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Paper 10 Labour Market Outcomes

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In July 2012, the Australian Bureau of Statistics began releasing data from the 2011 Census of Population and Housing. One of the more important results contained in the release was the fact that the number of people who identified as being Aboriginal and/or Torres Strait Islander (Indigenous) had increased by 20.5 per cent since the 2006 Census. There were also significant changes in the characteristics of the Indigenous population across a number of key variables like language spoken at home, housing, education and other socioeconomic variables. In this series, authors from the Centre for Aboriginal Economic Policy Research (CAEPR) document the changing composition and distribution of a range of Indigenous outcomes. The analysis in the series was funded by the Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) through the Strategic Research Project as well as FaHCSIA and State/Territory governments through the Indigenous Populations Project.

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

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Abstract

While recent research has found that there has been a substantial increase in Indigenous mainstream employment since the mid-1990s, there has been relatively little regional analysis of mainstream employment or the extent to which the nature of Indigenous employment has altered in what has been a period of substantial change in the Australian labour market. The aim of this paper is to build on the existing research using the 2006 and 2011 Censuses to provide a more disaggregated analysis of any changes in the nature of labour market outcomes for Indigenous Australians.

One of the new findings in this paper is that the employment of Indigenous youth (15–24 years) in remote areas is lower than that of Indigenous youth in non-remote areas, but older Indigenous residents in remote and non-remote areas have more similar employment rates.

While the mining boom has had a positive impact on some Indigenous people, in national terms the vast majority of the increases in Indigenous employment between 2006 and 2011 have been in other industries.

There is no magic bullet in closing the employment gap between Indigenous and other Australians. Policy needs to facilitate Indigenous participation in the mainstream economy by assisting Indigenous people to be work-ready, especially improving the skills of the Indigenous population so that they are matched to those required by employers.

Acknowledgements

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List of acronyms

ABS	Australian Bureau of Statistics
ANU	Australian National University
CAEPR	Centre for Aboriginal Economic Policy Research
CDEP	Community Development Employment Projects (scheme)
ERP	Estimated resident population
FaHCSIA	Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs
RSD	Remote Service Delivery
SA1	Statistical Area Level 1

1. Introduction and overview

Recent research has found that there have been substantial increases in the mainstream employment rate of the Indigenous population since the mid-1990s (e.g. Australian Government 2013; Gray & Hunter 2011; Gray, Hunter & Howlett 2013). There however has been relatively little regional analysis of mainstream employment or how the characteristics of such jobs may have changed during a period of substantial change in the Australian labour market. The release of data from the 2011 Census makes it timely to examine the nature of any changes in the basic character of Indigenous labour market outcomes. This paper provides an overview of the labour market outcomes of Indigenous Australians using data from the 2011 Census.

A significant change between the 2006 and 2011 Censuses has been the withdrawal of the Community Development Employment Projects (CDEP) scheme from non-remote areas and a reduction in the number of CDEP participants in remote areas (see text box opposite). Having up-to-date information on Indigenous labour market outcomes is particularly important given the changes to this scheme.

The labour market characteristics analysed in this paper include hours of work, whether employment is in the private or public sector, self-employment, occupation, and industry sector. Comparative data for non-Indigenous Australians is provided and changes between 2006 and 2011 examined. Following the literature referred to above, we classify CDEP participants as being not employed.

The next section of this paper describes the derivation of the measures used in this paper and key data issues. The third section provides a summary of changes in employment over the period 1996 to 2011. The fourth section presents key labour market outcomes for 2011 at a national level, before discussing differences by geographic remoteness and age. The fifth section describes regional differences in Indigenous labour market outcomes. The sixth section discusses occupation and industry of employment and how this has changed between 2006 and 2011. The final section provides an overview of findings and draws out some implications.

The CDEP Scheme

The CDEP scheme is an Indigenous-specific program that enables an Indigenous community or organisation to use a notional equivalent of the collective entitlement of income support payments to pay wages for those people who choose to participate in various community development or organisation programs as an alternative to receiving individual income support payments (Australian Bureau of Statistics (ABS) 2012b). At its peak in 2003, CDEP had around 35,000 participants. However, from 2007 the CDEP scheme was progressively withdrawn from non-remote areas and by mid-2011 there were around 10,000 participants. From July 2013 the CDEP program will be incorporated in the new Remote Jobs and Communities Program.

While there is an ongoing debate about whether CDEP should be classified as paid employment (see for example, Gray, Hunter & Lohar 2012; Altman 2013), there has long been a recognition of the importance of understanding the trends in non-CDEP employment, particularly if the interest is in economic outcomes. For example, Daly (1991: 14) writes 'The problem of Aboriginal unemployment may be defined away by the inclusion of CDEP participants among the employed. It is however questionable whether this can be considered as a true description of the position of Aborigines in the labour market'. Hunter and Taylor (1996: 9) write in the context of rapid growth in the Indigenous population and a slowing of the rate of growth in the number of CDEP participants, 'One certainty is that despite the effect of CDEP in buoying up Indigenous employment rates, there has been no concomitant improvement in individual income levels'.

The long-term welfare of Indigenous people partially depends on the extent of economic engagement with the mainstream economy and the independence that it engenders. This paper documents patterns in non-CDEP employment in order to extend the literature on the Indigenous labour market rather than focus on the outcomes associated with a particular government program. An overview of the latest empirical evidence on the economic and social outcomes associated with participation in CDEP is provided by Hunter and Gray (2012a).

2. Data issues

The estimates presented in this paper are based primarily on data from the 2006 and 2011 Censuses of Population and Housing. Census data on CDEP participation is only collected on the Special Indigenous Personal Form, a form which is used in discrete Indigenous communities where language differences or other factors make use of the standard self-enumeration forms impractical (mostly in remote areas). This means that the census does not identify all CDEP participants. It is estimated that around half of CDEP participants at the time of the 2011 Census are identified as being in the CDEP scheme in the census (Gray, Hunter & Howlett 2013).

This paper follows the approach developed by Gray, Hunter and Lohar (2012) to estimate the non-CDEP employment rate, using a combination of census and CDEP administrative data. The process of calculating non-CDEP employment rates is as follows. First, census counts of employed are adjusted to population estimates using the ABS's estimated residential population (ERP). Second, the number of CDEP participants (obtained from administrative data) is deducted from the estimates of Indigenous employment to generate the number of non-CDEP employed, which is in turn divided by the relevant ERP to be expressed as a rate. Details of the full derivation of the non-CDEP employment rate using the 2011 Census can be found in Gray, Hunter and Howlett (2013).

CDEP administrative data is available to calculate non-CDEP employment rates based on gender, age group and remoteness.¹ Data on CDEP participation by occupation or industry, however, is not available, and thus tables with occupation and industry in this paper include both CDEP and non-CDEP employment. Similarly, self-employment and private versus public sector employment estimates include CDEP scheme workers.

While the vast majority of CDEP participants are clearly not in mainstream employment, there is a debate as to whether CDEP participants should be treated as being unemployed or as a distinct Indigenous-specific labour force status. Thus, following the standard labour market definitions, the labour force participation rate is defined as the proportion of the working age population that is either employed (including the CDEP employed for the Indigenous population) or unemployed.

The paper also provides estimates of full-time and part-time non-CDEP employment rates. Because CDEP program data on the hours worked by CDEP participants is

not available, it is not possible to directly adjust the census employment rates for the impact of CDEP. The approach used in this paper is to estimate the proportion of CDEP participants identified in the census who work full-time and then apply this proportion to the CDEP program data on the number of CDEP participants. Of CDEP participants, 76 per cent identified in the 2011 Census worked part-time. The assumption about the proportion of CDEP participants employed full-time is allowed to vary across all gender/Indigenous/State/remoteness combinations. People who did not state how many hours worked have been allocated to full-time and part-time employment based on the full-time/part-time split for each gender/Indigenous/State/remoteness combination.

The 2006 Census remoteness classification is used, providing consistent geographic boundaries for comparing data from the 2006 and 2011 Censuses. There was relatively little change in the remoteness indicators for the two most recent censuses and we are able to match the 2011 boundaries to those which were used in the 2006 Census with a high degree of accuracy. Unless otherwise stated, 2011 data were transformed to 2006 remoteness categories using the ABS-defined 2011 Statistical Area Level 1 (SA1) to 2006 remoteness concordance (ABS 2011a).

