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Effectiveness of traineeships and apprenticeships for the Aboriginal and Torres Strait Islander population

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Summary

What we know

- Indigenous Australians, particularly females, are more likely than the rest of the population to participate in apprenticeships and traineeships, mostly due to the relatively younger demographic structure of the Indigenous population (as apprenticeships are typically undertaken during youth).
- Among those enrolled in apprenticeships and traineeships, Indigenous students are more likely to be participating in courses of study leading to lower qualifications (Certificate I and II).
- For both Indigenous and non-Indigenous students, the key determinant of field of study is gender: males are much more likely to be participating in apprenticeships and traineeships that will result in them becoming tradespersons or related workers, and females are more likely to be working towards an occupation as an Intermediate Clerical, Sales and Service Worker.
- Indigenous Australians are less likely to be employed across all age groups.
- Apprenticeships are commonly seen as a useful tool for 'Closing the Gap'.
- Not all apprentices and trainees are employed, but they have a much higher rate of employment compared with other students (52.1% of Indigenous apprentices are employed, compared with 31.6% of other Indigenous students).

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- When surveyed, students generally report the benefits of having an apprenticeship as being to 'advance my skills more generally' and having the 'satisfaction of achievement'. However, in addition to these universal benefits, Indigenous Australians are also much more likely to report being 'seen as a role model for others in the community'.

What works

- Evidence from overseas studies suggests that participation in traineeships and apprenticeships can have a positive effect on employment outcomes and earnings.
- A statistical analysis of the Skilling Queenslanders for Work (SQW) program found that almost 15% of those who found employment through the SQW programs would not have otherwise been able to find employment.
- Pre-apprenticeship training nearly doubles the chance of enrolment in an apprenticeship from a base of about 10% of potential students. Pre-apprenticeship training can also be associated with higher job satisfaction, although the evidence is inconclusive.
- Reviews of some Indigenous-specific training and employment programs show a positive effect on employment and education and relatively high levels of job satisfaction for participants.
- It appears that the provision of mentors reduces cancellation rates for Indigenous apprentices.

What doesn't work

- An analysis of the Australian Apprenticeship Incentive Scheme found that incentives increase the number of people commencing an apprenticeship, but the scheme has no effect on retention.
- Apprenticeships have very little effect on employment outcomes (increased hours or wages) for those who were employed before training.

What we don't know

- There is a need for more robust data on the diverse effects of apprenticeships in an Australian, and particularly an Indigenous Australian, context. Existing studies suffer from self-selection bias. Furthermore, often only participants in apprenticeships are included in the studies, so it is possible that the observed outcome is linked to an unobserved characteristic shared by those who enrol (for example, above-average levels of motivation) that is not uniform across the population.
- Although there are many effective Indigenous-specific trainee programs in industries where Indigenous engagement is already relatively high (for example, mining and land management), there is no analysis on whether or not programs in these industries are more effective than other programs (for example, programs by the National Australia Bank as part of their Reconciliation Action Plan).
- One missing piece of evidence on effective apprenticeships and traineeships is the extent to which Indigenous apprentices and trainees are discriminated against or treated unfairly in different industries, regions and employer types.

Introduction and overview

Broadly speaking, an apprentice or trainee is a person who enters into a contract of training with an employer and a training provider (NCVER 2010). According to the foreword to Knight (2012:3):

The apprenticeship model—a combination of paid employment, on-the-job and institutional training—has always had particular appeal for meeting intergenerational skills transfer: it provides employers with a source of low-cost labour, the apprentice with paid employment, and an opportunity for government to subsidise employment for those needing help to establish themselves in the labour market.

Apprenticeships have a long history in Australia and were imported formally from Great Britain at the time of colonisation in 1788 (Knight 2012). One could argue, however, that less formal systems of intergenerational transfer of skills and knowledge exist in all societies, including that of the Indigenous population prior to colonisation. The aim of this paper, though, is to provide an overview of the data and evidence related to the experience and effectiveness of apprenticeships and traineeships for the current Indigenous population of Australia.

In the modern Australian economy, there is a potentially strong role for apprenticeships and traineeships to contribute to the socioeconomic development of the Indigenous population. As is demonstrated by Figure 1, Indigenous Australians aged 15–29 (the traditional age of participation) are much more likely to be neither studying nor participating in paid employment than non-Indigenous Australians of the same age. This figure, which is presented separately by 5-year age groups, sex and Indigenous status, gives the percentages of the relevant populations in the 2011 Census of Population and Housing who were: studying and employed, studying but not employed, employed but not studying and neither employed or studying.

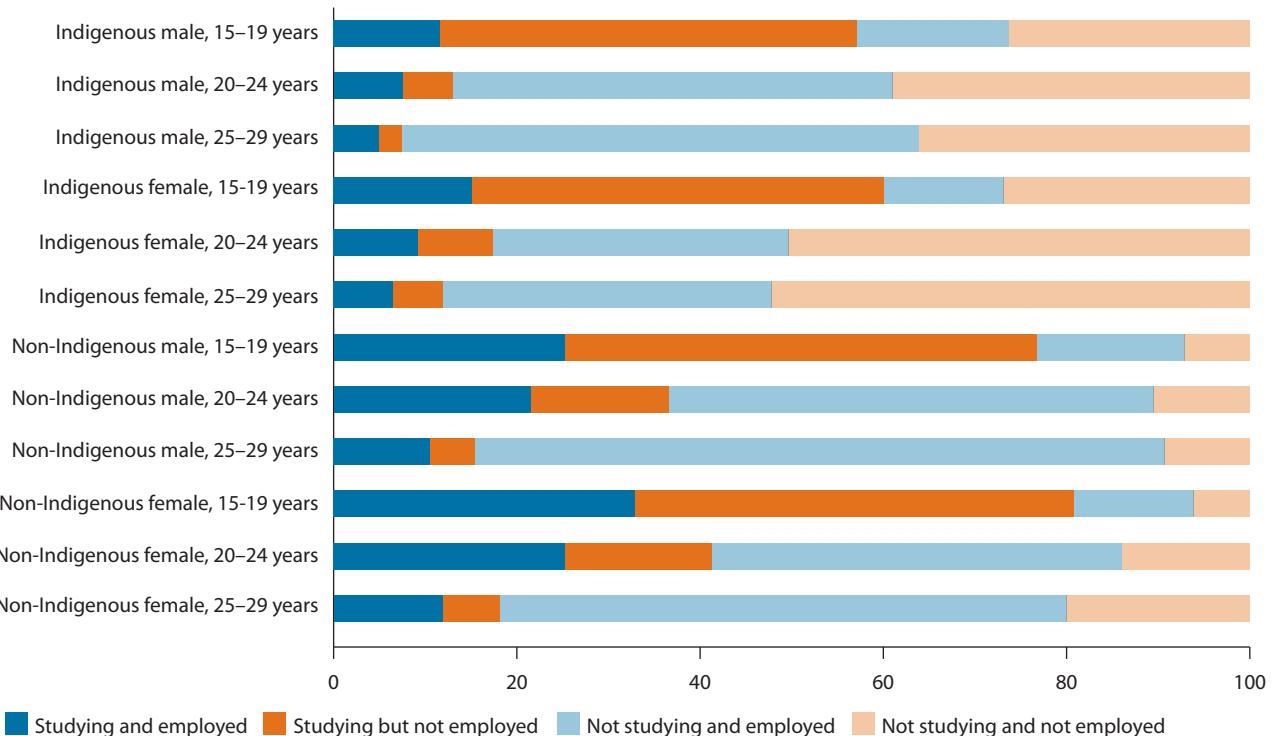


Figure 1: Indigenous and non-Indigenous males and females by employment and student status, 2011

Source: Customised calculations using the 2011 Census of Population and Housing.



