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# 13 Measuring multiple disadvantage and interactions across the framework

## Box 13.1 Key messages

- This chapter uses two approaches to examine the interactions between various indicators of disadvantage:
  - The first approach examines associations between different aspects of disadvantage. Where people who experience one type of disadvantage also tend to experience another kind of disadvantage, the two aspects of disadvantage may be linked or associated in some way. The analysis shows that rates of multiple disadvantage are higher for Indigenous people than non-Indigenous people in the areas of education, income, health, housing, crime and violence.
  - The second approach uses a statistical technique to isolate the possible contribution of one factor at a time (such as education), holding other modelled factors (such as health or age) constant. This information can be used to analyse the possible effect of factors that might be influenced by government policy, while controlling for other factors.

Different aspects of disadvantage often seem to occur together — for example, poor education may be linked with poor employment outcomes, and both may be linked with low income. This chapter uses data from the ABS National Aboriginal and Torres Strait Islander Social Survey 2008 (NATSISS 2008) and the ABS National Health Survey 2007–08 (NHS 2007–08) to present information on the interactions between various indicators of disadvantage. The data presented in this chapter do not indicate cause and effect relationships between different aspects of disadvantage — that is, the data do not demonstrate that disadvantage in one area is the cause of another poor outcome — rather, they show where there are correlations between different aspects of disadvantage. Section 13.1 examines patterns of disadvantage against selected proxy measures of the COAG targets and headline indicators.

Section 13.2 uses data from the ABS NATSISS 2008 to analyse the determinants of Indigenous labour market outcomes. In this section, statistical techniques have been used to isolate the contribution of one factor at a time, holding other modelled factors constant. Because the analytical technique used in this section accounts separately for possible effects of different factors on labour market outcomes, the results are not comparable with other sections of this chapter or other chapters of the report (such as sections 4.6 and 8.1, which are also focussed on labour market outcomes).

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Other approaches to measuring multiple disadvantage exist. Silburn et al. (2006) examined three measures of socioeconomic disadvantage for Aboriginal children:

- low education — defined as primary carers who had not been to school or whose highest level of education was years 1–9
- no employment history — primary carers who have never had a paid job
- financial strain — defined as primary carers who reported that their family’s money situation was ‘spending more money than we get’ and that they have ‘just enough money to get to the next pay day’.

A child whose primary carer met at least two of these criteria was considered by Silburn et al. (2006) to experience multiple socioeconomic disadvantage. The study found that one in five Aboriginal children had primary carers who met two of these criteria.

## **13.1 Patterns of multiple disadvantage**

This section examines where different aspects of disadvantage tend to occur simultaneously. Where analysis shows that a particular population who experience one type of disadvantage also experience another kind of disadvantage, the two aspects of disadvantage are assumed to be linked or associated in some way; for example, low levels of educational attainment appear to be linked with high levels of unemployment.

This section looks at both Indigenous and non-Indigenous outcomes to compare patterns of disadvantage. Aboriginal and Torres Strait Islander cultures contain protective factors that strengthen the resilience of individuals, families and communities in the face of a history of dispossession (Bambllett 2006). Examining the different patterns of multiple disadvantage helps in understanding the many barriers Indigenous people face, however, during our consultations Indigenous organisations and groups have emphasised the importance of a strengths-based approach to addressing disadvantage. Throughout this report the ‘Things that Work’ case studies display many examples of practices that have addressed the risk of disadvantage whilst building on the existing strengths within Indigenous communities.

The approach to measuring associations between proxy measures of the COAG targets and headline indicators and other COAG targets and headline indicators or strategic change indicators is described in box 13.1.1.

**Box 13.1.1 Measuring associations between the selected proxy measures of the COAG targets and other headline indicators and other COAG targets and headline indicators or strategic areas for action**

The analysis in this section looks at outcomes in education, employment and income, against selected indicators of disadvantage using data from the ABS NATSISS 2008 and the ABS NHS 2007-08. Subgroups with different education, employment and income characteristics are compared against selected indicators of disadvantage. These are chosen to highlight areas related to COAG targets and other headline indicators.

<i>Selected measures of disadvantage</i>	<i>COAG target/ other headline indicator</i>
• Unemployment	• 4.6 Employment
• Long term unemployment	• 4.6 Employment
• Not in the labour force	• 4.6 Employment
• Without a non-school qualification	• 4.7 Post secondary education
• Has profound or severe core activity restriction	• 4.8 Disability and chronic disease
• In the lowest quintile of equivalised gross weekly household income	• 4.9 Household and individual income
• In the lowest quintile of personal gross weekly income	• 4.9 Household and individual income
• Household members could not raise \$2000 in an emergency	• 4.9 Household and individual income
• Household members ran out of money in the last two weeks for basic living expenses	• 4.9 Household and individual income
• Has been arrested in the last 5 years	• 4.12 Imprisonment and juvenile detention rates
• Has been incarcerated	• 4.12 Imprisonment and juvenile detention rates
• Highest year of school completed was year 9	• 6 Education and training
• Has fair/poor self-assessed health status	• 7 Healthy lives
• Current daily smoker	• 7.4 Tobacco consumption and harm
• Has high/very high psychological distress (K5)	• 7.7 Mental health
• Living in a home not owned by someone in the household	• 8.3 Home ownership
• Principal source of personal income was government pension, allowance or benefits	• 8.4 Income support
• Principal source of personal income was CDEP	• 8.4 Income support
• Living in an overcrowded household	• 9.1 Overcrowding in housing
• Not able to get support from outside the household in time of crisis	• 10 Safe and supportive communities
• Removal – self or a relative has been taken away from family	• 10 Safe and supportive communities