The level of geographic remoteness varies between States and Territories. For example, the Northern Territory has around 80 per cent of the Indigenous residents living in remote areas, whereas the Australian Capital Territory, Tasmania and Victoria do not have any remote areas. All else being equal, employment and labour force participation rates will be higher in States and Territories where labour markets are, on average, less remote from major population centres and major economic activity. Similarly, labour force participation rates tend to be lower in areas where there is less access to labour markets. For example, we would expect employment and participation rates to be higher in the Australian Capital Territory than the Northern Territory.

Finally, most estimates in this paper are reported as proportion of the population and hence are measured as accurately as possible, given the coverage and enumeration of census data. These calculations should be interpreted as population estimates.²

1. For the purposes of estimating non-CDEP employment rates for 2011 it is assumed that all CDEP participants are in remote areas.

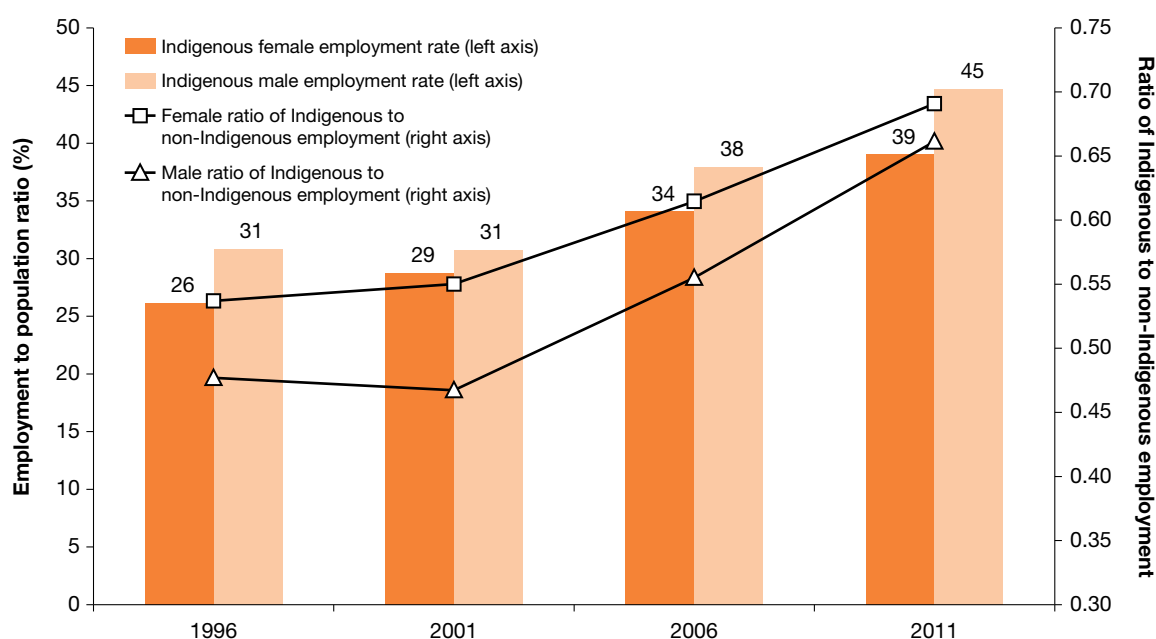
2. Notwithstanding, there is a net undercount of Indigenous and other Australians and hence the reported estimates may be measured with a small level of error (ABS 2012c). In such circumstances readers may calculate a conservative standard error of a proportion using the binomial distribution. The 95 per cent confidence interval for the reported statistics using this statistical distribution is, at most, plus and minus three percentage points, but the interval is usually less than one percentage point. Differences of more than three percentage points are almost certainly statistically significant.

3. Changes in employment, 1996 to 2011

This section provides a longer-run perspective of the changes in mainstream employment rates between 1996 and 2011, drawing on the more detailed analysis in Gray, Hunter and Howlett (2013). Figure 1 shows that the employment to population rate (excluding CDEP) for Indigenous women and men has increased substantially from 1996 to 2011. The employment rate of Indigenous women increased from 26 per cent in 1996 to 39 per cent in 2011, and for Indigenous men it increased from 31 per cent to 45 per cent. Focusing on the more recent period, between 2006 and 2011 the employment rate of Indigenous women increased from 34 per cent to 39 per cent and for men it increased from 38 per cent to 45 per cent. The global financial crisis in 2007–08 and the subsequent lower rate of growth of the Australian economy do not seem to have slowed the increase in Indigenous employment.

The ratio of the proportion of the Indigenous population employed to the proportion of the non-Indigenous population that is employed is also shown in Figure 1. A value of less than one indicates that the Indigenous population has a lower employment rate than does the non-Indigenous population. After remaining relatively constant between 1996 and 2001 for both males and females (at around 0.47 for males and 0.55 for females), the ratio has steadily increased in the period 2001–2011. This means that the difference in employment rates between the Indigenous and non-Indigenous populations has narrowed. The ratio of Indigenous to non-Indigenous employment has increased for males, from 0.48 in 1996 to 0.66 in 2011 (i.e. the non-CDEP Indigenous employment rate is 66 per cent of the non-Indigenous employment rate). For women, the ratio of Indigenous to non-Indigenous employment rates increased from 0.55 to 0.69, a smaller increase than that experienced by men.

FIGURE 1. Employment to population ratio by gender, 1996–2011



Notes: Figures are for the population aged 15+ years. The employment measure excludes CDEP participants.

Sources: 1996, 2001, 2006 and 2011 Censuses; CDEP program data; ABS (2012a).

4. Labour market indicators for Indigenous Australians

4.1 National

This section compares key labour market characteristics of Indigenous men and women to their non-Indigenous counterparts. The labour market characteristics examined are non-CDEP employment (including whether employment is part-time or full-time), labour force participation rate, self-employment (a subset of employment), and whether employment is in the private or public sector. Occupation and industry labour characteristics are discussed in the next section.

Consistent with other studies (Gray, Hunter & Lohoar 2012), the employment rate of the Indigenous population is much lower than that of the non-Indigenous population (Figure 1 and Table 1). The employment rate (for the population aged 15–64 years) for Indigenous men was 46 per cent and for Indigenous women it was 41 per cent. This compares to employment rates of 78 per cent and 67 per cent for non-Indigenous men and women respectively.

While the proportion of Indigenous men and women who are employed full-time is much lower than the proportion of their non-Indigenous counterparts, this reflects the lower total employment rate for the Indigenous population. For both men and women the proportion of the employed who are working full-time hours is similar for the Indigenous and non-Indigenous populations.

The Indigenous labour force participation rate is very low. For Indigenous men the labour force participation rate is 61 per cent compared to 82 per cent for the non-Indigenous men, and for Indigenous women it is 51 per cent compared to 71 per cent for non-Indigenous women. This is due, in part, to a higher rate of discouraged workers amongst the Indigenous population (Hunter & Gray 2012b). Discouraged workers are formally defined as persons who want a job and are currently available for work but have given up actively searching for work because they believe they cannot find it.

Indigenous people are also less likely to be self-employed than the non-Indigenous population, and the gap in rates of self-employment is larger than the gap between Indigenous and non-Indigenous employment.

4.2 Geographic remoteness

Employment rates by remoteness again highlight the substantial difference in mainstream employment between Indigenous and non-Indigenous persons, especially in remote areas (Table 2). The employment rate for non-Indigenous males in remote areas is around 57 percentage points higher than Indigenous males (86 per cent versus 29 per cent). For females in remote areas the employment gap is 49 percentage points.

For the Indigenous population, non-CDEP employment rates are much lower in remote areas than non-remote areas. For example, for Indigenous men in non-remote areas the employment rate is 51 per cent compared to 29 per cent in remote areas. The pattern is reversed for the non-Indigenous population, for whom the employment rate is actually higher in remote areas than in non-remote. This is broadly consistent with analysis of non-CDEP employment rates using the National Aboriginal and Torres Strait Islander Social Survey (Gray & Hunter 2011).

Overall, Indigenous males have a higher proportion of employment in part-time jobs than non-Indigenous males. This is particularly the case in remote areas, where the ratio of full-time to part-time workers is almost 3:1 for Indigenous males and 6:1 for non-Indigenous males. The full-time/part-time split is similar for both Indigenous and non-Indigenous females, with around equal proportions of full-time and part-time workers in non-remote areas and slightly more full-time workers in remote areas.

