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The rise of the CDEP scheme and changing factors underlying Indigenous employment

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Summary

The dominance of the Community Development Employment Projects (CDEP) scheme in certain regions of Australia complicates the interpretation of any analysis of Indigenous employment. In order to enhance interpretation, the factors underlying Indigenous employment should be examined separately for areas where the CDEP scheme is relatively prominent. The 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS) and census data between 1981 and 1996 are used to highlight potential biases in the effects of educational attainment (and other factors) on employment prospects of Indigenous and non-Indigenous populations.

The growth of the CDEP scheme

From its humble beginnings in 1977, the CDEP scheme grew slowly at first, before expanding rapidly in the mid to late 1980s away from the original strongholds in remote Australia. Indeed, the scheme more than quadrupled in size between 1986 and 1991. A second, less obvious, internal expansion in the number of CDEP scheme *job*s occurred as a result of the Spicer review in 1997.

The main point to note is that the CDEP scheme provides a small proportion of Indigenous employment in major Australian cities and is a relatively minor source of employment in other urban areas, especially for females. The converse of this is that the CDEP is a major source of employment in rural and remote areas with about one-half of all jobs being generated by the scheme. Smaller urban areas outside the major cities lie somewhere in between these two extremes with about one-fifth of employment originating in the scheme.

A preliminary NATSIS-based analysis of the effect of the CDEP scheme

The NATSIS provides the best data for reflecting on the extent to which the CDEP scheme affects the determinants of employment, as it is the only individual level data that accurately distinguish those employed in the CDEP scheme from other workers. The results indicate that, once one controls for geography, there is little difference between the estimates of non-CDEP scheme and total employment.

Describing changes in labour market conditions in major urban, other urban and rural/remote areas

Before turning to the census analysis, it will be useful to tease out how labour market conditions changed in major urban, other urban, and rural/remote areas between 1981 and 1996.

- The proportion of the Indigenous working-age population with any post-secondary qualifications more than doubled in major urban areas in the period examined. In rural/remote areas, the educational changes are even more pronounced with a quadruple increase in Indigenous qualifications from a low base in 1981. The convergence towards non-Indigenous outcomes is entirely due to the low initial base of Indigenous educational attainment.
- While the percentage of the population who spoke English poorly in urban areas was extremely small throughout the period examined, even among the Indigenous population, there was a substantial fall in the percentage of the population who spoke English poorly among Indigenous people in rural and remote areas.
- The number of people who left school before their 15th birthday fell significantly for both Indigenous and non-Indigenous populations.
- Aggregate employment did not change appreciably for Indigenous males in major urban areas (at around 51.4%). In contrast, employment-population ratios for non-Indigenous males in such areas fell from 74.4 per cent to 67.1 per cent, largely due to the overall decline in the number of full-time jobs. Given that Indigenous workers are employed in

a different segment of the market, and are more likely to be employed in part-time work, these trends are easily explainable. The aggregate improvements in Indigenous employment in other areas is particularly significant, presumably due mainly to the expansion of the CDEP scheme.

- The changes in Indigenous labour force participation rates are larger than could be explained by the secular changes in labour supply in the rest of the population. The main changes in Indigenous participation occur in areas where the CDEP schemehas expanded dramatically.

Census analysis of total employment, 1981–96

There is no systematic trend in the effect of having a post-secondary qualification in either major urban, other urban or rural/remote areas. Indeed, the effects of qualifications are remarkably stable for all groups as there is no significant change in employment prospects among either Indigenous or non-Indigenous males and females.

The large increases in the employment disadvantage of people who left school before they were 16 years old is indicative of the general decline of jobs for low-skilled workers, especially in the manufacturing sector. The exceptionally poor prospects of this group is a relatively recent phenomenon among non-Indigenous Australians, but is well established in the Indigenous population.

In contrast, the expansion of the CDEP scheme in rural and remote areas has cushioned low-skilled Indigenous workers from the harsh realities of declining regional labour markets. For example, the disadvantage of leaving school at age 14 were greater for Indigenous males and females in 1981 than for their non-Indigenous counterparts. By 1996, these relativities were reversed with non-Indigenous people who left school at or before 14 years of age experiencing greater disadvantage.

Policy discussion

The overall finding of this paper is that the measured factors underlying employment prospects are reasonably stable in the face of a substantial expansion of the CDEP scheme in various parts of the country. This is not to say that the CDEP scheme has had no impact on the determinants of Indigenous employment. Indeed, the other major finding is that the collapse in the market for low-skilled jobs has not affected adversely the Indigenous work force in areas where the scheme's expansion is most pronounced. While this is an obvious positive for the least educated section of society in the short-run, it may have detrimental consequences in the long run. The main issue is that the incentive to finish high school is blunted by the continuous shielding of people from the harsh realities of the labour market. The importance of maintaining the correct incentive structure for youth is particularly important for youth in other urban areas where there are more likely to be substantial employment opportunities for Indigenous people in the mainstream labour market.

The main policy prescription is that Indigenous youth are encouraged to complete school rather than move straight onto the CDEP scheme. This could be achieved through use of a series of 'carrots and sticks' such as those used in the mainstream youth allowance. This would curtail the use of the CDEP as simply a means of getting out of the educational system.

This paper underscores the importance of distinguishing CDEP schemes based on local labour market conditions and the likely impact of these schemes on the future incentives of youth to finish school and get a qualification. Consequently, ATSIC would be advised to refine their classification of urban labour markets to take into account detailed information on the local market conditions.

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Introduction

This working paper is one in a series which uses census data to explore the changing factors underlying Indigenous employment and labour force participation. The ultimate goal of these papers is to derive some summary measures of labour market discrimination that have not yet been estimated in the Australian context, let alone for Indigenous Australians. This paper introduces the role of the Community Development Employment Projects (CDEP) scheme in the changing nature and scope of the Indigenous labour market.

Studies of the determinants of the labour force status of Indigenous Australians cannot ignore Indigenous-specific institutional factors such as the CDEP scheme. Under the CDEP scheme, Indigenous community organisations get an allocation of a similar magnitude to their collective unemployment benefit entitlement to undertake community defined 'work'. The recipients are then required to work part-time for their entitlements. Historically the CDEP scheme was available on a one-in-all-in basis for each community. The current policy, which evolved gradually during the 1990s, means that when the CDEP scheme is provided in a community, the unemployed have some choice as to whether or not they participate (Sanders 1993). While the employment status of CDEP scheme participants is ambiguous in many regards (see various contributions in Morphy & Sanders 2001), the Australian Bureau of Statistics (ABS) treats CDEP scheme workers as employed for statistical purposes.[1] Consequently, the effect of CDEP scheme employment on econometric analyses is a vital issue for any study based on ABS data.

The dominance of the CDEP scheme in certain regions of Australia complicates the interpretation of any analysis of Indigenous employment. In order to enhance interpretation, the factors underlying Indigenous employment are examined separately for areas where CDEP is relatively prominent. That is, the census analysis is conducted separately for Indigenous and non-Indigenous males and females in major urban (cities with over 100,000 residents), other urban, and rural/remote areas. Given the intensive nature of the exercise, it is necessarily based on the full census file. While this has the benefit of providing a complete analysis, it is limited by the ABS's requirement that the identity of individuals be kept anonymous. The process of confidentialising the data means that the structure analysis is rather inflexible. Notwithstanding, the analysis is entirely consistent with basic insights provided by more sophisticated and flexible specifications used elsewhere (e.g. Borland & Hunter 2000).

The inability to accurately separate out CDEP employment in census data means that the main analysis in this paper necessarily focuses on total employment from the four censuses between 1981 and 1996. The regression analysis is conducted separately for each region so as to maximise the insights into the role of the CDEP scheme, which moved progressively into urban Australia over the last 25 years.

The next two sections describe the rise of the CDEP scheme and how this is likely to interact with the factors underlying employment. Data from the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS) are used in the preliminary analysis because that survey separately identifies CDEP and other employment. NATSIS therefore allows us to describe what sort of people work in the CDEP scheme and the likely biases arising from an analysis which does not test the sensitivity of the results to exclusion of scheme participants. The NATSIS analysis is undertaken by estimating the same regression model used in the census analysis, but separately documenting the factors that change when the CDEP scheme is included and left out of the definition of employment. After documenting the changes in the underlying determinant of the employment status of Indigenous and other Australians, the paper concludes with a discussion of the implications of results for policy and future research.

The growth of the CDEP scheme

The CDEP scheme was introduced on a pilot basis by the Fraser Coalition Government in 1977 in response to the potential spread of Unemployment Benefit payments into remote indigenous communities (Sanders 1997). The scheme proved immediately popular, but was

initially beset by a number of budgetary and administrative problems which inhibited its expansion. In the early 1980s, these problems with the scheme were, to some extent, addressed and the scheme began expanding quite rapidly (see Table 1). By 1985, the year before the Commonwealth Government's Aboriginal Employment Development Policy (AEDP) initiative, some 38 Aboriginal communities, primarily in remote locations, had joined the CDEP scheme, with a total of 4,000 participants. At that time, the budget for the scheme was $27 million, representing approximately 9 per cent of Aboriginal affairs portfolio expenditure. In 1991–92, the scheme operated in almost 200 Indigenous communities, involved around 20,000 participants and accounted for a third of the ATSIC budget. By 2000–01, the scheme expanded to 35,400 participants and accounted for about 38 per cent of the ATSIC budget.

Given the intermittent nature of CDEP scheme work in non-urban areas and the fact that non-working spouses of participants could be included in participant totals prior to 1997, the ratio of scheme participants who could be counted as employed was estimated to be 60 per cent in remote areas and 80 per cent in the rest of the country (for details, see Taylor & Hunter 2001). Subsequent administrative changes required that these assumptions were revised. The recommendations of the Spicer (1997) Review emphasised the importance of the scheme as an employment program. This shift in emphasis coincided with movement off the scheme of non-working participants to become clients of the social security system (Sanders 2000). As a consequence, ATSIC now advise that all registered participants should be classified as employed (see entries for 2001 in Table 1). It is not clear that these reforms have been completely implemented with some evidence that purposeful work is still not provided for all CDEP participants (Sanders 2001). Therefore the extent of external expansion of the number of CDEP scheme *jobs* may be slightly overstated in Table 1.

Table 1. Expansion of CDEP employment in Indigenous population, aged 15 years and over

Census year	CDEP participants	CDEP employment	Indigenous population aged 15 years and over	CDEP employment/Pop. ratio (%)
1981	1,300	780	91,800	0.8
1986	4,000	2,400	137,100	1.8
1991	18,100	10,860	159,700	6.8
1996	28,400	17,040	211,600	8.1
2001	35,400	35,400	262,200	13.5

Note: The Indigenous adult population in 2001 was taken from Taylor and Hunter (2001). In a sense, the increase in CDEP employment/population ratios may be understated by the substantial growth in self-identified Indigenous population, especially in the 1991–96 period (Ross 1999).

Sources: CDEP places calculated using ATSIC and DAA Annual Reports various years (see Sanders 1997). Census counts for the Indigenous populations aged 15 years and over were derived from Gray and Tesfaghiorghis (1991) and Taylor and Bell (1998).

Therefore from its humble beginnings in 1977, the CDEP scheme grew slowly at first, before expanding rapidly in the late 1980s when it expanded away from the original strongholds in remote Australia (Sanders 1997). Indeed, the scheme more than quadrupled in size between 1986 and 1991. A second, less obvious, internal expansion in the number of CDEP scheme *jobs* occurred as a result of the Spicer Review in 1997 (Sanders 2000).

As at July 2001 there were approximately 269 CDEP organisations funded and supported by ATSIC, employing 35,400 participants. One-third of those are located in non-remote Australia. It is estimated that overall, the scheme currently employs about 25 per cent of the Indigenous workforce (Champion 2002). Clearly, the CDEP scheme cannot be ignored when analysing the determinants of employment.

One of the motivations of this paper is to use the fact that the expansion of the CDEP scheme has been uneven throughout Australia, with urban areas having relatively few participants until recently. The nature of CDEP in urban areas is also fundamentally different to those in rural and remote areas. In urban communities, the scheme is available

on a project basis, so that some community members may be on CDEP wages and others on unemployment benefits from Centrelink (Smith 1995). Both the Royal Commission into Aboriginal Deaths in Custody and the House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs (Commonwealth of Australia 1991; Commonwealth of Australia 1992) encouraged this expansion, particularly in those urban areas disproportionately affected by the recession of the early 1990s and by ongoing high custodial rates.

ATSIC has determined that there are currently 102 'non-remote' CDEP schemes that employ a total of 13,314 participants, and 167 'remote' CDEP schemes that employ approximately 22,092 participants (Champion 2002). In other words approximately 30 per cent of all CDEP participants are now employed in non-remote locations. ATSIC uses the Australian Taxation Office (ATO) definition to distinguish non-remote from remote CDEPs. Note however that CDEP schemes may operate in a city or town which may be located in a remote region of Australia (in accordance with ATO tax zone rules), but still have a vibrant labour market attached to it (e.g. Broome, Alice Springs and Darwin). There appears to be a trend towards 'streaming' CDEP policy and initiatives into two sets—one for urban CDEPs and another for CDEP schemes located in remote regions. CDEPs located in rural areas and in urban centres in remote regions complicate any really clear distinction between these two streams.