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**Box 13.1.1** (continued)

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| • High risk alcohol consumption in the last 12 months       | • 10.3 Alcohol consumption and harm     |
| • Risky/high risk alcohol consumption in the last 12 months | • 10.3 Alcohol consumption and harm     |
| • Has difficulty communicating with English speakers        | • 11.3 Engagement with service delivery |

**The analysis:**

- classifies the population into various subgroups; (for example has a non-school qualification or has no non-school qualification; employed or unemployed)
- compares the proportions of people in each population subgroup who experience other outcomes (for example, proportions of people living in an overcrowded household higher among those without a non-school qualification than those with a non-school qualification?)
- compares the proportions of people in the Indigenous subgroup who experience selected indicators of disadvantage with a comparable subgroup in the non-Indigenous population (for example, is the proportion of Indigenous people without a non-school qualification who have low household income, higher or lower than the proportion for non-Indigenous people with these characteristics?)

The results in this section show that in 2008:

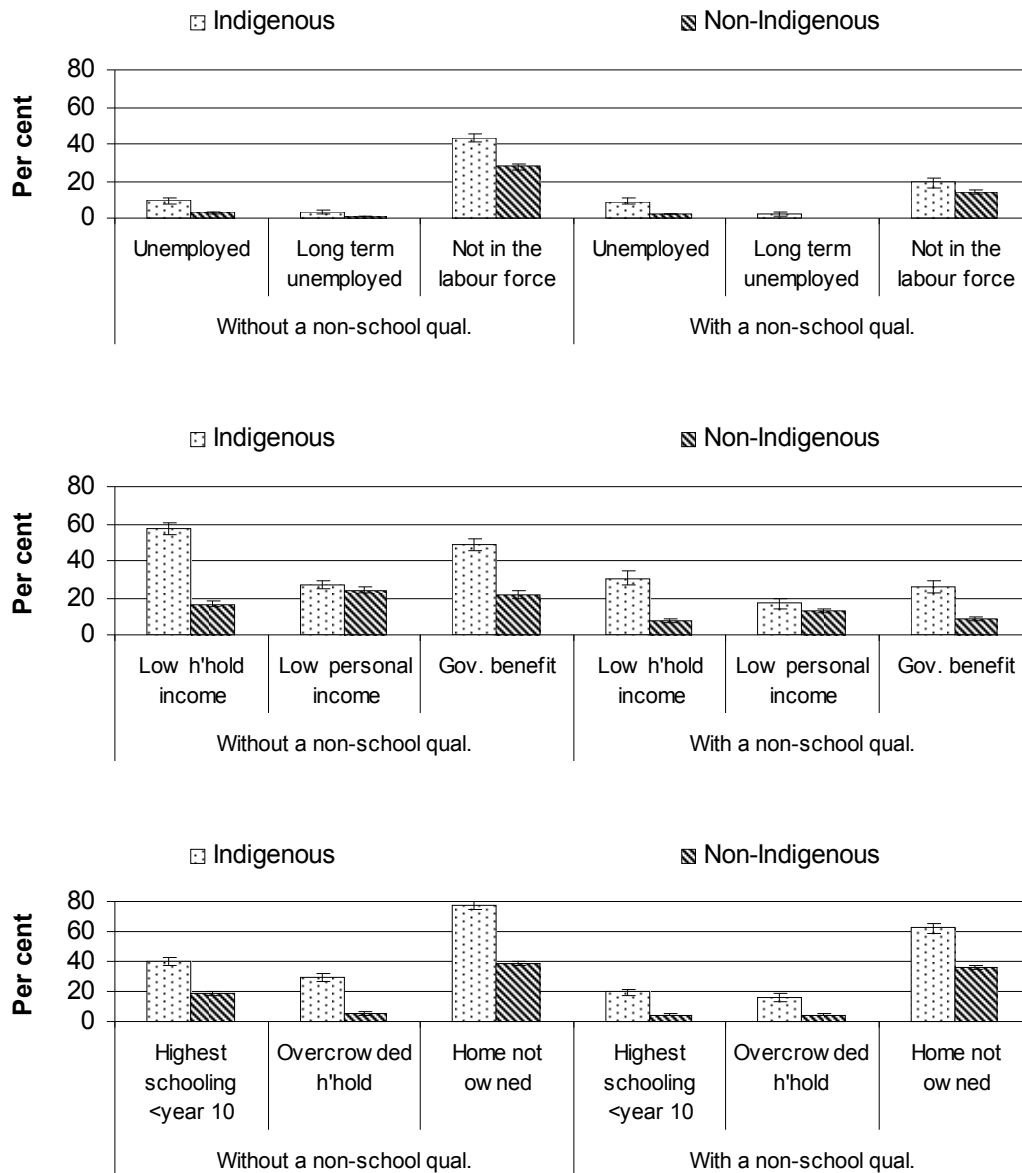
- both Indigenous and non-Indigenous people with lower educational attainment, low incomes, who were unemployed or not in the labour force and/or whose principal source of income was a government pension, allowance or benefit were more likely to experience other socioeconomic disadvantages (figures 13.1.1–5)
- higher proportions of Indigenous than non-Indigenous people experienced multiple disadvantage (figures 13.1.1–5).

