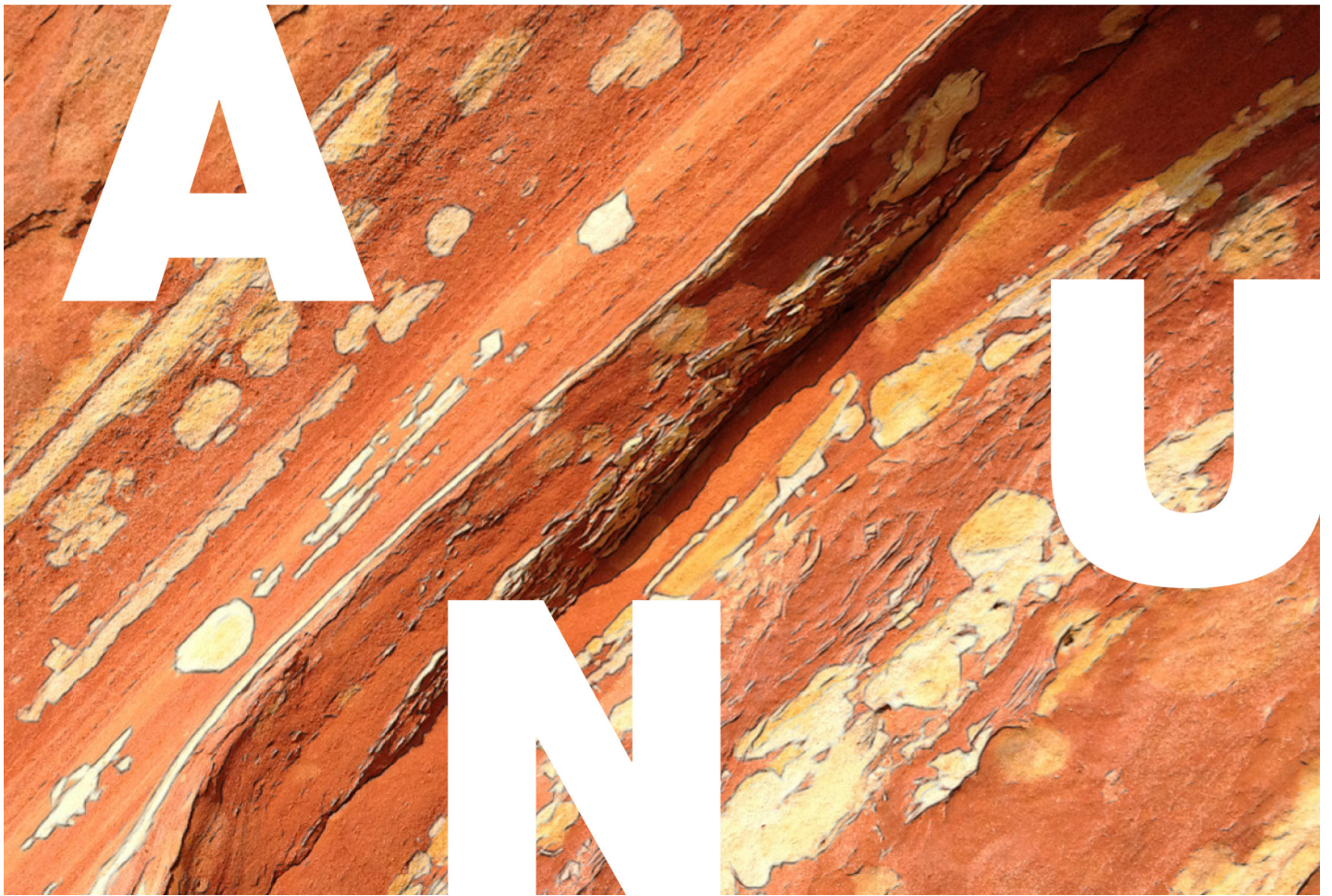




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HIGHER EDUCATION AND THE GROWTH
OF INDIGENOUS PARTICIPATION IN
PROFESSIONAL AND MANAGERIAL
OCCUPATIONS

J. TAYLOR, M. GRAY, B. HUNTER,
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Centre for
Aboriginal Economic
Policy Research
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Arts & Social
Sciences

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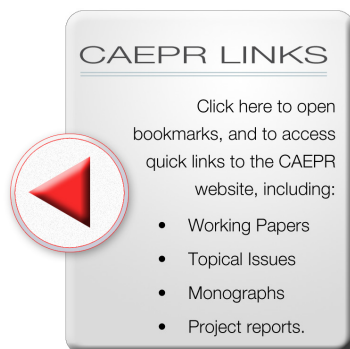
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September 2012



Higher education and the growth of Indigenous participation in professional and managerial occupations

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Abstract

In April 2011, the Australian Government announced a Review into Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People. In order to assist the Review, the Centre for Aboriginal Economic Policy Research was commissioned by Department of Employment, Education and Workplace Relations to examine the role of higher education in the growth of Indigenous employment in professional occupations, to assess the associated costs and benefits to the Australian economy and society, and to explore likely barriers to growing the number of Indigenous professionals. This paper examines aspects of higher education access and outcomes for Indigenous people, structured in two main parts. First, a statistical overview of recent Indigenous employment growth by occupational category, and it compares this with non-Indigenous occupational change. It also explores the role that post-school qualifications have played in this process. Second, analysis of select economic and social returns to higher education and employment along with the effects of being a professional (or manager) both to individuals and the Australian economy and society. By way of conclusion we reflect on some of the barriers to further expansion of the professional occupational base.

Keywords: Indigenous education, Indigenous employment, Indigenous professionals, economic returns from education.

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Acronyms

APS	Australian Public Service
ANZSCO	Australian and New Zealand Standard Classification of Occupations
CAEPR	Centre for Aboriginal Economic Policy Research
CDEP	Community Development Employment Projects
DEEWR	Department of Education, Employment and Workplace Relations (Commonwealth)
FaHCSIA	Department of Families, Housing, Community Services and Indigenous Affairs (Commonwealth)
GSS	General Social Survey
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
NGO	non-government organisation
VET	Vocational Education and Training

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Executive summary

To assist the Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander people, the Centre for Aboriginal Economic Policy Research (CAEPR) at The Australian National University was commissioned by the Department of Employment, Education and Workplace Relations (DEEWR) to examine the role of higher education in the growth of Indigenous employment in professional occupations, to assess the associated costs and benefits to the Australian economy and society, and to explore likely barriers to growing the professional base.

In this paper occupations are defined using the Australian and New Zealand Standard Classification of Occupations (ANZSCO). According to ANZSCO, professional occupations require a skill level commensurate with a bachelor degree or higher qualification. In this paper we also examine managerial occupations because the skill set necessary to be a manager also is commensurate with a bachelor degree or higher qualification.

Data is obtained from a number of sources including the 1996 and 2006 Censuses, the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS), the 2006 General Social Survey (GSS), and administrative data on Indigenous participation in higher education and the Vocational Education and Training (VET) system.

Trends in Indigenous professionals and managers

Between 1996 and 2006 the number of Indigenous professionals increased by 74.3 per cent, reaching 14,002 in 2006. Over this period the number of Indigenous managers increased by 46.4 per cent to 4,272. While the number of Indigenous professionals and managers has increased, the proportion of the working age population (20–64 years) employed in these occupations increased only slightly. In 1996, 4.8 per cent were employed in professional occupations: in 2006 it was 6.4 per cent. For managers, this increase was from 1.7 per cent to just 1.9 per cent.

Indigenous professionals and managers in 2006

In 2006 there were 13,958 Indigenous professionals (13% of the Indigenous workforce) and 6,814 Indigenous managers (6.4% of the Indigenous workforce). Indigenous women, if employed, were more likely to be professionals (17.3%) than Indigenous men (9.3%).

A key question for the Review to consider is how these patterns of occupational status are linked to outcomes in higher education. According to the 2006 Census, 5.5 per cent of Indigenous Australians 20–64 year olds had a degree or higher level qualification compared to 23.6 per cent of the non-Indigenous population.

While there is no doubt that professionals and managers are far more likely than workers in other occupations to have higher level qualifications, substantial proportions have lower-level qualifications or no qualifications at all, especially among those in managerial jobs. Almost 40 per cent of Indigenous professionals have a degree or higher, although this proportion is much higher for non-Indigenous professionals (69.3%). Only a minority of Indigenous and non-Indigenous managers have a degree or higher-level qualification (16.9% and 28.7% respectively).

In absolute terms, the number of Indigenous Australians with a degree and employed as a manager was just 1,098, while the number employed as a professional with a degree was much higher at 5,268.

Most common professional and managerial occupations

Within the professional and managerial occupational groups there is considerable concentration of employment in individual occupations. This is true for both Indigenous and non-Indigenous workers.

While there are clear differences between Indigenous and non-Indigenous workers in the 10 most common professional occupations, there is also considerable overlap. Apart from occupations shared with other women, such as registered nurse, primary and secondary school teacher, and human resource professional, Indigenous women professionals are more likely to be welfare and visual arts professionals and counsellors.

Indigenous professional males tend to be environmental scientists, human resource professionals, welfare, recreation and community arts workers, visual arts and crafts professionals, counsellors and registered nurses. For non-Indigenous men the most common occupations include accountants, software and applications programmers, management and organisation analysis, solicitors and financial investment advisers and managers.

Indigenous higher education enrolments, completions and field of study

There has been a steady increase in degree completions for both Indigenous students and non-Indigenous domestic students over the period 2001 to 2010. The annual number of Indigenous students completing award courses rose from 1,045 in 2001 to 1,437 in 2010, an increase of 38 per cent. This was a substantially higher rate of increase compared to the 23 per cent growth in annual non-Indigenous completions, although, obviously, it stems from a much lower base.

There are substantial differences between Indigenous and non-Indigenous students in field of study and qualification. Indigenous professionals are less likely than non-Indigenous professionals to have a qualification in engineering and related technologies, in natural and physical sciences, and in management and commerce. However, Indigenous professionals are more likely to have a qualification in education, and in society and culture. The field of study of current students suggests that this pattern will continue. While all students remain heavily focused on a few broad subject areas—health, education, management and commerce, and society and culture—Indigenous students are even more so.

Economic and social returns from higher education and professional and managerial occupations

Estimates based on data from the 2008 NATSISS and 2006 GSS indicate that there are very significant economic and social returns to Indigenous individuals and to the Australian society and economy more broadly from higher education and associated increases in professional and managerial employment.

Income

For both the Indigenous and general Australian populations those employed have, on average, much higher personal incomes than those not-employed. Weekly personal incomes of Indigenous females and males who are not-employed are \$324 and \$230 respectively. This compares to incomes of \$509 and \$682 for Indigenous females and males employed in non-managerial or professional occupations. Significantly, in terms of the returns to higher education, those employed as managers or professionals have a much higher personal income again with \$943 per week for females and \$1,082 for males. Indigenous incomes are substantially lower than for the general Australian population irrespective of occupation with the greatest difference observed for males.