Indigenous participation in the labour force is also lower than for non-Indigenous Australians in both remote and non-remote areas. However, the differences in the labour force participation rates are smaller than the differences in employment rates. The lower Indigenous labour force participation rate in remote areas is probably, at least in part, a consequence of a greater number of discouraged workers due to a lower demand for labour in these areas.

The rate of Indigenous self-employment in remote areas is particularly low compared to non-remote areas. In contrast, the non-Indigenous population in remote areas is more likely to be employers and other self-employed. Indigenous people in remote areas on average have different characteristics to those in non-remote areas, as they are less likely to have education, have limited access to credit and banking services, and have low levels of social capital in terms of having strong social networks outside the local community (Foley 2006). Another possible explanation is that the particular areas where remote Indigenous people live are less developed economically and accordingly have fewer business opportunities than those available to the remote non-Indigenous population.

TABLE 1. Labour force status by Indigenous status and gender, 15–64 years (per cent), 2011

	Indigenous			Non-Indigenous		
	Male	Female	Total	Male	Female	Total
Full-time employment to population ratio	35	21	28	61	34	48
Part-time employment to population ratio	11	20	15	16	33	25
Total employment to population ratio	46	41	44	78	67	72
Labour force participation	61	51	56	82	71	77
Self-employed: Employer	2	1	1	9	4	6
Self-employed: Other	2	1	2	6	4	5

Notes: Population is aged 15–64 years. The employment measure excludes CDEP participants. A person is classified as part-time if they work less than 35 hours per week. The self-employed are most likely non-CDEP only, as it can be assumed no individual would think they owned a community scheme.

Sources: 2011 Census; CDEP program data, ABS (2012a).

TABLE 2. Employment characteristics by remoteness, gender and Indigenous status (per cent), 2011

	Remote			Non-remote		
	Male	Female	Total	Male	Female	Total
Indigenous						
Full-time employment to population ratio	21	17	19	40	23	31
Part-time employment to population ratio	8	10	9	12	22	17
Total employment to population ratio	29	27	28	51	45	48
Labour force participation	56	45	50	62	53	57
Self-employed: Employer	1	0	1	2	1	2
Self-employed: Other	1	0	1	3	1	2
Non-Indigenous						
Full-time employment to population ratio	74	45	62	61	34	47
Part-time employment to population ratio	12	30	20	16	33	25
Total employment to population ratio	86	76	82	77	67	72
Labour force participation	88	78	84	82	71	76
Self-employed: Employer	9	6	7	9	4	6
Self-employed: Other	9	7	8	6	4	5

Notes: Population is aged 15–64 years. The employment measure excludes CDEP participants. A person is classified as part-time if they work less than 35 hours per week. Estimates reported as '0' are not exactly zero, but have been rounded to the nearest whole number.

Sources: 2011 Census; CDEP program data, ABS (2012a).

4.3 Employment by age

It is important to understand the extent to which the age-employment profile of the Indigenous population differs from that of the non-Indigenous population, and the extent to which there are differences according to geographic remoteness.

For non-Indigenous men, employment rates increase during the late teen years and early twenties and then remain high from the mid-twenties to the mid-fifties, from which age the employment rate starts to decrease (Figure 2). There is a similar pattern for women, although employment rates are reduced slightly during the main child-bearing years (Figure 3). This pattern has been well documented in many studies of employment over the lifecycle and verified for a range of countries (Ehrenberg & Smith 2003).

There are several points to take from the age-employment profiles for Indigenous Australians. First, the employment rate of Indigenous Australians is lower than that of non-Indigenous Australians for all age groups in remote and non-remote areas. Second, the shape of the age-employment profile of the Indigenous population in non-remote areas is similar to that for the non-Indigenous population. Third, the age-employment profile for Indigenous men in remote areas is markedly different to that of Indigenous men living in non-remote areas. In remote areas the employment rate does not reach a peak until the age of 45–54 years, and the gap in the employment rate between Indigenous men living in remote areas and the non-Indigenous population narrows with age. However, the age-employment profile for Indigenous women in remote areas is fairly similar to that for non-Indigenous women.

For Indigenous persons, the gap between remote and non-remote employment lessens with age and actually becomes positive for Indigenous males aged 55–64. This means that in a statistical sense the lower employment rate of Indigenous people in remote areas is due to the much lower employment rate of younger people in remote areas compared to their counterparts living in non-remote areas.

There are a number of possible explanations for this pattern. First, younger Indigenous people living in remote areas have lower employment rates than older cohorts had when they were the same age some years ago. Second, the younger Indigenous people in remote areas have experienced a slower growth in employment than those in non-remote areas—possibly due to structural limitations on labour demand in such areas. Third, there may have

been selective migration related to educational and labour market opportunities (i.e. the vast majority of tertiary studies institutions and jobs are physically located in urban areas). Finally, the influence of alcohol and other substance abuse in some remote areas and the high rate of contact with the justice system, has potential negative impacts on their employability and participation in the labour market (Hunter & Daly 2013). Of course, it is also probable that any further concentration of economic inactivity in certain areas will increase local crime rates.

5. Regional differences in Indigenous labour market outcomes

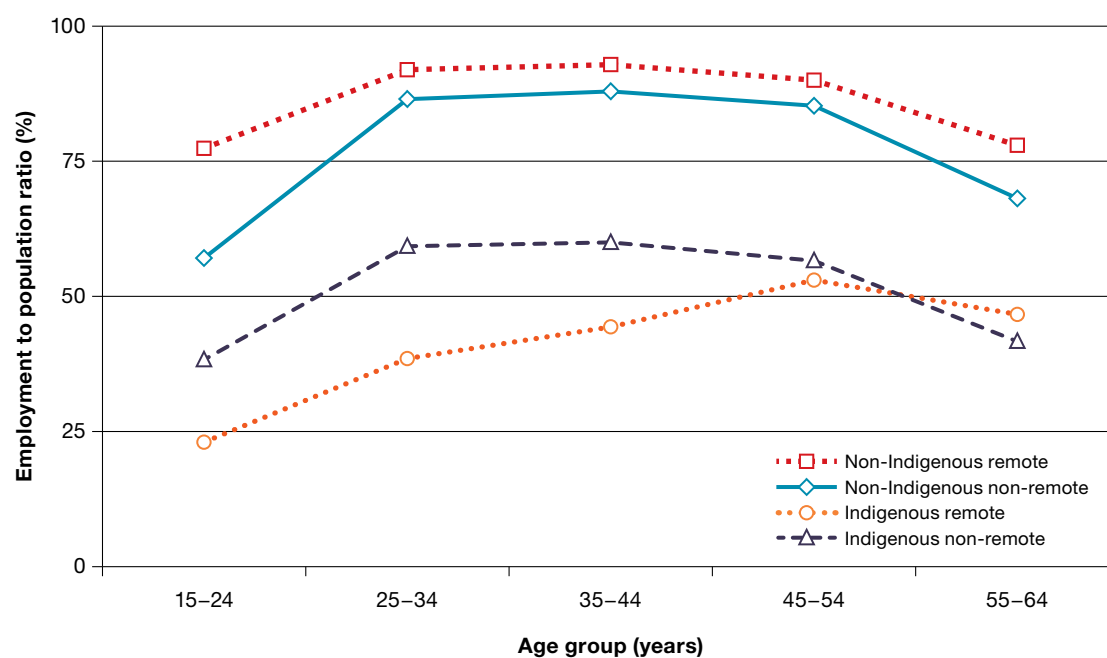
5.1 Employment

There are substantial differences in mainstream employment rates between the States and Territories. For Indigenous men, the employment rate is highest in the Australian Capital Territory, followed by Tasmania and then Victoria. Indigenous employment rates are the lowest in the Northern Territory, followed by South Australia and Western Australia (Figure 4).

The patterns in employment rates across the States/Territories are similar for Indigenous women; the non-CDEP employment rate is highest in the Australian Capital Territory, followed by Tasmania and employment rates are lowest in the Northern Territory, Western Australia and South Australia (Figure 5).