Table 2 illustrates the concentration of CDEP in non-urban areas using 1994 NATSIS data. While this table does not use the census categories for geographic classification used elsewhere in this paper, it provides the best overview of the geographic distribution of CDEP scheme jobs (rather than participants) because it can be compared with a consistent estimate of the Indigenous population. The main point to note is that the CDEP scheme provides a small proportion of the Indigenous employment in major Australian cities and is a relatively minor source of employment in other urban areas, especially for females. The converse of this is that the CDEP is a major source of employment in rural and remote areas with about one-half of all jobs being generated in the scheme. Smaller urban areas outside the major cities lie somewhere in between these two extremes with about one-fifth of employment originating in the scheme.

Table 2. Distribution of CDEP scheme employment across part of state, 1994 NATSIS

	Capital city	Other urban (%)	Rural or remote	Total
Male				
CDEP/population ratio	2.6	8.6	26.7	13.0
CDEP/total number of employed	5.3	21.5	55.7	28.8
Female				
CDEP/population ratio	0.4	3.8	13.0	5.6
CDEP/total number of employed	1.3	15.6	46.2	20.6

Note: The population ratio is drawn from those aged 15 years and older.

Source: ABS (1995: 51).

The most recent ATSIC data show that there is still only just over 1,000 CDEP participants in major urban areas (defined as capital cities or any other urban area with more than 100,000 residents). However, about half of these work in the Perth CDEP scheme, PEEDAC Pty Ltd, which was established on 6 July 1997— almost a year after the 1996 census was collected (Humphries 2001: 227–9).

One of the best known urban CDEP schemes began in Redfern in mid 1991 with 35 participants and a waiting list. ATSIC approved an increase in participant numbers to 70, in June 1992 (Smith 1995). The Redfern CDEP scheme is one of five currently operating in ATSIC's Sydney Regional Council area, and is the region's largest scheme. Clearly, despite recent increase in CDEP schemes in major urban areas they represent only a minute fraction of Indigenous employment in such areas.

In order to simplify the interpretation of results in major urban areas, it is reasonable to assume that the CDEP scheme will not affect the census analysis of the factors underlying Indigenous employment between 1981 and 1996. However, before focusing on census data, it would be useful to reflect on the extent to which the CDEP scheme affects the determinants of employment. The NATSIS provides the best data for this as it is the only individual level data that accurately distinguish those employed in the CDEP scheme from other workers. The next section provides an overview of methodological issues, followed by the statistical description of the role of CDEP using NATSIS, and then census data.

Method and data

The main analysis in this paper uses the full census counts from the 1981, 1986, 1991 and 1996 Censuses to identify the factors underlying employment prospects of Indigenous and non-Indigenous males and females. The ABS provided the data in a series of detailed, confidentialised cross-tabulations, which were used to construct a multivariate analysis of the determinants of employment. The grouped nature of cohort data means that the dependent variables are a proportion of a group that is employed. Given that the dependent variables are bounded between the values of zero and one, the standard Ordinary Least Squares (OLS) estimation is also inappropriate. The solution adopted in this paper is to transform the dependent variables using a logitistic transformation, and then perform a weighted OLS analysis on the transformed data. Details of the estimation method are presented in Appendix A.

The validity of inter-censal comparisons of Indigenous labour market outcomes depend, in part, upon who identified as Indigenous in the 1996 Census, but did not in previous censuses. If the people who currently identify as indigenous but did not do so in past censuses are radically different from those who have continuously identified, then we must question the validity of census-based comparisons of changes in the socioeconomic status of Indigenous Australians. However, Hunter (1998) has shown that the demographic characteristics of the Indigenous population (and cohorts) have not changed significantly over time and, therefore, it is possible to dismiss false claims about identification by non-Indigenous people as a major factor underlying the apparent large non-biological increases in the Indigenous population. The upshot of that analysis is that Indigenous people have become increasingly willing to identify themselves in census enumerations and thus inter-censal comparisons are valid.

The explanators of the probability of employment are similar to those used in other studies (Daly 1993; Miller 1989; Miller 1991). The variables used in the empirical analysis include: having a post-secondary qualification; age left secondary school; English difficulty; being divorced, widowed or separated; being married (including de facto); and, of course, age (measured in broad ten-year age groups). Detailed descriptions of the construction of these variables can be found in Hunter and Gray (1998), Gray, Hunter and Schwab (2000) and Hunter and Gray (2001). Summary statistics can be found in Appendix B.

One important determinant of employment, especially for females, is the presence of children in a family. Unfortunately, it was not possible to control for children because the process of confidentialising the data would make analysis rather intractable. While data on children can be provided at a household or family level, it is not obvious how such data can easily be integrated into the cross-tabulations based on individual level data.

The analysis of the full census file at a sub-national level was facilitated by only using the broadest categories for the variables in the specification. This compromise was necessary, but reduced the possible insights from the following analysis. For example, the educational qualification variable is a crude measure which includes any post-secondary qualification. However, this may also be characterised as a strength in that the 'qualification inflation' of the late 1980s and early 1990s, sometimes associated with the Dawkins reforms, should not affect the results.

Another issue that may complicate the interpretation of the differences between Indigenous and non-Indigenous results is selective migration (i.e. the idea that particular types of people are more likely to move than others). For example, it has been observed that the

overall patterns of net migration in remote areas correlate highly with employment trends (Bell & Maher 1995). Also, youth are more likely to change locations between censuses than older Australians. By contrast, Indigenous people reside in remote areas in spite of their employment status (Taylor 1997). That is, the Indigenous results will correspond to a similar population in all four censuses, while the non-Indigenous may be more responsive to labour market conditions. The use of broad categories of areas will minimise possible distortions because many moves will be within a category. While there may be an effect arising from selective migration, it would probably be too subtle to identify in the following analysis.

In order to understand the effect of the expansion of the CDEP scheme, it is necessary to analyse who is employed in the scheme. Multivariate regressions are estimated in the next section to determine the characteristics associated with the scheme. The model estimated using NATSIS data is almost identical to that used the census-based analysis. This symmetry between the NATSIS and census analysis should enhance the insight into issues involved when it is not possible to control for CDEP scheme employment and hence improve our ability to interpret the following census analysis of Indigenous employment.

Symmetry is also maintained through using a similar set of variables. Variables are the basic set used in econometric studies of employment, including geography, marital status, education (age left school, post-secondary qualification, and difficulty in speaking English), and basic demographic variables (Gray & Hunter 2002). As noted earlier, the major difference between the variables used is that the NATSIS has idiosyncratic geographic categories (called part-of-state), which does not have a direct correspondence with the census categories for geography (called section-of-state). The other difference is that the relatively small sample size in NATSIS means that it is not possible to separately analyse employment in various areas.[2] Also, it is not possible to separate NATSIS variables to capture whether a person has been widowed, separated or divorced. Appendix B provides the descriptive statistics for the data used in the following analysis.

A preliminary NATSIS-based analysis of the effect of the CDEP scheme

Since the main aim of this paper is to identify the extent to which the CDEP scheme affects the factors underlying Indigenous employment, three regressions are estimated. In addition to examining the factors correlated with CDEP scheme employment, separate regressions are estimated for other (i.e. non-CDEP scheme) employment and overall or total employment.

The coefficients of a logistic regression are informative but are notoriously difficult to interpret (Appendix C). One statistic that is relatively easy to interpret is the 'marginal effect' of each explanatory variable. This involves estimating the change in the predicted probability of employment arising from a given change in a variable, holding the value of the other variables constant. Since the effect of changes in the explanatory variables on the probability of being arrested varies with the value of all the explanatory variables in the model, it is essential that marginal effects are measured at values which are representative of a significant proportion of the population. Therefore, the reference person for the calculated marginal effects is a hypothetical Indigenous person whose characteristics are equal to the population average. In each case the marginal effect is calculated as the difference in probability of employment for a person with and without the specified characteristic, with all other characteristics fixed at average values. While no single person embodies the 'average', this change means that the estimated marginal effects are more robust and are relevant to a greater number of people. The marginal effects of the census analyses are calculated in an analogous manner.

The marginal effects reported in Table 3 illustrate that the CDEP scheme is heavily concentrated in rural and remote areas. Indeed, the size of the marginal effect completely offsets the average probability of being employed in the CDEP scheme so that the average Indigenous residents of capital cities have virtually no prospect of being in the scheme.

In contrast, non-CDEP scheme employment is higher in capital cities, although the marginal effect is only significantly higher for males (11.7%). If the focus is on total employment, then the effect of the CDEP scheme dominates with both males and females being less likely to be employed in capital cities (-3.8% and -6.9% respectively). Given the decline of employment in rural and regional Australia, this result is driven entirely by the prominence of the CDEP scheme in such areas. This underscores the importance of separately analysing employment in various geographic categories—especially when it is not possible to accurately identify those employed in the CDEP scheme.

While being married or in a de facto relationship is positively associated with both forms of employment, there are sizable differences in the marginal effects of the other factors, especially the education variables. This is not surprising given that the scheme can be partially characterised as a program which addresses labour market disadvantage (Sanders 1997). Consequently, people with post-secondary qualifications are less likely to be in the CDEP scheme (-5.3% and -1.5% for males and females). This is in stark contrast to the results for non-CDEP scheme and total employment, which are both strongly correlated with qualifications. Furthermore, there are no significant differences in the marginal effects derived from the regressions of non-CDEP scheme and total employment (e.g. both are associated with an approximately 20% higher employment prospect). Apparently the effect of not controlling for the 'CDEP effect' is not important, at least for the qualification variable.

The marginal effect of 'difficulty in speaking English' differs for CDEP scheme and other employment regressions. This variable is positively correlated with the CDEP scheme (especially those in remote areas), but is strongly negatively correlated with other employment. This may reflect unmeasured regional factors with both the CDEP scheme and this variable being concentrated in remote and rural areas. While there is no significant difference between the effect of English fluency in the non-CDEP and total employment regressions for males, there was a small difference for females. However, the pattern of significance is the same with 'difficulty in speaking English' having a significant negative effect on employment prospects for all 'non-CDEP' estimates.

The age profile of CDEP scheme participants tends to be much flatter than that for other employment with many younger people working in CDEP. In contrast, non-CDEP employment peaks in the so-called prime-aged labour market group (i.e. aged between 35 and 54 years). Again there is very little difference between the age profiles of non-CDEP and total employment.

The results are consistent with an Office of Evaluation and Audit (OEA) (1997) report, which provided a comprehensive analysis of the correlates of CDEP. The focus of the above analysis is on the extent to which the failure to control for the CDEP scheme may effect the pattern of factors underlying Indigenous employment in census analysis. The main finding is that once one controls for geography, there is little difference between the estimates of non-CDEP scheme and total employment.

Table 3. Marginal effects derived from logistic estimates of NATSIS data

	CDEP scheme employment		Non-CDEP scheme employment		Total employment	
Indigenous males						
Average probability of employment	14.5%		21.0%		40.5%	
Lives in a capital city	-14.6%	(1.0%)	11.7%	(2.3%)	-3.8%	(2.4%)
Married or de facto couple	5.5%	(1.2%)	12.4%	(1.4%)	19.4%	(1.7%)
Difficulty in speaking English	1.5%	(1.3%)	-18.1%	(1.2%)	-16.4%	(1.8%)
Post-secondary qualification	-5.3%	(1.4%)	21.8%	(2.3%)	19.5%	(2.4%)
Left school before 14 years old	-1.4%	(1.5%)	-4.8%	(1.6%)	-7.2%	(2.2%)
Left school after 17 years old	5.6%	(1.4%)	4.4%	(1.5%)	11.3%	(1.9%)
Aged between 25 & 34	-0.2%	(1.4%)	7.4%	(1.9%)	6.5%	(2.1%)
Aged between 35 & 44	-1.0%	(1.6%)	14.1%	(2.4%)	12.4%	(2.5%)
Aged between 45 & 54	-3.5%	(1.7%)	12.3%	(2.9%)	6.5%	(3.0%)
Aged between 55 & 64	-4.6%	(2.0%)	-0.2%	(3.3%)	-6.6%	(3.8%)
Indigenous females						
Average probability of employment	6.6%		15.6%		25.6%	
Lives in a capital city	-8.2%	(0.6%)	1.4%	(1.6%)	-6.9%	(1.7%)
Married or defacto couple	2.3%	(0.7%)	2.6%	(1.1%)	5.8%	(1.4%)
Difficulty in speaking English	3.8%	(1.0%)	-11.4%	(1.1%)	-6.4%	(1.6%)
Post-secondary qualification	-1.5%	(0.9%)	18.2%	(2.0%)	18.8%	(2.1%)
Left school before 14 years old	1.2%	(1.0%)	-9.0%	(1.1%)	-8.5%	(1.7%)
Left school after 17 years old	3.0%	(0.9%)	6.8%	(1.3%)	10.7%	(1.6%)
Aged between 25 & 34	-0.5%	(0.8%)	4.3%	(1.5%)	3.2%	(1.8%)
Aged between 35 & 44	-1.3%	(0.9%)	13.1%	(2.1%)	11.0%	(2.1%)
Aged between 45 & 54	-2.3%	(0.9%)	13.7%	(2.7%)	9.2%	(2.7%)
Aged between 55 & 64	-5.2%	(0.8%)	-0.9%	(2.8%)	-9.3%	(2.7%)

Note: The omitted categories are: lives outside a capital city, is single, divorced or separated, left school at 15 or 16, and was aged between 15 and 24 years old. Standard errors are reported in brackets.