Indicators across this report show that, on average, Indigenous people experience poorer outcomes than non-Indigenous people in the areas of education, income, health, housing, crime and violence. The data in this chapter show that more Indigenous than non-Indigenous people experienced multiple disadvantages in 2008.

The data in this chapter should be interpreted carefully. The measures used are broad and may cover a range of outcomes; for example, the measure ‘With a non-school qualification’ includes a wide range of different non-school qualifications, from certificate III through to post graduate degrees. If non-Indigenous people have obtained non-school qualifications at different levels or in different fields, they may have different income and employment outcomes.

Non-school qualifications

Figure 13.1.1 **People aged 20–64 years with (and without) non-school qualifications — associations with selected characteristics, 2008<sup>a, b, c, d</sup>**



<sup>a</sup> Includes a small number of persons aged 20–24 years who were still at school. <sup>b</sup> Indicator labels have been shortened. <sup>c</sup> Highest schooling <year 10 includes persons who never attended school. <sup>d</sup> Low household income and low personal income is based on national income quintiles as defined in the NATSISS 2008 user guide. Proportions for these are based on persons in households in which, and persons for whom income was stated.

Source: ABS (unpublished) NATSISS 2008; ABS (unpublished) NHS 2007-08; tables 13A.1–4.

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In 2008, Indigenous people aged 20–64 years without a non-school qualification had higher rates of other disadvantages than those with a non-school qualification, including:

- being out of the labour force (42.9 per cent compared with 19.0 per cent), living in a low income household (57.4 per cent compared with 30.7 per cent), having low personal income (26.8 per cent compared with 16.8 per cent), and having a government pension, allowance or benefit as their principal source of income (48.7 per cent compared with 26.4 per cent) (figure 13.1.1)
- having left school before year 10 (40.1 per cent compared with 19.4 per cent), living in an overcrowded household (29.2 per cent compared with 16.5 per cent) and to living in a home not owned by someone in the household (76.8 compared with 62.1 per cent) (figure 13.1.1)

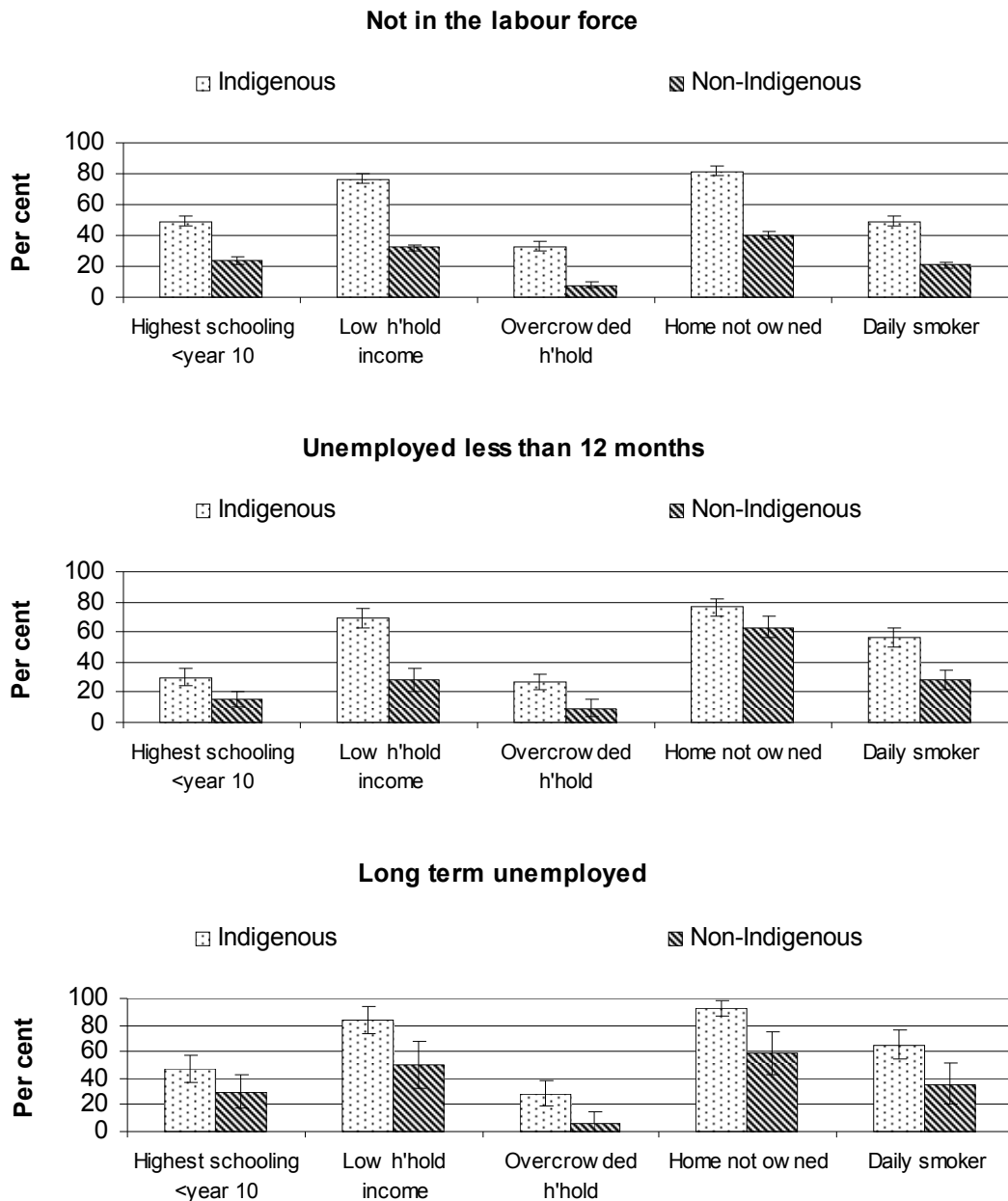
Indigenous people had significantly higher rates of all the selected indicators of disadvantage than non-Indigenous people with the same levels of educational attainment.