While there are also differences in the employment rates for non-Indigenous men and women across the States/Territories, the variations are smaller than those observed for the Indigenous population. For non-Indigenous men the employment rate is relatively high in all States and Territories and differences between States/Territories are relatively small. The highest employment rate is 86 per cent in the Northern Territory and the lowest is 73 per cent in Tasmania. In contrast, for Indigenous men the employment rate varies from 71 per cent in the Australian Capital Territory to 26 per cent in the Northern Territory. The general pattern is similar for non-Indigenous women. One reason for the compressed relativities for non-Indigenous employment is that many people move to areas with employment opportunities. In contrast, Indigenous mobility is more likely to be driven by family circumstances rather than employment-related factors (Biddle & Hunter 2006).

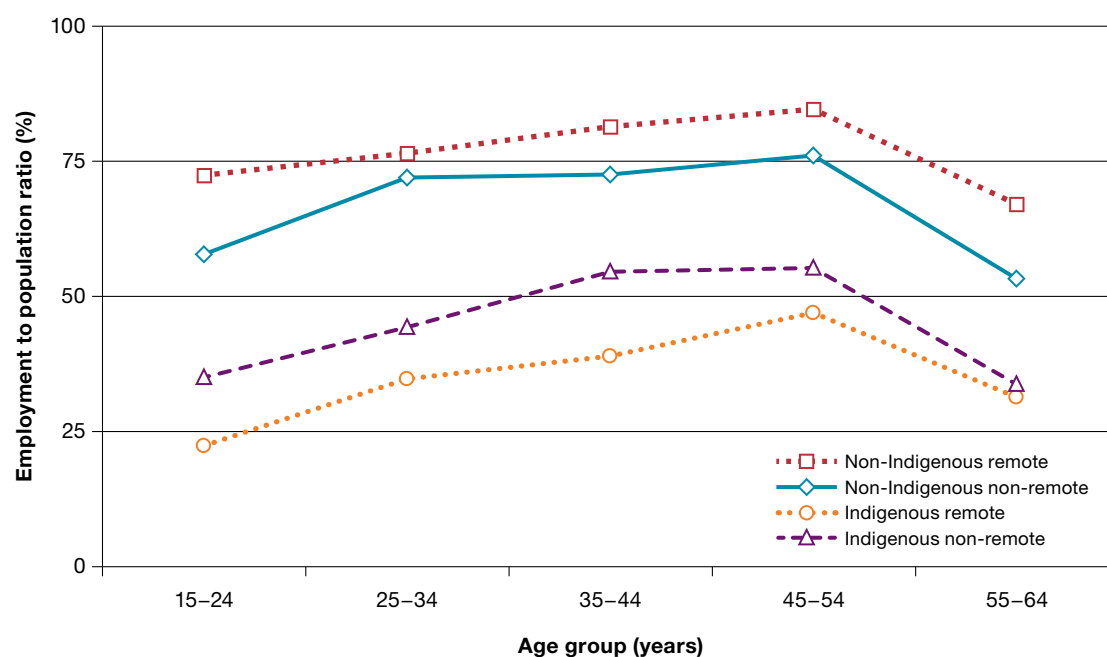
FIGURE 2. Non-CDEP employment to population ratio by age group and Indigenous status (per cent), men, 2011



Note: The employment measure excludes CDEP participants.

Sources: 2011 Census; CDEP program data, ABS (2012a).

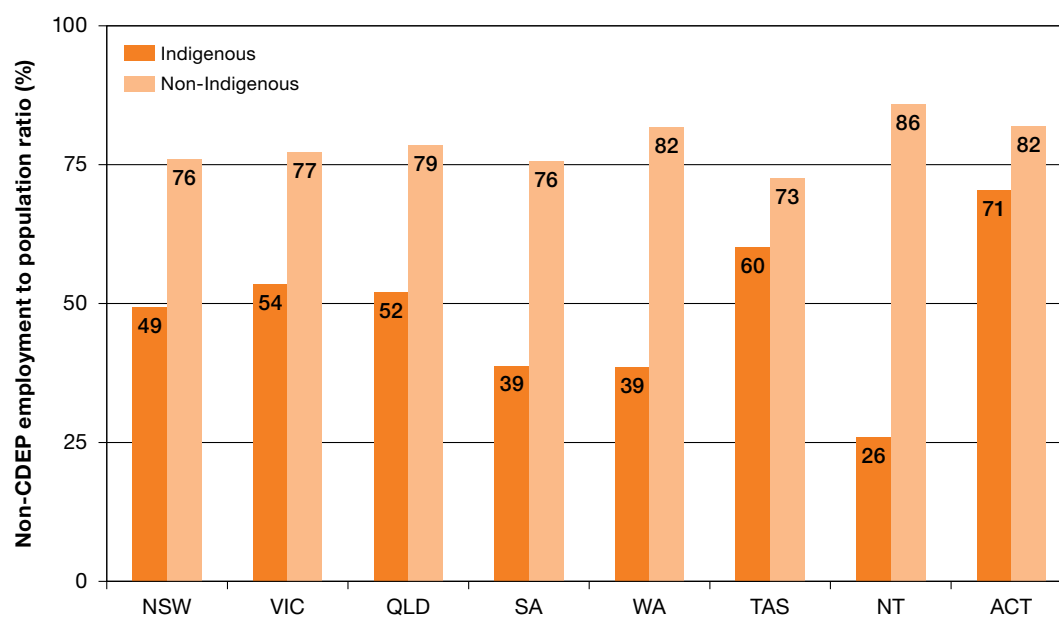
FIGURE 3. Non-CDEP employment to population ratio by age group and Indigenous status (per cent), women, 2011



Note: The employment measure excludes CDEP participants.

Sources: 2011 Census; CDEP program data, ABS (2012a).

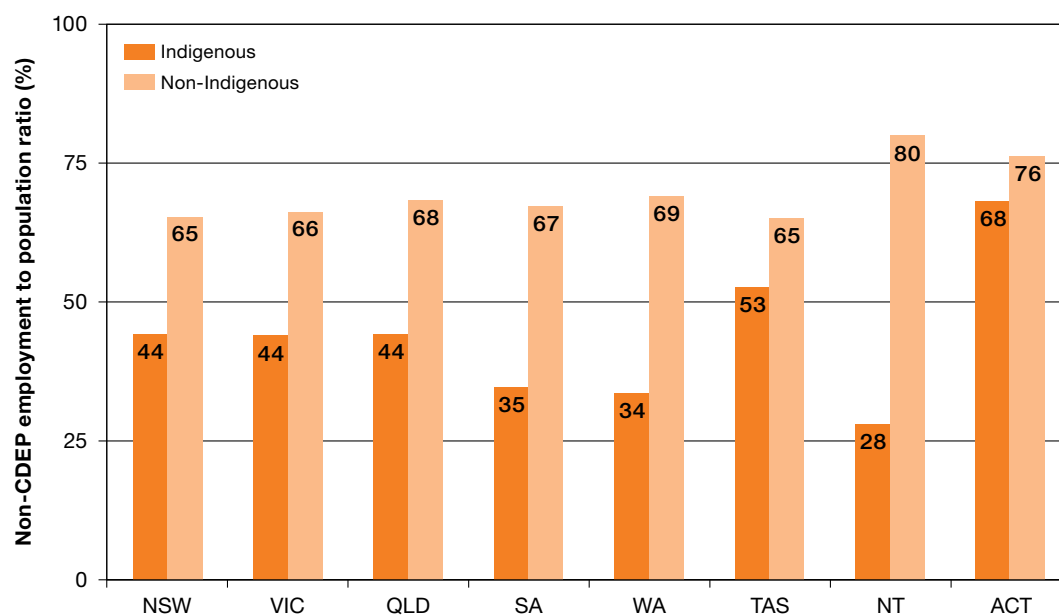
FIGURE 4. Non-CDEP employment to population ratio by State/Territory and Indigenous status (per cent), men, 2011



Notes: Population aged 15–64 years. The employment measure excludes CDEP participants.

Sources: 2011 Census; CDEP program data, ABS (2012a).