Source: Calculated from coefficients reported in Appendix Tables C1 and C2.

Describing changes in labour market conditions in major urban, other urban and rural/remote areas

Before turning to the census regressions, it will be useful to explore how labour market conditions have been changing in major urban, other urban, and rural/remote areas. The detailed descriptive statistics for the regression provide an opportunity to identify how differently Indigenous and other Australians are faring in the various areas in the medium to long run (Appendix Tables B2–B4).

In term of demographics, the main change observed between 1981 and 1996 was that as a whole the Australian population aged considerably. For non-Indigenous males in major urban areas this manifested itself as a fall of about four percentage points in the youth component of the working-age population (i.e. aged between 15 and 64 years). The obverse of this change was an increase in the older age groups. For the Indigenous population, the decline in the youth population is even more stark with a fall of about 10 percentage points. For example, the percentage of youth in the working-age population of Indigenous males living in major urban areas fell from 45.5 per cent to 34.9 per cent between 1981 and 1996. While there was a relatively large decline in the proportion of Indigenous adults who are

youth, it should be pointed out that the Indigenous population is still more youthful than the non-Indigenous population.

Similar observations can be made for the other urban and rural/remote areas. For rural/remote areas, the percentage point decline in the youth component of the working-aged population is actually smaller for the Indigenous population. This is in part due to the smaller number of youth in the working-aged Indigenous population compared to urban areas. Given the preconceptions of large Indigenous families with numerous children in such areas, this may seem like a conundrum. However, the explanation probably lies in the fact that Indigenous families are skewed towards children, rather than youth. In terms of the non-Indigenous population, the decline in the youth component is about the same magnitude as observed in major cities.

The proportion of the Indigenous working-age population with any post-secondary educational qualifications more than doubled in major urban areas in the period examined. Given there was less change for the non-Indigenous males there must be an element of convergence with the non-Indigenous rates. For example, the proportion of males with qualifications in these areas increased from 10.4 to 21.4 per cent—an increase of 11 percentage points. For non-Indigenous males in such areas, the proportion increased from 35.0 to 43.9 per cent. That is, most of the convergence is due to the low base of Indigenous educational attainment. This observation is even more legitimate for Indigenous females for whom the percentage point increase in qualification is actually less than their non-Indigenous counterparts. Note there may be some differences in the quality of educational qualifications for the Indigenous population compared to other Australians (i.e. when quality is measured in terms of the effect on employment outcomes—see Gray & Hunter 1999).

In rural/remote areas, the educational changes are even more pronounced with a quadruple increase in Indigenous qualifications from a low base in 1981. The change in other urban areas was extremely small between these two extremes. For example, the proportion with post-secondary qualifications almost trebled between 1981 and 1996. Again all of the convergence was in relative terms being due to the lower initial incidence of qualifications in 1981. For example, the incidence of qualifications among Indigenous males increased from 2.0 to 8.7 per cent, while the non-Indigenous statistics changed from 25.8 to 37.2 per cent.

While the percentage of the population who spoke English poorly in urban areas was throughout the period examined, even among the Indigenous population, there was a substantial improvement among Indigenous people in rural and remote areas with a fall from 17.1 to 8.9 per cent for males and from 21.8 to 10.2 per cent for females.

The percentage of the population who spoke English poorly in urban areas was extremely small, even among the Indigenous population. Note that there was a substantial fall among Indigenous people in rural and remote areas where English was not spoken proficiently by all residents.

Marital status was relatively stable in the sample period for all of the groups examined. There are two stylised facts worth noting. The first is that the Indigenous population are less likely to be married than other Australians, possible due to their more youthful demographic profile. The second fact is that the incidence of marriage is higher in rural and remote areas for both Indigenous and non-Indigenous populations.

The last educational variables described in Appendix B are the age left school of various populations in the regression analysis. The numbers of people who left school early fell for both Indigenous and non-Indigenous populations between 1981 and 1996 with most of the change being focussed in the people who left school before 14 years of age. In major urban areas, the proportion of Indigenous working-age males who left before 14 fell by 11.3 percentage points from 28.9 to 17.6 per cent. For non-Indigenous males in such areas, there was a similar decline from 23.9 to 13.5 per cent between 1981 and 1996. Given that similar changes were noted in the female statistics, the results are remarkably similar for Indigenous and other Australians. The proportion who left school at either 15 or 16 in

major urban areas also fell by a similar amount, albeit smaller in magnitude (about 5 percentage points). However, one difference was that the Indigenous population tended to be about 15 per cent more likely to have left school just before completing secondary schooling.

In rural and remote areas, the decline in the proportion who left school before 14 fell by more for the Indigenous population, largely due to the high incidence of early school exits in 1981. Not surprisingly, the proportion of Indigenous people who left school at either 15 or 16 increased by more than for non-Indigenous people, probably as a direct result of the concerted efforts of school authorities (e.g. as the Vocational Education and Training (VET) programs have been increasingly implemented within the school system). This effect was particularly evident between 1981 and 1986 where the proportion who left school just before completing their secondary education increased by over 15 percentage points in rural and remote areas. For Indigenous males resident in such areas, the proportion who left school at 15 or 16 years of age increased from 44.2 to 60.1 per cent in this inter-censal period. Among non-Indigenous residents of rural and remote areas, the proportion who left school at this age was relatively stable at around or just below 50 per cent. Note that this stability is driven in part by the fact non-Indigenous people are on average older and, at least for many, their school days may be well behind them.

The effect of the educational push in Australian schools and educational institutions depends on the returns to education and what is happening in the local labour markets. The last two descriptive statistics examined are the employment-population ratio and the labour force participation rates in the census data. In major urban areas, Indigenous employment has been remarkably stable. Aggregate employment did not change appreciably for Indigenous males being 51.2 per cent in 1981 and 51.4 per cent in 1996. In contrast, employment-population ratios for non-Indigenous males in major urban areas fell from 74.4 per cent to 67.1 per cent, largely due to the overall decline in the number of full time jobs. Given that Indigenous workers are employed in a different segment of the market (Taylor 1993; Taylor 1994), and are more likely to be employed in part-time work (Hunter & Gray 1998), these trends are easily explainable. In the absence of discrimination and other labour market disadvantage, and if one abstracts from differences in labour supply, one might expect employment rates to equalise over the long run.

As expected, the aggregate improvements in Indigenous employment in other areas is even more marked, presumably due largely to the expansion of the CDEP scheme. Given the impressive growth of the scheme in such areas, it is probably surprising that employment did not increase by more in rural and remote areas. One explanation is that the CDEP scheme is offsetting the general decline in rural industries and regional economies. However, the decline in non-Indigenous employment seems to be of a similar magnitude in major urban and rural and remote areas. An alternative explanation is that people without employment or job prospects have migrated to the cities. Such explanations tend to be ad hoc and rather unsatisfactory and the conundrum is worthy of further research.

The changes in Indigenous participation rates are higher than could be explained by the secular changes in labour supply in the rest of the population. While this observation is valid to a much lesser extent for major urban areas, the main differences occur in areas where the CDEP scheme has expanded dramatically. For example, Indigenous male participation rates in rural and remote areas actually increased, especially with the initial expansion of the scheme between 1981 and 1986. Since 1986, the male participation declined slightly, but still remains higher than the rate in 1981.

For females in rural and remote areas, the increase in labour force participation is much stronger for Indigenous females for whom the rates increased from 28.6 per cent to 40.3 per cent of the working-age population. In contrast, non-Indigenous females in such areas followed the national trends towards higher engagement with the labour market driven largely by the growth in the number of part-time jobs and secular changes in family formation and attitudes of women to 'paid' work. While these changes in labour supply provide a useful background to the following analysis, they are beyond the scope of this

paper. As indicated earlier, this will be the subject of a companion working paper in the CAEPR series (Hunter 2002).

Census regressions of total employment, 1981–96

As in the NATSIS regression, the census analysis includes several education, demographic and marital status variables. As indicated above, the census specification is very similar to the NATSIS analysis and the technique used is almost identical to maximise comparability of the results. The regression analysis is presented in full in Appendix C (Tables C3–C14). However, the marginal effects are again reported because of their relative ease in interpretation. In addition to separate analysis of major urban, other urban and rural/remote areas, the results are also conducted by sex and Indigenous status within each area.

Table 4 reports the returns to education for major urban areas. Tables 5 and 6 report the returns to education for other urban, and rural/remote areas respectively. The marginal effects for the other variables are discussed briefly in the text, but are not reported in order to save space. The patterns of significance for these marginal effects are virtually identical to the regression coefficients reported in Appendix C. The reason for the similarity is that they are in fact a representation of the same information in a more user-friendly form.

The effect of post-secondary qualifications is extremely stable in urban areas for the four groups examined. Having a qualification is associated with about 23 and 28 percentage point higher employment prospects for Indigenous males and females respectively. While there was some variation in the size of the effects between censuses none of the variation was significant. Similarly, the marginal effects of qualifications were stable for other Australians with non-Indigenous males and females being about 13 and 18 percentage points in the four Censuses examined. Given differences in the level and quality of qualifications in the Indigenous and non-Indigenous populations (Gray, Hunter et al. 2000), one explanation for the larger effect among Indigenous people is that the relatively small number of Indigenous people with qualifications sends a signal to employers about the ability and motivation of the potential workers.

While there was no significant trend among the marginal effects for post-secondary qualifications in major urban areas, there were substantial changes in the effect of leaving school early, especially in the non-Indigenous population. The large increases in the employment disadvantage of people who left school before they were 16 years old is indicative of the general decline of jobs for low-skilled workers, especially in the manufacturing sector. The exceptionally poor prospects of this group is a relatively recent phenomenon among non-Indigenous Australians, but is well established in the Indigenous population. Indeed, there has been an element of convergence in the prospect. For example, males who left school before 14 had employment prospects approximately 25 percentage points lower than those who stayed at school till they were at least 17 years old (i.e. the marginal effects for Indigenous and non-Indigenous males were -29.1 and -24.4 percentage points respectively).

As indicated above, the marginal effects of several variables are not reported in Table 4 for the sake of brevity. However, these effects are reported in full in Appendix D.

One of the variables left out of Table 4 is the one which captured difficulty in speaking English. The marginal effects for this variable are generally not significant in major urban areas, probably because few people, either Indigenous or non-Indigenous, indicated that they spoke English poorly.

The marginal effects of the demographic variables are generally positive and increasing in magnitude over time in major urban areas. The most likely explanation for this observation is that increasing school retention rates, and subsequent increased participation in tertiary educational institutions, have significantly reduced the numbers of youths participating in the labour market and hence led to a decline in the proportion of employed. The obverse of this is that the age composition of the employed should tend to become older over time. While this trend is evident in both the Indigenous and non-Indigenous populations, the

different demographic profiles of the respective populations mean that age profile of employment tends to be flatter for Indigenous people. For example, the marginal effect of males being aged between 25 and 34 (rather than a youth aged between 15 and 24) is about 10 and 33 percentage points for Indigenous and non-Indigenous populations respectively.

Table 4. Marginal effects of education variables across 4 censuses, major urban areas

	1981	1986	1991	1996
	Change in the probability of employment arising from having a characteristic			
Indigenous males				
Post-secondary qualification	0.222	0.251	0.219	0.233
	(0.021)	(0.023)	(0.020)	(0.018)
Age left school 14	-0.249	-0.260	-0.268	-0.291
	(0.024)	(0.030)	(0.026)	(0.023)
Age left school 15 or 16	-0.127	-0.139	-0.127	-0.146
	(0.021)	(0.024)	(0.019)	(0.017)
Indigenous females				
Post-secondary qualification	0.251	0.283	0.312	0.280
	(0.034)	(0.023)	(0.020)	(0.020)
Age left school 14	-0.178	-0.251	-0.243	-0.291
	(0.028)	(0.023)	(0.021)	(0.023)
Age left school 15 or 16	-0.123	-0.145	-0.132	-0.148
	(0.024)	(0.018)	(0.015)	(0.017)
Non-Indigenous males				
Post-secondary qualification	0.107	0.129	0.133	0.138
	(0.029)	(0.030)	(0.026)	(0.026)
Age left school 14	-0.095	-0.142	-0.193	-0.244
	(0.039)	(0.042)	(0.038)	(0.036)
Age left school 15 or 16	0.083	0.046	-0.003	-0.068
	(0.029)	(0.030)	(0.027)	(0.027)
Non-Indigenous females				
Post-secondary qualification	0.188	0.187	0.185	0.173
	(0.027)	(0.024)	(0.022)	(0.020)
Age left school 14	-0.086	-0.129	-0.164	-0.212
	(0.033)	(0.032)	(0.029)	(0.026)
Age left school 15 or 16	0.034	0.005	-0.013	-0.061
	(0.025)	(0.023)	(0.020)	(0.017)

Note: The omitted categories are: lives outside a major urban area, is single, divorced or separated, left school after 17 years old, and was aged between 15 and 24 years old. Standard errors are presented in brackets.