The left-hand side of the chart shows that for both Indigenous and non-Indigenous males and females, participation in study decreases with age, alongside an increase in employment. However, the right-hand side of the table shows that for all age groups, Indigenous Australians are more likely to be not studying and not employed than their non-Indigenous counterparts. Indeed, for females aged 20 and over, more than half of the population is neither studying nor working.

To understand the potential for formal arrangements to reduce this difference, the paper begins with a description of what is meant by apprenticeships and traineeships and the participation in them for Indigenous Australians. The remainder of this section looks at the broader policy context (including a brief discussion of the Closing the Gap targets and their relevance to this issue). This is followed by a discussion of the available evidence related to these programs, drawing on information from Australia and overseas and focusing, where possible, on programs that have a focus on Indigenous Australians or similar populations. There is only a limited amount of published research on this issue. In the final section, therefore, there is a discussion of research gaps and how we might go about filling them.

Background—what are apprenticeships and traineeships and who uses them?

The National Centre for Vocational Education Research (NCVER) provides a glossary of terms and concepts related to Vocational Education and Training (VET). According to the most recent version of the glossary (Naidu et al. 2013:12), apprenticeships are part of 'a system of training regulated by law or custom which combines on-the-job training and work experience while in paid employment with formal (usually off-the-job training). The apprentice enters into a contract of training or training agreement with an employer, which imposes mutual obligations on both parties.' A traineeship, on the other hand is 'a system of vocational training combining off-the-job training with an approved training provider with on-the-job training and practical work experience' (Naidu et al. 2013:109).

There are clear similarities between the two, and the terms are often used interchangeably. However, there are important differences. With regards to length, an apprenticeship tends to go for 3 to 4 years, whereas traineeships usually last for 1 or 2 years. There are also differences in the focus of employment: apprenticeships are more likely to have a training component as part of their paid employment, and traineeships are more likely to have an on-the-job or a work experience component (which may or may not be paid) as part of their training. The distinction is not always clear-cut and data for the two are often combined.

Patterns of participation—by age and jurisdiction

According to online data available as part of VOCSTATS (NCVER 2014), there were 603,582 Australians engaged in an apprenticeship or a traineeship as at January–March 2013. Of these, 22,295 were identified as being Indigenous (3.7% of the total), and the Indigenous status of another 8,250 was not known (1.4% of the total). Leaving aside the latter group, the following table gives the number of Indigenous and non-Indigenous males and females participating in an apprenticeship or traineeship by state and territory. The first column of percentages alongside these numbers gives the percentage of all Indigenous apprentices and trainees that are enrolled in that jurisdiction. For the Indigenous population, the second column of percentages gives the per cent of trainees and apprentices in that jurisdiction who are Indigenous.

The results presented in Table 1 show that there are large gender and geographic differences across Indigenous and non-Indigenous trainees and apprentices. According to population estimates from the Australian Bureau of Statistics (ABS 2013), Indigenous Australians made up 3.0% of the total Australian population around the time of the 2011 Census. Comparing that with the results presented in Table 1, there are a relatively high percentage of Indigenous males and females in an apprenticeship or traineeship, with the difference greatest among females.

Table 1: Apprentices and trainees by state/territory and Indigenous status, January–March 2013

State/Territory	Indigenous						Non-Indigenous					
	Males			Females			Males			Females		
	Number	% of Australia	% Indigenous	Number	% of Australia	% Indigenous	Number	% of Australia	Number	% of Australia	Number	% of Australia
New South Wales	4,558	33.5	3.9	2,966	34.1	4.3	111,856	29.9	65,330	32.7		
Victoria	1,272	9.4	1.3	766	8.8	1.6	94,792	25.4	46,330	23.2		
Queensland	3,673	27.0	4.5	2,227	25.6	5.0	77,546	20.8	42,731	21.4		
South Australia	677	5.0	2.1	436	5.0	2.7	31,126	8.3	16,010	8.0		
Western Australia	1,926	14.2	4.6	1,074	12.3	6.0	39,510	10.6	16,825	8.4		
Tasmania	486	3.6	5.4	351	4.0	6.0	8,554	2.3	5,526	2.8		
Northern Territory	748	5.5	20.3	634	7.3	32.8	2,936	0.8	1,297	0.6		
Australian Capital Territory	247	1.8	3.3	253	2.9	4.4	7,177	1.9	5,490	2.8		
Total (Australia)	13,587	100.0	3.5	8,708	100.0	4.2	373,497	100.0	199,540	100.0		

Source: Customised calculations using publicly available data from VOCSTATS.

Note: % of Australia refers to the percentage of the total number of apprentices and trainees in that jurisdiction, whereas % Indigenous refers to the percentage of apprentices and trainees in the jurisdiction who are identified as being Indigenous.

Around 60% of Indigenous male and female apprentices and trainees were studying in New South Wales and Queensland. A further 14.2% and 12.3% respectively were enrolled in Western Australia. However, Indigenous Australians made up the largest share of all apprentices and trainees in the Northern Territory. This was particularly the case for females, where nearly one-third of all apprentices and trainees in that jurisdiction were Indigenous.

Table 2 replicates this analysis by looking at the distribution across 4 age groups in the number of apprentices and trainees. In absolute terms, the greatest number of Indigenous apprentices and trainees were aged under 20, with 35.8% and 40.2% of Indigenous males and females falling into this group. This was slightly higher than the relevant percentages for non-Indigenous males and females (28.9% and 26.2% respectively). However, there is still a significant minority of apprentices and trainees in the last two categories, which Knight identifies as being an increasing trend. Specifically ‘In the last 50 years ... there has been a shift from a system that was almost exclusively for young people who had recently left school (in earlier times this was usually part-way through secondary schooling) to one that covers people of all ages’ (Knight 2012:26).

It is clear from the data in Table 2 that apprentices and trainees are relatively young. This is not surprising when you consider the nature of the programs. Given the much younger age structure of the Indigenous compared to the non-Indigenous population (ABS 2013), one question that arises is whether the higher rate of participation discussed above holds for smaller age groupings. Figure 2 shows that this is not necessarily the case.

Table 2: Apprentices and trainees by age group and Indigenous status, January–March 2013

State/Territory	Indigenous						Non-Indigenous					
	Age	Males			Females			Males			Females	
		Number	% of Australia	% Indigenous	Number	% of Australia	% Indigenous	Number	% of Australia	% Number	% of Australia	
19 and under	4,865	35.8	4.3	3,498	40.2	6.3	107,862	28.9	52,301	26.2		
20–24 years	4,041	29.7	3.7	2,011	23.1	4.4	103,937	27.8	43,322	21.7		
25–44 years	3,866	28.5	3.2	2,369	27.2	3.4	118,497	31.7	67,464	33.8		
45 and over	815	6.0	1.9	830	9.5	2.2	43,202	11.6	36,453	18.3		
Total (Australia)	13,587	100.0	3.5	8,708	100.0	4.2	373,497	100.0	199,540	100.0		

Source: Customised calculations using publicly available data from VOCSTATS.

Note: % of Australia refers to the percentage of the total number of apprentices and trainees in that jurisdiction, whereas % Indigenous refers to the percentage of apprentices and trainees in the jurisdiction who are identified as being Indigenous.

Figure 2 expresses the number of Indigenous and non-Indigenous males and females participating in an apprenticeship or traineeship by 5-year age group (according to VOCSTATS) in January to March 2013 as a proportion of the Estimated Resident Population (based on the 2011 Census). Looking at 15–19 year olds, there was a higher rate of participation for non-Indigenous males than for Indigenous males in this age group. The reverse was true for females: Indigenous females had a higher rate of participation than non-Indigenous females (though still lower than Indigenous males).

