–24 years, by Indigenous status and sex, 2011**

Caring responsibilities	Indigenous (%)		Non-Indigenous (%)	
	Male	Female	Male	Female
Cared for own children	8	19	2	6
Cared for other children only	8	13	4	8
Did not provide child care	84	68	94	86
Total	100	100	100	100
Provided unpaid assistance	8	11	4	6
Did not provide unpaid assistance	92	89	96	94
Total	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Among Indigenous males and females aged 15–24 years, the percentages of those caring for their own children were more than three times the corresponding percentages among non-Indigenous males and females in this age group. Almost 20% of Indigenous women had cared for their own children, while another 13% had provided care

only for other children in the reference week. This reflects the different age structures of fertility for Indigenous and non-Indigenous women. In 2010, the peak age group for births for Indigenous women was 20–24 years, and the fertility rate in this age group (births per thousand women) was almost three times the fertility rate of all Australian women in this age group. In contrast, the peak age group for births for all Australian women was 30–34 years (ABS 2010). This means that peak childbearing years for Indigenous women occur within the same age group in which transitions from secondary to tertiary education, particularly higher education, typically occur.

Table 18 shows that the proportions of people undertaking secondary or tertiary education were lower among those who reported caring for children, whether their own or other children. This was true for both Indigenous and non-Indigenous young people. The results also show that, irrespective of whether they had child-care responsibilities, participation in tertiary education was much lower among young Indigenous people than their non-Indigenous counterparts. In conjunction with Table 17, which shows that the percentage of Indigenous people aged 15–24 years caring for their own children was about three times that of non-Indigenous people in the same age group, these results indicate that the overall impact on young Indigenous people's participation in tertiary education would be much greater than for their non-Indigenous counterparts.

There are two potential explanations for the negative relationship between child-care responsibilities, and educational participation and attainment. Part of the explanation may be that young people who do not intend to take up tertiary study choose to have children earlier; another factor may be the difficulty of combining child-care responsibilities with study. The longitudinal aspect of the ACLD shows that both are likely to be relevant.

Focusing on those aged 15–24 years in 2006 who did not have a qualification, 23% of the Indigenous population who were then providing unpaid child care had obtained a qualification by 2011. This is substantially lower than the percentage of the relevant population who were not providing child care that had obtained a qualification (28%). Both figures were, however, lower than for the non-Indigenous population (42% and 49%, respectively), showing that child-care responsibilities are one, but not the only, part of the explanation.

TABLE 18 **Child-care responsibilities of people aged 15–24 years, by educational attendance, 2011**

Indigenous status	Educational attendance	Male (%)				Female (%)			
		Cared for own children	Cared for other children only	Did not provide child care	Total	Cared for own children	Cared for other children only	Did not provide child care	Total
Indigenous	Attending university or TAFE	6	11	12	11	7	16	16	14
	Attending secondary school	3	19	27	24	2	24	30	24
	Not attending an educational institution	91	69	62	65	91	60	54	62
	Total	100	100	100	100	100	100	100	100
Non-Indigenous	Attending university or TAFE	10	27	29	29	13	33	34	32
	Attending secondary school	7	27	26	26	3	26	28	26
	Not attending an educational institution	83	46	44	45	84	42	38	41
	Total	100	100	100	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

The census also contains information about whether, in the two weeks before census night, a person had spent any time providing unpaid care, help or assistance to family members or others because of a disability, a long-term illness or problems related to old age.

Table 17 showed that the percentages of young Indigenous men and women providing unpaid assistance (i.e. care for someone with a disability, a long-term illness or old age) were almost double the corresponding percentages for non-Indigenous people in the same age group.

Table 19 shows that, among those who reported providing unpaid assistance, the percentage participating in tertiary education was lower, for both Indigenous and non-Indigenous populations aged 15–24 years. However, in this case, unlike the case of caring for children, the differential appeared to be larger among young Indigenous people. Among young Indigenous males who provided care, the percentage attending tertiary education was 19%, 6 percentage points lower than the percentage for those who were not carers (25%). For non-Indigenous males, the corresponding differential was less than 3 percentage points. Among young Indigenous females who provided

care, the percentage attending tertiary education was almost 8 percentage points lower than the percentage of those who were not carers. The corresponding differential among young non-Indigenous females was slightly lower, at about 6 percentage points. These results may reflect the intensity of care that was required, cultural and gender norms, and also possibly a lack of formal care services in more remote geographical locations.

In this case, the impact of a larger percentage of young Indigenous people being carers is combined with a greater differential effect of caring on tertiary education participation for young Indigenous people, compared with their non-Indigenous counterparts. This indicates that caring responsibilities place young Indigenous people at a relative disadvantage to young non-Indigenous people with regard to participation in tertiary education.

TABLE 19 Unpaid assistance provided by people aged 15–24 years, by educational attendance, 2011

Indigenous status	Educational attendance	Male (%)			Female (%)		
		Provided unpaid assistance	Did not provide unpaid assistance	Total	Provided unpaid assistance	Did not provide unpaid assistance	Total
Indigenous	Attending university or TAFE	19	25	24	17	25	24
	Attending secondary school	11	11	11	13	14	14
	Not attending an educational institution	69	64	64	70	61	62
	Total	100	100	100	100	100	100
Non-Indigenous	Attending university or TAFE	23	26	26	21	27	27
	Attending secondary school	30	29	29	34	32	32
	Not attending an educational institution	46	45	45	46	41	41
	Total	100	100	100	100	100	100

Source: Australian Bureau of Statistics, using customised calculations from the 2011 Census.