Other measures of wellbeing

NATSISS data also indicate that compared to the not-employed and those employed in other occupations, Indigenous managers and professionals are:

- much more likely to be able to raise \$2,000 cash within a week
- more likely to be buying their home or owning it outright
- have better self-assessed health, and
- more likely to say that they feel able to have a say within their community on important issues.

In addition to these benefits, there is also a very strong association between qualifications from higher education and the probability of employment.

Potential economic impact of increases in education attainment and occupational status of the Indigenous population

The potential economic benefits to the national economy of increasing Indigenous employment rates and, if employed, increasing employment in professional and managerial occupations are illustrated using three hypothetical scenarios. These provide an indication of the potential increase in the income of the Indigenous population if:

1. the employment rate of the Indigenous population increases to that for the non-Indigenous population
2. the proportion of the Indigenous employed who are professionals and managers increases to that for the non-Indigenous population, and
3. the proportion of the Indigenous population with a degree or higher level qualification increases to that for the non-Indigenous population.

If the gap in employment was closed so that the Indigenous employment to population rate was equal to the non-Indigenous rate, it is estimated to result in Indigenous income increasing by over \$1 billion per annum (in 2011 dollars). If Indigenous people were just as likely to be employed in high status occupations as non-Indigenous Australians, without changing their overall employment prospects, then Indigenous income would increase by just over \$473 million.

If the educational level of the Indigenous population was increased to that of the non-Indigenous population, the value of this hypothetical change is \$1.09 billion per annum. The incremental value of getting a degree vis-à-vis not having a degree is higher than the change from a lower status occupation to being a professional and manager, because it captures both the increased employment rate

associated with higher education and the higher incomes if employed. In pure income returns, the main message is that while increasing the participation of Indigenous people in high status occupations is important, it is even more important to increase the overall employment rate (irrespective of occupation).

Barriers to increasing the level of Indigenous employment in professional and managerial occupations

The first step towards growing the professional/managerial base is to ensure that Indigenous people have a degree. Thus, at one level, the barriers to further raising the numbers of Indigenous people in professional and managerial occupations are the same as those that prevent expansion of degree enrolment and acquisition, and these extend to all of the issues surrounding achievement during the years of compulsory schooling and beyond to Year 12 completion.

Broadening the courses undertaken by Indigenous students

Indigenous degree enrolments are concentrated in three fields of study — education, health and society, and culture. While non-Indigenous enrolments are also concentrated in these fields of study, there is a much wider spread into areas such as management and commerce, natural and physical sciences, information technology, engineering and architecture and building. The increase in Indigenous enrolments in degree courses has not been accompanied by a broadening of the distribution of enrolments across fields of study. This narrows the range of potential professional and managerial opportunities for Indigenous graduates and restricts access to higher paying/higher status professional and managerial positions that tend to be associated with more scientific-based professions.

Geographic proximity of a higher education institution

Indigenous people are much less likely to live in a city or regional centre with one or more higher education institutions than are non-Indigenous people. Just under half (45%) of Indigenous people live within a city or town with a higher education presence compared to 73 per cent of the non-Indigenous population. Given the costs, both social and economic, of living away from home to attend university, this presents a spatial/ structural barrier to university enrolment and completion that is multi-dimensional and raises issues about social and financial support structures, accommodation, travel arrangements, community role models and career expectations.

Participation in Vocational Education and Training

In 2010, non-Indigenous Australians were two times more likely to be enrolled in a VET course than a university course; Indigenous Australians were eight times more likely. As a proportion of the estimated working-age population (15–64 years) 23 per cent of Indigenous adults were enrolled in a VET institution in 2010 compared to just 3 per cent in a university. This raises a number of issues for consideration. First of all, does the VET sector act as a diversion from higher education enrolment because of its easier accessibility? Given the scale of Indigenous VET engagement, does greater articulation between the sectors provide one way of enhancing participation in higher level tertiary activities and ultimate progression into a professional occupation?

At one level, the barriers to further raising the numbers of Indigenous people in professional and managerial occupations are the same as those that prevent expansion of degree enrolment and acquisition, and these extend to all of the issues surrounding achievement during the years of compulsory schooling and beyond to Year 12 completion.

Our final observation may present as a barrier or as a lasting and singular opportunity. The demographic ageing of the Indigenous population that is currently underway due to decline in fertility and increased survival means that the proportion of the Indigenous population of working-age will increase and remain relatively high in the decades ahead. This will have important implications for Indigenous social policy. Firstly, there will be a need for an ever-increasing number of Indigenous graduates and professionals just to keep up with population growth. This may present a barrier to sustained achievement. On the other hand, the growth in the working-age population will lead to a reduction in age dependency and create an opportunity for significant economic returns. However, unless major efforts are made, the Indigenous population might become 'old' before it becomes educated and the demographic dividend that results from having a large educated working age population would be missed. That would represent a unique opportunity lost.

Introduction

In April 2011, the Australian Government announced a Review into Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People. The Review is led by a Panel of experts, chaired by Professor Larissa Behrendt from the University of Technology, Sydney (Department of Employment, Education and Workplace Relations (DEEWR) 2011). In order to assist the Review, the Centre for Aboriginal Economic Policy Research (CAEPR) was commissioned by DEEWR to examine the role of higher education in the growth of Indigenous employment in professional occupations, to assess the associated costs and benefits to the Australian economy and society, and to explore likely barriers to growing the number of Indigenous professionals.

This paper examines aspects of higher education access and outcomes for Indigenous people, structured in two main parts. First, a statistical overview of recent Indigenous employment growth by occupational category, and it compares this with non-Indigenous occupational change. It also explores the role that post-school qualifications have played in this process. Second, analysis of select economic and social returns to higher education and employment along with the effects of being a professional (or manager) both to individuals and the Australian economy and society. By way of conclusion we reflect on some of the barriers to further expansion of the professional occupational base.

The definition of a profession might seem intuitive and straightforward, but is worthy of clarification. Occupations such as medicine, law and engineering, for example, are self-evidently professional but others (e.g. database administrator) may be less obviously so. Essentially, the notion of professionalism invokes a sense of trust in economic relations in modern societies with an advanced division of labour (Evetts 2011: 4). In this relationship, professionals are effectively engaged in risk assessment and through the use of expert knowledge they enable clients and customers to deal with uncertainty (Evetts 2011: 5). These are essentially middle class occupations sometimes characterised as the service class (Goldthorpe 1982, cited in Evetts 2011: 6). Not surprisingly, a wide range of views regarding the conceptualisation and definition of professions and professional occupations has been canvassed (e.g. Evetts 2011; Sciulli 2005; Torstendahl 2005). For the purposes of this input to the Review into Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People we adopt a pragmatic view of professions 'as essentially the knowledge-based category of service occupations that usually follow a period of tertiary education and vocational training and experience' (Evetts 2006: 135).

To operationalise this definition we use the Australian and New Zealand Standard Classification of Occupations

(ANZSCO) and previous such classifications.¹ Apart from the fact that this provides data that can be used for building statistical time series, the ANZSCO and earlier equivalents include a requirement for a skill level commensurate with a bachelor degree or higher qualification as part of their definition of the skill set necessary to be classified as a professional or manager.² This provides a functional link to the Higher Education Review. Since the need for a skill level commensurate with a bachelor degree or higher qualification is also a requirement within ANZSCO for managerial occupations, we also include this occupational category in our analysis.

According to the ANZSCO, professionals:

... are defined as those who perform analytical, conceptual and creative tasks through the application of theoretical knowledge and experience in the fields of arts, media, business, design, engineering, the physical and life sciences, transport, education, health, information and communication technology, the law, social sciences and social welfare. Most occupations in this group have a level of skill commensurate with a bachelor degree or higher qualification or at least five years relevant experience or an associate degree, advanced diploma or diploma (ABS 2006: 140).

Examples of professional occupations include accountants, auditors and company secretaries, engineering professionals, human resource and training professionals, sales, marketing and public relations professionals, school teachers and social and welfare professionals.

According to the ANZSCO, managers:

... plan, organise, direct, control, co-ordinate, and review the operations of government, commercial, agricultural, industrial, non-profit and other organisations and departments. In determining what skills might be relevant for this occupation category, bachelor degree or higher qualification, coupled with at least five years of relevant experience may substitute for the formal qualification. Advanced diploma or diploma or at least three years of relevant experience is also considered indicative (ABS 2006: 70).

Examples of managerial occupations are chief executives, general managers and legislators, farmers and farm manager, education, health and welfare services managers and retail managers.

The analysis in this paper is based mainly on data from the 1996 and 2006 Censuses, the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS), and the 2006 General Social Survey (GSS). Census data are used

TABLE 1. Change in 20–64 year olds employed in professional and managerial occupations by Indigenous status, Australia, 1996 and 2006

	Indigenous			Non-Indigenous		
	Male	Female	Total	Males	Female	Total
	Professionals			Professionals		
1996	3,341	4,692	8,033	616,129	650,815	1,266,944
2006	5,315	8,687	14,002	761,196	913,496	1,674,692
Change (%)	59.1	85.1	74.3	23.5	40.4	32.2
	Managers			Managers		
1996	1,873	1,046	2,919	480,032	182,550	662,582
2006	2,641	1,631	4,272	529,919	226,769	756,688
Change (%)	41.0	55.9	46.4	10.4	24.2	14.2

Notes: Not stated and inadequately described occupations are excluded. Based on the ASCO2 occupational classification.
Source: 1996 and 2006 ABS Census of Population and Housing.

because they provide time series on Indigenous population numbers by detailed occupation status. NATSISS and GSS data are used because they identify occupational status and allow for an exploration of links between this and measures of economic and social wellbeing that are relevant to the Review. One limitation of census data is that they do not provide accurate identification of employment in the Community Development Employment Projects (CDEP) program. This compromises to some extent our census-based analysis of employment and income links to higher education, as statistics estimated from census data include both non-CDEP and CDEP employment. However, our estimates from the 2008 NATSISS are solely for non-CDEP employment and therefore more indicative of employment effects.