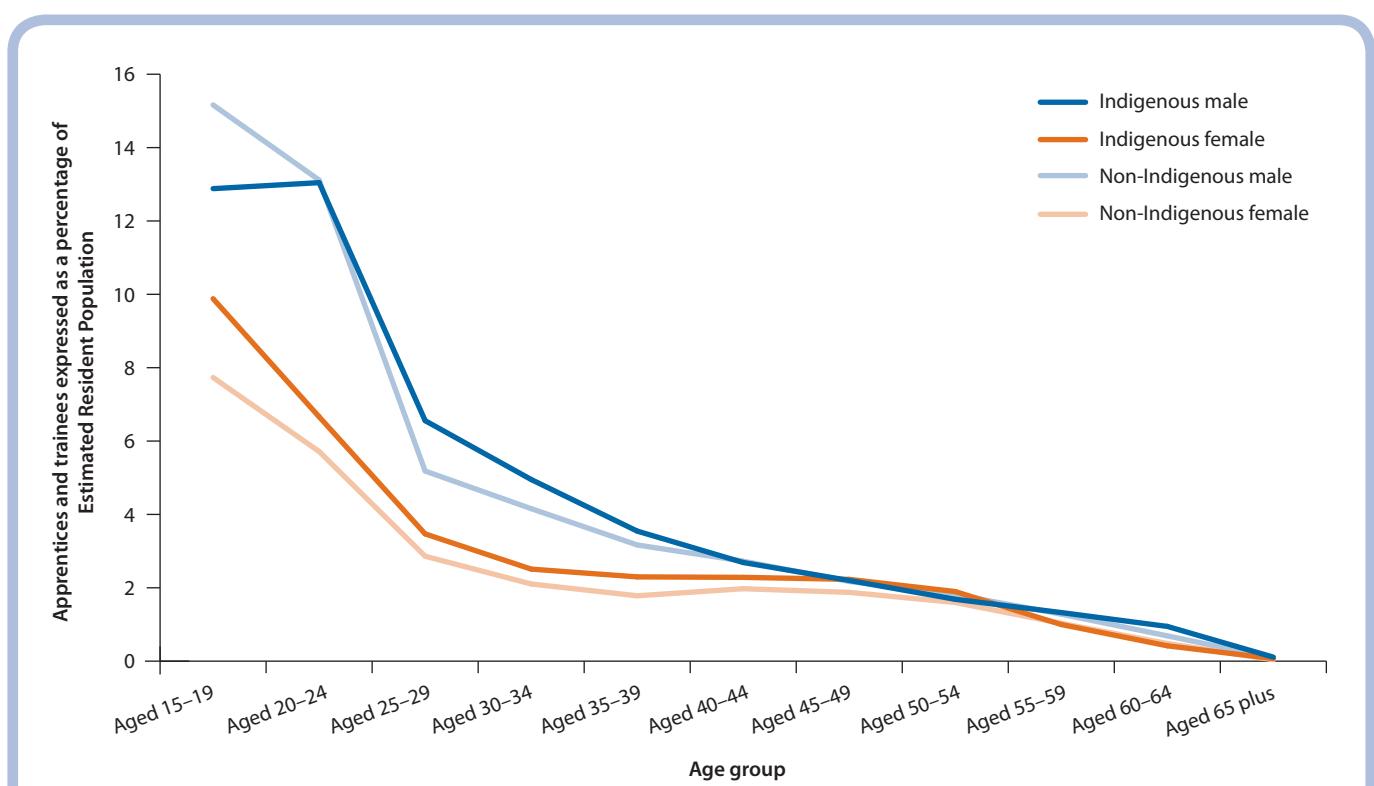


Figure 2: Indigenous and non-Indigenous males and females participating in an apprenticeship or traineeship by age in 2013, as a percentage of the Estimated Resident Population in 2011

Source: Customised calculations using publicly available data from VOCSTATS.

Across the age distribution, 6.4% of Indigenous males and 4.3% of Indigenous females were participating in apprenticeships and traineeships in early 2013 (using the Estimated Resident Population as the denominator). These rates are 1.5 times and 1.8 times as high as the respective non-Indigenous rates. However, if the Indigenous population had the same age distribution as the non-Indigenous population (but their own age-specific participation rates) then only 4.3% of Indigenous males and 2.7% of Indigenous females would have been participating. Although this was still 1.2 times as high as the non-Indigenous rate for females, it was essentially the same rate as for the non-Indigenous male population. In essence, much of the difference in participation for Indigenous females and all the difference for Indigenous males is driven by the fact that Indigenous Australians aged 15 and over tend to be concentrated in those age groups where apprenticeships and traineeships are likely to occur.

Patterns of participation—by qualification and occupation

One major difference between Indigenous and non-Indigenous Australians who are participating in an apprenticeship or traineeship is the type of qualification being studied. This is demonstrated in Figure 3, which gives the percentage of relevant Indigenous and non-Indigenous males and females by four broad categories—Diploma or higher; Certificate IV; Certificate III; and Certificate I/II.

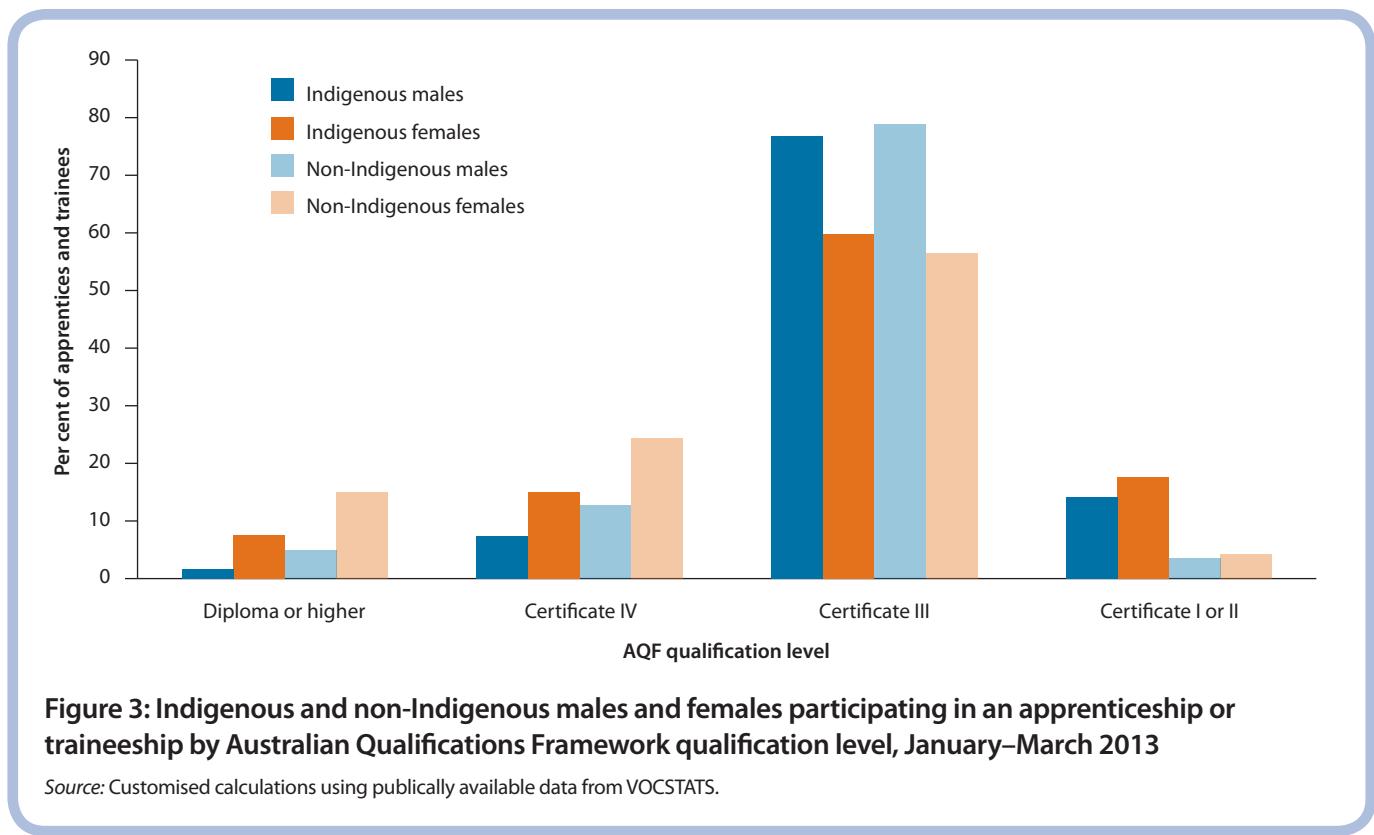


Figure 3: Indigenous and non-Indigenous males and females participating in an apprenticeship or traineeship by Australian Qualifications Framework qualification level, January–March 2013

Source: Customised calculations using publicly available data from VOCSTATS.