Source: Calculated from coefficients reported in Appendix Tables C3–C6.

The final variables included in the specification were the marital status variables. The differences in family formation in Indigenous and non-Indigenous populations lead to substantial differences in the effects of marriage, and separation or divorce. For example, Indigenous males in major urban areas tend to have much higher employment rates than analogous single males. In contrast, employment prospects of married non-Indigenous males in major urban areas are not significantly different from single non-Indigenous males.

Among Indigenous females in major urban areas, there is also no significant effect from marriage in the 1981 Census, but the effect becomes significantly positive by the time of the 1996 Census. For non-Indigenous females, marriage is associated with substantially

lower employment prospects. While there was some change in the magnitude of the effects for the respective groups between 1981 and 1996, the overall relativities were maintained. The generally higher marginal effects of marriage among Indigenous people may be associated with responsibilities entailed in larger families and better access to informal childcare arrangements. The main caveat attached to this interpretation is that while large extended family networks exist and may assist in the provision of childcare, these arrangements may not be oriented to the demands of regular work (Henry & Daly 2001).

The other marital status variable is whether a person had been widowed, separated or divorced. The marginal effect of this variable is significantly positive for Indigenous males, but strongly negative for all other groups, especially non-Indigenous females living in major urban areas. However, the size effect for Indigenous females in such areas diminished over time and eventually became positive (albeit not significantly positive). Since it was not possible to control for the presence of children in the census data, the effect of separation (or being widowed or divorced) may proxy for the effect of having children without much potential childcare assistance in the immediate household. Again, the effect of this variable on Indigenous people relative to other Australians in similar circumstances may be explained by the existence of extended family networks.

So far the discussion has focussed on major urban areas where the CDEP scheme will not affect the results. The above NATSIS analysis shows that the CDEP scheme is concentrated among younger people, especially males, and is not particularly related to the level of educational attainment. Has the expansion of the scheme outside the major cities affected the marginal effects? Before examining the changes in the factors underlying employment in such areas, it is important to establish whether the relativities identified in major urban areas hold, or if other areas were fundamentally different from such areas—especially in 1981 when the scope of the CDEP scheme was extremely limited.

Similar marginal effects can be made in the other urban and rural/remote areas (see Tables 5 and 6, and Appendix D). The only difference in the marginal effects of the main educational variables was that the disadvantage of Indigenous males and females leaving school early was not too pronounced. For example, the collapse in the demand for low-skilled workers has not affected the Indigenous population as much as it has the rest of the rural and remote residents. Table 6 shows that the disadvantages of leaving school at 14 were greater for Indigenous males and females in 1981 than for their non-Indigenous counterparts (respectively, -13.0% and -12.6% compared to -7.7% and -9.8%). By 1996, these relativities were reversed with non-Indigenous people who left school at or before 14 years of age experiencing greater disadvantage (respectively, -13.5% and -16.7% compared to -20.8% and -21.7%). That is, the expansion of the CDEP scheme in rural and remote areas has cushioned low-skilled Indigenous workers from the harsh realities of the declining labour market in such areas.

There is no systematic trend in the returns to having a post-secondary qualification in rural or remote areas. Indeed, the marginal effects of qualifications are remarkably stable for all groups as there is no significant change in employment prospects among either Indigenous or non-Indigenous males and females. That is, educated people in these depressed labour markets are as employable as they ever were. However, the relativities observed between Indigenous and non-Indigenous people in major urban areas are basically valid in the rural and remote areas, with qualified Indigenous people being particularly employable. Again this is probably due to the fact that fewer Indigenous people follow up their education after school and hence the qualification sends a reasonably clear message to potential employers about the ability and motivation of Indigenous applicants.

The demographic profiles of employment in areas outside the major cities are also similar to those identified above (e.g. with non-Indigenous employment being concentrated in the older group). The fact is that Indigenous youth are not as likely to be participating in the educational system and consequently are less likely to be employed. There were few changes in the age-related marginal effects for Indigenous people after 1981. Indeed, much of the change that did occur mirrors what happened in the non-Indigenous population. Consequently, the relatively flat age structure of CDEP scheme employment does not

appear to be affecting the overall age profile of Indigenous employment in rural/remote areas.

The marital status variables have slightly different effects outside major urban areas to that described above. While the employment effects of marriage are unambiguously negative for non-Indigenous females, the effect is variable for other groups. The magnitudes are much smaller than those in major urban areas, but the basic relativities between remain the same. For example, married Indigenous males still tend to have higher employment rates than analogous single males, but the marginal effects are significantly lower. The effect of marriage is also generally positive for Indigenous females and non-Indigenous males but the magnitudes are barely significant. These observations are probably explained by the state of the labour market in such areas, rather than variations in family formation (and access to childcare). That is, there may be less specialisation in the gender division of labour in rural and remote areas with either partner taking employment as it becomes available.

In addition, there is little or no discernible trend in the measured marginal effects of marital status. Consequently, the spread of CDEP outside the major urban centres is unlikely to be affecting the results.

Table 5. Marginal effects of education variables across four censuses, other urban areas

	1981	1986	1991	1996
	Change in the probability of employment arising from having a characteristic			
Indigenous males				
Post-secondary qualification	0.311	0.276	0.282	0.261
	(0.030)	(0.024)	(0.024)	(0.020)
Age left school 14	-0.186	-0.145	-0.151	-0.174
	(0.029)	(0.027)	(0.026)	(0.023)
Age left school 15 or 16	-0.124	-0.075	-0.049	-0.082
	(0.026)	(0.022)	(0.020)	(0.017)
Indigenous females				
Post-secondary qualification	0.275	0.330	0.359	0.300
	(0.038)	(0.026)	(0.024)	(0.020)
Age left school 14	-0.164	-0.185	-0.177	-0.219
	(0.022)	(0.023)	(0.021)	(0.019)
Age left school 15 or 16	-0.100	-0.113	-0.095	-0.118
	(0.019)	(0.017)	(0.015)	(0.013)
Non-Indigenous males				
Post-secondary qualification	0.112	0.127	0.143	0.142
	(0.037)	(0.035)	(0.031)	(0.031)
Age left school 14	-0.097	-0.144	-0.210	-0.272
	(0.049)	(0.049)	(0.043)	(0.042)
Age left school 15 or 16	0.102	0.063	-0.003	-0.078
	(0.039)	(0.036)	(0.033)	(0.033)
Non-Indigenous females				
Post-secondary qualification	0.210	0.206	0.207	0.196
	(0.030)	(0.027)	(0.026)	(0.024)
Age left school 14	-0.098	-0.132	-0.191	-0.246
	(0.034)	(0.033)	(0.033)	(0.033)
Age left school 15 or 16	0.037	0.009	-0.024	-0.082
	(0.027)	(0.023)	(0.022)	(0.021)

Note: See Table 4.

Source: Calculated from coefficients reported in Appendix Tables C7–C10.

While the majority of the non-major urban examples above came from rural and remote areas where the expansion of the CDEP scheme should have the largest impacts on the estimated marginal effects, the above observations can also be made in other urban areas. For example, the decline in the number of low-skilled jobs does not significantly affect the Indigenous population in other urban areas.

Table 6. Marginal effects of education variables across four censuses, rural/remote areas

	1981	1986	1991	1996
	Change in the probability of employment arising from having a characteristic			
Indigenous males				
Post-secondary qualification	0.188	0.269	0.220	0.193
	(0.085)	(0.041)	(0.032)	(0.026)
Age left school 14	-0.130	-0.088	-0.146	-0.135
	(0.037)	(0.030)	(0.021)	(0.021)
Age left school 15 or 16	-0.076	-0.051	-0.049	-0.055
	(0.036)	(0.026)	(0.019)	(0.018)
Indigenous females				
Post-secondary qualification	0.254	0.347	0.348	0.280
	(0.061)	(0.037)	(0.033)	(0.025)
Age left school 14	-0.126	-0.103	-0.158	-0.167
	(0.021)	(0.022)	(0.017)	(0.016)
Age left school 15 or 16	-0.089	-0.075	-0.070	-0.099
	(0.019)	(0.018)	(0.014)	(0.013)
Non-Indigenous males				
Post-secondary qualification	0.056	0.067	0.078	0.081
	(0.031)	(0.029)	(0.026)	(0.025)
Age left school 14	-0.077	-0.100	-0.143	-0.208
	(0.036)	(0.037)	(0.034)	(0.033)
Age left school 15 or 16	0.115	0.084	0.024	-0.045
	(0.030)	(0.030)	(0.027)	(0.027)
Non-Indigenous females				
Post-secondary qualification	0.182	0.188	0.189	0.189
	(0.023)	(0.021)	(0.020)	(0.018)
Age left school 14	-0.098	-0.129	-0.162	-0.217
	(0.027)	(0.027)	(0.026)	(0.024)
Age left school 15 or 16	0.020	0.001	-0.027	-0.073
	(0.022)	(0.020)	(0.018)	(0.017)

Note: See Table 4.

Source: Calculated from coefficients reported in Appendix Tables C11–C14.

The similarities in trends of the effects of having an education (and other factors underlying employment) for the non-Indigenous populations between 1981 and 1996 raises the possibility that migration is equalising the returns to education. This hypothesis is consistent with the marginal effects for the educational variable tracking those in the other areas quite closely. For example, the effect of non-Indigenous males having a qualification in major urban and other urban areas are quite close in the respective censuses (respectively, 13.8% and 14.2% in 1996). Migration cannot explain all the differences in marginal effects since the non-Indigenous returns to having a qualification are always lower in rural and remote areas. Inter alia, migration will not equalise all marginal effects because: not all migration is related to employment; various areas have different qualities

which may attract different people; and the regional workforce requirements can differ substantially. The first point is particularly telling for Indigenous people, many of whom engage in short-term mobility and retain a connection to their traditional land (Taylor 1998).

Policy discussion

The issue of how to define an 'urban' CDEP, as distinct from a 'remote' or 'rural' CDEP, is becoming an important factor in the development of Indigenous policy. For example, Champion (2002) describes how the policy on Indigenous Employment Centres (IECs) in urban areas depends heavily on the classification used. This paper underscores the importance of distinguishing schemes by local labour market conditions and consequent impact of the schemes on the future incentives of youth to finish school and get a qualification. The more employment opportunities are in the mainstream labour market, the more important it is to get the incentive structure right. Consequently, ATSIC would be advised to refine their classification of urban labour markets to be more consistent with ABS census data or even DEWR's *Small Area Labour Markets* data, which both take into account detailed information on the local market conditions (DEWR 2002). The current reliance on ATO definitions of remoteness depends on vague and abstract notions of cost disadvantage,[3] which are not directly relevant to a scheme that determines short-term employment options and indirectly influences the long-run employability of many participants.

As indicated above, this paper is one, albeit integral, part of an attempt to develop a statistical measure of racial discrimination against Indigenous employment. A companion CAEPR discussion paper will assess the implications of the results presented in this paper, and briefly explore the current institutional arrangements for addressing any instances of racial discrimination. Such findings will reflect directly on the efficacy of identifying discrimination in legal and quasi-legal settings (e.g. the Human Rights and Equal Opportunity Commission). One of the main finding of this paper is that census-based estimates of the measured factors underlying employment prospects are reasonably stable over time despite a substantial expansion of the CDEP scheme in various parts of the country. This is an important finding because it enables us to have confidence that the econometric measures of discrimination, which are necessarily based on census data, are not solely driven by this important feature of the Indigenous labour market. Even though this institutional development does not excessively distort the underlying determinants of Indigenous employment, it is still advisable that the measures of statistical discrimination are estimated at a regionally disaggregated level in order to minimise this potential distortion.

This is not to say that the CDEP scheme has had no impact on the determinants of Indigenous employment. The other major finding is that the collapse in the market for low-skilled jobs has not adversely affected the Indigenous work force in areas where the schemes expansion is most pronounced. While this is an obvious positive for the least educated section of society in the short-run, it may have detrimental consequences in the long run. The main issue is that the incentive to finish high school is blunted by the continuous shielding of people from the harsh realities of the labour market.