Statistical overview of Indigenous employment in professional and managerial occupations

There has been a rapid increase in Indigenous and non-Indigenous employment in both professional and managerial occupations over the period 1996 to 2006, but the increases (in percentage terms) have been bigger for the Indigenous population than for the non-Indigenous population (Table 1).³ Using the ASCO2 classification, in 1996 there were only 8,033 Indigenous professionals; 10 years later this number had increased by 74.3 per cent to reach 14,002. These numbers are based on census counts only and so they do not include any individuals who did not state their occupational status and/or Indigenous status, nor do they adjust for any census undercount. As such, they are an underestimate of actual numbers in these categories. Nonetheless, they are still useful for identifying

relative category size. In 2006, the real number adjusted for undercount was probably more like 15,500. Over this same period, the number of non-Indigenous professionals increased by 32.2 per cent. The highest rate of increase in professionals was among females—Indigenous females in particular are now far more likely than their male counterparts to be in a professional job. As for managers, similar absolute and relative rates of increase are also evident, but the number of Indigenous managers remains low compared to those in professional occupations.

On a per capita basis, in 2006, 4.8 per cent of Indigenous adults aged 20–64 were in professional occupations compared to 15.4 per cent of non-Indigenous adults. To achieve parity with the non-Indigenous population, the number of Indigenous professionals would need to more than double to 34,000. Equivalent rates for managers were 1.9 per cent of Indigenous adults and 6.8 per cent of non-Indigenous adults. For parity, there would need to be more than three times as many Indigenous managers at 14,980.

This growth of Indigenous participation in professional and managerial occupations is consistent with broader trends in the Australian labour market, where the proportion of the workforce employed as professionals and managers has increased steadily since the mid 1990s. Using census data, the proportion of non-Indigenous men aged 20–64 who were employed as professionals and managers increased from 22 per cent in 1996 to 24 per cent in 2006, and the proportion of women employed as professionals and managers increased from 16 per cent to 20 per cent.

Accompanying this increase in professional and managerial employment has been a rise in the overall level of educational attainment in Australia. The proportion of the

TABLE 2. Occupation by gender and Indigenous status, persons employed aged 20–64 years, 2006

	Female		Male		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Indigenous						
Professionals	8,619	17.2	5,339	9.3	13,958	13.0
Managers	2,911	5.8	3,903	6.8	6,814	6.4
Other occupations	38,498	76.9	47,962	83.7	86,460	80.7
Total employed	50,029	100.0	57,203	100.0	107,232	100.0
Non-Indigenous						
Professionals	936,734	25.0	822,165	18.8	1,758,899	21.6
Managers	393,338	10.5	745,476	17.0	1,138,814	14.0
Other occupations	2,413,963	64.5	2,813,154	64.2	5,227,117	64.3
Total employed	3,744,036	100.0	4,380,795	100.0	8,124,831	100.0

Notes: Respondents who did not state or inadequately described their occupation are proportionately allocated based on the ANZSCO occupational classification. The number of managers and professionals reported in this table (and other tables based on the ANZSCO occupational classification) differ to those reported in Table 1 which is based on the ASCO2 occupational classification.

Source: ABS Census of Population and Housing 2006.

TABLE 3. Highest level of non-school educational attainment by gender and Indigenous status, 20–64 year olds, Australia, 2006

	Female		Male		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Indigenous						
Degree or higher	10,397	9.1	6,195	5.9	16,592	7.5
Other post-school qualification	32,618	28.4	37,801	35.9	70,419	32.0
No qualification	71,870	62.6	61,415	58.3	133,285	60.5
Total	114,885	100.0	105,411	100.0	220,296	100.0
Non-Indigenous						
Degree or higher	1,438,695	25.6	1,163,500	21.4	2,602,195	23.6
Other post-school qualification	1,522,053	27.2	2,101,968	38.7	3,624,021	32.8
No qualification	2,649,481	47.2	2,164,516	39.9	4,813,997	43.6
Total	5,610,230	100.0	5,429,985	100.0	11,040,215	100.0

Notes: Respondents who did not state or inadequately described their educational attainment are proportionately allocated. Other post-school qualification consists of advanced diploma, diploma and certificate level qualifications.

Source: ABS Census of Population and Housing 2006.

working-age population with post-school qualifications increased from 48 per cent in 1996 to 59 per cent in 2006. While there are still more men with post-school qualifications compared to women (63% compared to 56% in 2006), the proportion of women with a bachelor degree or higher is now higher than it is for men (25% compared to 24%) (ABS 2007).

Indigenous professionals and managers in 2006

The 2006 Census indicates a total count of 20,772 Indigenous professionals and managers representing 19 per cent of the Indigenous workforce (Table 2).⁴ Of these, 13,958 were professionals (13.0% of the Indigenous

TABLE 4. Educational attainment by occupation and Indigenous status, 20–64 year olds, Australia, 2006

	Indigenous	Non-Indigenous
Managers (%)		
Degree or higher	16.9	28.7
Other post-school qualification	35.1	32.4
No post-school qualifications	48.1	39.0
Professionals (%)		
Degree or higher	39.5	69.3
Other post-school qualification	30.3	20.1
No post-school qualifications	30.2	10.6
Other employed (%)		
Degree or higher	3.16	9.6
Other post-school qualification	31.5	39.1
No post-school qualifications	65.3	51.3

Notes: Other post-school qualification consists of advance diploma, diploma and certificate level qualifications. Based on the ANZSCO occupational classification.

Source: ABS Census of Population and Housing 2006.

workforce) and 6,814 were managers (6.4% of the Indigenous workforce). These were much lower proportions compared to the rest of the workforce where more than one-third (35%) were professionals and managers.

It is clear from Table 2 that gender plays an important role in understanding the professionalisation of the workforce. Both numerically and as a proportion, women were more likely than men to be in professional occupations. This is especially the case among Indigenous workers, with women almost twice as likely as men to be in a professional occupation. However, Indigenous women were notably less likely to be in a professional occupation compared to their non-Indigenous counterparts (17.2% compared to 25.0%) and a similar gap was evident among male workers (9.3% compared to 18.8%).

A key question for the Review to consider is how these patterns of occupational status are linked to outcomes in higher education. To begin to address this question, Table 3 provides information on the highest level of non-school educational attainment for Indigenous and non-Indigenous males and females. This shows that in 2006 7.5 per cent of Indigenous Australians aged 20–64 years had a degree or higher level qualification compared to 23.6 per cent of non-Indigenous adults. For these rates to have been the same, the number of Indigenous adults with a degree or higher qualification would have to be 51,989, more than treble the recorded number. The proportion of Indigenous Australians with a non-degree post-school qualification was 6.2 per cent compared to 10.1 per cent. It also shows that Indigenous women were almost twice as likely as Indigenous men to have a degree or higher

level qualification (9.1% compared to 5.9%). While non-Indigenous women were also more likely than their male counterparts to have a degree or higher level qualification, the difference in the ratio of rates was smaller (25.6% compared to 23.6%).

Post-school education attainment levels for professionals and managers is compared with those of workers in all other occupations in Table 4. While there is no doubt that professionals and managers are far more likely than workers in other occupations to have higher level qualifications, substantial proportions still have lower-level qualifications or no qualifications at all, especially among those in managerial jobs.

A key point to note from Table 4 is that having a degree or higher qualification is more important in securing a professional occupation than it is for all other occupational groups. Almost 40 per cent of Indigenous professionals have a degree or higher, although this proportion is much higher for non-Indigenous professionals (69.3%). Equally of note is the fact that almost one-third (30.2%) of Indigenous professionals have no post-school qualification compared to about one in 10 (10.6%) of non-Indigenous professionals. In contrast, only a minority of Indigenous and non-Indigenous managers have a degree or higher-level qualification (16.9% and 28.7% respectively). The proportion of Indigenous managers with no post-school qualification is 48.1 per cent and the proportion of non-Indigenous managers with no post-school qualification is 39.0 per cent.

TABLE 5. Rank order of top 10 professional occupations by gender and Indigenous status, Australia, 2006

Indigenous		Non-Indigenous	
	Per cent		Per cent
Females			
Registered Nurses	11.5	Registered Nurses	16.4
Primary School Teachers	11.4	Primary School Teachers	11.3
Welfare, Recreation & Community Arts Workers	6.6	Secondary School Teachers	7.4
Human Resource Professionals	5.4	Accountants	6.1
Secondary School Teachers	4.9	Human Resource Professionals	3.0
Visual Arts & Crafts Professionals	4.5	Advertising & Marketing Professionals	2.2
Other Health Diagnostic & Promotion Professionals	3.7	Private Tutors & Teachers	1.7
Counsellors	2.9	University Lecturers & Tutors	1.7
School Teachers, not further defined	2.7	Solicitors	1.6
Other Information & Organisation Professionals	2.6	Vocational Education Teachers	1.6
Percentage of all professional job unit categories	56.2		59.5
Males			
Environmental Scientists	5.9	Accountants	7.7
Other Information & Organisation Professionals	5.5	Secondary School Teachers	5.9
Human Resource Professionals	4.8	Software & Applications Programmers	5.3
Welfare, Recreation & Community Arts Workers	4.3	Management & Organisation Analysts	2.6
Secondary School Teachers	4.3	Solicitors	2.5
Visual Arts & Crafts Professionals	3.8	Financial Investment Advisers & Managers	2.5
Vocational Education Teachers	3.6	Generalist Medical Practitioners	2.4
Primary School Teachers	3.4	Engineering Professionals, not further defined	2.4
Counsellors	2.7	Primary School Teachers	2.3
Registered Nurses	2.6	Civil Engineering Professionals	2.3
Percentage of all professional job unit categories	40.9		35.9

Note: Based on the 4 Digit ANZSCO occupational classification.

Source: ABS Census of Population and Housing 2006.

In absolute terms, the number of Indigenous Australians with a degree and employed as a professional in 2006 was just 5,268, while the number employed as a manager with a degree was much lower at 1,098. In terms of the connection between higher education outputs and efforts to expand Indigenous employment in professional occupations, these numbers could be said to remain relatively small especially when consideration is given to the much higher numbers of professionals and managers who have lower level qualifications or no post-school qualification at all. However, it is also true that these absolute numbers have emerged from a very low base and that they have grown substantially over the past 15 years.⁵

Change in the proportion of professionals with a degree can be established for the period 1996 to 2006 using ASCO2 data from the census. This shows that the proportion of professionals with a degree or higher level qualification increased only slightly between 1996 and 2006. For example, the proportion of Indigenous male professionals with a degree or higher level qualification increased from 47.4 per cent to 49.2 per cent, while for Indigenous females it increased from 51.4 per cent to 57.2 per cent. There is a similar pattern for the non-Indigenous population with the proportion of male professionals with a degree level qualification increasing from 72.0 per cent

TABLE 6. Rank order of top 10 managerial occupations by gender and Indigenous status, Australia, 2006

Indigenous		Non-Indigenous	
	Per cent		Per cent
Females			
Retail Managers	19.1	Retail Managers	20.9
Cafe and Restaurant Managers	6.0	Advertising and Sales Managers	7.5
Managers, not further defined	5.3	Cafe and Restaurant Managers	5.9
Health and Welfare Services Managers	4.7	Livestock Farmers	5.5
Child Care Centre Managers	4.4	Human Resource Managers	3.9
Chief Executives and Managing Directors	3.9	Corporate Services Managers	3.9
General Managers	3.8	Finance Managers	3.8
Call/Contact Centre & Customer Service Managers	3.8	Managers, not further defined	3.6
Policy and Planning Managers	3.7	Other Hospitality, Retail and Service Managers	3.5
Human Resource Managers	3.5	Call/Contact Centre & Customer Service Managers	3.0
Percentage of all managerial job unit categories	58.2		61.5
Males			
Retail Managers	11.7	Retail Managers	13.1
Construction Managers	9.0	Advertising and Sales Managers	7.7
Livestock Farmers	6.8	Construction Managers	7.5
General Managers	4.9	Livestock Farmers	5.8
Chief Executives and Managing Directors	4.8	Chief Executives and Managing Directors	4.9
Managers, not further defined	4.7	Production Managers	4.9
Crop Farmers	4.3	Managers, not further defined	4.3
Production Managers	4.1	Crop Farmers	3.8
Other Specialist Managers	4.0	General Managers	3.8
Other Hospitality, Retail and Service Managers	3.3	Other Hospitality, Retail and Service Managers	3.7
Percentage of all managerial job unit categories	57.6		59.5

Note: Based on the 4 Digit ANZSCO occupational classification.
Source: ABS Census of Population and Housing 2006.

to 75.6 per cent and from 66.4 per cent to 77.1 per cent for equivalent females.