- Non-Indigenous people without a non-school qualification had higher rates of being out of the labour force, having lower household and personal incomes, having a government pension, allowance or benefit as their principal source of income and having left school before completing year 10 than non-Indigenous people with a non-school qualification (figure 13.1.1).
- However, there was little difference in the proportions of non-Indigenous people with and without a non-school qualification who lived in overcrowded households or in a home not owned by a member of the household (figure 13.1.1).

For more information about associations between non-school qualifications and other characteristics of disadvantage see tables 13A.1.1–4. For more information about non-school qualifications in general, see section 4.7 ‘Post secondary education — participation and attainment’.

Unemployment and participation in the labour force

Figure 13.1.2 **People aged 15–64 years, unemployed and not in the labour force — associations with selected characteristics, 2008<sup>a, b, c, d, e</sup>**



<sup>a</sup> Indicator labels have been shortened. <sup>b</sup> Highest schooling <year 10 includes people who never went to school. <sup>c</sup> 'Low household income' is based on national income quintiles as defined in the 2008 NATSISS user guide. Proportions are based on people in households in which income was stated. <sup>d</sup> Proportions for overcrowded households are based on persons for whom housing utilisation could be determined. <sup>e</sup> Proportions for non-Indigenous rates of overcrowded households are not shown here due to high RSEs.

Source: ABS (unpublished) NATSISS 2008; ABS (unpublished) NHS 2007-08; table 13A.5–8.

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In 2008, for those aged 15–64 years:

- among Indigenous people who were not in the labour force:
  - high proportions were without a non-school qualification (82.1 per cent), in low income households (76.5 per cent) and receiving a government pension, allowance or benefit as their main source of personal income (77.7 per cent)
  - one in three had fair/poor self assessed health status (30.0 per cent); a larger proportion than in the total Indigenous population (20.8 per cent), but similar to the corresponding population of the long term unemployed (24.5 per cent)
  - over one-tenth had a profound or severe core activity limitation (11.8 per cent), a higher proportion than for the total Indigenous population (7.3 per cent) and higher than the proportion for the long term unemployed (5.7 per cent) (table 13A.1.5).<sup>1</sup>
- Indigenous people who had been unemployed for less than 12 months had lower rates than the long term unemployed for:
  - having their principal source of personal income a government pension, allowance or benefit (69.7 per cent compared with 86.4 per cent)
  - having left school at or below year 9 (30.1 compared with 47.2 per cent)
  - living in a low income household (69.1 per cent compared with 84.3 per cent) or living in a home that was not owned by a member of the household (76.5 per cent compared with 92.6 per cent) (table 13.A.1.5)
- one in three (35.3 per cent) Indigenous people who were long term unemployed had been arrested in the last 5 years, twice the rate for the total Indigenous population (15.7 per cent) and also twice the rate for those who were not in the labour force (15.0 per cent) (table 13A.1.5)
- Indigenous people who were unemployed, or who were not in the labour force, had higher rates of other disadvantages than non-Indigenous people with the same labour force characteristics. Indigenous people had higher rates of :
  - having their highest year of school completed as year 9 or below
  - living in an overcrowded household or in a home not owned by someone in the household
  - being a current daily smoker

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<sup>1</sup> Because health and disability are age-related, the proportions not in the labour force with these characteristics are higher than the proportions of unemployed as people not in the labour force are likely to have an older age profile than the unemployed population (ABS unpublished).



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- living in a low income household <sup>2</sup> (figure 13.1.2)