Across all four groups, the majority of apprentices and trainees were found to be enrolled in a Certificate III; this was especially the case for males. Some 76.8% of Indigenous males and 78.8% of non-Indigenous males, and a much smaller proportion of Indigenous and non-Indigenous females were enrolled in a Certificate III (59.7% and 56.5% respectively). Females, and non-Indigenous females in particular, made up a higher percentage of those enrolled in a Certificate IV or Diploma/Advanced Diploma. Regardless of gender, the Indigenous population was more likely to be enrolled in a Certificate I or II.

Given these differences in qualifications, it is not surprising that the expected occupation of the apprentice or trainee will be very different for Indigenous and non-Indigenous males and females. This is demonstrated in Figure 4, which breaks down the respective apprentice and trainee populations by major occupation group (based on the one-digit Australian Standard Classification of Occupations).

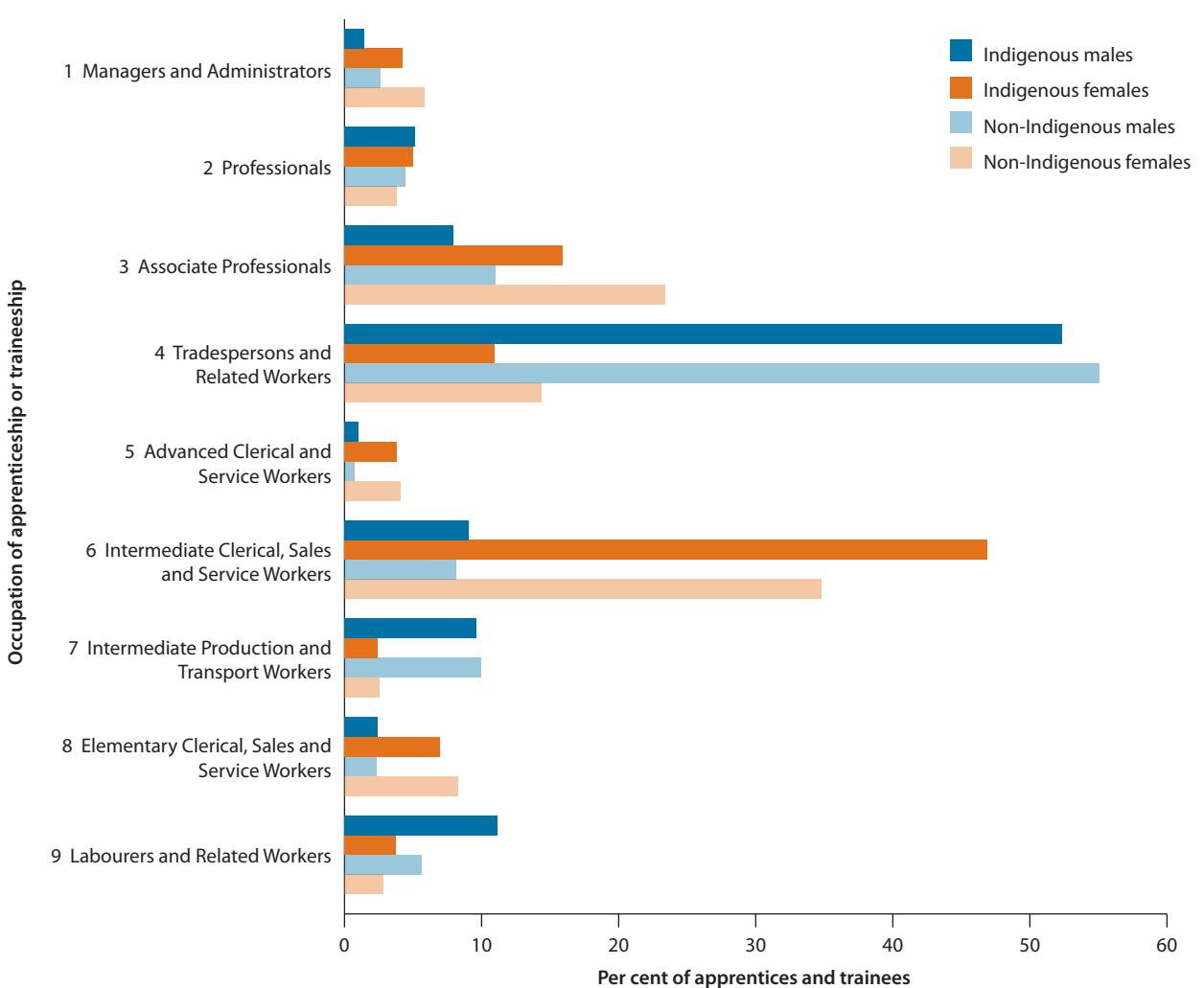


Figure 4: Indigenous and non-Indigenous males and females participating in an apprenticeship or traineeship by occupation, January–March 2013

Source: Customised calculations using publicly available data from VOCSTATS.

Although there were some differences by Indigenous status in terms of occupation, Figure 4 shows that the biggest differences are between males and females. The former are much more likely to be participating in apprenticeships and traineeships, which will result in them becoming tradespersons or related workers. Females, on the other hand, are more likely to be working towards an occupation as an Intermediate Clerical, Sales and Service Worker.

Increasingly, apprenticeship and traineeship programs can form part of the student's schooling curriculum. This is generally done in the last few years of school when students work part time and study with the aim of gaining a recognised non-school qualification at the end of the traineeship. However, according to Karmel and Mlotkowski (2008:8):

Despite recent government policy initiatives, the number of school-based apprentices and trainees is still small compared with all young apprentices and trainees. In 2007, all commencing apprentices and trainees aged 19 years and under numbered 114,800, while school-based apprentice and trainee commencements numbered 19,100. The majority of school-based apprentices and trainees were aged 15 and 16 years, and there were roughly equal numbers of males and females.

Potential outcomes of an apprenticeship or traineeship

Given the nature of these programs, the main desired outcome from participating in an apprenticeship or traineeship is improved employment prospects. There is some empirical evidence that participation is associated with such an improvement. Of the 384,911 respondents to the Student Outcomes Survey (SOS) between 2005 and 2012, 70,463 did their training as part of an apprenticeship or traineeship, and another 314,448 trained outside such an arrangement.

Leaving aside the 2,455 respondents who did not state their Indigenous status, Table 3 gives the employment status of respondents after their training has been completed; this information has then been cross-tabulated with employment status before the training commenced. This is given separately for Indigenous and non-Indigenous respondents.