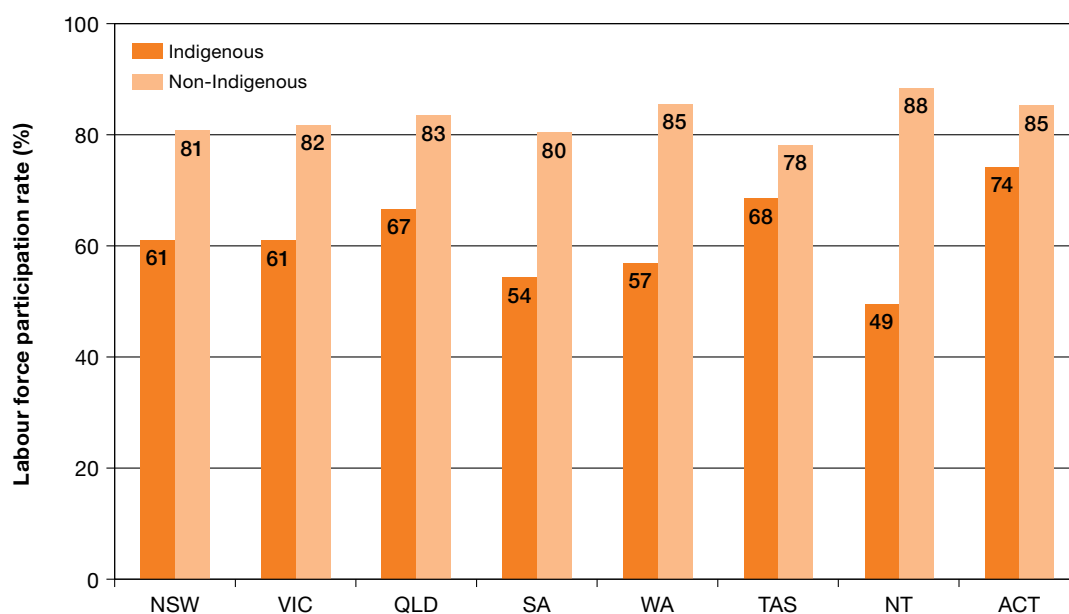
FIGURE 5. Non-CDEP employment to population ratio by State/Territory and Indigenous status (per cent), women, 2011



Notes: Population aged 15–64 years. The employment measure excludes CDEP participants.

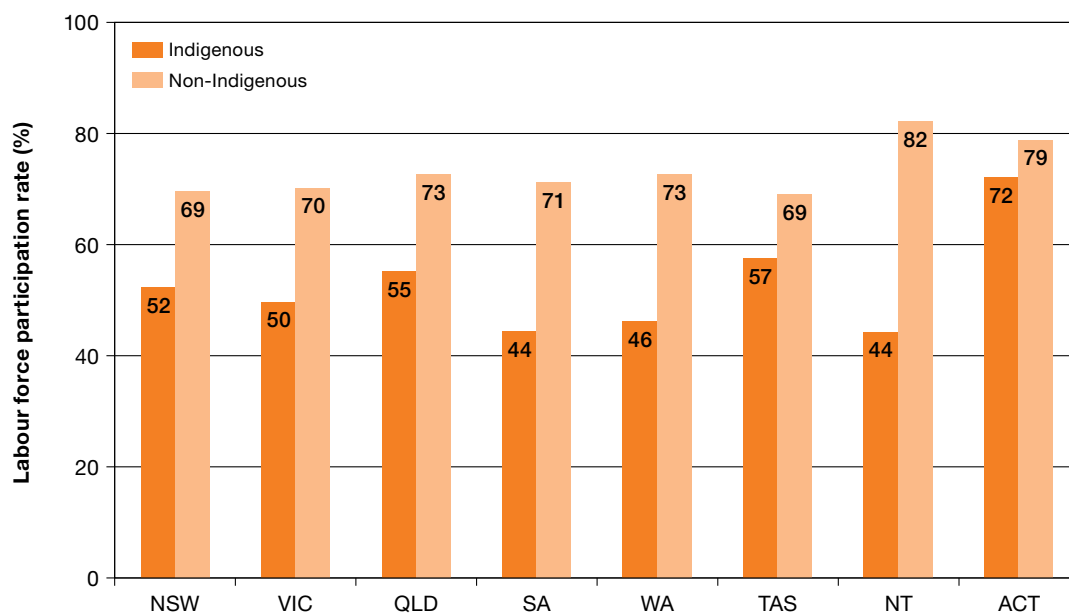
Sources: 2011 Census; CDEP program data, ABS (2012a).

FIGURE 6. Labour force participation rate by State/Territory and Indigenous status (per cent), men, 2011



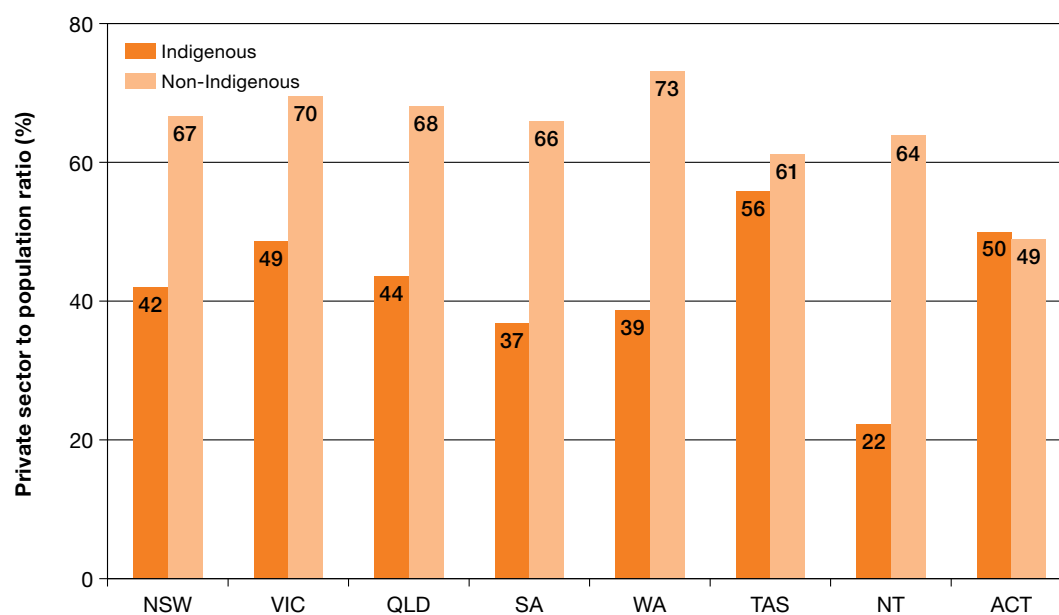
Notes: Estimates are for population aged 15–64 years. Labour force consists of non-CDEP employed, CDEP participants and the unemployed.
Sources: 2011 Census.

FIGURE 7. Labour force participation rate by State/Territory and Indigenous status (per cent), women, 2011



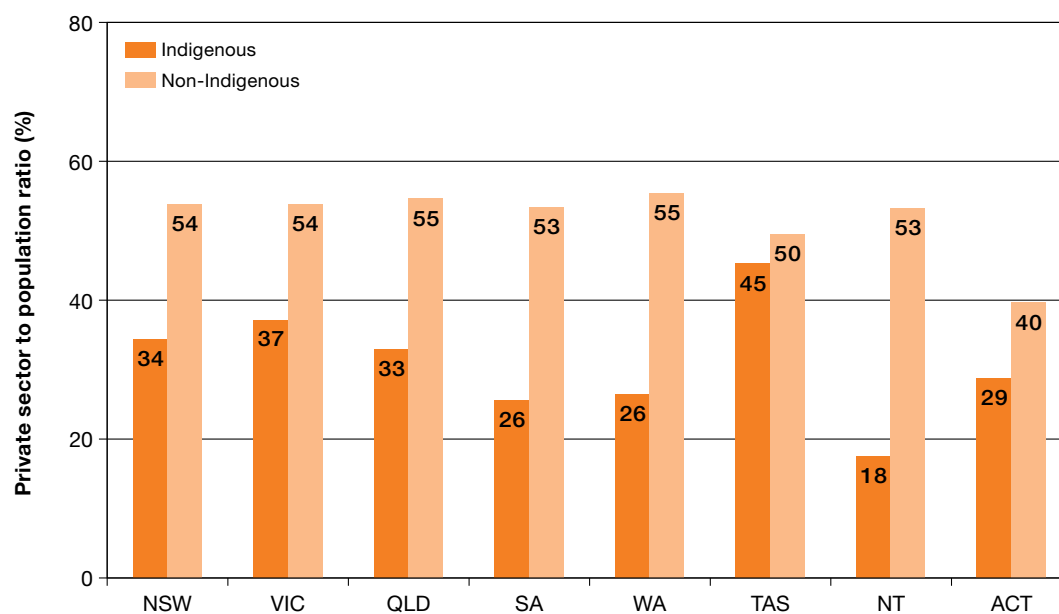
Notes: Estimates are for population aged 15–64 years. Labour force consists of non-CDEP employed, CDEP participants and the unemployed.
Sources: 2011 Census.