The Indigenous Employment Policy emphasis on the importance of transitions away from the scheme into mainstream employment is unlikely to succeed unless Indigenous workers have the basic educational attainment (of sufficiently high quality) required to compete in the labour market. The irony is that the very success of the CDEP scheme, and its longevity, may defeat this policy objective. The challenge for policy makers is to ensure that the incentives for Indigenous youth to complete school are enhanced without compromising community services provided by the scheme or diminishing employment opportunities provided by CDEP in these depressed labour markets. The importance of maintaining the correct incentive structure for youth is particularly apparent in other urban areas where the mainstream employment opportunities are better.

It is important that the currency of having an education is not devalued among Indigenous people in areas where CDEP is an integral part the labour market. The main policy prescription arising from the analysis is that the socioeconomic outcomes for the Indigenous workforce would be enhanced if Indigenous youth are encouraged to complete school rather than move straight onto the CDEP scheme. Henry and Smith (2002: 14–16) propose a useful program that would specifically target young school leavers before they enter the workforce in order to prevent them from being locked into a form of recycling welfare dependence. Henry and Smith suggest that such a program would be organised through a local CDEP organisation, which would provide young participants and school leavers with personalised work preparation and employment support, to facilitate their more rapid entry into the local labour market. They suggest that the putative program should operate to an agreed timetable—for example with each person receiving a 12–18 month structured period of training, mentoring and work experience, with the view to their making a graduated progression into full-time work.

Policies that focus only on people who have already left school are too limited. That is, it is necessary to ensure that leaving school is not too easy. This could be achieved through the use of a series of incentives and penalties such as those used in the mainstream youth allowance. For example, youth under 18 may be precluded from participating in the CDEP scheme unless they are involved in some training. This would curtail the use of the CDEP scheme as simply a means of getting out of the educational system. As this may place some additional financial stress on families, a system of incentives for those who stay on at school could be provided to the families (if not, the individuals) involved through existing programs such as the Aboriginal Study Assistance Scheme (ABSTUDY).

It should be recognised that the incentives for Indigenous CDEP participants to engage in study or training are complex and dynamic. Although participants are not allowed to be in receipt of ABSTUDY when initially participating in the CDEP scheme (they could not be classified as clients of Centrelink if they were receiving it), there is nothing to stop them applying for ABSTUDY once they have become CDEP scheme employees. Madden's (2000) case study of the Worn Gundidj CDEP scheme shows that the 'cocktail' of accredited training, and top-up money (in the form of ABSTUDY) provides a strong recruitment advantage for that organisation. Furthermore, it gives CDEP an edge over Centrelink income support, especially for those adult participants who would receive a similar income when on Centrelink income support or the CDEP scheme. In order to address the incentive structures of Indigenous youth, it is important to design a consistent set of rules across the welfare system and labour market. That is, one cannot just single out the CDEP scheme for reform.

Another reason why any putative reform needs to span the various portfolios is that the CDEP scheme is not specifically set up to provide training or associated income support (Campbell & Schwab 2001). Consequently, it would place too much stress on CDEP organisations to be solely responsible for providing a fully integrated system of incentives. Schwab (2001) provides an overview of the diverse range of strategies required to keep Indigenous youths engaged in the later secondary school system. In addition to involving the CDEP scheme, any initiative would have to involve Indigenous community groups as well as the Department of Education, Science and Training, Centrelink, and Family and Community Services.

Arguably, there is some circularity in the concern about Indigenous youths incentive to participate in education, given that the returns to education include workers employed in the CDEP scheme. However, given anecdotal evidence that the CDEP scheme is viewed by many participants as a desirable 'career' path (or at least more attractive than being on various Centrelink allowances), then people employed in the scheme may see it as an end in itself.[4] The main advantage of the CDEP scheme for these participants is that it provides a relatively secure source of income, especially for those who are pessimistic about their employment alternatives.

While Madden (2000) illustrates there are strong incentives for CDEP schemes to provide training to recruit staff, the main concern is that it comes at the expense of completing

secondary schooling—a fundamental stepping stone to becoming the sort of skilled worker demanded by the modern economy. Notwithstanding the valuable training provided by many CDEPs, it is important to ensure that future options are not foreclosed by a system which encourages youth to enter the CDEP scheme as soon as possible.

The final policy point is that the CDEP scheme employment should be completely enumerated in future census collections. It is particularly important that data on CDEP scheme employment should be collected in urban areas and not just the remote areas that the ABS currently target (the so-called 'SIPF' or special Indigenous form areas). Failure to do this may lead to potential distortions in the estimated returns to various factors and, consequently, has significant implications for policy. Unless other census studies are based on geographically disaggregated data, such as that used in this paper, the power of the analysis will be diminished by the differential incidence of the scheme in the various regions. Given the cost of using individual-level data, and that the variables analysed need to be in an aggregated form (see Appendix A), the route followed in this paper will probably not be pursued by other researchers. Accordingly, a complete enumeration of the CDEP scheme in future censuses is essential to enhance our understanding of the more subtle interactions between the scheme, Indigenous employment in mainstream labour market, and crucial factors such as the incentive structure of Indigenous youth.

While the expansion of the CDEP scheme may have important distortions on the incentives of Indigenous youth, it must be recognised that it still is a vital part of the overall Indigenous labour market, especially in rural and remote areas. It has played a crucial role in cushioning low-skilled older Indigenous workers from the harsh realities of the declining labour market outside the major Australian cities. Notwithstanding, the main finding of this paper is that this role needs to be balanced against the goal of achieving sustainable increases in Indigenous employment which are not entirely dependent on public funding.

Appendix A. Formal presentation of the estimation model

The model estimated can be formally expressed as follows in Equation (A1):

$$\frac{1}{n_j}\sum_j Y_i = \frac{1}{n_j}\sum_j F(X_j\beta) = F(X_j\beta) = P_j \qquad \text{(A1)}$$

where $\frac{1}{n_j}\sum_j y_i$ represents the proportion of 1's in the jth class and $n_1,\ldots,n_J$ are the number of observation in each group, X represents a vector of characteristics, β a vector of coefficients and F is the logistic function. To simplify notation $\frac{1}{n_j}\sum_j y_i$ can be represented as P_j.

Applying the logistic function the model becomes:

$$p_j = \frac{\exp(X_j\beta)}{1+\exp(X_i\beta)} \qquad \text{(A2)}$$

with the dependent variable, being given in Equation (A3):

$$\log\left(\frac{p_j}{1-p_j}\right). \qquad \text{(A3)}$$

The variance being given in Equation (A4):

$$\frac{1}{n_j p_j (1 - p_j)} \tag{A4}$$

This model can be estimated using weighted OLS where the weights are given by inverse of the square root of this estimated variance.

The construction of the data set on which the estimation is based involves two major steps. The first step involves calculating the proportion employed for every possible combination of explanatory variables. These groups are constructed using the full census data. For example, the employment probability is estimated for all males in 1986 who were aged between 25 and 34 years in that year, with a post-secondary qualification living in major urban areas and so on. In the second step the logistic transformation is applied to these proportions. In the event that the probability is exactly 0 or 1, it is necessary to perturb the estimated probability by a very small number so that information about that cohort of individuals can be used. We follow the recommendation of Greene (2000: 837) and use a perturbation if 0.001.

The maximum possible number of possible combinations of explanatory variable is 10,396. However, for some of these combinations, in the census data, there are no individuals with that combination of characteristics. When these null combinations are excluded there remains 7,997 combinations of explanatory variables which have at least one individual with that combination. This is the unit of observation used in the estimation.

It is necessary to calculate the proportion employed (or participating in the labour force) for every possible combination of explanatory variables because of the fact that for any non-linear function such as the logistic function:

$$\sum_J F(X_i) \neq F(\sum_J X_i) \tag{A5}$$

The procedure of estimating P_j for each group or cell for every possible combination of explanatory variables means that the probability of employment and participation is constant for explanatory variables defined separately for every combination of explanatory variables, thus avoiding the aggregation problem described in Equation A5.

Appendix B. Descriptive statistics

Table B1. Descriptive statistics for NATSIS regressions

	Males aged 15–64		Females aged 15–64	
	Mean	Std. Dev.	Mean	Std. Dev.
Employed	0.415	(0.493)	0.271	(0.445)
Employed non-CDEP	0.251	(0.434)	0.185	(0.389)
CDEP scheme	0.164	(0.370)	0.086	(0.280)
Lives in a capital city	0.117	(0.321)	0.129	(0.335)
Married or de facto couple	0.482	(0.500)	0.489	(0.500)
Difficulty in speaking English	0.230	(0.421)	0.201	(0.401)
Has a post-secondary qualification	0.132	(0.338)	0.135	(0.341)
Left school before 14 years old	0.244	(0.430)	0.216	(0.412)
Left school after 17 years old	0.341	(0.474)	0.332	(0.471)
Aged between 25 and 34	0.288	(0.453)	0.295	(0.456)
Aged between 35 and 44	0.183	(0.387)	0.193	(0.395)
Aged between 45 and 54	0.121	(0.326)	0.116	(0.320)
Aged between 55 and 64	0.059	(0.236)	0.068	(0.252)
Number of respondents	4,385		4,828	

Table B2. Summary statistics for census regressions, major urban areas

	Indigenous Males				Indigenous Females			
	1981	1986	1991	1996	1981	1986	1991	1996
Aged 15–24	0.455	0.426	0.394	0.349	0.413	0.406	0.372	0.322
Aged 25–34	0.265	0.280	0.281	0.277	0.275	0.277	0.273	0.277
Aged 35–44	0.137	0.154	0.171	0.190	0.148	0.160	0.182	0.197
Aged 45–54	0.084	0.077	0.087	0.108	0.090	0.083	0.089	0.112
Aged 55–64	0.041	0.042	0.040	0.050	0.043	0.046	0.050	0.054
English difficulty	0.012	0.008	0.007	0.010	0.006	0.003	0.005	0.008
Qualified	0.104	0.154	0.182	0.214	0.072	0.104	0.112	0.154
Divorced	0.110	0.107	0.112	0.121	0.216	0.195	0.194	0.202
Married	0.308	0.294	0.284	0.267	0.310	0.294	0.285	0.259
Age left school 14	0.289	0.221	0.192	0.176	0.274	0.208	0.183	0.161
Age left school 15–16	0.571	0.609	0.571	0.521	0.603	0.632	0.578	0.540
Employed	0.512	0.524	0.494	0.514	0.280	0.327	0.358	0.389
Labour force participation	0.714	0.757	0.735	0.695	0.373	0.447	0.483	0.486
Pop. (000s)	8.0	13.1	17.2	25.2	9.1	14.9	19.2	28.9
	Non-Indigenous Males				**Non Indigenous Females**			
	1981	1986	1991	1996	1981	1986	1991	1996
Aged 15–24	0.240	0.221	0.224	0.198	0.228	0.213	0.214	0.189
Aged 25–34	0.222	0.220	0.220	0.214	0.217	0.215	0.212	0.208
Aged 35–44	0.172	0.195	0.199	0.198	0.161	0.185	0.195	0.195
Aged 45–54	0.144	0.136	0.144	0.166	0.134	0.125	0.135	0.159
Aged 55–64	0.121	0.121	0.104	0.104	0.120	0.118	0.101	0.099
English difficulty	0.035	0.033	0.039	0.038	0.042	0.039	0.049	0.051
Qualified	0.350	0.391	0.400	0.439	0.186	0.235	0.246	0.293
Divorced	0.081	0.089	0.093	0.106	0.180	0.186	0.184	0.200
Married	0.604	0.585	0.554	0.535	0.576	0.556	0.531	0.507
Age left school 14	0.239	0.193	0.153	0.135	0.262	0.215	0.174	0.154
Age left school 15–16	0.426	0.424	0.391	0.370	0.462	0.456	0.412	0.384
Employed	0.744	0.710	0.672	0.671	0.446	0.467	0.500	0.521
Labour force participation	0.785	0.771	0.762	0.740	0.476	0.510	0.556	0.564
Pop. (000s)	3,200.0	3,200.0	3,400.0	3,700.0	3,300.0	3,300.0	3,500.0	3,900.0