Table 3: Employment outcomes before and after training for Indigenous and non-Indigenous respondents, January–March 2013

		Indigenous		Non-Indigenous	
		Apprentice/trainee	Other	Apprentice/trainee	Other
Employed before training	Employed after training	1,669	4,539	46,652	203,177
	Not employed after training	283	743	4,034	20,070
	Per cent employed	85.5	85.9	92.0	91.0
Not employed before training	Employed after training	574	1,070	9,882	28,978
	Not employed after training	528	2,315	4,488	45,218
	Per cent employed	52.1	31.6	68.8	39.1

Source: Customised calculations using publicly available data from VOCSTATS.

Looking at the first few lines of Table 3, there is very little difference in employment outcomes between apprentices and trainees compared to other students amongst SOS respondents who were employed before training. For both groups of students, employment was lower for Indigenous respondents compared to non-Indigenous respondents, but whether or not the student participated in an apprenticeship or traineeship didn't seem to matter. On the other hand, there was quite a large difference in employment outcomes for those who weren't employed before training. Amongst Indigenous students, 52.1% of apprentices and trainees were able to find work after they finished; in contrast, only 31.6% of other students were able to find work after they finished. The difference was even greater for non-Indigenous students (68.8% compared to 39.1%). Although these data do not demonstrate causality, the results from the SOS gives *prima facie* evidence that the employment focus of apprenticeships and traineeships can lead to enhanced employment outcomes.

Gaining any form of employment is not the sole aim of apprenticeships and traineeships. Rather, the aim for many will be to improve the pay and conditions of their employment either through advancement within their current job or, more likely, obtaining a new job. One determinant of such conditions is skill level. According to the SOS, around 26.7% of Indigenous respondents who trained as part of an apprenticeship or traineeship reported that they improved their skill level. Although slightly lower than the 29.9% of non-Indigenous apprentices and trainees who reported such an improvement, it is still significantly and substantially higher than the 12.6% of other Indigenous students.

Respondents to the SOS are also asked for their subjective view of the outcomes from their training. Broadly speaking, Indigenous apprentices and trainees were slightly more satisfied with the training than were other Indigenous students, but slightly less satisfied than non-Indigenous apprentices and trainees.

For example, 93.2% of Indigenous respondents who were apprentices and trainees reported that the training 'Fully or partly achieved [the] main reason for doing the training' (after excluding those who didn't know whether it did or it didn't). This is slightly higher than the 89.0% of other Indigenous students, but lower than the 95.9% of non-Indigenous apprentices and trainees.

The vast majority of Indigenous and non-Indigenous apprentices and trainees reported some form of personal benefit from their training (97.2% and 96.0% respectively). Figure 5, however, shows that there are particular benefits that were more likely to be reported by Indigenous students and those who did their training as part of an apprenticeship or traineeship.

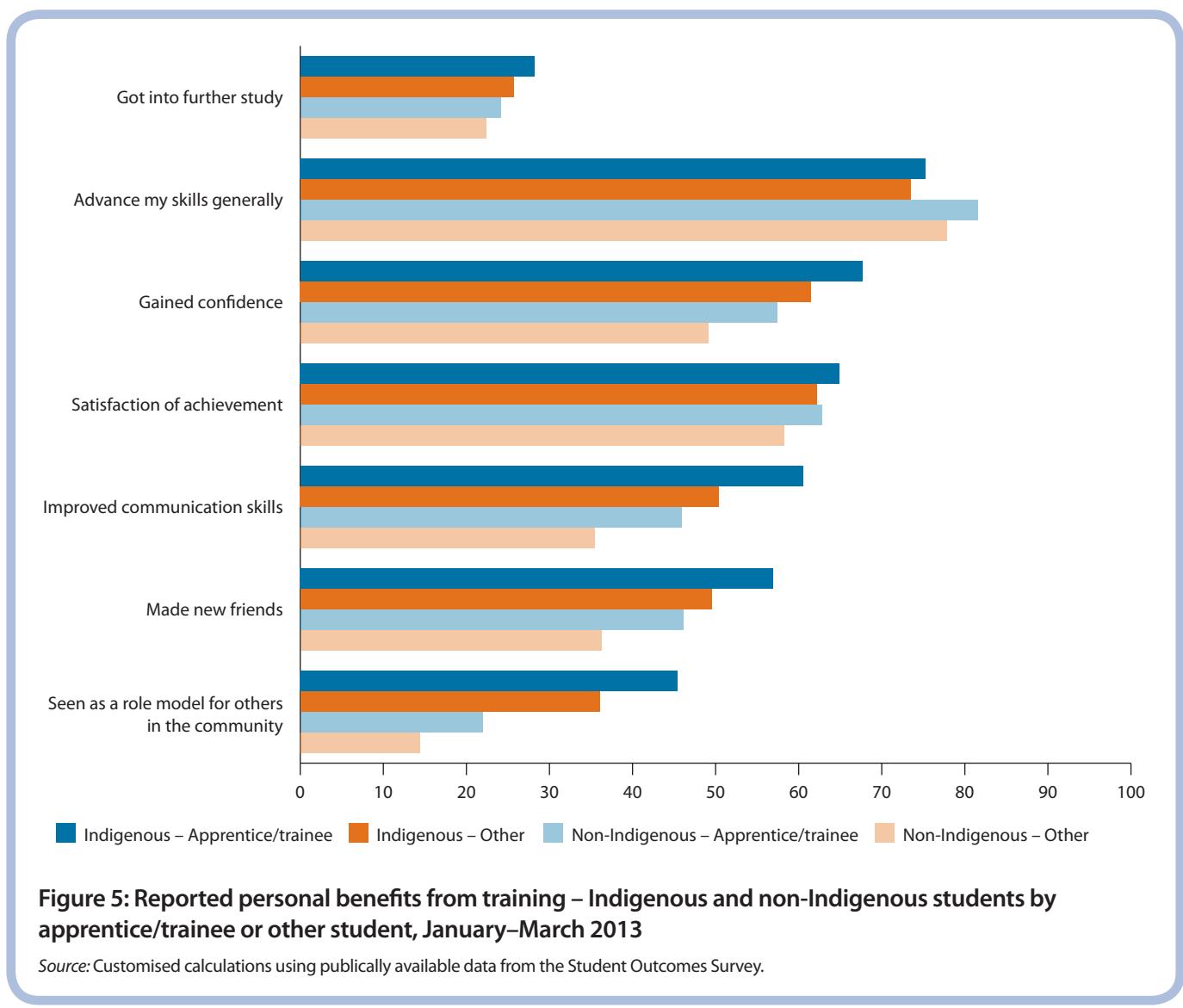


Figure 5: Reported personal benefits from training – Indigenous and non-Indigenous students by apprentice/trainee or other student, January–March 2013

Source: Customised calculations using publicly available data from the Student Outcomes Survey.

The personal benefit that was most commonly reported by apprentices and trainees was that it allowed them to 'Advance my skills generally.' This was true for both Indigenous and non-Indigenous Australians who responded to the survey. Respondents were able to identify more than one personal benefit, and the biggest difference between Indigenous and non-Indigenous Australians was in the benefit of being 'Seen as a role model for others in the community'. Specifically, 45.4% of Indigenous apprentices and trainees reported that their training had this benefit, whereas only 36% of other Indigenous students reported it. Even fewer non-Indigenous apprentices and trainees reported the same benefit (21.9%).



Evaluations of the effects of apprenticeships and traineeships

The previous section highlighted the diverse backgrounds of those who were participating in an apprenticeship or traineeship in early 2013 (as identified by administrative data). Importantly, it was shown that after controlling for age, Indigenous Australians have a similar rate of participation compared to the non-Indigenous population, with a slightly higher rate of participation for Indigenous males than for Indigenous females (who in turn had a higher rate of participation than non-Indigenous females did). It also showed that there were a range of self-reported benefits from such participation, including improved employment prospects and skill levels to several personal benefits.