FIGURE 8. Private sector employment to population ratio by State/Territory and Indigenous status (per cent), men, 2011



Notes: Estimates are for population aged 15–64 years. Private sector includes CDEP participants who claim to be in the private sector.
Sources: 2011 Census.

FIGURE 9. Private sector employment to population ratio by State/Territory and Indigenous status (per cent), women, 2011



Notes: Estimates are for population aged 15–64 years. Private sector includes CDEP participants who claim to be in the private sector.
Sources: 2011 Census.

While there are differences between the States and Territories in the labour force participation rate of Indigenous and non-Indigenous Australians (Figures 6 and 7), these differences are much smaller than the differences in employment rates (Figures 4 and 5). This reflects, in part, the fact that States and Territories with a lower employment rate have a higher rate of CDEP employment plus unemployment. Notwithstanding, the comparison with the previous two figures illustrates that areas with a lower employment rate also have a lower labour force participation rate—a finding that is consistent with a discouraged worker phenomenon manifesting itself in regional differences. As expected, the labour force participation rate is higher for men than women for all States/Territories and geographic remoteness, with the exception of non-remote Northern Territory (effectively Darwin).

5.2 Private sector

Much of the growth in Indigenous employment has been in the private sector (Gray, Hunter & Howlett 2013). Figures 8 and 9 show private sector employment by State/Territory for men and women respectively.

As noted above, the participation in private sector employment across the States and Territories is relatively even for the non-Indigenous population compared to that of Indigenous Australians. However, public sector employment is a large part of the local labour market of the Australian Capital Territory.

Indigenous men are more likely to be employed in the private sector than are Indigenous women. Indigenous employment in the private sector is generally higher in the States that do not have remote areas—Tasmania, Victoria and even the Australian Capital Territory for Indigenous men. In States and Territories where there are more remote Indigenous residents, private sector employment tends to be lower. For example, the lowest rate of Indigenous involvement in the private sector is in the Northern Territory, where 22 and 18 per cent of Indigenous men and women are employed in such jobs. However, it is not simply that there are fewer of those jobs, as well over 50 per cent of the non-Indigenous Territorians are employed in the private sector. These observations are likely to be a result of a combination of the Indigenous population disproportionately living in areas with few private sector jobs and a mismatch of the skills of Indigenous population with those demanded by employers.

6. Employment by Occupation and Industry

6.1 Occupation

One of the key attributes of a job is the occupation associated with it. The occupation classification is itself closely associated with the level and type of skills associated with the job. To work as a professional or in a trade, a worker must have attained a suitable qualification. This section provides an overview of the occupations in which Indigenous and other Australians are employed and the extent to which this changed between 2006 and 2011.

Because recent census data does not identify many CDEP participants, and the non-identification is systematically related to whether the Indigenous special enumeration strategy was used (see ABS (2011b)), it is not possible to exclude CDEP participants from the analysis of occupation. Hunter (2004) has demonstrated that the clustering of CDEP jobs in particular occupations affects the estimated occupational structures of Indigenous employment. The inability to exclude CDEP participants from the estimated occupation distribution for Indigenous Australians using the census means that changes in occupation distribution between 2006 and 2011 will reflect, in part, the substantial decrease in the number of CDEP participants over this period.

The occupational structure of employed Indigenous people in 2006 and 2011 is presented in Table 3. The proportion of the Indigenous employed working in managerial and professional roles increased between 2006 and 2011. Increases in these high-status occupations equate to approximately 2,600 more males and 1,700 more females employed in these professions in remote areas. The proportion of Indigenous males employed as Machinery Operators and Drivers has increased by 3.4 percentage points in remote areas. While this paper does not attempt to estimate the underlying reasons for this change, it is likely to be due at least in part to the impact of mining and associated infrastructure development.

In 2006 between 55 and 61 per cent of Indigenous workers in remote areas were employed as either Labourers or as Community and Personal Service Workers. The large fall in the number of labour jobs in remote areas, and for women a smaller decline in community and personal service work, is most likely a consequence of the decline in the CDEP scheme. Despite the substantial drop in CDEP participation, employment within this scheme still accounts for a large proportion of the workforce in remote areas. Labourers and Community and Personal Service Workers still accounted for around 39 per cent of the Indigenous female remote workforce and almost 40 per cent of the Indigenous male remote workforce in 2011.

TABLE 3. Occupation by Indigenous status, gender and remoteness (per cent), 2006–11

	Indigenous				Non-Indigenous			
	Male		Female		Male		Female	
	Remote	Non-remote	Remote	Non-remote	Remote	Non-remote	Remote	Non-remote
	2006				2006			
Managers	4	7	4	6	26	16	18	10
Professionals	6	9	13	16	9	18	19	24
Technicians & Trades Workers	12	23	3	4	24	24	6	5
Community & Personal Service Workers	10	9	27	23	4	5	14	13
Clerical & Administrative Workers	3	6	17	23	3	7	20	26
Sales Workers	2	5	7	12	3	7	10	14
Machinery Operators & Drivers	12	16	2	2	16	11	2	2
Labourers	52	26	28	14	15	12	12	8
Total	100	100	100	100	100	100	100	100
Total number employed ('000)	19	61	15	52	109	5,219	79	4,393
	2011				2011			
Managers	9	6	8	5	22	16	16	10
Professionals	14	9	18	17	10	19	20	25
Technicians & Trades Workers	12	26	6	4	27	23	5	5
Community & Personal Service Workers	12	10	23	26	4	6	14	15
Clerical & Administrative Workers	6	5	17	24	3	7	22	25
Sales Workers	4	4	7	13	3	7	9	13
Machinery Operators & Drivers	15	18	4	1	19	11	3	1
Labourers	28	23	16	11	14	11	11	7
Total	100	100	100	100	100	100	100	100
Total number employed ('000)	20	81	16	72	122	5,624	84	4,867

Notes: The total number of employed person in each category is derived from census counts which have been adjusted to be the estimated residential population (using ABS 2012a).

Sources: 2006 and 2011 Censuses.

The relative prominence of CDEP-related occupations for the Indigenous population means the structure of the Indigenous remote workforce is quite different to that of the non-Indigenous remote workforce. For males in remote areas, Indigenous employment appears to have a substantial number of jobs in CDEP-related activities, whereas non-Indigenous males are more likely to be employed as Managers and Technicians and Trade Workers. The difference between Indigenous and non-Indigenous males in remote areas could also reflect differing jobs held within the mining industry. Whereas Indigenous males are more likely to be employed in relatively low-skilled occupations like Labourers, non-Indigenous males may be more likely to be employed as

Technicians and Trade Workers and Machinery Operators and Drivers.

The occupational distribution of Indigenous workers in non-remote areas remained relatively stable between 2006 and 2011, with modest shifts away from Labourers and towards Community and Personal Service Workers for females, and Technicians and Trades Workers for males.

The occupational distribution of non-Indigenous workers also remained relatively constant between 2006 and 2011, with the exception of a shift away from managerial positions in remote areas, perhaps reflecting the weakening of the agricultural sector.