Table B3. Summary statistics for census regressions, other urban areas

	Indigenous Males				Indigenous Females			
	1981	1986	1991	1996	1981	1986	1991	1996
Aged 15–24	0.423	0.426	0.371	0.332	0.398	0.405	0.363	0.313
Aged 25–34	0.242	0.265	0.278	0.270	0.253	0.268	0.277	0.284
Aged 35–44	0.151	0.155	0.171	0.198	0.156	0.161	0.174	0.195
Aged 45–54	0.095	0.088	0.096	0.113	0.097	0.088	0.091	0.109
Aged 55–64	0.051	0.043	0.051	0.052	0.054	0.048	0.054	0.057
English difficulty	0.021	0.013	0.016	0.013	0.022	0.009	0.015	0.011
Qualified	0.058	0.096	0.111	0.141	0.037	0.063	0.065	0.097
Divorced	0.092	0.091	0.095	0.109	0.194	0.168	0.170	0.182
Married	0.355	0.294	0.312	0.288	0.361	0.307	0.308	0.277
Age left school 14	0.323	0.248	0.228	0.211	0.280	0.206	0.193	0.172
Age left school 15–16	0.570	0.610	0.568	0.551	0.593	0.640	0.588	0.566
Employed	0.450	0.429	0.409	0.464	0.237	0.245	0.265	0.323
Labour force participation	0.652	0.708	0.680	0.652	0.319	0.386	0.408	0.420
Pop (000s)	14.3	20.3	24.4	33.5	16.3	22.4	27.1	37.9
	Non-Indigenous Males				**Non Indigenous Females**			
	1981	1986	1991	1996	1981	1986	1991	1996
Aged 15-24	0.233	0.213	0.203	0.180	0.230	0.212	0.197	0.172
Aged 25-34	0.231	0.230	0.219	0.197	0.219	0.222	0.216	0.197
Aged 35-44	0.164	0.191	0.204	0.205	0.151	0.174	0.192	0.199
Aged 45-54	0.131	0.126	0.136	0.162	0.124	0.117	0.126	0.150
Aged 55-64	0.118	0.120	0.110	0.111	0.124	0.120	0.109	0.109
English difficulty	0.006	0.006	0.006	0.005	0.007	0.006	0.007	0.006
Qualified	0.317	0.356	0.364	0.389	0.156	0.190	0.196	0.221
Divorced	0.079	0.090	0.101	0.119	0.171	0.185	0.193	0.216
Married	0.636	0.617	0.592	0.567	0.620	0.596	0.568	0.539
Age left school 14	0.280	0.236	0.192	0.171	0.276	0.234	0.188	0.167
Age left school 15-16	0.487	0.495	0.490	0.481	0.516	0.516	0.502	0.488
Employed	0.723	0.684	0.649	0.640	0.383	0.401	0.445	0.465
Labour force participation	0.766	0.757	0.743	0.717	0.416	0.453	0.501	0.512
Pop. (000s)	1,100.0	1,100.0	1,200.0	1,300.0	1,100.0	1,100.0	1,200.0	1,300.0

Table B4. Summary statistics for census regressions, rural and remote areas

	Indigenous Males				Indigenous Females			
	1981	1986	1991	1996	1981	1986	1991	1996
Aged 15–24	0.357	0.408	0.353	0.312	0.361	0.407	0.347	0.300
Aged 25–34	0.225	0.274	0.247	0.260	0.230	0.287	0.262	0.265
Aged 35–44	0.157	0.159	0.180	0.191	0.156	0.149	0.176	0.196
Aged 45–54	0.121	0.087	0.107	0.124	0.119	0.086	0.102	0.119
Aged 55–64	0.076	0.048	0.067	0.066	0.074	0.046	0.065	0.069
English difficulty	0.171	0.062	0.106	0.089	0.218	0.071	0.124	0.102
Qualified	0.020	0.056	0.059	0.087	0.015	0.042	0.036	0.059
Divorced	0.094	0.080	0.089	0.097	0.178	0.128	0.155	0.161
Married	0.445	0.352	0.406	0.406	0.503	0.429	0.447	0.442
Age left school 14	0.463	0.263	0.330	0.290	0.441	0.225	0.291	0.256
Age left school 15–16	0.442	0.601	0.509	0.513	0.460	0.621	0.524	0.531
Employed	0.469	0.438	0.484	0.509	0.230	0.226	0.282	0.341
Labour force participation	0.595	0.676	0.627	0.611	0.286	0.362	0.367	0.403
Pop. (000s)	17.3	14.1	22.0	24.7	16.5	13.2	20.6	23.9
	Non-Indigenous Males				**Non Indigenous Females**			
	1981	1986	1991	1996	1981	1986	1991	1996
Aged 15–24	0.233	0.207	0.191	0.160	0.223	0.199	0.178	0.147
Aged 25–34	0.227	0.220	0.203	0.174	0.240	0.233	0.219	0.187
Aged 35–44	0.185	0.213	0.225	0.223	0.187	0.214	0.230	0.236
Aged 45–54	0.145	0.145	0.163	0.196	0.138	0.140	0.159	0.192
Aged 55–64	0.115	0.123	0.120	0.131	0.113	0.115	0.111	0.122
English difficulty	0.008	0.007	0.006	0.005	0.009	0.007	0.007	0.006
Qualified	0.258	0.314	0.338	0.372	0.175	0.218	0.225	0.252
Divorced	0.068	0.078	0.089	0.107	0.109	0.117	0.126	0.146
Married	0.628	0.626	0.610	0.601	0.698	0.682	0.663	0.647
Age left school 14	0.290	0.240	0.198	0.176	0.251	0.205	0.163	0.142
Age left school 15–16	0.469	0.483	0.484	0.481	0.500	0.504	0.493	0.484
Employed	0.776	0.728	0.701	0.693	0.480	0.473	0.507	0.527
Labour force participation	0.815	0.803	0.789	0.760	0.509	0.522	0.559	0.569
Pop. (000s)	704.6	747.6	817.9	829.5	620.8	660.4	722.9	745.1

Appendix C. Regression analysis of employment

Table C1. Logistic estimates of Indigenous male employment, NATSIS 1994

	CDEP scheme	Employed non-CDEP	Any employment
Lives in a capital city	-1.937	0.622	-0.159
	(0.265)**	(0.109)**	(0.100)
Married or defacto couple	0.440	0.744	0.811
	(0.096)**	(0.085)**	(0.073)**
Difficulty in speaking English	0.118	-1.360	-0.719
	(0.100)	(0.126)**	(0.085)**
Post-secondary qualification	-0.480	1.083	0.793
	(0.144)**	(0.101)**	(0.101)**
Left school before 14 years old	-0.113	-0.304	-0.303
	(0.123)	(0.103)**	(0.094)**
Left school after 17 years old	0.427	0.262	0.464
	(0.101)**	(0.086)**	(0.077)**
Aged between 25 and 34	-0.015	0.424	0.269
	(0.110)	(0.107)**	(0.088)**
Aged between 35 and 44	-0.080	0.751	0.505
	(0.134)	(0.115)**	(0.101)**
Aged between 45 and 54	-0.31	0.649	0.265
	(0.160)	(0.137)**	(0.121)*
Aged between 55 and 64	-0.42	-0.012	-0.281
	(0.217)	(0.200)	(0.167)
Constant	-1.76	-1.937	-0.967
	(0.088)**	(0.085)**	(0.068)**
Pseudo R2	0.0552	0.0984	0.0613
Number of respondents	4,385	4,385	4,385

Notes: Robust standard errors in parentheses. * significant at 5% level; ** significant at 1% level.

Table C2. Logistic estimates of Indigenous female employment, NATSIS 1994

	CDEP scheme	Employed non-CDEP	Any employment
Lives in a capital city	-2.52	0.105	-0.390
	(0.451)**	(0.113)	(0.104)**
Married or defacto couple	0.36	0.199	0.304
	(0.114)**	(0.083)*	(0.072)**
Difficulty in speaking English	0.532	-1.071	-0.357
	(0.120)**	(0.136)**	(0.093)**
Post-secondary qualification	-0.270	1.079	0.871
	(0.177)	(0.096)**	(0.091)**
Left school before 14 years old	0.182	-0.795	-0.481
	(0.146)	(0.120)**	(0.102)**
Left school after 17 years old	0.454	0.491	0.541
	(0.118)**	(0.088)**	(0.077)**
Aged between 25 and 34	-0.088	0.309	0.165
	(0.135)	(0.105)**	(0.090)
Aged between 35 and 44	-0.222	0.842	0.539
	(0.157)	(0.114)**	(0.099)**
Aged between 45 and 54	-0.417	0.846	0.447
	(0.200)*	(0.139)**	(0.122)**
Aged between 55 and 64	-1.313	-0.073	-0.557
	(0.334)**	(0.222)	(0.191)**
Constant	-2.548	-2.066	-1.455
	(0.110)**	(0.093)**	(0.075)**
Pseudo R2	0.0428	0.1354	0.0928
Number of respondents	4,828	4,828	4,828

Notes: See notes at Table C1.

Table C3. Logistic regression of Indigenous male employment in major urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.289	0.451	0.631	0.508
	(0.076)**	(0.096)**	(0.084)**	(0.078)**
Aged 35–44	0.570	0.643	0.682	0.500
	(0.102)**	(0.130)**	(0.109)**	(0.098)**
Aged 45–54	0.053	0.274	0.618	0.468
	(0.119)	(0.160)	(0.141)**	(0.122)**
Aged 55–64	-0.277	-0.233	-0.203	-0.435
	(0.156)	(0.202)	(0.188)	(0.163)**
English difficulty	-0.010	-0.181	-0.204	0.308
	(0.406)	(0.584)	(0.699)	(0.421)
Post-secondary qualification	1.009	1.139	0.939	0.992
	(0.114)**	(0.121)**	(0.095)**	(0.081)**
Divorced	0.418	0.36	0.285	0.27
	(0.105)**	(0.137)*	(0.120)*	(0.107)*
Married	1.231	1.092	1.088	1.019
	(0.078)**	(0.105)**	(0.092)**	(0.088)**
Age left school 14	-1.038	-1.099	-1.111	-1.205
	(0.102)**	(0.130)**	(0.112)**	(0.100)**
Age left school 15–16	-0.528	-0.585	-0.525	-0.594
	(0.086)**	(0.103)**	(0.081)**	(0.069)**
Constant	0.029	-0.013	-0.31	-0.141
	(0.081)	(0.099)	(0.074)**	(0.063)*
Number of cells	61	78	85	105
R-squared	0.923	0.863	0.883	0.871

Notes: Robust standard errors in parentheses. * significant at 5% level; ** significant at 1% level. The number of cells refers to the number of cross-tabulations that had at least one person in them. The population used for each regression is provided in the Tables of Appendix B.

Table C4. Logistic regression of Indigenous female employment in major urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.015	-0.098	0.306	0.222
	(0.103)	(0.079)	(0.072)**	(0.083)**
Aged 35–44	0.309	0.39	0.723	0.507
	(0.133)*	(0.101)**	(0.090)**	(0.100)**
Aged 45–54	0.359	0.096	0.727	0.656
	(0.161)*	(0.132)	(0.114)**	(0.123)**
Aged 55–64	-0.194	-0.371	-0.498	-0.365
	(0.254)	(0.182)*	(0.171)**	(0.173)*
English difficulty	0.643	0.355	0.656	0.372
	(0.885)	(1.116)	(0.852)	(0.496)
Post-secondary qualification	1.075	1.178	1.296	1.152
	(0.138)**	(0.094)**	(0.086)**	(0.086)**
Divorced	-0.590	-0.214	-0.092	0.035
	(0.130)**	(0.100)*	-0.089	-0.098
Married	0.056	0.377	0.419	0.472
	(0.099)	(0.079)**	(0.072)**	(0.083)**
Age left school 14	-0.828	-1.099	-1.036	-1.241
	(0.140)**	(0.111)**	(0.098)**	(0.113)**
Age left school 15–16	-0.552	-0.611	-0.545	-0.608
	(0.110)**	(0.077)**	(0.064)**	(0.070)**
Constant	-0.437	-0.34	-0.612	-0.45
	(0.105)**	(0.074)**	(0.059)**	(0.064)**
Number of cells	61	73	83	105
R-squared	0.764	0.86	0.894	0.837

Notes See notes in Table C3.

Table C5. Logistic regression of non-Indigenous male employment in major urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	2.04	1.833	1.619	1.692
	(0.191)**	(0.175)**	(0.141)**	(0.140)**
Aged 35–44	2.412	2.23	1.947	1.941
	(0.234)**	(0.209)**	(0.167)**	(0.161)**
Aged 45–54	2.229	2.038	1.88	1.906
	(0.230)**	(0.221)**	(0.183)**	(0.171)**
Aged 55–64	1.034	0.717	0.696	0.722
	(0.200)**	(0.196)**	(0.175)**	(0.172)**
English difficulty	-0.572	-0.816	-1.023	-1.192
	(0.283)*	(0.267)**	(0.226)**	(0.236)**
Post-secondary qualification	0.522	0.56	0.538	0.554
	(0.149)**	(0.134)**	(0.110)**	(0.105)**
Divorced	-0.907	-0.73	-0.57	-0.604
	(0.242)**	(0.225)**	(0.188)**	(0.177)**
Married	-0.166	-0.072	0.075	0.006
	(0.165)	(0.158)	(0.130)	(0.129)
Age left school 14	-0.447	-0.601	-0.784	-1.004
	(0.179)*	(0.173)**	(0.155)**	(0.158)**
Age left school 15–16	0.414	0.202	-0.013	-0.274
	(0.146)**	(0.133)	(0.109)	(0.108)*
Constant	-0.027	-0.095	-0.19	-0.113
	(0.109)	(0.107)	(0.087)*	(0.088)
Number of cells	212	211	213	214
R-squared	0.598	0.606	0.667	0.673

Notes See notes in Table C3.