Understanding the patterns of participation and self-reporting is important because it helps explain the decisions and motivations of those who have participated in apprenticeships and traineeships. Those who have participated in an apprenticeship or traineeship are not otherwise similar to those who did other forms of VET, let alone the rest of the population. It cannot be assumed, therefore, that the benefits reported for those who chose to participate will hold for the rest of the population. Different data are required to answer these types of questions. In particular, it is necessary to have data from those who did participate (ideally before and after their participation) as well as data from an otherwise identical group of people who did not participate. It would also be useful to have data from those who have participated in one form of apprenticeship or traineeship and data from those who have participated in a different form. This would allow a more robust assessment of effective apprenticeships and traineeships. Although there is very little information available of this type for the Indigenous Australians population, there are data in other contexts that give some insight.

There is a hierarchy of evidence (NHMRC 2000) that can be used in these comparisons. At the top are systematic reviews that pool information from a range of randomised controlled trials, or evaluations of programs that have a treatment group (who receive the intervention) and an otherwise identical control group (who do not). These trials and systematic reviews are much less common in the social sciences, due in part to the difficulties in randomisation of complex interventions like an apprenticeship or traineeship. A more common set of analysis, therefore, is an econometric-regression style of analysis where the outcome of interest (for example wages or employment) is assumed to be a function of participation in a particular program, as well as a range of other observable characteristics. When looking at the differences between those who did and did not participate in the program, those other observed characteristics are held constant. Although they are often all that is available, the problem with these techniques is that it is not possible to control for unobserved characteristics, including, most problematically, those that are associated with both participation in the program and the outcome of interest. Furthermore, they do not control for the effect that an individual's own participation has on the outcomes of others. For a useful and accessible discussion on such issues, see Leigh (2010).

Evidence from international studies and in non-Indigenous contexts

Evaluations of apprenticeship and traineeship style programs that incorporate some form of randomisation (and therefore control explicitly for unobserved factors that influence selection) have tended to be in an international and developing-country context. This doesn't necessarily mean that the conclusions drawn from the studies are not applicable, but context does matter. It cannot automatically be assumed that any positive or negative results that are found will be present in current or prospective programs in Australia.



Maitra and Mani (2012) examined the economic returns from a **vocational education program in stitching and tailoring in two areas in New Delhi, India**. Women who applied to participate in the program were randomly assigned to a treatment group (two-thirds of applicants) and the control group (one third). Compared to the control group, participants in the program were almost 5 percentage points more likely to be employed, 6 percentage points more likely to look for a job, and on average worked more hours in the post-training period. Other effects included higher earnings and increased ownership of sewing machines in the post-training period.

Looking at the US, Hirsch et al. (2011) evaluated the **After School Matters program**, which offered paid apprenticeship-type experiences. The evaluation was based on a 3-year, randomised controlled trial in which 304 youth were randomly assigned to the intervention (Apprenticeship) group and 231 assigned to the control group. Using hierarchical linear modelling and controlling for key demographic variables, the authors found that, while there were some statistically significant differences favouring the treatment group for positive youth development and problem behaviour, no statistically significant differences were found for academic outcomes and marketable job skills indicators. A caveat to this was that some individuals in the control group were involved in paid work or organised after-school activity, which meant that the evaluation compared those who participated in the After School Matters program with those who participated in alternative 'treatment' options.

The difficulty in evaluating the After School Matters program is commonly found in analyses of similar education and labour market programs. Unlike drug trials administered by medical practitioners, it is not possible to restrict the activities of the control group. One alternative method of evaluation is to compare those who complete an apprenticeship with those who enrol but do not complete. In such an analysis across 10 states in the United States, Reed et al. (2012) looked at the effectiveness of the **Registered Apprenticeship program** with respect to annual earnings and employment. In addition to finding differences with those who did not participate in the program at all, the authors found that those who completed the Registered Apprenticeship program had higher earnings and employment than non-completers.

Although there are far fewer instances of randomised evaluations of labour market and education programs in Australia, econometric analyses demonstrate the association between participation in an apprenticeship and traineeship and future prospects. Using the Longitudinal Survey of Australian Youth, Fok and Tseng (2009) employed semi-parametric matching methods to assign individuals into 3 different groups—those who entered apprenticeship programs, those who entered traineeship programs, and those who had not entered either of the programs (non-participants). Controlling for a range of family characteristics and individual attributes, the labour market outcomes up to 6 years after the training commenced were compared in a multivariate analysis. The study suggested that, at the 6th year, employment rates for apprentices were about 5.2 percentage points higher than for the non-participants. The apprentices and the trainees also had higher earnings 3 years after the training started, although the earnings of apprentices were higher than trainees.

Looking at a specific program, Deloitte Access Economics (2012b) evaluated the implementation of the **Skilling Queenslanders for Work (SQW) program** in 2007. As part of this policy, programs aimed at assisting trainees and apprentices included the **Queensland Green Army, Get Set for Work, First Start Program and Youth Training Transition**. Although a range of effects were evaluated through online surveys, consultations, and general equilibrium modelling, the aspect of interest for this paper are the labour market outcomes modelling. The evaluation used conditional probability modelling to compare the likelihood of gaining employment for persons of similar circumstances, conditional on whether or not the person participated in Skilling Queenslanders for Work. The findings suggest that almost 15% of those who found employment through the programs would not have been able to find employment if they had not participated in the programs.

Deloitte Access Economics (2012a) has also evaluated the **Australian Apprenticeship Incentive Program** with a focus on the effectiveness of the program on commencements, retention and completions of apprenticeships. The analysts used survival analysis on unit record level data from the Training and Youth Internet Management Systems database administered by the former Department of Employment, Education and Workplace Relations.



The key finding from the report was that incentives offering more than \$1,000 in the first year had a positive association with commencements. In particular, incentives targeted towards people under the age of 20 had a much larger association around summer than at other times of the year, coinciding possibly with the traditional school year. In terms of completion and retention, the analysis suggests that for the most part, the incentives appear to be ineffective with the exception of the Living Away from Home Allowance, Commonwealth Trade Scholarships, and to a lesser extent, Innovation incentive. In summary, although incentives programs like these have a role to play in encouraging additional commencements, they appear to have a minimal role to play in retention and completion of apprenticeships.

Changes by government over the last few years may however have given some indication that larger incentives do have an effect. Specifically, from 1 July 2012 the Australian Government discontinued the \$1,500 standard employer commencement incentive payment and increased the standard completion incentive by \$500 to \$3,000 for existing worker apprentices and trainees in non-National Skills Needs List (NSNL) occupations. Furthermore, from 3 August 2013, existing non-NSNL workers who commenced an apprenticeship or traineeship were no longer eligible to claim completion incentive payments. Priority occupations such as aged care, childcare, disability care and enrolled nurses were exempt from this change. Results presented in NCVER (2013) show that nationally, in the 12 months ending June 2013, non-trade existing worker commencements decreased by 67% whereas non-trade existing worker completions increased by 29.6%. This is not an evaluation per se, but it does show the importance of the incentives.

Incentive schemes like the ones documented above are designed to encourage those who would not otherwise have started an apprenticeship or traineeship to do so. Although the long-term benefits to individuals might be high, there is still an opportunity cost involved because the apprentice or trainee might be able to earn more in the short-term in the standard full-time labour market. Youth and young adults with high discount rates (that is, they value the present much more highly than the future) might be put off by these opportunity costs, a situation that incentive schemes are designed to overcome. On the labour supply-side, some individuals who would like to do an apprenticeship or traineeship might not be able to find employers to hire them under such schemes. For these individuals, a pre-apprenticeship or pre-traineeship course might be of benefit.