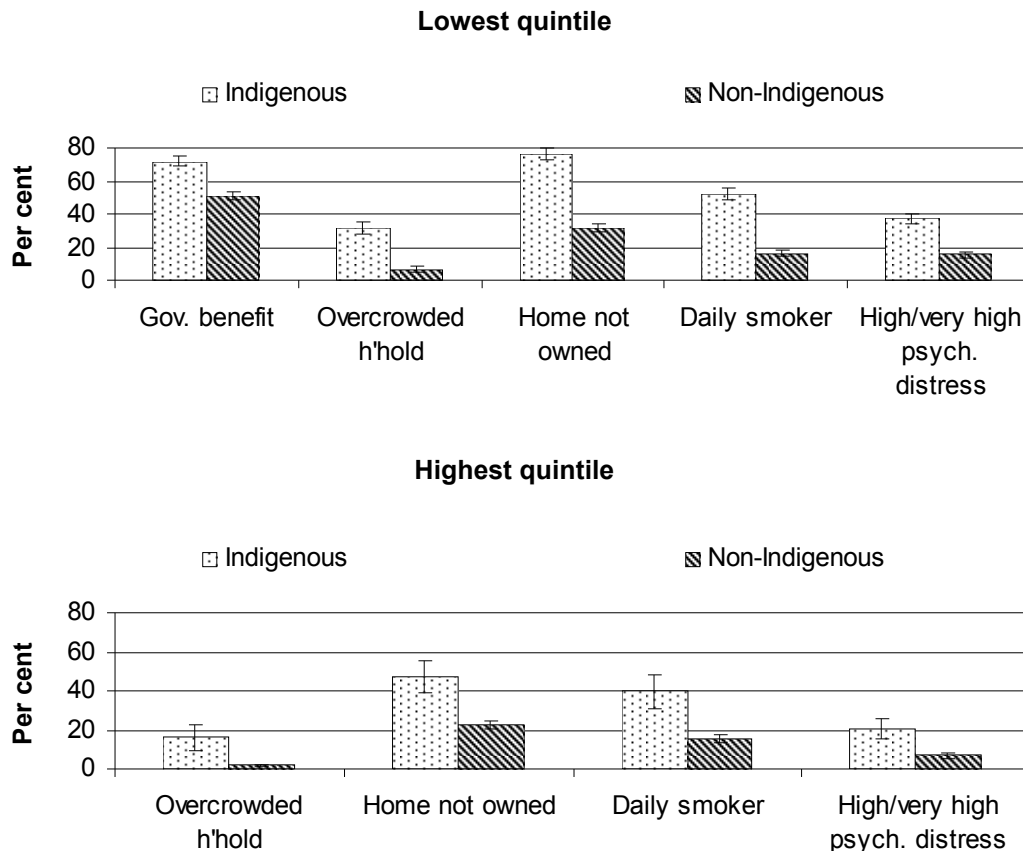
For more information on characteristics of disadvantage for people who were unemployed or not in the labour force, see tables 13A.1.5–8. For more information about unemployment or labour force characteristics in general see sections 4.6 or 8.1. Multinomial regression analysis on these topics is covered in section 13.2.

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<sup>2</sup> Low income households are in the ‘lowest equivalised gross weekly household income’ quintile.

Personal gross weekly income

Figure 13.1.3 **People aged 18 years and over, personal gross weekly income — associations with selected characteristics, 2008<sup>a, b, c, d</sup>**



<sup>a</sup> Government benefit is not shown for people in the highest quintile due to high relative standard errors. <sup>b</sup> Indicator labels have been shortened. <sup>c</sup> Quintiles of personal gross weekly income are based on national income quintiles defined in the 2008 NATSISS user guide. Proportions are of people whose income was stated. <sup>d</sup> Proportions for overcrowded households are for people whose housing utilisation could be determined.

Source: ABS (unpublished) NATSISS 2008; ABS (unpublished) NHS 2007-08; tables 13A.1.9–12.

In 2008, for those aged 18 years and over:

- three quarters of Indigenous people in the lowest quintile of personal gross weekly income were without a non-school qualification (74.8 per cent); lived in a home not owned by someone in the household (76.0 per cent) and were in the lowest quintile of gross weekly household income (75.0 per cent) (table 13A.1.9)

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- Indigenous people in the lowest quintile of personal gross weekly income had significantly higher rates of other disadvantages than non-Indigenous people in the lowest quintile<sup>3</sup>.
    - The proportions of Indigenous people with low income<sup>4</sup> who lived in an overcrowded household, were five times higher than for low-income<sup>4</sup> non-Indigenous people (31.7 per cent compared to 6.4 per cent) (figure 13.1.3; tables 13A.1.9–12).
    - Higher proportions of Indigenous than non-Indigenous people with low income<sup>4</sup> were unemployed (24.5 per cent compared with 8.3 per cent) and much higher proportions of Indigenous than non-Indigenous people with low income<sup>4</sup> were also long term unemployed (7.1 per cent compared to 1.6 per cent) (figure 13.1.3; tables 13A.1.9–12).
    - Higher proportions of Indigenous than non-Indigenous people were current daily smokers (52.1 per cent compared with 16.2 per cent (figure 13.1.3; tables 13A.1.9–12).

For more information on multiple disadvantage by quintiles of personal gross weekly income see tables 13A.1.9–12. Section 4.9 contains more data on income.