Table C6. Logistic regression of non-Indigenous female employment in major urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.598	0.721	0.960	1.050
	(0.137)**	(0.132)**	(0.118)**	(0.110)**
Aged 35–44	0.998	1.101	1.373	1.381
	(0.150)**	(0.143)**	(0.130)**	(0.121)**
Aged 45–54	0.814	0.905	1.311	1.541
	(0.156)**	(0.156)**	(0.142)**	(0.130)**
Aged 55–64	-0.301	-0.423	-0.146	0.153
	(0.171)	(0.170)*	(0.158)	(0.146)
English difficulty	-0.156	-0.541	-1.007	-1.349
	-0.217	(0.218)*	(0.192)**	(0.185)**
Post-secondary qualification	0.761	0.762	0.765	0.734
	(0.112)**	(0.099)**	(0.090)**	(0.079)**
Divorced	-1.154	-1.066	-0.93	-0.92
	(0.167)**	(0.158)**	(0.140)**	(0.125)**
Married	-0.987	-0.856	-0.694	-0.739
	(0.133)**	(0.123)**	(0.109)**	(0.099)**
Age left school 14	-0.346	-0.528	-0.698	-0.95
	(0.134)*	(0.135)**	(0.131)**	(0.127)**
Age left school 15–16	0.136	0.021	-0.053	-0.262
	(0.102)	(0.092)	(0.082)	(0.076)**
Constant	0.153	0.142	-0.017	0.069
	(0.097)	(0.089)	(0.074)	(0.071)
Number of cells	201	199	204	208
R-squared	0.547	0.622	0.698	0.741

Notes See notes in Table C3.

Table C7. Logistic regression of Indigenous male employment in other urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.432	0.544	0.566	0.519
	(0.090)**	(0.081)**	(0.081)**	(0.075)**
Aged 35–44	0.404	0.527	0.749	0.602
	(0.112)**	(0.108)**	(0.102)**	(0.089)**
Aged 45–54	0.261	0.418	0.483	0.387
	(0.132)	(0.130)**	(0.128)**	(0.112)**
Aged 55–64	-0.428	-0.324	0	-0.428
	(0.175)*	(0.179)	(0.171)	(0.156)**
English difficulty	-0.019	-0.378	-0.771	-0.302
	(0.300)	(0.430)	(0.590)	(0.349)
Post-secondary qualification	1.42	1.175	1.164	1.085
	(0.178)**	(0.118)**	(0.107)**	(0.091)**
Divorced	0.089	0.279	0.172	0.071
	(0.137)	(0.124)*	(0.123)	(0.107)
Married	1.008	1.067	0.779	0.748
	(0.085)**	(0.083)**	(0.080)**	(0.076)**
Age left school 14	-0.759	-0.587	-0.608	-0.702
	(0.123)**	(0.112)**	(0.105)**	(0.093)**
Age left school 15–16	-0.504	-0.302	-0.195	-0.329
	(0.107)**	(0.090)**	(0.079)*	(0.070)**
Constant	-0.229	-0.636	-0.813	-0.424
	(0.102)*	(0.086)**	(0.075)**	(0.066)**
Number of cells	73	89	89	111
R-squared	0.861	0.869	0.853	0.836

Notes See notes in Table C3.

Table C8. Logistic regression of Indigenous female employment in other urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.184	0.109	0.402	0.235
	(0.089)*	(0.079)	(0.072)**	(0.068)**
Aged 35–44	0.367	0.513	0.819	0.648
	(0.111)**	(0.098)**	(0.088)**	(0.080)**
Aged 45–54	0.17	0.405	0.504	0.541
	(0.134)	(0.124)**	(0.115)**	(0.101)**
Aged 55–64	-0.443	-0.348	-0.457	-0.395
	(0.212)*	(0.195)	(0.177)*	(0.151)*
English difficulty	0.409	0.979	-0.35	-0.034
	(0.297)	(0.475)*	(0.601)	(0.487)
Post-secondary qualification	1.202	1.419	1.548	1.26
	(0.153)**	(0.107)**	(0.102)**	(0.083)**
Divorced	-0.243	-0.132	-0.097	-0.084
	(0.116)*	(0.104)	(0.095)	(0.084)
Married	0.125	0.383	0.427	0.344
	(0.086)	(0.077)**	(0.069)**	(0.065)**
Age left school 14	-0.816	-0.849	-0.804	-0.968
	(0.113)**	(0.111)**	(0.099)**	(0.093)**
Age left school 15–16	-0.477	-0.508	-0.416	-0.503
	(0.089)**	(0.078)**	(0.065)**	(0.058)**
Constant	-0.8	-0.971	-1.147	-0.739
	(0.086)**	(0.075)**	(0.062)**	(0.057)**
Number of cells	72	80	84	96
R-squared	0.737	0.844	0.886	0.873

Notes: See notes in Table C3.

Table C9. Logistic regression of non-Indigenous male employment in other urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	2.030	1.746	1.604	1.698
	(0.233)**	(0.199)**	(0.169)**	(0.173)**
Aged 35–44	2.326	2.106	1.917	1.893
	(0.278)**	(0.235)**	(0.195)**	(0.190)**
Aged 45–54	2.000	1.802	1.769	1.799
	(0.263)**	(0.245)**	(0.210)**	(0.200)**
Aged 55–64	0.655	0.433	0.446	0.492
	(0.230)**	(0.219)	(0.198)*	(0.200)*
English difficulty	-0.545	-0.591	-0.795	-0.836
	(0.764)	(0.749)	(0.679)	(0.762)
Post-secondary qualification	0.552	0.564	0.589	0.58
	(0.182)**	(0.153)**	(0.131)**	(0.128)**
Divorced	-0.987	-0.708	-0.607	-0.657
	(0.284)**	(0.250)**	(0.212)**	(0.202)**
Married	-0.198	0.091	0.145	0.03
	(0.192)	(0.176)	(0.151)	(0.153)
Age left school 14	-0.462	-0.617	-0.853	-1.117
	(0.219)*	(0.202)**	(0.179)**	(0.184)**
Age left school 15–16	0.516	0.279	-0.012	-0.316
	(0.186)**	(0.160)	(0.134)	(0.132)*
Constant	-0.031	-0.221	-0.258	-0.112
	(0.150)	(0.138)	(0.114)*	(0.114)
Number of cells	184	180	188	184
R-squared	0.561	0.6	0.633	0.627

Notes: See notes in Table C3.

Table C10. Logistic regression of non-Indigenous female employment in other urban areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.409	0.448	0.695	0.804
	(0.134)**	(0.129)**	(0.126)**	(0.125)**
Aged 35–44	0.930	0.948	1.254	1.306
	(0.147)**	(0.141)**	(0.140)**	(0.137)**
Aged 45–54	0.704	0.68	1.051	1.317
	(0.156)**	(0.155)**	(0.152)**	(0.148)**
Aged 55–64	-0.447	-0.632	-0.409	-0.17
	(0.178)*	(0.176)**	(0.172)*	-0.167
English difficulty	-0.321	-0.596	-0.738	-0.918
	(0.564)	(0.591)	(0.564)	(0.610)
Post-secondary qualification	0.864	0.86	0.856	0.81
	(0.118)**	(0.104)**	(0.103)**	(0.096)**
Divorced	-1.292	-1.086	-0.887	-0.829
	(0.177)**	(0.165)**	(0.152)**	(0.141)**
Married	-0.961	-0.697	-0.485	-0.501
	(0.133)**	(0.125)**	(0.119)**	(0.114)**
Age left school 14	-0.405	-0.565	-0.816	-1.075
	(0.145)**	(0.144)**	(0.147)**	(0.150)**
Age left school 15–16	0.152	0.037	-0.100	-0.343
	(0.109)	(0.096)	(0.090)	(0.087)**
Constant	0.000	-0.054	-0.161	-0.049
	-0.108	-0.097	-0.087	-0.085
Number of cells	161	167	167	165
R-squared	0.62	0.647	0.694	0.721

Notes: See notes in Table C3.

Table C11. Logistic regression of Indigenous male employment in rural/remote areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.474	0.448	0.516	0.593
	(0.110)**	(0.090)**	(0.071)**	(0.072)**
Aged 35–44	0.545	0.625	0.755	0.67
	(0.132)**	(0.113)**	(0.083)**	(0.083)**
Aged 45–54	0.352	0.644	0.498	0.551
	(0.146)*	(0.139)**	(0.101)**	(0.098)**
Aged 55–64	-0.202	-0.026	-0.038	-0.138
	(0.178)	(0.182)	(0.123)	(0.127)
English difficulty	-0.389	-0.565	-0.64	-0.495
	(0.117)**	(0.173)**	(0.099)**	(0.108)**
Post-secondary qualification	0.776	1.121	0.904	0.793
	(0.377)*	(0.190)**	(0.141)**	(0.113)**
Divorced	-0.027	0.013	-0.177	-0.436
	(0.166)	(0.147)	(0.110)	(0.107)**
Married	0.434	0.524	0.248	0.187
	(0.099)**	(0.085)**	(0.064)**	(0.064)**
Age left school 14	-0.522	-0.354	-0.589	-0.545
	(0.152)**	(0.123)**	(0.087)**	(0.085)**
Age left school 15–16	-0.307	-0.203	-0.195	-0.222
	(0.145)*	-0.106	(0.077)*	(0.072)**
Constant	-0.065	-0.512	-0.138	-0.063
	(0.139)	(0.105)**	(0.075)	(0.072)
Number of cells	90	87	110	122
R-squared	0.586	0.738	0.784	0.744

Notes: See notes in Table C3.

Table C12. Logistic regression of Indigenous female employment in rural/remote areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.142	0.278	0.297	0.343
	(0.085)	(0.089)**	(0.066)**	(0.063)**
Aged 35–44	0.175	0.415	0.479	0.605
	(0.102)	(0.111)**	(0.077)**	(0.071)**
Aged 45–54	0.052	0.112	0.281	0.433
	(0.116)	(0.142)	(0.098)**	(0.086)**
Aged 55–64	-0.651	-0.403	-0.895	-0.487
	(0.176)**	-0.233	(0.173)**	(0.130)**
English difficulty	-0.092	0.015	-0.363	-0.193
	(0.089)	(0.149)	(0.101)**	(0.096)*
Post-secondary qualification	1.135	1.524	1.496	1.172
	(0.246)**	(0.154)**	(0.138)**	(0.103)**
Divorced	-0.108	0.11	-0.161	-0.26
	(0.118)	(0.134)	(0.098)	(0.084)**
Married	0.136	0.414	0.33	0.202
	(0.081)	(0.084)**	(0.060)**	(0.055)**
Age left school 14	-0.667	-0.537	-0.77	-0.745
	(0.111)**	(0.118)**	(0.084)**	(0.076)**
Age left school 15–16	-0.477	-0.379	-0.328	-0.43
	(0.100)**	(0.092)**	(0.065)**	(0.058)**
Constant	-0.746	-1.256	-0.835	-0.573
	(0.098)**	(0.092)**	(0.065)**	(0.061)**
Number of cells	87	77	98	120
R-squared	0.606	0.766	0.838	0.815

Notes: See notes in Table C3.

Table C13. Logistic regression of non-Indigenous male employment in rural/remote areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	1.754	1.565	1.514	1.664
	(0.173)**	(0.153)**	(0.142)**	(0.148)**
Aged 35–44	2.094	1.938	1.752	1.766
	(0.202)**	(0.172)**	(0.152)**	(0.146)**
Aged 45–54	1.831	1.749	1.651	1.699
	(0.196)**	(0.182)**	(0.160)**	(0.148)**
Aged 55–64	0.781	0.676	0.622	0.675
	(0.172)**	(0.163)**	(0.153)**	(0.146)**
English difficulty	-1.03	-0.996	-0.783	-0.842
	(0.519)*	(0.542)	(0.569)	(0.618)
Post-secondary qualification	0.264	0.281	0.325	0.335
	(0.150)	(0.124)*	(0.110)**	(0.105)**
Divorced	-0.949	-0.785	-0.669	-0.642
	(0.215)**	(0.195)**	(0.173)**	(0.162)**
Married	0.035	0.167	0.224	0.189
	(0.139)	(0.130)	(0.120)	(0.118)
Age left school 14	-0.353	-0.414	-0.587	-0.85
	(0.163)*	(0.151)**	(0.139)**	(0.138)**
Age left school 15–16	0.557	0.361	0.102	-0.184
	(0.145)**	(0.127)**	(0.113)	(0.11)
Constant	0.109	-0.16	-0.181	-0.095
	(0.118)	(0.112)	(0.099)	(0.098)
Number of cells	173	178	175	171
R-squared	0.667	0.681	0.701	0.716

Notes: See notes in Table C3.