A similar pattern emerges for managers. For Indigenous male managers, the proportion with a degree or higher qualification increased from 28.9 per cent to 30.3 per cent and for females it increased from 45.1 per cent to 47.1 per cent. For non-Indigenous males, the equivalent figures were 41.2 per cent to 46.9 per cent and for females 54.6 per cent to 62.5 per cent.

Most common professional and managerial occupations

Within the professional and managerial occupational groups there is considerable concentration of individual occupations. This is true for both Indigenous and non-Indigenous workers. Table 5 shows the 10 most common professional occupations in rank order (out of a total of 100 ANZSCO unit group categories) for Indigenous and non-Indigenous males and females. Table 6 shows the same for managerial occupations, although here there are only 38 ANZSCO unit group categories.

TABLE 7. Dissimilarity indices for employment across industry categories by occupation and Indigenous status, Australia, 2006

	Professionals	Managers	Other occupations
Male	29.6	18.5	23.2
Female	15.2	21.4	24.1

Note: The dissimilarity index is calculated by summing the absolute difference between the percentage of Indigenous and non-Indigenous employed in each industry for each of the occupational groups and dividing the result by two.

Source: Calculated from customised 2006 Census tables. Based on the ANZSCO occupational classification.

Indigenous women who are employed as professionals are more likely to be in the social services area than non-Indigenous female professionals. Professional occupations in the top 10 for Indigenous women that are not in the top 10 professional occupations for non-Indigenous women include welfare, recreation and community arts workers, visual arts and crafts professionals, and counsellors.

The top 10 listings for Indigenous and non-Indigenous professional males are quite different. Indigenous professional males tend to be environmental scientists, human resource professionals, welfare, recreation and community arts workers, visual arts and crafts professionals, counsellors, and registered nurses. None of these are in the top 10 professional occupations for non-Indigenous men. The list for non-Indigenous men does include primary and secondary school teachers, which are also listed for Indigenous men, but it also includes a number of occupations such as accountants, software and applications programmers, management and organisation analysts, solicitors, financial investment advisers and managers, generalist medical practitioners, engineering professionals, and civil engineering professionals that are absent from the list for Indigenous men.

As for managerial occupations (Table 6), similar overlaps and differences occur although it is noticeable that those comprising the top 10 among males account for a much higher share of all available managerial occupational categories (57% and 59%) compared to the shares indicated for males in professional occupations shown in Table 5 (41% and 36%). This indicates a much greater concentration of male employment in relatively few managerial jobs.

Common managerial occupations for both Indigenous and non-Indigenous women include retail managers, cafe and restaurant managers, managers (not further defined), call or contact centre and customer service managers, and human resource managers.

Overall, Indigenous women are more likely to be Chief Executives and Managing Directors or General Managers or managers in social services or policy and planning than

are non-Indigenous female managers. Non-Indigenous female managers are more likely to be in corporate sector roles such as advertising and sales managers, corporate services managers and finance managers.

For men, there is a good deal of overlap in the 10 most common managerial occupations including retail managers, construction managers, livestock farmers, general managers, chief executives and managing directors, managers (not further defined), crop farmers, production managers, and other hospitality, retail and service managers.

Professionals and managers by industry of employment

The extent to which Indigenous and non-Indigenous managers and professionals are employed in the same industries as opposed to being variably concentrated in particular industries is shown in Table 7. These tendencies are represented by dissimilarity indices which summarise the degree of comparative difference between the distributions of Indigenous and non-Indigenous workers across industry categories. A high score on this measure (towards 100) indicates a high degree of difference between the two distributions and a low score (towards 0) indicates that the distributions are very similar.

Indigenous male professionals are much more segregated into particular industries compared to their female counterparts (Table 7). Almost one-third of Indigenous male professionals (24.6 %) would have to change their industry of employment in order to have a distribution across industry groups similar to that of other male professionals. This reflects an over-representation of Indigenous male professionals in public administration, health care and social assistance industries, and an under-representation in financial and insurance service industries, information media and telecommunications industries, and manufacturing industry. As for females, the striking feature is the much lower degree of segregation among professionals, with Indigenous female professionals likely to be found in the same industries as other females, especially

TABLE 8. Sector of employment by educational attainment and Indigenous status, professionals and managers, 20–64 year olds, Australia, 2006

	Managers		Professionals	
	Degree level qualification (%)	Without degree level qualification (%)	Degree level qualification (%)	Without degree level qualification (%)
Indigenous				
Private Sector	71.5	84.7	54.5	63.9
Public Sector	28.5	15.4	45.5	36.1
Non-Indigenous				
Private Sector	86.0	95.5	67.8	83.4
Public Sector	14.1	4.5	32.3	16.6

Note: Most NGOs and community organisations are classified as private sector, although a small proportion may be classified as government sector. Based on the ANZSCO occupational classification.

Source: ABS Census of Population and Housing 2006

TABLE 9. Indigenous employees in Australian, State and Territory public services, Australia, 2009–10

	Indigenous employees	Percentage of all employees
Australian ^a	9,577	2.2
State and Territory ^b	23,572	2.0
Total	33,149	2.1

Sources: a. Commonwealth of Australia 2010.

b. Includes data from a mix of State and Territory Public Employment Annual Reports for 2009 and 2010.

in education and training, and health care and social assistance industries.

Professionals and managers by industry sector of employment

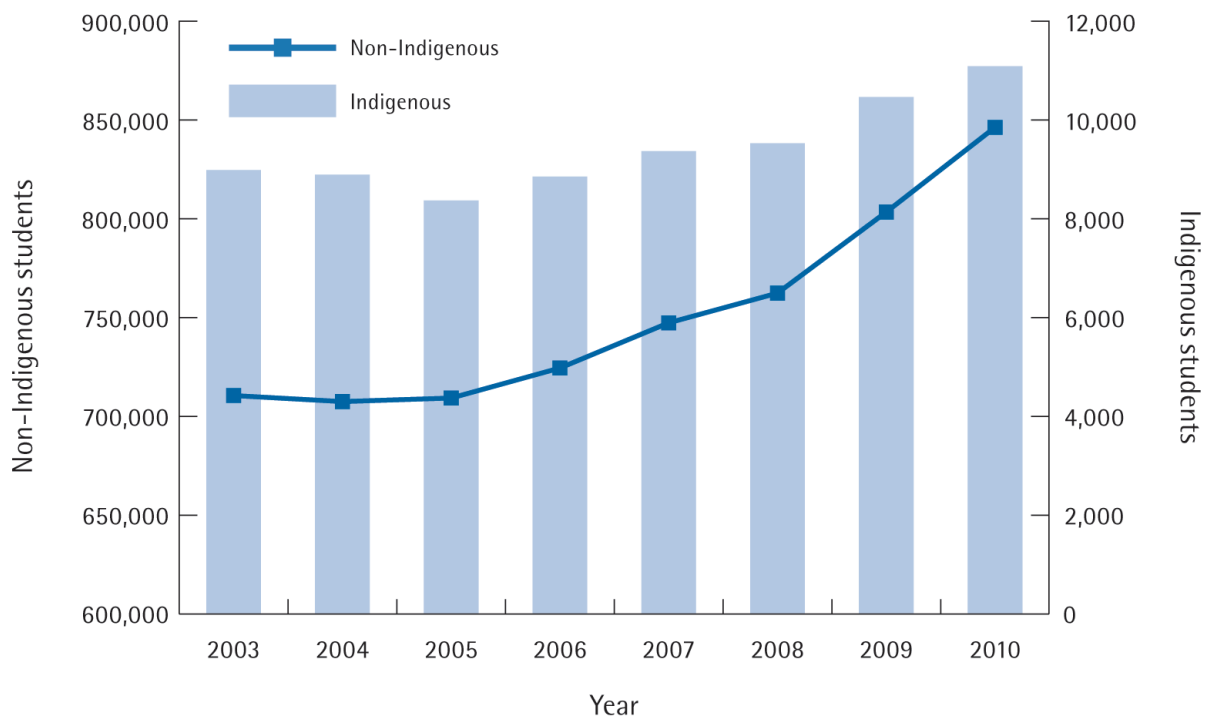
The indication from data on sector of employment is that the acquisition of a degree level qualification leads more to public sector employment than private sector employment (Table 8). This is true for both Indigenous and non-Indigenous employees, whether managers or professionals, but it is more apparent among professionals. While this comes as no surprise given the increased professionalisation of public sector employment, the telling point in terms of further growing Indigenous employment in professional occupations is that private sector employment, and not public sector, is where the main growth in Indigenous labour force participation has occurred in recent years (Gray & Hunter 2011). A major drawback for our analysis is the lack of any coding for industry sector of employment in the 2008 NATSISS. This prevents an

exploration of the different characteristics of public/private sector workers with qualifications.

Public sector employment is of particular interest to the review given the existence of targeted training initiatives such as the Australian Public Service (APS) Employment and Capability Strategy for Aboriginal and/or Torres Strait Islander Employees, the DEEWR Indigenous Australian Government Development Program 2010, and the existence in all public services of graduate intake streams. Unfortunately, advice from the Australian Public Service Commission indicates that data on qualifications held by Indigenous employees in the Australian Public Service is incomplete, as many agencies do not routinely seek this information when they engage new staff nor do they provide that level of detail when reporting to the Commission.