### *Principal source of personal income*

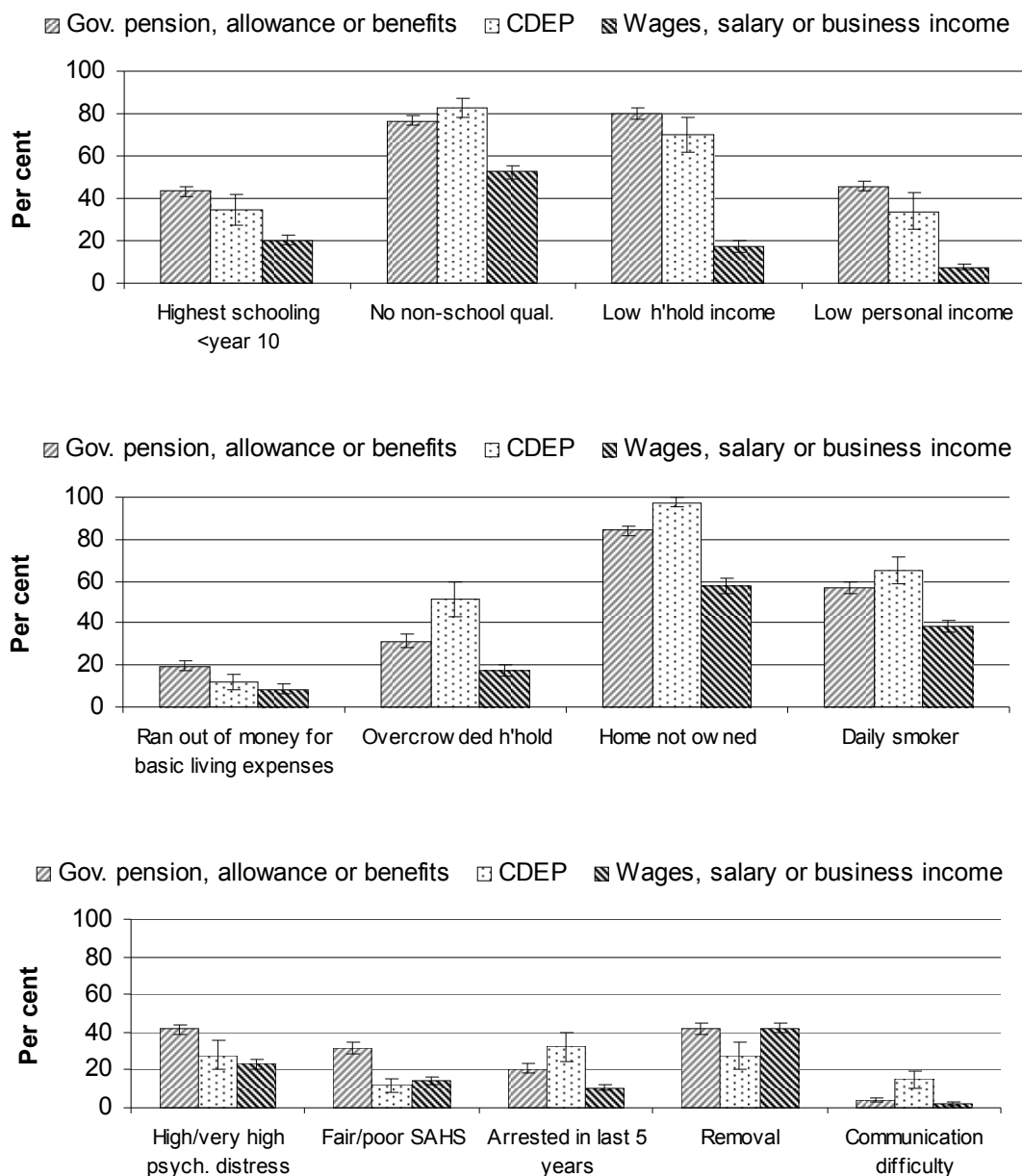
Data on correlations between source of personal income and various measures of disadvantage are presented first for Indigenous people aged 15–64 years and then more briefly as a comparison between Indigenous and non-Indigenous people aged 18–64 years. Analysis of data for Indigenous people aged 15–64 years (figure 13.1.4) allows a broader coverage of the full working age population including those aged 15–17 years. However, income data for non-Indigenous people from the NHS 2007-08 are only available for those aged 18 years and over, hence the age group 18–64 years is used for comparing Indigenous and non-Indigenous outcomes (figure 13.1.5).

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<sup>3</sup> Among people in the lowest quintile of personal gross weekly income, Indigenous rates were higher than non-Indigenous rates for most indicators of disadvantage including: ‘highest year of school completed was year 9 or below’; ‘without a non-school qualification’; ‘unemployed’; ‘not in the labour force’; ‘in the lowest quintile of equivalised gross weekly household income’; ‘principal source of personal income was government pension, allowance or benefits’; ‘living in an overcrowded household’; ‘living in a home not owned by someone in the household’; ‘current daily smoker’; ‘has high/very high psychological distress (K5)’; ‘has fair/poor self-assessed health status’; and ‘has a profound or severe core activity limitation’. The only indicator where Indigenous rates were significantly lower than non-Indigenous rates was for ‘not in the labour force’ (57.7 per cent compared to 69.2 per cent) (tables 13A.1.9–12).

<sup>4</sup> Low income refers to people in the lowest quintile of personal gross weekly income.

**Figure 13.1.4 Indigenous people aged 15–64 years, principal source of personal income — associations with selected characteristics, 2008** <sup>a, b, c, d, e, f</sup>



<sup>a</sup> Indicator labels have been shortened: CDEP=Community Development Employment Projects, SAHS=Self Assessed Health Status <sup>b</sup> 'Wages, salary or unincorporated business income' includes people whose principal source was: property; other sources; no sources; and not stated. <sup>c</sup> 'Highest school <year 10' includes people who never went to school <sup>d</sup> 'No non-school qual.' includes a some persons who were still at school. <sup>e</sup> 'Overcrowded household' based on persons whose housing utilisation could be determined <sup>f</sup> 'Communication difficulty' refers to difficulty communicating with English speakers.

Source: ABS (unpublished) NATSISS 2008; tables 13A.1.13–14.

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- In 2008, Indigenous people aged 15–64 years whose principal source of personal income was government pension, allowance or benefit, had significantly higher rates of disadvantage across all indicators than those whose principal income was wages, salary or unincorporated business income (except for risky drinking and removal of self or family member from family, for which there were no significant differences) (figure 13.1.4 and table 13A.1.13).