According to the NCVER (Naidu et al. 2013:88) a pre-apprenticeship course is one 'which provides initial training in a particular industry or occupation' and, furthermore, 'Successful completion of the course can assist participants to obtain an apprenticeship and may enable the term of the apprentice's training agreement to be reduced.' Using data from the NCVER VET Provider Collection 2009 and 2010 for Western Australia, Stromback (2012) uses propensity score matching to estimate the effects of pre-apprenticeship activities such as enrolment in certain courses on whether the student obtained an apprenticeship during the following year. In a major limitation of the study, the author treats the pre-apprenticeship students as one group and other students are treated as controls. The paper's findings suggest that a pre-apprenticeship course doubles the student's chance of obtaining an apprenticeship, albeit from a low base of about 10% of students.

In a separate study using the 2010 NCVER Apprentice and Trainee Destination Survey, Karmel and Oliver (2011) investigate whether completing a pre-apprenticeship increases the likelihood of completion of and satisfaction with apprenticeships. Estimating multiple regression models with satisfaction scores as the dependent variable and adjusting for control variables, the authors find that there is a small positive effect of pre-apprenticeship programs on job satisfaction, but this difference is not statistically significant. When the estimation is replicated using completion of apprenticeship as a dependent variable using logistic regression, the results suggest that there is a higher likelihood of completion with participation in pre-apprenticeship programs, although the variation is stronger for some occupations and industries than others.



Evidence for Indigenous Australians

Although it is not possible to be too definitive, the evaluations highlight a range of potential positive benefits of doing an apprenticeship or traineeship. It would be fair to say that none of the evaluations in Australia completely control for selection into such programs, with a very real possibility that those who start an apprenticeship or traineeship differ in important unobserved ways (for example, self-motivation, physical ability or non-cognitive skills) that would have led to them having better outcomes anyhow relative to those who do not end up participating in such programs. It is also quite probable that at least some of the observed difference is causal, and at the very least, the results from the SOS show that compared to other VET students, those who participate in an apprenticeship or traineeship are more likely to see the program as being beneficial in terms of their job prospects and personal life.

There are reasons to believe that apprenticeships and traineeships might be of particular benefit for Indigenous Australians. Firstly, employment prospects for Indigenous Australians in the absence of such programs are likely to be much worse, due in part to location and in part to their own human capital characteristics. This means that not only are the opportunity costs of undertaking the program lower, but the gains may also be higher. Related to this, one of the main benefits of participation in apprenticeships and traineeships is exposure to a wide range of employment networks either through their own employer or others they interact with on the job. For a population sub-group with fewer networks through family, this can be the difference between finding out about a job opportunity or not.

Counterbalancing these potential large benefits of apprenticeships and traineeships for the Indigenous population is a somewhat different motivation for employment for some Indigenous Australians (Biddle & Jordan 2013). This does not mean that employment and the income that it generates is unimportant to Indigenous Australians. Rather, it can mean a different set of trade-offs with greater importance placed on access to their own traditional homeland, and the maintenance of relationships with extended kinship networks. Apprenticeship and traineeship programs that aim to be successful with Indigenous Australians need to be cognisant of these trade-offs.

Many of the programs that are especially targeted towards Indigenous Australians are linked in some way to natural resource management. Primarily young Indigenous males and females are employed and provided with on-the-job training and participate in formal training in programs related to land, sea and country management such as the **Australian Traineeship Programs, Working on Country, Indigenous Protected Areas program, Indigenous Pastoral Programs, Landcare programs, and programs run by relevant Land Councils**. In addition to these natural-resource based programs, there has also been a steady growth of Indigenous traineeships based at Financial Institutions such as the ANZ Bank and the National Australia Bank, as well as through mining companies. Some of these programs are discussed below.

The Victorian Department of Sustainability and Environment (DSE) lists two traineeship projects on its website (see <http://www.dse.vic.gov.au/land-management/indigenous-and-native-title/indigenous-partnerships>). The first of these, the **Lake Tyers Land Management Traineeship Pilot Project** (2007–2008) was an 18-month program which involved 8 Indigenous trainees combining formal qualifications as well as on-the-ground work in natural resource management. All 8 trainees gained Certificates II and III in Conservation and Land Management alongside other work-related qualifications like First Aid Training, 4-wheel-drive training and heavy machinery training. At the end of the program, all were either in some form of full time employment or proceeding to cadetships and studying diplomas in environmental studies.

The second program run by the DSE, the **North West Victorian Indigenous Natural Resource Management Project** (2008–2010), was modelled on the Lake Tyers Land Management Traineeship Program. It is an 18-month Indigenous traineeship and employment initiative in natural resource management in Mildura and Swan Hill.



The project was evaluated using qualitative and quantitative analysis. The quantitative component looked at the change in full-time employment status of those who participated in the program. Twelve of the 16 who started the program were employed after 12–18 months. The success of this program has led to further projects around supporting Indigenous-owned and Indigenous-managed enterprises.

An Indigenous-specific program in the Financial Services industry was analysed by Daly et al. (2013) to examine the 'effects of an intervention by one of Australia's major banks, the National Australia Bank (NAB), to promote Indigenous employment in their organisation under the banner of a **Reconciliation Action Plan** (RAP)' (Daly et al. 2013:277). Importantly, the authors looked at subjective as well as objective data in their analysis. The outcomes of the participants in the program were identified using face-to-face and telephone interviews. The authors went to great effort to note that the analysis in the case study was not based on a randomised experiment and could reflect other characteristics inherent to the participants irrespective of participation in the programs. Nonetheless, more of the participants reported being satisfied with the work and the flexibility of balancing work and non-work commitments than those in the comparison group from the Household Income and Labour Dynamics in Australia survey.

Given the increasing level of resource extraction in lands owned or managed by Indigenous Australians, it is not surprising that mining companies have set up apprenticeship or traineeship programs for Indigenous Australians. From the employers' point of view, they have the potential to engage an *in situ* workforce and demonstrate their investment in social responsibility. From the government's perspective as well as that of the Indigenous communities themselves, they have the potential to provide relatively well-remunerated employment in areas where there are few other labour market opportunities. Counterbalancing this though, is the potential environmental costs of mining related activities that participation in such programs or support of them by government or communities might be seen to endorse.

Three long-running programs are the Rio Tinto **Australian Indigenous Cadetship Project**, Pilbara **Iron Ore Apprenticeship Program**, and BHP Billiton Iron Ore's **Indigenous Mining Skills Program**. Although numbers of participants are small (like with most other Indigenous apprenticeship or traineeship programs), publically available data from the employers give some evidence that the employment and education outcomes of Indigenous participants are quite favourable post-program.

The final industry that is of particular relevance to the Indigenous population is the creative and performing arts. There are clearly many high profile Indigenous artists and performers, but the **Sydney Opera House Indigenous Traineeship Program** has a slightly different aim, which is to increase the number of Indigenous Australians working behind the scenes in the entertainment and performing arts industries in staging, lighting and sound. According to Davis & O'Moore (2004), the program resulted in 10 participants starting the program (although there has been further enrolment into the program since). In terms of the outcomes of the program, 9 out of 10 participants completed the program, all at a minimum of Certificate II in Entertainment. All 9 completers continued to work in the industry, with 7 in casual roles at the Sydney Opera House when the evaluation was published.

One of the issues identified in the literature is a high rate of cancellation or non-completion for Indigenous apprentices and trainees. Although the analysis was based on administrative rather than experimental data, results presented in Trendle (2013) suggest that providing mentors can increase rates of completion. In particular, Trendle (2013:8) noted that results from the analysis 'indicate that the mentoring program resulted in a large increase in the probability of participants completing their apprenticeship' and, as an aside, 'Other factors which are found to be associated with an increase in the probability of an apprenticeship completion are additional years of schooling, an English speaking background, and living in a more accessible area'.