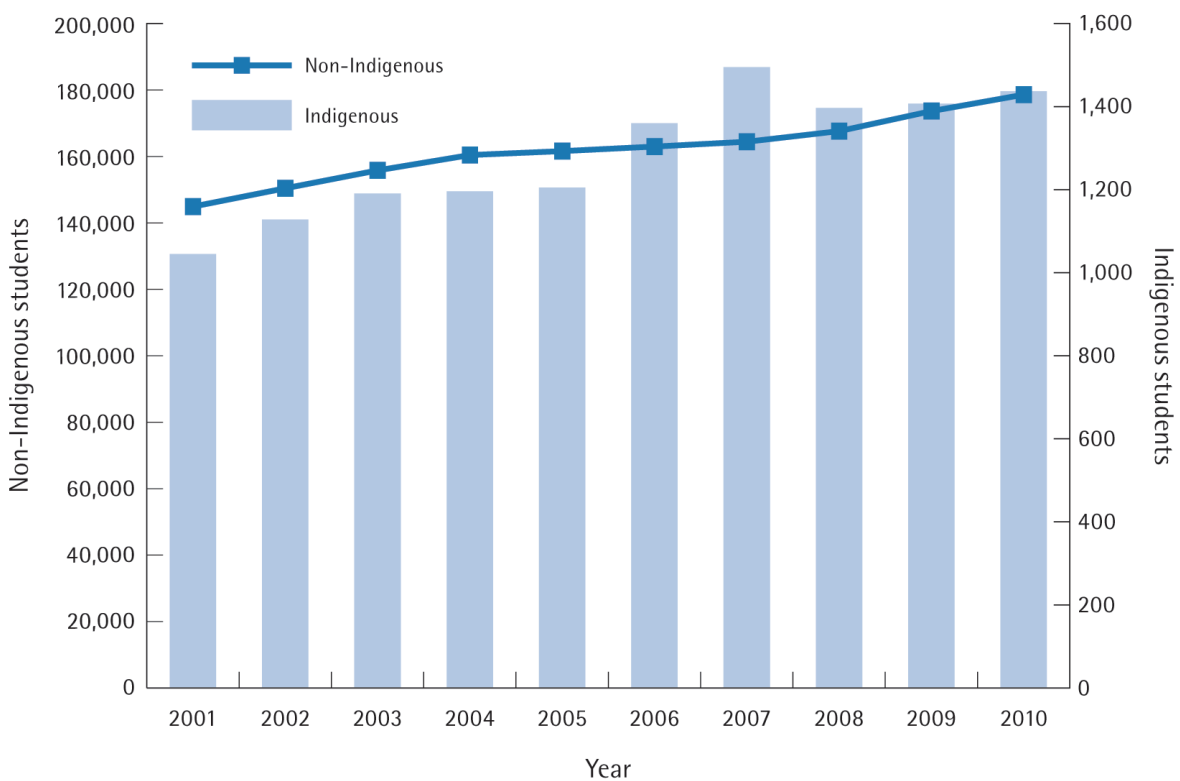
As indicated above, growth in Indigenous public sector employment has been sluggish in recent years compared to the private sector, however it remains a major employer of Indigenous labour. Table 9 shows the number of Indigenous public sector workers in the Australian and

FIG. 1. Enrolments in award courses by Indigenous status, Australia, 2003–10



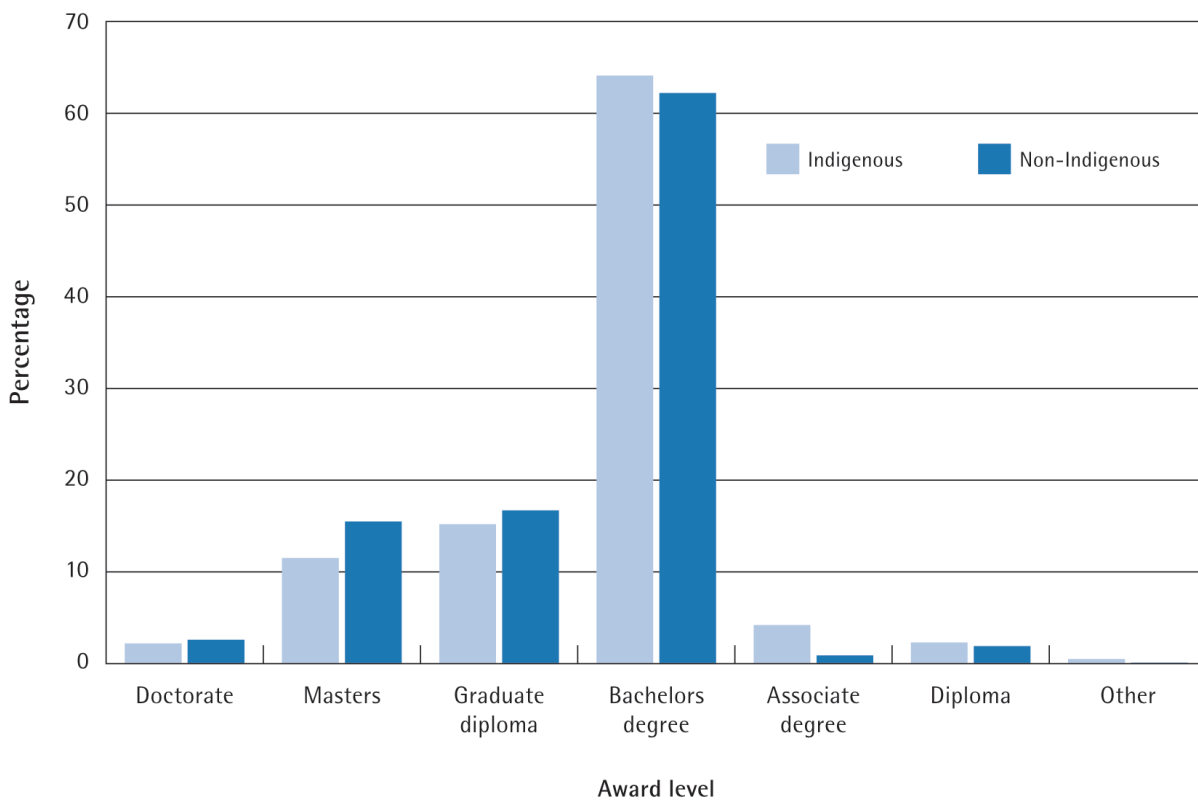
Note: Restricted to domestic students.
 Source: DEEWR Higher Education Statistics.

FIG. 2. Number of completions of award course by Indigenous status, Australia, 2001–10



Note: Restricted to domestic students.
 Source: DEEWR Higher Education Statistics.

FIG. 3. Level of university qualification by Indigenous status, completions of award courses, Australia, 2010



Note: Restricted to domestic students.
 Source: DEEWR Higher Education Statistics.

State and Territory public services in 2009–10. Overall, Indigenous representation was slightly higher in the APS but representation generally remains below the Indigenous share of working-age population (15–64 years), which in 2006 was 2.6 per cent.

Indigenous higher education enrolments, completions and field of study

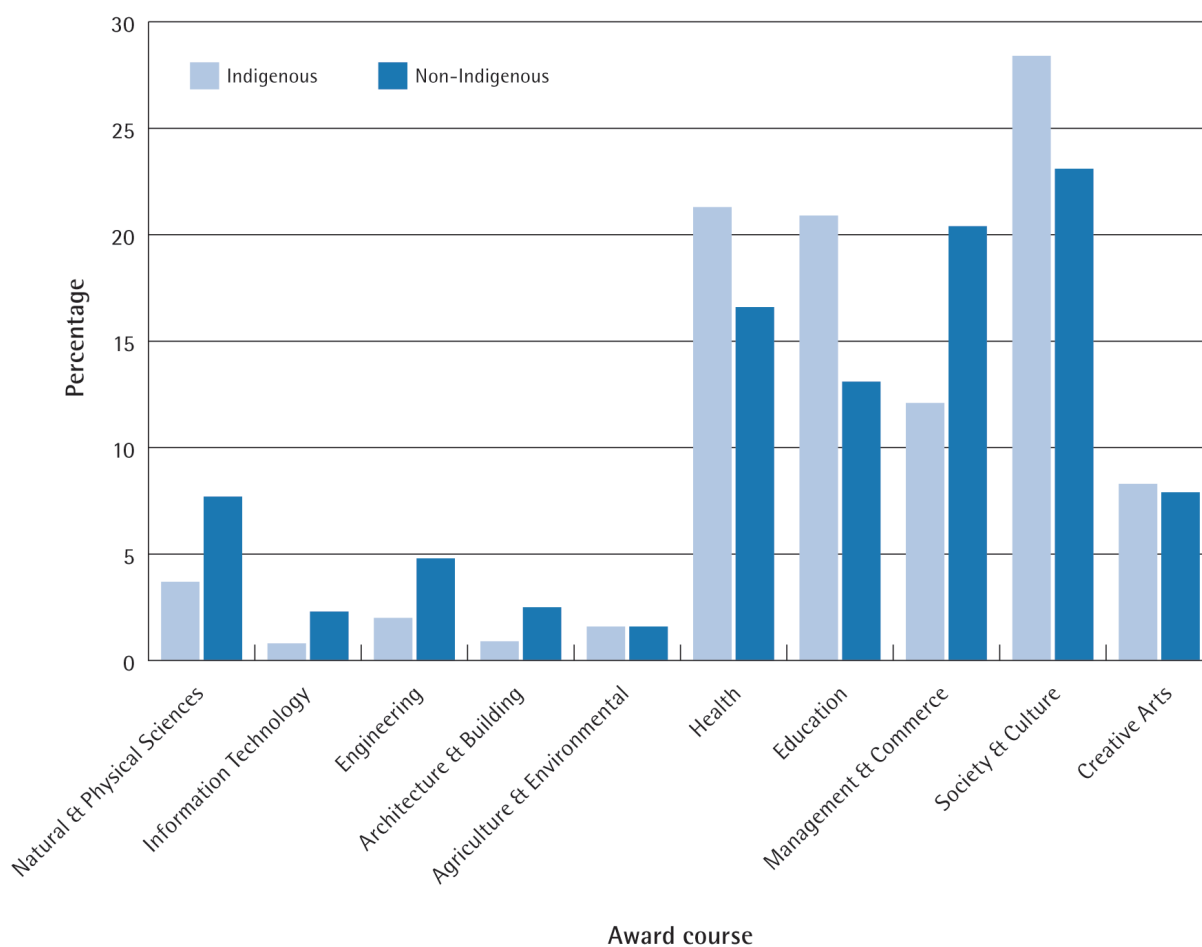
Given the positive relationship evident between the acquisition of degree level qualifications and employment in professional and managerial occupations, an increase in such acquisition is likely to result in an increase in such employment. The first point to note is that there has been an increase in Indigenous enrolments in higher education courses over recent years from 8,988 in 2003 to 11,088 in 2010, an increase of 23 per cent compared to 19 per cent for other Australian students (Fig. 1).