In 2008, Indigenous people aged 15–64 years whose primary source of personal income was CDEP:

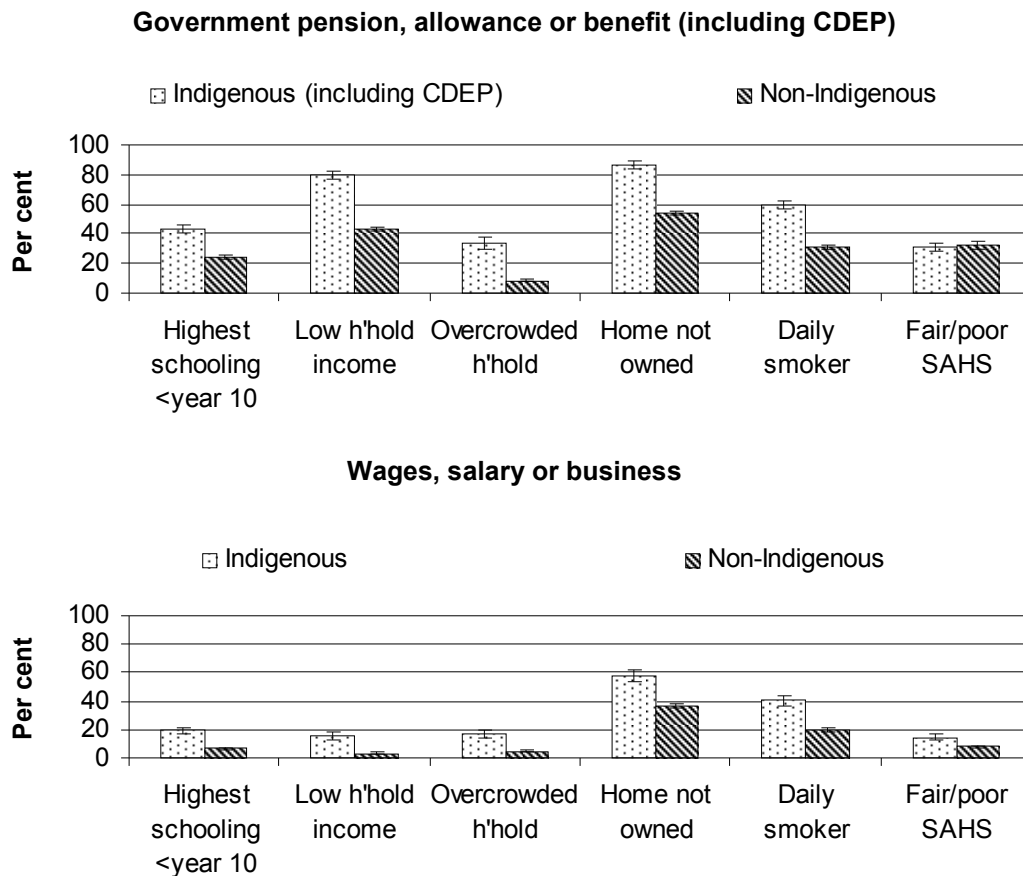
- had significantly lower rates of also being in the lowest quintile of equivalised gross weekly household income, the lowest quintile of gross weekly personal income, and/or living in a household that had run out of money in the last week for basic living expenses, than those whose primary source of personal income was government pension, allowance or benefit (table 13A.1.13)
- had significantly lower rates of high/very high psychological distress, fair/poor self-assessed health status, or were affected by removal (self or a relative has been taken away from family) than those whose primary source of personal income was government pension, allowance or benefit (table 13A.1.13).

However, significantly higher proportions of Indigenous people whose principal source of personal income was CDEP did not have a non-school qualification, lived in an overcrowded household or a home that was not owned by anyone in the household, were current daily smokers, had been arrested in the last 5 years, or had experienced difficulty communicating with English speakers (table 13A.1.13).

CDEP participation is much higher in remote than non-remote areas; therefore, some of the characteristics associated with people who have CDEP as a principal source of income are likely to reflect the circumstances of all Indigenous people living in remote areas.

The analysis in figure 13.1.5 is for people aged 18–64 years in 2008.

Figure 13.1.5 **People aged 18–64 years, principal source of personal income — associations with selected characteristics, 2008**<sup>a, b, c, d, e, f, g</sup>



<sup>a</sup> Indicator labels have been shortened. <sup>b</sup> Wages, salary or unincorporated business income includes people whose principal source was: property; other sources; no sources; and not stated. <sup>c</sup> 'Highest school < year 10' includes people who never went to school. <sup>d</sup> Low household income is based on national income quintiles as defined in the 2008 NATSISS user guide and are based on persons in households for whom income was stated. <sup>e</sup> 'Overcrowded h'hold' based on persons whose housing utilisation could be determined. <sup>f</sup> SAHS=Self assessed health status. <sup>g</sup> 'Communication difficulty' refers to difficulty communicating with English speakers.

Source: ABS (unpublished) NATSISS 2008 and ABS (unpublished) NHS 2007-08; tables 13A.1.15–18.

- In 2008, higher proportions of both Indigenous and non-Indigenous people aged 18–64 years whose principal source of personal income was a government pension, allowance or benefit (including CDEP) than those whose principal source was wages, salary or business income:
  - had a highest year of school completion of year 9 or below
  - were in the lowest quintile of equivalised gross weekly household income
  - lived in an overcrowded household
  - lived in a home not owned by anyone in the household

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- currently smoked daily
  - had fair/poor self-assessed health status (tables 13A.1.15–19).
  - Among people whose principal source of personal income was a government pension, allowance or benefit, Indigenous people had significantly higher rates of disadvantage than non-Indigenous people for all measures in figure 13.1.5 except fair/poor self assessed health status.

For more information on association with indicators of disadvantage for principal source of personal income see tables 13A.1.13–18. Section 4.6 (‘Employment’) contains general analysis on CDEP. Section 8.4 (‘Income support’) contains analysis on government pensions, allowances and benefits. Section 4.9 (‘Household and individual income’) contains more information on income.