TABLE 4. Employment by industry, Indigenous males, 2006–11

	Number employed				Change in employment			
	2006		2011		Number		(Per cent)	
	Remote	Non-remote	Remote	Non-remote	Remote	Non-remote	Remote	Non-remote
Agriculture, Forestry & Fishing	1,131	2,567	1,124	2,559	–7	–8	–1	0
Mining	1,201	1,588	2,053	3,391	852	1,803	71	114
Manufacturing	580	8,948	364	12,129	–216	3,181	–37	36
Electricity, Gas, Water & Waste Services	199	996	378	999	179	3	90	0
Construction	1,126	8,930	1,594	14,565	468	5,635	42	63
Wholesale Trade	153	2,561	270	2,865	117	304	76	12
Retail Trade	483	4,190	759	6,488	276	2,298	57	55
Accommodation & Food Services	334	3,190	510	4,927	176	1,737	53	54
Transport, Postal & Warehousing	468	4,511	628	6,944	160	2,433	34	54
Information Media & Telecommunications	61	838	121	449	60	–389	97	–46
Financial & Insurance Services	35	538	48	248	13	–290	37	–54
Rental, Hiring & Real Estate Services	54	642	33	226	–21	–416	–40	–65
Professional, Scientific & Technical Services	171	1,388	412	1,317	241	–71	141	–5
Administrative & Support Services	558	2,267	1,154	2,373	596	106	107	5
Public Administration & Safety	7,854	7,496	3,476	9,690	–4,378	2,194	–56	29
Education & Training	685	2,820	1,496	3,123	811	303	119	11
Health Care & Social Assistance	3,298	4,033	1,849	5,065	–1,449	1,032	–44	26
Arts & Recreation Services	248	1,189	973	914	725	–275	293	–23
Other Services	713	2,157	2,496	2,377	1,783	220	250	10
Total	19,352	60,849	19,738	80,649	386	19,800	2	33

Notes: Population is aged 15–64. Estimates reported as '0' are not exactly zero, but have been rounded to the nearest whole number.

Sources: 2006 and 2011 Censuses; ABS (2012a).

6.2 Industry of employment

Given the potentially important role played by certain industries in the overall employment trend (such as mining), we examine employment changes in each industry between 2006 and 2011. The large increases in the Indigenous population between 2006 and 2011 need to be kept in mind when interpreting the recent trends. Hence the following analysis focuses on the numbers employed in each industry, as well as the percentage change in those employed in each industry for the respective populations. To the extent that these estimates differ, more weight should be given to change in numbers, as the estimates expressed in percentages are sensitive to low levels of participation in 2006. Another reason for this focus is that we are particularly interested in the number of jobs created for Indigenous Australians in the various sectors of the economy.

Tables 4 and 5 show Indigenous and non-Indigenous employment by industry and remoteness in 2006 and 2011 for men and women respectively. As with the analysis of occupation of employment, it is not possible to exclude the CDEP-employed—as such, the influence of CDEP needs to be taken into account in analysing the industrial distribution of Indigenous employment.

The effects of the reduction of the number of CDEP participants can be seen reflected in the declines in employment in Public Administration and Safety, and Health Care and Social Assistance jobs. These are the industries which over 80 per cent of CDEP workers reported as belonging to in the 2006 Census. By the time of the 2011 Census only just over 40 per cent of CDEP workers report being employed in these industries. The increase in Other Services is largely attributable to the number of CDEP workers who now identify as working in other services (but did not in 2006). Almost one third

TABLE 5. Employment by industry, Indigenous females, 2006–11

	Number employed				Change in employment			
	2006		2011		Number		(Per cent)	
	Remote	Non-remote	Remote	Non-remote	Remote	Non-remote	Remote	Non-remote
Agriculture, Forestry & Fishing	246	716	336	832	90	116	37	16
Mining	239	268	973	687	734	419	307	157
Manufacturing	169	2,124	165	1,676	–4	–448	–2	–21
Electricity, Gas, Water & Waste Services	24	236	20	39	–4	–197	–17	–83
Construction	135	785	212	469	77	–316	56	–40
Wholesale Trade	72	1,056	54	552	–18	–504	–24	–48
Retail Trade	850	6,205	1,198	10,286	348	4,081	41	66
Accommodation & Food Services	729	5,435	834	9,443	105	4,008	14	74
Transport, Postal & Warehousing	112	1,140	222	942	110	–198	99	–17
Information Media & Telecommunications	77	612	50	241	–27	–371	–35	–61
Financial & Insurance Services	100	1,075	279	776	179	–299	181	–28
Rental, Hiring & Real Estate Services	53	751	36	553	–17	–198	–31	–26
Professional, Scientific & Technical Services	190	1,765	417	1,708	227	–57	120	–3
Administrative & Support Services	474	2,406	970	2,487	496	81	105	3
Public Administration & Safety	5,007	6,548	2,646	8,747	–2,361	2,199	–47	34
Education & Training	2,091	7,244	2,594	10,052	503	2,808	24	39
Health Care & Social Assistance	3,750	11,386	2,275	20,581	–1,475	9,195	–39	81
Arts & Recreation Services	153	840	806	602	653	–238	428	–28
Other Services	580	1751	1902	1676	1,322	–75	228	–4
Total	15,051	52,343	15,989	72,349	938	20,006	6	38

Notes: Population is aged 15–64 years.

Sources: 2006 and 2011 Censuses; ABS (2012a).

of those CDEP-employed who were identified in the 2011 Census claim to work in the Other Services sector.³

For Indigenous men in remote areas the industries with the largest increases in employment numbers were Other Services; Mining; Education/Training; and Arts/Recreation Services.⁴ The pattern of employment change for women

in remote areas was almost identical to that for men, with the exception that slightly more jobs were created in Arts/Recreation Services than Education/Training.

In non-remote areas the biggest increases for Indigenous men were in Construction; Manufacturing; Transport, Postal and Warehousing; and Retail Trade. For Indigenous women in these areas the biggest increases in employment were in Health Care and Social Assistance; Retail Trade; Accommodation and Food Services; Education and Training; and Public Administration and Safety.

The overall proportion of Indigenous persons employed in Mining has increased substantially in remote areas, by 4.2 and 4.5 percentage points for males and females respectively. The proportion of Indigenous persons employed in Mining also increased in non-remote areas. Although Mining still only represents a small proportion of the Indigenous workforce, the increases over the five-year period are substantial, equating to an extra 3,800 jobs in

3. In the context of this paper, it is salutatory to remind the reader that industry of employment is coded by the ABS based upon a series of questions that identify the name of the business, the employed person's occupation, and main tasks and duties (ABS 2011b). Consequently, the industry classification results from the response of the person in the form or at an interview or the coding decisions of the ABS.

4. The use of standard industry classification used in this paper does not separately identify community work and jobs producing activity outside the standard (gross domestic product) framework. For example, the Working on Country program employs 660 Indigenous rangers in mainly tourism, agriculture and natural resource management.

Mining and a higher percentage increase than for non-Indigenous persons. Increased employment in the Mining sector may also be reflected in part by the increased employment in Construction, particularly in remote areas.

While remote employment has been effected by the mining boom and changes in the CDEP scheme, there has been little change in the industry composition of Indigenous workers in non-remote areas. A similar observation can be made regarding non-Indigenous persons, with the exception that the mining boom has coincided with a long-run decline in the number of jobs in Agriculture. The latter observation is associated with the long-term growth in the large-scale capital-intensive agribusiness (Productivity Commission 2005).

In contrast to remote areas, in non-remote areas industries such as Manufacturing and Construction for men, and Retail and Hospitality for women, play a more important role than Mining in the Indigenous labour market.

This observation has implications when considered in conjunction with the current 'two-speed' economy in Australia. Although the mining boom appears to be benefiting some of the Indigenous population in remote areas, those living in non-remote areas, like their non-Indigenous counterparts, still depend on industries such as Manufacturing and Tourism for employment.

Tables A1 and A2 show industry of employment by State/Territory according to Indigenous status for men and women respectively. These tables highlight the differential effect of the mining boom on different States. In particular, in Western Australia, the Mining industry accounts for the largest proportion of male Indigenous employment (almost 20 per cent of the workforce), and a substantial proportion (7 per cent) of female Indigenous employment. These proportions are higher than that in the non-Indigenous labour market in Western Australia. Similarly, employment in Mining accounts for a larger proportion of male Indigenous jobs than non-Indigenous jobs in Queensland and South Australia.

The industry composition of employment for Indigenous men and women is distinct from that of non-Indigenous employment in the Northern Territory and Western Australia. In the Northern Territory this is largely attributable to the relatively large proportion of Indigenous workers employed in Public Administration and Safety and Other Services—a fact that is explained partially by the prominence of the CDEP scheme in that jurisdiction. In Western Australia, the relatively larger number of Indigenous male miners increases the differences in the industrial composition between Indigenous and non-Indigenous workers (i.e. sometimes described as having a relatively high level of industrial segregation).