Research gaps

It is quite probable that those Indigenous Australians who participate in apprenticeships and traineeships have better outcomes than those who engage in other forms of training or no training at all. This conclusion is based on experimental evidence in other contexts, econometric analysis of Australian data (including longitudinal surveys) and an analysis of administrative and survey data for the Indigenous population. There are also Indigenous-specific programs that appear to lead to positive outcomes both for the individual as well as the employer. These conclusions are tentative though, as there are no evaluations that completely deal with the fact that Indigenous (and other) Australians who participate in apprenticeships and traineeships are likely to have unobserved characteristics that potentially predict better (or worse) outcomes than those who do not self-select into such programs. As for many aspects of Indigenous policy covered by the Closing the Gap Clearinghouse, more and better data are needed.

One form of data that is missing for the Indigenous population comes from rigorous evaluation methodologies where issues of selection into programs are specifically taken into account and embedded into the evaluation of Indigenous-specific. There are legitimate ethical concerns about withholding access to apprenticeships and traineeships from a control group of Indigenous Australians who might otherwise have very poor labour market prospects. The simple response to this is that we do not know whether apprenticeships and traineeships are of net benefit to Indigenous Australians (relative to other potential options). However, given the weight of evidence, there is still a distinct possibility that this is the case. In such a situation, it is perhaps more feasible to randomise the timing of admission into an apprenticeship and traineeship (pipeline comparisons) or to randomise the type of traineeship or apprenticeship (Ravalion 2008). The latter approach would have the further benefit of identifying with more precision the characteristics of traineeships and apprenticeships that are of particular value to Indigenous Australians.

Another alternative form of evaluation that has the potential to be of less ethical concern to Indigenous people and government service providers is randomised promotion of opportunities. Gertler et al. (2011) suggest that such techniques rely on different individuals or communities being actively made aware of or notified of the potential benefits of a particular program at different levels of intensity. If these differences are large enough and randomly distributed, and people are sensitive enough to promotion and potentially incentives (as appears to be the case with apprenticeships and traineeships), then this variation in promotion can be used as an instrumental variable to control for selection into the program. Although such methodologies have been used in developing-country settings, they do not appear to have been used in an Australian Indigenous context. Despite being less powerful than true randomisation, they do have the potential to give important information that complements the econometric-style of analysis that is more common in Australia.

Whatever the evaluation methodology, it would be of research and policy benefit to embed more subjective data into the evaluation of traineeships and apprenticeships targeted towards Indigenous Australians. Data from the SOS have shown that Indigenous Australians derive a number of important personal benefits from such programs. Furthermore, these complement rather than substitute other important labour market benefits.

There are specific industries where Indigenous Australians would particularly benefit from an expanded range of apprenticeships and traineeships. This includes areas that Indigenous Australians have ongoing attachment to (natural resource management and cultural production), industries that disproportionately occur on Indigenous owned or controlled land (mining, agriculture or fisheries production), and those industries where Indigenous Australians are historically under-represented, leading to potential power imbalances (financial services, health and the public sector). The reality is though, that the majority of Indigenous apprentices and trainees will be in mainstream programs or in Indigenous specific programs with mainstream employers. However, the specific experiences of Indigenous people in these programs need to be evaluated.



Employers of Indigenous apprentices and trainees, as well as relevant education providers, have a legal and ethical responsibility to act in a non-discriminatory way towards their employees or students. Although there are no data specifically for apprentices and trainees, self-reported data for the rest of the Indigenous workforce clearly shows that many Indigenous Australians continue to feel that they are discriminated against in their job, when applying for jobs, or when dealing with service providers (Biddle et al. 2013; Biddle 2013). One missing piece of evidence on effective apprenticeships and traineeships is, therefore, the extent to which Indigenous apprentices and trainees are treated unfairly in different industries, regions and employer types. Self-reported data are useful for this style of work, but so too are audit studies where the outcomes of otherwise identical Indigenous and non-Indigenous job seeker, employee or student are compared (Riach & Rich 2006). This could be through actual employees in controlled circumstances, paid actors, or fictional candidates. If done randomly and with a large enough pool of agents, it is possible to obtain a powerful set of data of the experiences of Indigenous Australians and the situations where they are more likely to experience unfair treatment.

Conclusion

Apprenticeships and traineeships—the combining of contractual work experience with formal VET—have the potential to improve the long-term employment prospects of Indigenous Australians. Furthermore, it has been shown in this paper that those who participate in apprenticeships and traineeships report higher levels of more subjective measures of wellbeing (like standing in the community) than do those in comparison groups.

The available data suggest that, after holding age constant, Indigenous males are about as likely as non-Indigenous males to be participating in an apprenticeship and traineeship. Although participating at lower rates than Indigenous males, Indigenous females were more likely to be participating than their non-Indigenous counterparts (controlling for age). Apprenticeships and traineeships are therefore an important part of the labour market context for Indigenous Australians.

Compared to those who participate in other forms of VET, Indigenous Australians who participate in apprenticeships and traineeships are more likely to report employment and personal benefits from their training. In particular a disproportionately large proportion of Indigenous apprentices and trainees reported that, through their training, they improved their communication skills, made new friends, and were seen as a role model in the community.

Like many social and labour market programs, there is limited evidence on the causal benefits of apprenticeships and traineeships. Furthermore, there have been no evaluations to identify the type of apprenticeship or traineeship program that would have the greatest benefit for Indigenous Australians, especially relative to costs. Nonetheless, there are a few innovative examples of Indigenous specific schemes in natural resource management, cultural production, mining and financial services. The majority of Indigenous Australians will continue to have access to mainstream (that is, non-Indigenous specific) apprenticeship and traineeship programs.

To support policy formulation in this area, new data are required. Longitudinal datasets with sufficiently large Indigenous samples will be useful in this regard; but to identify causal effects, evaluations that control for selection using randomisation in access, timing, type or promotion will be required. Furthermore, it must not be assumed that all employers, industries and trainers are equally supportive of Indigenous Australians. An audit-style focus on those who employ and educate Indigenous apprentices and trainees will be of high public benefit.



Appendix A

Table A1 contains a list of Closing the Gap Clearinghouse issues papers and resource sheets related to this resource sheet.

To view the publications, visit <<http://www.aihw.gov.au/closingthegap/publications/>>.

Table A1: Related Clearinghouse resource sheets and issues papers

Title	Year	Author
Improving labour market outcomes through education and training	2014	Karmel T, Misko J, Blomberg D, Bednarz A & Atkinson D
Supporting healthy communities through arts programs	2014	Ware V-A
Engagement with Indigenous communities in key sectors	2013	Hunt J
Engaging with Indigenous Australia: exploring the conditions for effective relationships with Aboriginal and Torres Strait Islander communities	2013	Hunt J
What works? A review of actions addressing the social and economic determinants of Indigenous health	2013	Osborne K, Baum F, Brown L
Strategies to enhance employment of Indigenous ex-offenders after release from correctional institutions	2012	Graffam J & Shinkfield A
Improving Indigenous community governance through strengthening Indigenous and government organisational capacity	2012	Tsey K, McCalman J, Bainbridge R & Brown C
Effective practices for service delivery coordination in Indigenous communities	2011	Stewart J, Lohor S & Higgins D

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Abbreviations

DSE	Victorian Department of Sustainability and Environment
NCVER	National Centre for Vocational Education and Training
NSNL	non-National Skills Needs List
SOS	Student Outcomes Survey (a sample survey of VET graduates and module completors)
SQW	Skilling Queenslanders for Work
VET	Vocational Education and Training



Terminology

Indigenous: 'Aboriginal and Torres Strait Islander' and 'Indigenous' are used interchangeably to refer to Australian Aboriginal and/or Torres Strait Islander people. The Closing the Gap Clearinghouse uses the term 'Indigenous Australians' to refer to Australia's first people.

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