A steady increase in degree completions for both Indigenous students and non-Indigenous domestic students is also apparent over the period 2001 to 2010 (Fig. 2). The annual number of Indigenous students completing award courses rose from 1,045 in 2001 to 1,437

in 2010, an increase of 38 per cent. This was a substantially higher rate of increase compared to the 23 per cent growth recorded for non-Indigenous completions, although, obviously, it stems from a much lower base.

Importantly, there is little difference between Indigenous and non-Indigenous students in regard to the level of degree completions (Fig. 3), although Indigenous students are slightly more likely to be completing bachelor degrees, associate degrees or diploma level qualifications and non-Indigenous students are more prominent at post-graduate levels.

Potentially significant differences in course enrolments and completions emerge in the field of study. The basic proposition for consideration here is that the occupational distributions observed above are substantially related to chosen fields of study in higher education, especially among professionals who often require specified credentials. Results from the analysis of 2006 Census data seem to support this proposition: Indigenous professionals are less likely to have a qualification in engineering and related technologies than non-Indigenous professionals (2.2% compared to 7.5%), in natural and physical sciences (3.1% compared to 6.9%) and in

FIG. 4. Field of education by Indigenous status, completions of award courses, Australia, 2010

Note: Restricted to domestic students.
Source: DEEWR Higher Education Statistics.

management and commerce (8.2% compared to 15.3%). However, Indigenous professionals are more likely to have a qualification in education than non-Indigenous professionals (37.0% compared to 21.5%) and in society and culture (20.2% compared to 15.1%).

Likewise, Indigenous managers are much less likely to have a qualification in engineering and related technologies than non-Indigenous managers (3.1% compared to 10.9%), in natural and physical sciences (3.1% compared to 7.5%), and in management and commerce (25.8% compared to 36.8%). On the other hand, Indigenous managers are more likely to have a qualification in education compared to non-Indigenous managers (24.6% compared to 11.3%), health (9.8% compared to 5.3%) and society and culture (24.5% compared to 15.5%). The extent of these differences is indicated by a dissimilarity index of 21.7 for Indigenous and non-Indigenous professionals, and 28.1 for managers. While these measures do not indicate major segregation, they do point to a mismatch in distributions for more

than one-fifth and almost one-third of professionals and managers respectively.

These differences are still evident in the distribution of current course completions (Fig. 4). Clearly, all students remain heavily focused on a few broad subject areas—health, education, management and commerce, and society and culture—but this is far more so for Indigenous students, an outcome that is likely to continue to contribute to the occupational segregation revealed above. To reduce this segregation and expand the options for professional and managerial employment, would be a broadening of Indigenous higher degree participation across the various fields of study would be required.

TABLE 10. Economic and social outcomes by occupation status, Indigenous Australian 20–64 year olds, 2008

	Professionals and Managers		Other occupations		Not employed	
	Female	Male	Female	Male	Female	Male
Personal Income (gross weekly income)	\$943	\$1,082	\$509	\$682	\$324	\$230
Average hours usually worked each week (number)	34.2	37.8	30.8	37.2	—	—
Equivalised household Income (OECD)—weekly income	\$947	\$933	\$545	\$649	\$364	\$359
Under-employed (%)	8.5	21.0	10.0	14.6	—	—
Could raise \$2000 cash within a week (%)	74.6	71.9	47.3	52.9	32.3	29.6
Home ownership (purchasing or own outright) (%)	48.8	39.8	27.7	29.2	15.4	17.0
Self-assessed health status fair or poor (%)	13.6	18.2	24.1	23.9	29.8	42.2
Feels able to have a say within community on important issues (%)	71.8	67.3	50.2	50.5	42.9	44.5
Discrimination (%)	34.6	39.3	28.4	30.5	29.9	37.2
Work allows cultural obligations to be met (%)	50.1	56.0	22.2	30.8	—	—

Notes: CDEP employment classified as employment for the purposes of this paper. Based on the ANZSCO occupational classification.

Source: NATSISS 2008.

TABLE 11. Economic and social outcomes by occupation status, Australian 20–64 year olds, 2006

	Professionals and Managers		Other occupations		Not employed	
	Female	Male	Female	Male	Female	Male
Personal Income (gross weekly income)	\$1,014	\$1,536	\$565	\$876	\$223	\$308
Average hours usually worked each week (number)	36.6	45.6	29.1	41.2	—	—
Equivalised household Income (OECD)—weekly income	\$1,197	\$1,318	\$849	\$890	\$574	\$459
Could raise \$2000 cash within a week (%)	93.7	96.4	85.7	87.7	75.6	69.9
Home ownership (purchasing or own outright) (%)	75.2	75.7	71.4	67.9	66.4	60.6
Self-assessed health status fair or poor (%)	5.5	6.6	8.7	9.7	26.7	41.4
Feels able to have a say within community on important issues (%)	97.6	96.4	97.1	94.9	93.0	86.9

Source: GSS 2006.

Economic and social returns from higher education and professional and managerial occupations

This section describes income and other economic and social characteristics for Indigenous and non-Indigenous people. The characteristics examined contribute to overall wellbeing and are associated with having higher-level qualifications and being a professional or manager. Estimates for the Indigenous population are based on data from the 2008 NATSISS and for the Australian population from the 2006 GSS.⁶

Individual level returns

The characteristics we examine in relation to occupation and qualification status are personal and household income, financial security (i.e. ability to raise cash quickly), health status, home ownership and ability to have a say in the community on important issues. In addition, for the Indigenous population, the experience of discrimination is also examined (this measure is not available for the Australian population as a whole from the 2006 GSS). Job-specific characteristics include number of hours worked, and under-employment (whether a person wants to work more hours than they currently work). In addition, for the Indigenous population we consider whether work allows cultural obligations to be met (this measure is not available for the Australian population as a whole). In presenting these measures by occupation we combine professional and managerial occupations and compare these to all other occupations in order to increase the robustness of the survey estimates. Also examined are outcomes for persons not-employed. The estimates for the Indigenous population are provided in Table 10 and for the Australian population as a whole in Table 11.

Personal income, household income, financial hardship and home ownership

For both the Indigenous and general Australian populations those employed have, on average, much higher personal incomes than those not-employed (Tables 10 and 11).⁷ Weekly personal incomes of Indigenous females and males who are not-employed are \$324 and \$230 respectively. This compares to incomes of \$509 and \$682 for Indigenous females and males employed in non-professional or managerial occupations. Significantly, in terms of the returns to higher education, Indigenous adults employed as professionals or managers have a much higher personal income again, with \$943 per week for females and \$1,082 for males.⁸

At the same time, Indigenous incomes remain lower than for the general Australian population irrespective of occupation, with the greatest difference observed

for males. For example, the personal weekly income of Indigenous male professionals and managers is \$1,082 compared to \$1,536 for all male professionals and managers. For females, the gap is much lower, with figures of \$943 and \$1,014 respectively. These income gaps are significant as they provide one indicator of the likely continued concentration of Indigenous workers in lower status professional and managerial positions as measured by additional criteria such as seniority and responsibility levels within otherwise similar jobs (Taylor 1994).

As noted earlier, many professionals and managers have no degree or higher qualification while many in other occupations do. In order to assess the effects of this, we examined data on personal and equivalised household income by occupation and whether individuals have a degree and higher qualification or not. Professionals and managers with a degree level qualification have a substantially higher level of personal income than those without a degree (\$1,249 compared to \$923). Likewise, those in other occupations with a degree or higher level qualification have a personal income which is much higher than those without (\$1,041 compared to \$565). An interesting comparison here is between professionals and managers without a degree and those in other occupations who also have no degree, as the gap in income levels among those in other occupations is much greater.

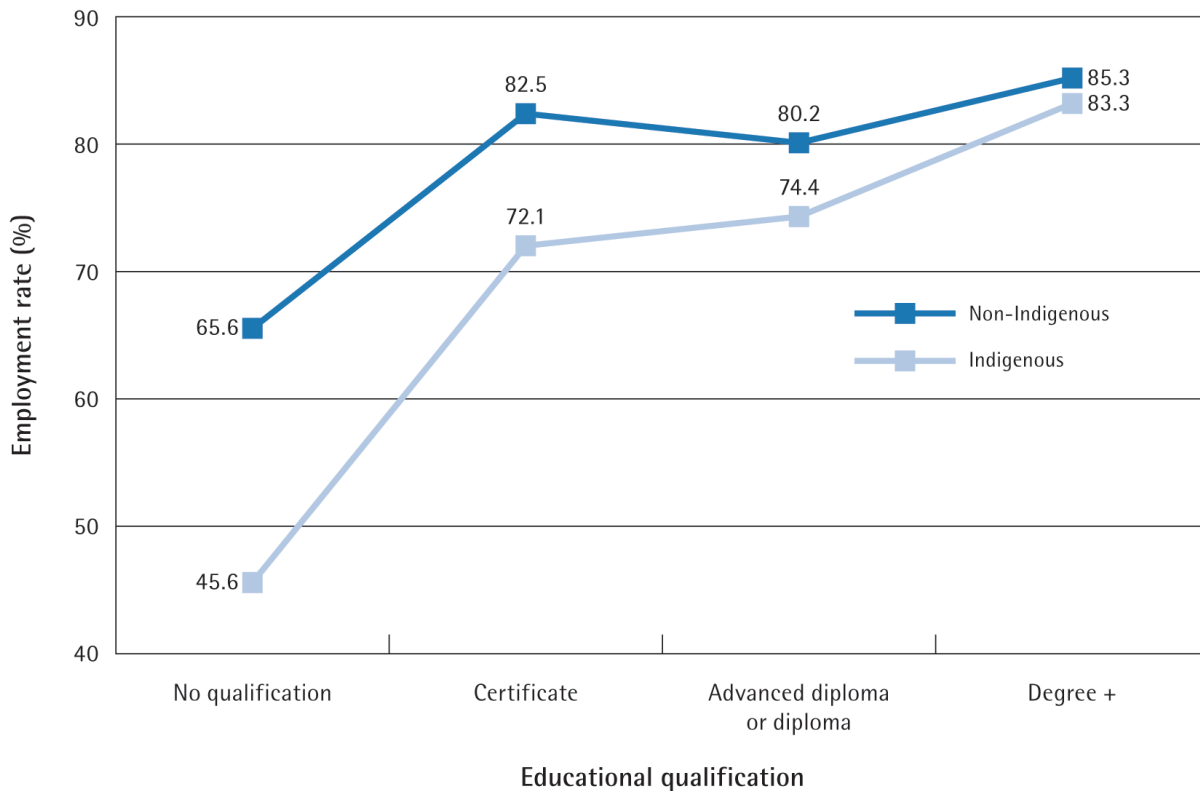
Reflecting their higher personal and equivalised household incomes, Indigenous professionals and managers are much more likely to be able to raise \$2,000 cash within a week (74.6% of females and 71.9% of males) than those employed in other occupations (47.3% of females and 52.9% of males) (Table 10). Those not-employed are the least likely to be able to raise \$2,000 cash within a week (32.3% of females and 29.6% of males).