Table C14. Logistic regression of non-Indigenous female employment in rural/remote areas, 1981–86

	1981	1986	1991	1996
Aged 25–34	0.534	0.586	0.776	0.89
	(0.106)**	(0.108)**	(0.103)**	(0.099)**
Aged 35–44	1.103	1.18	1.358	1.428
	(0.115)**	(0.115)**	(0.110)**	(0.103)**
Aged 45–54	1.021	1.089	1.269	1.51
	(0.123)**	(0.126)**	(0.118)**	(0.108)**
Aged 55–64	0.28	0.215	0.223	0.414
	(0.133)*	(0.136)	(0.129)	(0.119)**
English difficulty	-0.066	0.000	-0.397	-0.539
	(0.39)	(0.426)	(0.415)	(0.434)
Post-secondary qualification	0.736	0.763	0.768	0.768
	(0.095)**	(0.086)**	(0.082)**	(0.074)**
Divorced	-1.252	-1.175	-0.932	-0.944
	(0.154)**	(0.151)**	(0.133)**	(0.118)**
Married	-0.532	-0.452	-0.344	-0.421
	(0.111)**	(0.108)**	(0.099)**	(0.090)**
Age left school 14	-0.394	-0.524	-0.666	-0.909
	(0.111)**	(0.113)**	(0.111)**	(0.108)**
Age left school 15–16	0.079	0.006	-0.107	-0.296
	(0.087)	(0.080)	(0.074)	(0.068)**
Constant	-0.155	-0.294	-0.332	-0.227
	(0.090)	(0.086)**	(0.076)**	(0.072)**
Number of cells	143	153	155	153
R-squared	0.691	0.716	0.777	0.82

Notes: See notes in Table C3.

Table D1. Marginal effects of non-education variables across four censuses, major urban areas

	1981		1986		1991		1996	
Indigenous males								
Aged 25–34	0.068	(0.018)	0.102	(0.021)	0.144	(0.018)	0.120	(0.018)
Aged 35–44	0.130	(0.022)	0.142	(0.027)	0.155	(0.023)	0.117	(0.022)
Aged 45–54	0.013	(0.028)	0.063	(0.035)	0.141	(0.030)	0.110	(0.028)
Aged 55–64	-0.067	(0.038)	-0.056	(0.049)	-0.049	(0.046)	-0.108	(0.041)
English difficulty	-0.002	(0.097)	-0.043	(0.142)	-0.050	(0.173)	0.073	(0.097)
Divorced	0.098	(0.023)	0.083	(0.030)	0.068	(0.028)	0.065	(0.025)
Married	0.275	(0.016)	0.240	(0.021)	0.250	(0.019)	0.236	(0.019)
Indigenous females								
Aged 25–34	0.003	(0.023)	-0.024	(0.019)	0.076	(0.018)	0.055	(0.021)
Aged 35–44	0.072	(0.031)	0.096	(0.025)	0.179	(0.022)	0.126	(0.025)
Aged 45–54	0.084	(0.039)	0.023	(0.032)	0.180	(0.027)	0.163	(0.030)
Aged 55–64	-0.043	(0.054)	-0.087	(0.041)	-0.119	(0.039)	-0.089	(0.041)
English difficulty	0.155	(0.221)	0.088	(0.279)	0.162	(0.205)	0.093	(0.123)
Divorced	-0.128	(0.026)	-0.051	(0.024)	-0.023	(0.022)	0.009	(0.024)
Married	0.013	(0.023)	0.092	(0.019)	0.104	(0.018)	0.117	(0.021)
Non-Indigenous males								
Aged 25–34	0.297	(0.032)	0.330	(0.031)	0.345	(0.027)	0.374	(0.027)
Aged 35–44	0.330	(0.035)	0.375	(0.034)	0.396	(0.030)	0.415	(0.029)
Aged 45–54	0.314	(0.034)	0.354	(0.035)	0.386	(0.032)	0.409	(0.030)
Aged 55–64	0.180	(0.032)	0.153	(0.039)	0.165	(0.039)	0.176	(0.040)
English difficulty	-0.118	(0.064)	-0.188	(0.066)	-0.249	(0.055)	-0.290	(0.054)
Divorced	-0.196	(0.057)	-0.173	(0.055)	-0.141	(0.046)	-0.149	(0.043)
Married	-0.035	(0.035)	-0.017	(0.037)	0.019	(0.032)	0.001	(0.032)
Non-Indigenous females								
Aged 25–34	0.147	(0.033)	0.178	(0.032)	0.235	(0.028)	0.256	(0.026)
Aged 35–44	0.238	(0.033)	0.266	(0.032)	0.329	(0.028)	0.332	(0.027)
Aged 45–54	0.197	(0.036)	0.222	(0.036)	0.316	(0.031)	0.367	(0.028)
Aged 55–64	-0.075	(0.042)	-0.103	(0.040)	-0.035	(0.038)	0.037	(0.035)
English difficulty	-0.039	(0.054)	-0.133	(0.052)	-0.239	(0.040)	-0.308	(0.034)
Divorced	-0.278	(0.037)	-0.253	(0.035)	-0.216	(0.030)	-0.206	(0.026)
Married	-0.240	(0.031)	-0.206	(0.029)	-0.164	(0.025)	-0.168	(0.022)

Note. Standard errors in parenthesis. Derived from coefficients presented in Appendix C.

Table D2. Marginal effects of non-education variables across four censuses, other urban areas

	1981		1986		1991		1996	
Indigenous males								
Aged 25–34	0.104	(0.021)	0.131	(0.019)	0.139	(0.020)	0.127	(0.018)
Aged 35–44	0.097	(0.026)	0.127	(0.025)	0.183	(0.024)	0.147	(0.021)
Aged 45–54	0.063	(0.031)	0.101	(0.031)	0.119	(0.031)	0.095	(0.027)
Aged 55–64	-0.106	(0.044)	-0.081	(0.045)	0.000	(0.043)	-0.107	(0.038)
English difficulty	-0.005	(0.074)	-0.094	(0.107)	-0.186	(0.131)	-0.075	(0.087)
Divorced	0.022	(0.033)	0.068	(0.030)	0.043	(0.031)	0.018	(0.027)
Married	0.242	(0.019)	0.255	(0.019)	0.192	(0.019)	0.183	(0.018)
Indigenous females								
Aged 25–34	0.040	(0.020)	0.025	(0.018)	0.096	(0.018)	0.057	(0.017)
Aged 35–44	0.081	(0.026)	0.121	(0.024)	0.197	(0.021)	0.158	(0.020)
Aged 45–54	0.037	(0.030)	0.096	(0.030)	0.120	(0.028)	0.132	(0.025)
Aged 55–64	-0.088	(0.038)	-0.076	(0.040)	-0.101	(0.036)	-0.091	(0.033)
English difficulty	0.092	(0.070)	0.238	(0.116)	-0.077	(0.125)	-0.008	(0.115)
Divorced	-0.051	(0.024)	-0.030	(0.023)	-0.022	(0.022)	-0.020	(0.020)
Married	0.027	(0.019)	0.089	(0.018)	0.100	(0.017)	0.082	(0.016)
Non-Indigenous males								
Aged 25–34	0.298	(0.059)	0.313	(0.051)	0.336	(0.042)	0.358	(0.045)
Aged 35–44	0.323	(0.063)	0.358	(0.057)	0.384	(0.048)	0.389	(0.048)
Aged 45–54	0.295	(0.059)	0.323	(0.055)	0.362	(0.048)	0.375	(0.048)
Aged 55–64	0.122	(0.043)	0.094	(0.047)	0.107	(0.046)	0.119	(0.047)
English difficulty	-0.114	(0.176)	-0.137	(0.184)	-0.194	(0.168)	-0.205	(0.186)
Divorced	-0.217	(0.071)	-0.167	(0.062)	-0.150	(0.052)	-0.163	(0.049)
Married	-0.041	(0.040)	0.021	(0.040)	0.036	(0.037)	0.007	(0.038)
Non-Indigenous females								
Aged 25–34	0.101	(0.033)	0.109	(0.032)	0.171	(0.031)	0.198	(0.030)
Aged 35–44	0.228	(0.035)	0.232	(0.034)	0.303	(0.031)	0.315	(0.031)
Aged 45–54	0.174	(0.038)	0.167	(0.038)	0.257	(0.035)	0.317	(0.033)
Aged 55–64	-0.106	(0.040)	-0.143	(0.038)	-0.097	(0.039)	-0.041	(0.040)
English difficulty	-0.078	(0.132)	-0.139	(0.127)	-0.174	(0.120)	-0.214	(0.123)
Divorced	-0.291	(0.036)	-0.244	(0.036)	-0.206	(0.034)	-0.193	(0.032)
Married	-0.227	(0.030)	-0.163	(0.030)	-0.116	(0.028)	-0.120	(0.027)

Note. See notes in Table D1.

Table D3. Marginal effects of non-education variables across four censuses, rural/remote areas

	1981		1986		1991		1996	
Indigenous males								
Aged 25–34	0.118	(0.027)	0.111	(0.022)	0.128	(0.017)	0.145	(0.017)
Aged 35–44	0.135	(0.032)	0.154	(0.027)	0.185	(0.020)	0.163	(0.019)
Aged 45–54	0.088	(0.036)	0.159	(0.033)	0.123	(0.024)	0.135	(0.023)
Aged 55–64	-0.050	(0.044)	-0.006	(0.045)	-0.010	(0.031)	-0.034	(0.032)
English difficulty	-0.097	(0.029)	-0.139	(0.041)	-0.158	(0.024)	-0.123	(0.026)
Divorced	-0.007	(0.041)	0.003	(0.037)	-0.044	(0.027)	-0.109	(0.026)
Married	0.108	(0.025)	0.130	(0.021)	0.062	(0.016)	0.047	(0.016)
Indigenous females								
Aged 25–34	0.028	(0.017)	0.058	(0.019)	0.066	(0.015)	0.082	(0.015)
Aged 35–44	0.035	(0.021)	0.087	(0.025)	0.108	(0.018)	0.146	(0.017)
Aged 45–54	0.010	(0.023)	0.023	(0.030)	0.063	(0.023)	0.104	(0.021)
Aged 55–64	-0.111	(0.025)	-0.075	(0.039)	-0.165	(0.026)	-0.108	(0.027)
English difficulty	-0.018	(0.017)	0.003	(0.030)	-0.076	(0.020)	-0.045	(0.022)
Divorced	-0.021	(0.022)	0.022	(0.028)	-0.034	(0.021)	-0.060	(0.019)
Married	0.027	(0.016)	0.084	(0.017)	0.072	(0.013)	0.048	(0.013)
Non-Indigenous males								
Aged 25–34	0.289	(0.037)	0.309	(0.035)	0.305	(0.034)	0.340	(0.035)
Aged 35–44	0.320	(0.040)	0.362	(0.039)	0.345	(0.036)	0.353	(0.036)
Aged 45–54	0.291	(0.038)	0.333	(0.039)	0.327	(0.036)	0.348	(0.036)
Aged 55–64	0.149	(0.032)	0.151	(0.035)	0.141	(0.034)	0.156	(0.033)
English difficulty	-0.228	(0.129)	-0.238	(0.134)	-0.189	(0.142)	-0.205	(0.152)
Divorced	-0.215	(0.053)	-0.190	(0.048)	-0.163	(0.043)	-0.158	(0.040)
Married	0.008	(0.030)	0.040	(0.031)	0.053	(0.029)	0.046	(0.029)
Non-Indigenous females								
Aged 25–34	0.132	(0.026)	0.145	(0.026)	0.191	(0.024)	0.218	(0.023)
Aged 35–44	0.264	(0.025)	0.282	(0.025)	0.321	(0.023)	0.335	(0.022)
Aged 45–54	0.245	(0.027)	0.262	(0.028)	0.302	(0.025)	0.352	(0.023)
Aged 55–64	0.070	(0.033)	0.054	(0.034)	0.056	(0.032)	0.103	(0.029)
English difficulty	-0.017	(0.097)	0.000	(0.106)	-0.098	(0.099)	-0.131	(0.101)
Divorced	-0.296	(0.033)	-0.277	(0.032)	-0.222	(0.030)	-0.225	(0.027)
Married	-0.132	(0.027)	-0.112	(0.026)	-0.085	(0.024)	-0.104	(0.022)

Note. See notes in Table D1.

Endnotes

1. Where CDEP scheme workers are specifically identified in a survey.

2. Another technical difference between the NATSIS data and the census data used in this paper is that the former is a unit record data whereas the latter is based on ABS cross-tabulations which have a small random adjustment in order protect the identity of respondents (i.e. the data has been confidentialised).

3. According to the ATO Taxation Ruling TR 94/28 Income tax: List of points in isolated areas for zone rebate purposes, s. 79A of the Income Tax Assessment Act 1936 provides for a 'rebate in recognition of uncongenial climatic conditions, isolation and the high cost of living encountered by residents of those areas in comparison with the rest of Australia.' The zones incorporate most

of the continent excluding eastern Queensland below Mackay, eastern New South Wales, all of Victoria, the southern part of South Australia, and south west Western Australia. ATSIC uses this definition because of Department of Finance regulations governing the differing wage rates for CDEP participants employed in remote and non-remote regions (Champion 2002).

4. The other side of incentives to participate in education relates to the possibility of income from alternative employment. Given that CDEP income is potentially much lower than wages from non-CDEP employment (Altman, Gray et al. 2000), the scheme may not be particularly attractive to some. However, one has to be able to secure a job before this is an option.

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