Construction is another important part of the Indigenous male labour market, accounting for at least 10 per cent of employment in every State except the Northern Territory. Given that the proportion of non-Indigenous males employed in Construction in the Northern Territory is still fairly high, the low proportion of Indigenous construction workers could be due to how CDEP workers are classified into particular industries. The number of Indigenous males and females electing the Other Services industry in the Northern Territory is also much higher than in any other State (14 per cent of the male workforce and 10 per cent of the female workforce). As noted above, CDEP participants are disproportionately identified as being employed in that industry. For Indigenous females, Health Care (particularly in the Social Assistance category) and Education (particularly in preschool and school education) are also important parts of the labour market.

7. Overview of findings

While there have been substantial increases in Indigenous employment and some narrowing of the gap in employment between the Indigenous and non-Indigenous population, Indigenous employment rates remain much lower. Biddle (2013) documents that educational attainment has improved substantially for Indigenous youth relative to other Australian youth and hence some of the improvement in employment may be attributable to the 'closing of the gap' in education.

One of the new findings in this paper is that Indigenous youth employment in remote areas is different from that of Indigenous youth in non-remote areas, but older Indigenous residents of such areas are not very different in employment terms. One explanation is likely to involve the differential access to educational institutions for such areas. If this supposition is correct, then policy needs to pay particular attention to the situation facing Indigenous youth in remote areas. The failure to address these differentials may lead to a foreclosure of future labour market options as future employment prospects are highly correlated with historical outcomes in employment and education. In stark contrast all non-Indigenous age groups in remote areas tend to do relatively well in the labour market, but especially non-Indigenous youth.

An increase in mining activity in Australia over the last decade has created some job opportunities for Indigenous Australians, especially in Western Australia and to some extent Queensland. This is seen not only through the direct increase in the mining industry, but also through increases in jobs in construction and machinery operation, as well as relatively high private sector participation. Increases in mining employment for Indigenous people are in line with

non-Indigenous increases, and in remote Western Australia and Queensland the mining sector accounts for a higher proportion of Indigenous jobs than non-Indigenous.

While the mining boom has had a positive impact on some Indigenous people, in national terms the vast majority of the increases in Indigenous employment between 2006 and 2011 have been in other industries.

The Northern Territory was observed to have the most different labour market to the other States, with very low employment in remote areas, little participation in the private sector and high rates of part-time employment. Non-remote areas in the Northern Territory, however, do have high rates of employment (especially for females), and a relatively high proportion of self-employed Indigenous people, especially those who employ other workers.

There is no magic bullet in closing the employment gap between Indigenous and other Australians. Mining has provided some jobs in parts of Australia, but policy needs to facilitate Indigenous participation in the mainstream economy by assisting Indigenous people to be work-ready, especially improving the extent to which Indigenous skills are matched to those required by employers.

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Appendix tables

TABLE A1. Industry characteristics by gender and State, male, 2011
Per cent of employed population

	Indigenous male							Non-Indigenous male								
	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	ACT
Agriculture, Forestry & Fishing	4	3	4	6	3	8	4	0	3	3	3	5	3	6	2	0
Mining	3	1	7	6	19	4	4	0	2	1	4	2	9	2	4	0
Manufacturing	12	14	11	11	8	15	2	2	12	15	12	16	12	13	7	3
Electricity, Gas, Water & Waste Services	2	2	2	2	1	2	1	2	2	2	2	2	2	3	2	1
Construction	14	18	15	13	15	17	9	17	12	14	15	13	17	14	14	11
Wholesale Trade	4	4	3	3	2	5	1	2	5	6	5	5	5	5	3	2
Retail Trade	8	7	6	6	4	10	5	7	9	9	8	9	8	9	7	7
Accommodation & Food Services	6	5	5	4	3	6	2	7	6	5	6	5	5	5	6	6
Transport, Postal & Warehousing	8	7	7	6	5	6	3	4	7	7	8	6	6	6	7	3
Information Media & Telecommunications	1	2	1	1	1	1	1	1	3	2	1	2	1	2	1	2
Financial & Insurance Services	1	1	1	1	0	1	0	1	5	4	2	2	2	2	1	2
Rental, Hiring & Real Estate Services	1	1	1	1	1	1	0	1	2	1	2	1	1	1	1	1
Professional, Scientific & Technical Services	3	3	2	2	2	3	2	5	8	8	7	6	8	5	5	12
Administrative & Support Services	4	4	4	4	4	3	3	2	3	3	3	3	3	2	3	2
Public Administration & Safety	11	9	14	11	10	7	31	31	7	5	7	8	6	8	22	33
Education & Training	5	5	4	5	6	3	5	5	5	5	4	5	4	5	5	6
Health Care & Social Assistance	7	7	7	11	6	4	8	6	5	4	5	5	4	5	4	4
Arts & Recreation Services	2	4	2	2	2	1	4	3	2	2	1	1	1	2	2	2
Other Services	4	4	5	5	7	5	14	3	4	4	4	4	4	4	4	3
Total number employed ('000)	31	8	30	5	12	4	9	1	1,789	1,448	1,154	405	671	115	57	107

Notes: Population is aged 15–64. Remoteness areas defined according to 2006 remoteness categories (calculated using ABS 2011 SA1 to 2006 Remoteness concordance).
The total number of employed person in each category is derived from census counts which have been adjusted to be the estimated residential population (using ABS 2012b).
Estimates reported as '0' are not exactly zero, but have been rounded to the nearest whole number.

Source: 2011 Census.

TABLE A2. Industry characteristics by gender and State, female, 2011
Per cent of employed population

	Indigenous female								Non-Indigenous female							
	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	NSW	Vic	Qld	SA	WA	Tas	NT	ACT
Agriculture, Forestry & Fishing	1	2	1	1	1	3	1	0	1	1	2	2	1	2	1	0
Mining	0	0	2	1	7	0	1	0	0	0	1	0	3	0	1	0
Manufacturing	3	5	3	3	2	4	1	1	5	6	4	6	4	4	2	1
Electricity, Gas, Water & Waste Services	0	1	0	0	0	1	0	0	1	1	1	1	1	1	1	0
Construction	1	2	2	1	3	2	1	1	2	2	3	2	3	2	3	1
Wholesale Trade	2	2	2	1	1	2	0	1	4	4	3	2	3	2	2	1
Retail Trade	12	11	11	10	8	16	7	9	13	14	14	14	14	14	10	8
Accommodation & Food Services	11	9	10	8	7	12	4	7	8	7	9	8	8	10	8	6
Transport, Postal & Warehousing	2	3	2	2	2	2	1	1	2	2	3	2	2	2	3	1
Information Media & Telecommunications	1	1	1	1	1	1	1	1	2	2	1	1	1	2	1	2
Financial & Insurance Services	3	3	2	2	1	3	1	1	6	5	3	4	3	3	2	2
Rental, Hiring & Real Estate Services	1	1	1	1	2	2	1	1	2	1	2	1	2	1	2	1
Professional, Scientific & Technical Services	3	4	3	2	3	3	3	6	8	8	7	6	7	5	6	8
Administrative & Support Services	4	3	4	4	5	4	3	2	4	4	4	4	4	3	3	2
Public Administration & Safety	9	11	12	14	13	8	29	40	6	6	6	7	6	11	19	34
Education & Training	14	12	13	15	18	10	17	8	12	12	12	12	13	13	14	12
Health Care & Social Assistance	26	26	25	27	20	21	17	15	20	20	20	23	19	20	16	15
Arts & Recreation Services	2	2	1	2	2	1	4	3	1	2	1	1	2	2	2	2
Other Services	4	4	4	4	5	5	10	4	4	3	4	4	4	4	3	3
Total number employed ('000)	28	6	26	8	10	4	4	1	1,544	1,252	1,003	358	545	103	46	100

Notes: Population is aged 15–64. Remoteness areas defined according to 2006 remoteness categories (calculated using ABS 2011 SA1 to 2006 Remoteness concordance).
The total number of employed person in each category is derived from census counts which have been adjusted to be the estimated residential population (using ABS 2012b).
Estimates reported as '0' are not exactly zero, but have been rounded to the nearest whole number.

Source: 2011 Census.

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