Another measure of these higher incomes are the much higher rates of home ownership evident among Indigenous professionals and managers. The home-ownership rates shown in Table 10 are not far behind those shown in Table 11 for non-Indigenous professionals. Interestingly, this gap widens substantially between those in other occupations and not-employed.

Hours worked and under-employment

For both the Indigenous and general Australian population, weekly working hours of managers and professionals are slightly higher than for those employed in other occupations, especially for women. Also, professionals and managers live in households with higher equivalised household incomes than those employed in other occupations, who in turn live in higher income households than those who are not employed.⁹ Once again, Indigenous households have lower equivalised

FIG. 5. Employment rates by educational qualification and Indigenous status, 20–64 year olds, Australia, 2006



Notes: Excludes not stated and inadequately described. Because CDEP is categorised as employment and because CDEP employment is concentrated amongst those without a post-school qualification, the difference in employment rates between Indigenous people without a post-school qualification and those with a post-school qualification is understated.

Source: ABS Census of Population and Housing 2006.

incomes than general Australian households irrespective of occupation. Only a minority of Indigenous women report being under-employed, and there is little difference in this regard between professionals and managers and other occupations (8.5% and 10.0% respectively). Indigenous male professionals and managers, however, are much more likely to be under-employed than men in other occupations (21.0% compared to 14.6%).

Health

One of the better established observations in the social sciences is a positive relationship between self-assessed health status and economic status as measured by variables such as income and occupational status (Kawachi, Kennedy & Wilkinson 1999; Marmot & Wilkinson 1999), although findings in relation to income for Indigenous Australians can be less certain (Gray, Hunter & Taylor 2004). Results from the 2006 GSS for the general population and from the 2008 NATSISS for the Indigenous population clearly support this finding in relation to occupational status. A firm gradient is evident in Tables 10 and 11 between low rates of fair or poor self-assessed health status among professionals and managers compared to the

higher rates among persons employed in other occupations and even higher rates again among those not-employed. Of interest, though, is the far higher proportion of Indigenous professionals and managers who rate their health fair or poor compared to non-Indigenous professionals and managers. This may reflect status variation within occupational groups as noted, for example, in the landmark studies of British civil servants by Marmot and Smith (1997).

Social inclusion, discrimination and cultural obligations

A particularly important difference is that Indigenous people are much less likely to feel able to have a say within their community on important issues compared to the general Australian population. The results for the general Australian population are remarkably high on this issue (ranging from 97.6% for professional and managerial females to 86.9 per cent for not-employed males). In contrast the proportion of the Indigenous population who feel able to have a say within their community ranges from a high of 71.9 per cent for professional and managerial females to just 42.9 per cent for not-employed females.

TABLE 12. Indicative estimate of direct economic value (to individuals) of closing the gap in outcomes (for 20–64 year olds)

Scenario	Number of people affected by 'closing' the Indigenous/non-Indigenous gap	Increase in individual annual income (2011 dollars)	Increase in annual income of Indigenous population (2011 dollars)
Closing the employment gap	54,481	\$18,876	\$1,028,364,550
Achieving same occupational status if employed	17,941	\$26,364	\$473,136,464
Closing the degree gap	35,579	\$30,680	\$1,090,047,091

Note: Increases in income are in gross (pre-tax) terms. The number of people affected by 'closing' the Indigenous to non-Indigenous gap is estimated by applying the non-Indigenous outcomes (in terms of employment, educational attainment and occupational status if employed) to the non-Indigenous population. This is estimated from the data provided in Tables 2 and 3. The increases in individual income are estimated from the data provided in Tables 10 and 11. For the transition between other employment and high status occupations, the weekly value is based on the differences in personal income for non-CDEP scheme workers as there is no equivalent for the CDEP scheme in the non-Indigenous population. The Consumer Price Index (CPI) is used to adjust values to (June) 2011 dollars—the inflation factor is 1.127.

Source: Based on 2006 Census data.

Interestingly, the experience of discrimination in the previous 12 months is actually higher among professionals and managers compared to both the other employed and the non-employed of both sexes. This may be a 'cost' of being a manager or professional. High status jobs such as these are more likely to involve sustained and substantial contact with mainstream or non-Indigenous society. The non-employed and even the other employed may be able to keep their social contacts with 'like' people and hence reduce the experience of discrimination. This of course does not mean that they are actually experiencing lower levels of discrimination and bias.

Also notable is the fact that professionals and managers are around 20 percentage points more likely to say that their work allows them to meet their cultural obligations than are the other employed. There are a number of possible reasons for this including that the nature of the tasks being undertaken by professionals and managers may be more flexible than for some other occupations; professionals and managers tend to have more control over their working environment because they tend to be in higher level positions; and professionals and managers tend to be more expensive to train and replace from the employer's perspective and are therefore likely to be afforded greater flexibility. The same applies for Indigenous employees in workplaces with high concentrations of professionals and managers (such as the public service) where cultural obligations are recognised in workplace agreements.

Two clear messages emerge from these data. First, Indigenous people who are employed have much higher levels of income and achieve better outcomes across a range of other economic and social indicators compared to Indigenous people who are not-employed. Second,

amongst those employed, professionals and managers have higher income and overall better economic and social outcomes than those employed in other occupations.

Educational attainment and employment outcomes

The relationship between different levels of post-school qualification and employment rates is examined in Fig. 5 using 2006 Census data. Three observations emerge. First, there is an overall strong positive relationship. Second, this relationship is strongest among Indigenous people. Third, the biggest increase in employment comes from acquiring any sort of qualification. Indigenous Australians with no post-school qualification have a much lower employment rate compared to equivalent non-Indigenous Australians (45.6% compared to 65.6%). However, both Indigenous and non-Indigenous Australians with a degree level qualification have very similar and very high employment rates (83.3% and 85.3%). Thus the economic returns to post-school education overall are greater for the Indigenous population than for the non-Indigenous population. This is consistent with the findings of other studies (e.g. Gray & Hunter 2002; Biddle & Yap 2010).

Potential economic impact of increases in education attainment and occupational status of the Indigenous population

As indicated in the previous section there are substantial economic and social returns to individuals who are employed as professionals and managers and there are substantial economic (and social) returns to having a

degree or higher-level qualification. This section extends this analysis to estimate the potential impact of increasing the level of educational attainment and occupational status of the Indigenous population at the national level.

The potential impacts of increasing educational attainment and occupational status at the national level is illustrated using ‘thought experiments’ which are designed to illustrate the possible magnitude of the benefits. Three hypothetical scenarios are used, which provide an indication of the potential increase in the income of the Indigenous population if:

1. the employment rate of the Indigenous population increases to that for the non-Indigenous population
2. the proportion of the Indigenous employed who are professionals and managers increases to that for the non-Indigenous population, and
3. the proportion of the Indigenous population with a degree or higher level qualification increases to that for the non-Indigenous population.

The hypothetical scenarios are constructed using information on employment rates, occupation status and educational attainment of the Indigenous and non-Indigenous populations estimated from the 2006 Census. The impact of changes in employment rates, occupation status and educational attainment of the Indigenous population on individual income for each of the hypothetical scenarios is estimated using data on income estimated from the 2008 NATSISS.

The results of estimating these three scenarios are shown in Table 12. The first column shows the number of people who would have to change status (e.g. from not having a degree to having a degree) in order to close the gap between the Indigenous and non-Indigenous population. The second column of Table 12 shows the additional individual income generated by each scenario. In the third column, the increase in annual national income for the Indigenous population for each scenario is shown. These are constructed by calculating the increases in weekly income and multiplying this by the number of Indigenous people who would experience increase in their individual incomes under each scenario.

In order to ‘close the gap’ in employment so that the Indigenous employment to population rate was equal to the non-Indigenous rate, an additional 54,481 Indigenous people would have to find work (Table 12).¹⁰ Given that Indigenous people who are employed receive on average \$363 per week more than those not-employed (in 2011 dollars), this would lead to Indigenous income increasing by over \$1 billion (in 2011 dollars).

In contrast, the estimates indicate that if Indigenous people were just as likely to be employed in high status occupations as non-Indigenous Australians, without changing their overall employment prospects, then Indigenous income would increase by just over \$473 million. This is a substantial sum, albeit less than half the increment from closing the employment gap. The reason for this difference is that equating employment prospects affects the whole Indigenous population, whereas the hypothetical that focuses on high status occupation only affects a small proportion of the employed population.

One way to improve Indigenous employment prospects and enhance the rates at which people can take up jobs in high status occupations is to complete a degree. The annualised value of this hypothetical change is \$1.09 billion. The incremental value of getting a degree vis-à-vis not having a degree is higher than the change from a lower status occupation to being a manager and professional (i.e. \$590 versus \$507) because it captures both the increased employment rate associated with higher education and the higher incomes if employed. Over a lifetime of workforce participation this annual figure obviously becomes very substantial—in the tens of billions of dollars. The main message, though, is that while increasing the participation of Indigenous people in high status occupations is important, it is even more important to increase the overall employment rate (irrespective of occupation).

It should be emphasised that the use of estimated increases in personal income results in a conservative assessment of the national benefits of increases in Indigenous educational attainment and occupation status. This is because it does not take into account the broader societal benefits or the non-pecuniary benefits from enhanced health, participation in social life and so on, that may be directly enhanced by the experience of employment, education and working in higher status occupations. For example, as demonstrated above, professionals and managers have greater control over their working conditions and are more likely to feel able to have a say on important community matters. While, in principle, dollar values could be estimated for these other benefits, in practice this would be very difficult to do in a convincing fashion and is not attempted here.

So far, the analysis has focused on benefits that arise from increases in educational attainment and occupation status. In accounting terms, we could also identify a set of costs that are associated with maintaining the status quo in the event that improvements in education and occupational status do not occur; that is the opportunity cost of not achieving parity in these rates with the non-Indigenous population. These costs are very substantial and include:

- the foregone income costs to the individual (quantified in this paper)
- non-economic costs to the individual associated with higher morbidity and mortality rates, higher levels of crime and incarceration and social and political marginalisation
- economic and non-economic costs to other members of the community including costs such as those associated with being a victim of crime, poor parenting and family dysfunction and breakdown
- costs to all levels of government arising from the remedial actions required to address the higher levels of Indigenous disadvantage.