Discussion

Analysis of the census provides a very mixed picture of tertiary education for the Indigenous Australian population. On the one hand, the number of Indigenous people participating in higher education increased between 2006 and 2011. So too did the proportion with a post-school qualification of any type. Some evidence suggested that Indigenous people aged 15–24 years with no prior post-school qualification who were undertaking higher education in 2006 were just as likely to have completed a qualification five years later as the corresponding non-Indigenous people.

Although these are significant positive findings, the (age-standardised) gap of 17 percentage points between the proportions of Indigenous and non-Indigenous people with a post-school qualification did not narrow between 2006 and 2011. This gap is almost entirely attributable to a disparity in the proportions achieving bachelor degree or higher-level qualifications, and persists despite recent improvements in Year 12 completion rates.

A number of key findings have emerged from the analyses in this report that illustrate the complexity of factors affecting Indigenous access to, and successful participation in, higher education. One important issue is the nexus between Year 12 (or equivalent) completion and participation in higher education. Lower rates of participation in higher education among Indigenous people can be attributed, to some extent, to lower rates of Year 12 completion.

However, even among those who had completed Year 12, there was a substantial difference between the proportions of Indigenous and non-Indigenous people who had attained a bachelor degree or above. This difference was particularly evident in the 25–34-year age group. For non-Indigenous people, this was the age group with the largest proportion of higher-level qualifications, reflecting the attainment of higher educational qualifications following, typically, a fairly direct transition from Year 12 to university. In contrast, for Indigenous people, the proportion with a bachelor degree or higher-level qualification was much smaller in younger age groups, but increased in every age group. In other words, a much smaller proportion of Indigenous students made the direct transition from secondary school to higher education, even if they had completed Year 12. Although some entered into higher education at a later stage, Indigenous mature-age students appeared to be less likely to complete their studies within a five-year timeframe than younger Indigenous higher education students whose completion rates were on par with those of their non-Indigenous peers.

This raises the question of what prevents Indigenous people from making a direct transition from secondary school to university. This is a complex question, requiring a range of data. However, the release of the ACLD provides support for some hypotheses. Possible explanations for why Indigenous people are less likely to make a direct transition from secondary school to university education include the different geographical distributions of the Indigenous and non-Indigenous populations, greater accrued educational

disadvantage among Indigenous people, and the much greater proportion of young Indigenous people who have caring responsibilities.

Those living in remote areas were less likely to undertake higher education. While this is true for both Indigenous and non-Indigenous people, Indigenous people are disproportionately affected by locational disadvantage because a much larger proportion of Indigenous people live in remote areas. According to the latest available ABS estimated resident population statistics, about 19% of the Indigenous population aged less than 20 years lived in remote or very remote areas, compared with 1.6% of the non-Indigenous population of the same age (ABS 2013b). In remote areas, services are less accessible. Even where secondary education is available, there are very limited options for pursuing higher education without moving long distances away from home.

Educational disadvantage accrued through life is a barrier to the direct transition from secondary school to higher education for Indigenous people. Year 12 completion rates for Indigenous people have been increasing and appear to be on track to meet the Closing the Gap target of halving the gap in Year 12 attainment. Despite this, poorer Year 12 results among Indigenous students constitute a barrier both to participation in higher education (if a student fails to gain entry to a desired course) and to the successful attainment of a higher educational qualification among those who do participate.

Another important factor associated with participation in higher education is the much greater proportion of young Indigenous people who have family responsibilities, primarily involving caring for their own children. As Johnstone and Evans (2012:43) point out, little is known about the sequence of childbearing, education and employment among Indigenous women; these authors argue that any success in closing the gap in education and employment will depend on the provision of child-care services for young mothers. The effect of having family responsibilities at a relatively young age on the education and employment decisions of young men is also an important area meriting further research.

All of these factors are likely to have a greater effect on participation in a university education than vocational education because, in general, university courses tend to be less geographically accessible, have higher-level entry requirements, are more intensive in their study loads and are of a longer duration.

Another factor discussed in this report is the issue of expectations. Students with lower expectations that they will

complete a course—often associated with poorer academic results—are less likely to complete their qualifications than other students. Role models are important—the proportion of students, whether Indigenous or non-Indigenous, who attained a higher educational qualification was larger among those whose mother had attained a similar level of qualification.

The culture in institutions of higher education is another important consideration in relation to closing the gap in Indigenous education. Many Indigenous people attending university are the first in their family to do so and may find the culture unfamiliar (Behrendt et al. 2012), especially as Indigenous people are underrepresented among university staff. Experience of discrimination also continues to be a potent source of discouragement for Indigenous students (Behrendt et al. 2012, Biddle et al. 2013).

The findings in this report indicate that delayed entry to higher education, including among those who complete Year 12, puts Indigenous people at an educational disadvantage. More detailed research is required to establish the extent to which this delay is due to family responsibilities, lower levels of academic achievement or other reasons, and how this might be addressed through provision of services such as child care, flexible online delivery of higher education courses, or other policy initiatives.

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