The costs associated with social ills such as morbidity and mortality and crime are very high and difficult to establish with any degree of rigour. However, indications of how extensive these costs can be are available from a number of sources. For example, according to the Productivity Commission's 2010 Indigenous Expenditure Report the corrective services costs in 2008–09 for the Indigenous population were \$1,694 per head compared to just \$107 per head for the non-Indigenous population (Indigenous Expenditure Report Steering Committee 2010: 339). Also, in relation to health expenditure, expenditure per person on primary and secondary/tertiary health services in 2006–07 was \$5,352 for the Indigenous population compared to \$4,014 for the non-Indigenous population (Steering Committee for the Review of Government Service Provision 2011). It should be noted as well that the overall costs associated with the above will rise over time in line with the projected rapid increases in the Indigenous population in coming decades. The latest long-term projections produced by CAEPR indicate an overall Indigenous population of 847,000 by 2031, up from 517,000 in 2006 (Biddle & Taylor 2009).

The hypotheticals used here are a heuristic device intended to indicate the relative importance of policies designed to achieve various objectives. Constructing the hypothetical scenarios requires many assumptions and thus the estimates should be seen as indicative only. There is no magic pill that allows anyone to get a degree or secure employment in highly skilled, high status occupations. Indeed, there are considerable barriers to achievement. For example, professionals and managers are considerably older and more productive than other workers and it is quite likely that some of their higher wages result from higher levels of experience both in the workforce and within the job. Accordingly, maximising Indigenous workforce participation and engagement in tertiary education are both crucial pre-conditions for further gains in the Indigenous engagement in high status occupations.

Barriers to increasing the level of Indigenous employment in professional and managerial occupations

In 2006, 80 per cent of employed Indigenous people who had a degree or higher qualification were employed as professionals or managers. This proportion was very similar for non-Indigenous employees with degrees and, remarkably, census data indicate that it has barely changed at all for both groups since 1996. The simple point to note here is that the first step towards growing the professional and managerial base is to continue to increase the rate at which the number of Indigenous degrees are awarded. Having said that, we have also noted that not all Indigenous people who are professionals or managers have a degree — although it is true that the proportion of those without a degree has steadily declined as the workforce overall has become more professionalised.

At one level, then, the barriers to further raising the numbers of Indigenous people in professional and managerial occupations are the same as those that prevent an expansion of degree enrolment and acquisition. These barriers extend to all of the issues surrounding achievement during the years of compulsory schooling and beyond, to Year 12 completion, that have been highlighted by the Closing the Gaps Clearinghouse (Purdie & Buckley 2010; Helme & Lamb 2011). They include a mix of family circumstances (intergenerational low socioeconomic status, poor housing, lack of role models and an 'us and 'them' attitude between schools and parents), school circumstances (inadequate welfare support practices especially in the early years of schooling, poor teaching and low expectations of Indigenous students, inconsistent approaches to absenteeism between and within schools, unsuitable curriculum for some pupils, too few out-of-school/alternative curriculum places), and individual circumstances (bullying, peer pressure, lack of career aspirations and low self-esteem). Recent results from the Longitudinal Surveys of Australian Youth also indicate that Indigenous youth are susceptible to many of the risk factors that work against successful transitions from school to post-school study and on to employment (Liu & Nguyen 2011). While such issues are not the focus of the present analysis, our findings do offer some important related insights.

First of all, we note the skewed distribution of Indigenous degree enrolments by field of study and the likely relationship between this and the consequent spread of subsequent professional and managerial occupations. While there is no doubt that Indigenous enrolments in degree courses have increased, this has not been accompanied by a broadening of the distribution of enrolments across fields of study with substantial concentration persisting in just three subject areas: education, health, and society and culture. While there is a good deal of concentration of non-Indigenous enrolments

in these same areas, there is also a much wider spread into areas such as management and commerce, natural and physical sciences, information technology, engineering, and architecture and building. Apart from the effect of narrowing the range of potential professional and managerial opportunities for Indigenous graduates, this relative concentration also restricts access to higher paying/higher status professional and managerial positions that tend to be associated with more scientific-based professions. This may be partly reflected in the gaps in social and economic outcomes for Indigenous and non-Indigenous professionals and managers shown in Tables 10 and 11. Also worth noting is the relative status of Indigenous employees within professions. Previous analysis of occupational prestige using the ANU 3 scale found that Indigenous professionals and managers tended to occupy lower prestige jobs than their non-Indigenous counterparts (Taylor 1994).¹¹ Hopefully, this reflects a lag in work experience and seniority, but it may also reflect an older age at completion of tertiary qualifications for Indigenous students.

The second insight concerns the relative physical access of potential Indigenous students to locations that have a higher education institution. A total of 49 cities and towns across Australia host a university or one of its campuses and offer degree-level courses. Not surprisingly, this distribution is strongly correlated with the distribution of population and consequently most campuses are located in metropolitan areas and then regional centres. Given the social and economic costs of living away from home to attend university, as well as the diminished capacity of institutions for community outreach to non-local populations, 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. This presents a spatial/structural barrier to university enrolment and completion that is multi-dimensional and raises issues about social and financial support structures, accommodation, travel arrangements, community role models and career expectations. While the precise consequences are under-researched, a basic matrix of 'university of attendance' by 'usual place of residence' for Indigenous students could provide a basis for establishing the likely scale and composition of related issues.

Against this geography of restricted higher education access, it is interesting to reflect on the very different situation facing Indigenous people in relation to accessing the Vocational Education and Training (VET) sector. VET institutions are almost ubiquitous across Australia. Obviously some spatial hierarchy is involved, but almost all localities have some physical presence of a VET institution or provider. This proximity is reflected in the far greater participation of all Australians in VET compared to higher education, although Indigenous participation is much greater on a ratio basis—in 2010, non-Indigenous Australians were two times

more likely to be enrolled in a VET course than a university course; Indigenous Australians were eight times more likely. As a proportion of the estimated working-age population (15–64 years) 23 per cent of Indigenous adults were enrolled in a VET institution in 2010 compared to just 3 per cent in a university. Of course, many of these VET enrolments are at the lower end of qualification and driven by Job Network activities, but the number of Indigenous completions at diploma level each year is around half the annual number of higher education award course completions.

This raises a number of issues for consideration. First of all, does the VET sector act as a diversion from higher education enrolment because of its easier accessibility? Given the scale of Indigenous VET engagement, would greater articulation between the sectors in terms of course offerings and accreditation provide one way of enhancing participation in higher level tertiary activities and ultimate progression into a professional occupation?

Our final observation may present as a barrier or as a lasting and singular opportunity. This concerns the demographic ageing of the Indigenous population that is currently underway due to decline in fertility and increased survival. Recent population projections indicate a rising share in the Indigenous population of working-age individuals (15–60 year olds) in the decades ahead (ABS 2009; Biddle & Taylor 2009) and this will have two sets of consequences for Indigenous social policy. First, there will be a need for increasing numbers of Indigenous graduates and professionals just to keep up with population growth and maintain current rates of participation. This may present as a barrier to sustained achievement. On the other hand, the growth in the working-age population may be seen as an opportunity for significant economic return due to an increase in the proportion of potential economic producers relative to young and old consumers.

Over the next few decades projections point to a minimisation in the Indigenous age dependency ratio until ageing itself leads to an eventual resurgence. Demographers refer to this phase of demographic transition as a period of demographic dividend reflecting a potential for maximising income, savings and investment returns to the population as a whole, so long as implicated cohorts are in a position to be productively engaged (Bloom & Williamson 1998; Jackson 2008). While every country in the world is expected to have moved into this phase of transition by the middle of the present century the Australian population as a whole has already moved beyond it (Bloom, Canning & Fin 2010). Significantly, the Australian population benefitted along the way by being educated before it became 'old'; the risk now, unless major effort is made, is that the Indigenous population might become 'old' before it becomes educated (Jackson 2008: 225). That would represent a unique opportunity lost.

Notes

1. The 2006 Census introduced a new classification for occupation statistics. The ANZSC replaced the Australian Standard Classifications of Occupations (ASCO) 2nd edition which was used in the 2001 Census. The 2006 Census also has available occupation statistics coded using the ASCO 2nd edition to allow comparisons over time. While the 1996 Census used the first edition of ASCO, there are concordances available over time to allow for analysis of trends (ABS 2006).
2. This is consistent with a long-standing literature which takes the view that 'differences between "professionals" and "managers" are differences of degree rather than kind' (Hughes 1958 in Evetts 2003: 400) and often includes managers in the professional category.
3. Due to changes over time in ABS occupational classification it is only possible to establish time series in the growth of professional and managerial occupations for the period 1996 to 2006 using ASCO2.
4. Based on the new ANZSCO classification introduced for the 2006 Census. The number of professionals and managers under according to the ANZSCO classification differs slightly to the number according to the ASCO2 classification.
5. It is also the case that these numbers are based on census counts only and so they do not include any individuals who did not state their occupational status and/or Indigenous status, nor do they adjust for any census undercount. As such, they are an underestimate of actual numbers in these categories. Nonetheless, they are still useful for identifying relative category size.
6. The 2008 NATSISS and 2006 GSS have been designed to allow comparability between the Indigenous population and the general Australian population. An important difference is that the 2006 GSS did not collect data from very remote areas whereas the 2008 NATSISS did collect data from these areas. Because only a very small proportion of the Australian population lives in very remote areas, exclusion of these areas does not seriously affect the representativeness of the 2006 GSS.
7. The gaps between males and females reported here reflect the cross-sectional characteristics between people of different labour force status.
8. The proportion of professionals and managers whose main job is part of the CDEP scheme is 7% for males and females (not shown in Table 10). The proportion of the other employed who are CDEP employed is 6% for females and 7% for men. The small minority of professionals and managers employed in the CDEP scheme have much lower personal income than those in non-CDEP employment (\$369 per week compared to \$1,053 per week). The difference in personal incomes between professionals and managers, other employed and the non-employed are all statistically significant for both females and males.
9. In order to compare the financial living standards of households of different compositions and sizes it is necessary to adjust for household income for these differences which affect costs of living. Household income is conventionally adjusted for differences in household composition and size using an equivalence scale. This paper uses the modified OECD equivalence scale (Hunter et al. 2004).
10. This assumes that the average hours worked was the same for the Indigenous and non-Indigenous populations. This is not an unreasonable assumption given the current average hours worked by the Indigenous population is not dissimilar to that for the non-Indigenous population, once CDEP employment is excluded.
11. The ANU 3 scale is an index of occupational prestige developed at the ANU (Jones 1989). It has a demonstrable socioeconomic basis in the Australian labour market. It is linked to popular ratings of the general social standing of jobs, and provides a bridge between these and ASCO via such census characteristics as age, sex, employment status, hours worked, income, qualifications and years of schooling.

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