## 13.2 Labour market outcomes

This section uses the National Aboriginal and Torres Strait Islander Social Survey (NATSISS 2008) dataset, and a technique known as multinomial regression analysis, to analyse labour market outcomes (LMOs) for Indigenous people.<sup>5</sup> The NATSISS is a rich source of information on the characteristics of Indigenous people, and includes data on LMOs and many factors that might influence them (table 13A.2.1 contains a description of the variables included in the analysis). The purpose of this analysis is to quantify the likely influence of various factors on LMOs. This information can be used to analyse the effect of factors that might be influenced by government policy (such as education and health) while controlling for the effects of other factors (such as age).

There are four labour market outcomes of interest — ‘mainstream (non-CDEP) employment’, ‘unemployment’, ‘CDEP participation’ and ‘not in the labour force’. Unless otherwise specified, references to ‘employment’ are to ‘non-CDEP employment’. The analysis excludes full time students and, importantly, the NATSISS excludes people who are not permanent residents of private dwellings (and therefore excludes prisoners).

The starting point for this analysis is the neoclassical human capital model of labour supply, where labour force participation and employment improve with increases in education and work experience, and health improvements. The influence of labour demand, which tends to be weaker in remote areas, is captured by including

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<sup>5</sup> This analysis is for Indigenous people only, unlike the analysis for the 2009 OID which used the 2006 Census to compare Indigenous and non-Indigenous people.

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remoteness as an explanatory variable. Labour demand may also have been affected by the global recession during the survey period, which was August 2008 to April 2009, as unemployment rates began to increase early 2009. Regression analysis is used to estimate the change in the probability of a particular labour market state, given a change in a particular factor. This is known as the ‘marginal effect’ of the factor on the outcome (box 13.2.1). A discussion of the choice of explanatory variables can be found in Biddle and Webster (2007) and Stephens (2010). The set of variables included in this analysis is limited by the variables available in the NATSISS data set and in some cases, the technical limitations of regression analysis.

### **Box 13.2.1 Understanding the results**

Regression analysis is a statistical tool that is used to measure the association between an explanatory variable and a dependent variable while holding all other variables constant. For example, in this study, the marginal effect measures the change in the probability of an individual being employed that is associated with a change in their educational attainment, while controlling for their age and other factors that might influence their employment prospects.

#### **Discrete dependent variables**

The choice of model depends on the data available. In this case, the data are sourced from the NATSISS survey, which provides information on many individual characteristics, including labour market outcomes (LMOs). The LMOs considered in this analysis are discrete (a person belongs only to one labour market state) and unordered (being ‘not in the labour force’ is not ranked higher or lower than being ‘unemployed’, for example). The most suitable model is a multinomial probit model.

#### **Base predicted probability**

The base predicted probability (table 13A.2.7) is the probability associated with the LMO of a ‘base person’. The base person in this study is someone who is 37 years old, is married, lives in a non-remote area, has no difficulty communicating in English, is in good health, has low levels of psychological distress, does not have a severe or profound disability, has a year 10 or 11 education and no non-school qualifications, has not been arrested in the last five years and has never been imprisoned.

#### **Marginal effects**

A marginal effect is the change in the value of a dependent variable (in this case, the predicted probability of a LMO) that is associated with a one unit (or marginal) change in an explanatory variable, holding all other explanatory variables constant. The results are presented as percentage point changes, relative to the predicted probability of a particular LMO for the base person.

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### Box 13.2.1 (continued)

The marginal effects represent the percentage point change in the probability of a labour market outcome associated with:

- for continuous variables, a one unit increase in the variable from its mean value
- for binary variables other than the education variables, a change from '0' to '1'
- for the education variables, a change in education compared to having year 10 or 11 and no non-school qualification

while holding the value of all other explanatory variables constant.

In discrete choice modelling, estimated marginal effects and their significance depend on the values at which other variables are held. In this study, marginal effects are calculated with continuous variables held at mean values and binary variables held at the mode (most common) values.

#### **Statistical significance**

Statistical significance tests are used to gauge the reliability of estimates. In the results tables, the stars next to the estimated marginal effects represent the level of statistical significance. (In the attachment tables, the standard errors are also reported.) One, two and three stars represent significance at the 10, 5 and 1 per cent levels, respectively — the more stars, the more confidence in the estimate. If a marginal effect is significant at the 5 per cent level (at least two stars) then it is unlikely that the result has arisen by chance. In the charts, error bars indicate 95 per cent confidence intervals for the estimates that show the range of values for which it is unlikely that the result has arisen by chance.

If an explanatory variable is determined not to be statistically significant (for example, for some of the results with no stars) it does not necessarily mean that there is no relationship between the variables, but that there is not sufficient evidence, based on the survey sample, to indicate that a relationship exists. If there are relatively few people in a sample with a particular characteristic, or in a particular outcome category, it may be difficult to detect a statistically significant association between variables. This is particularly an issue for the CDEP and unemployment outcomes in this model, because the number of people in these categories is relatively small.

## **Results**

A selection of results is presented in this section. One of the LMOs discussed in this section is that of 'not in the labour force'. For ease of expression, the results are usually discussed in terms of 'labour force participation'.

More results can be found in Attachment 13A. A description of the variables can be found in table 13A.2.1 and descriptive statistics in table 13A.2.2. All results for the marginal effects can be found in tables 13A.2.3 and 13A.2.4. Coefficient estimates

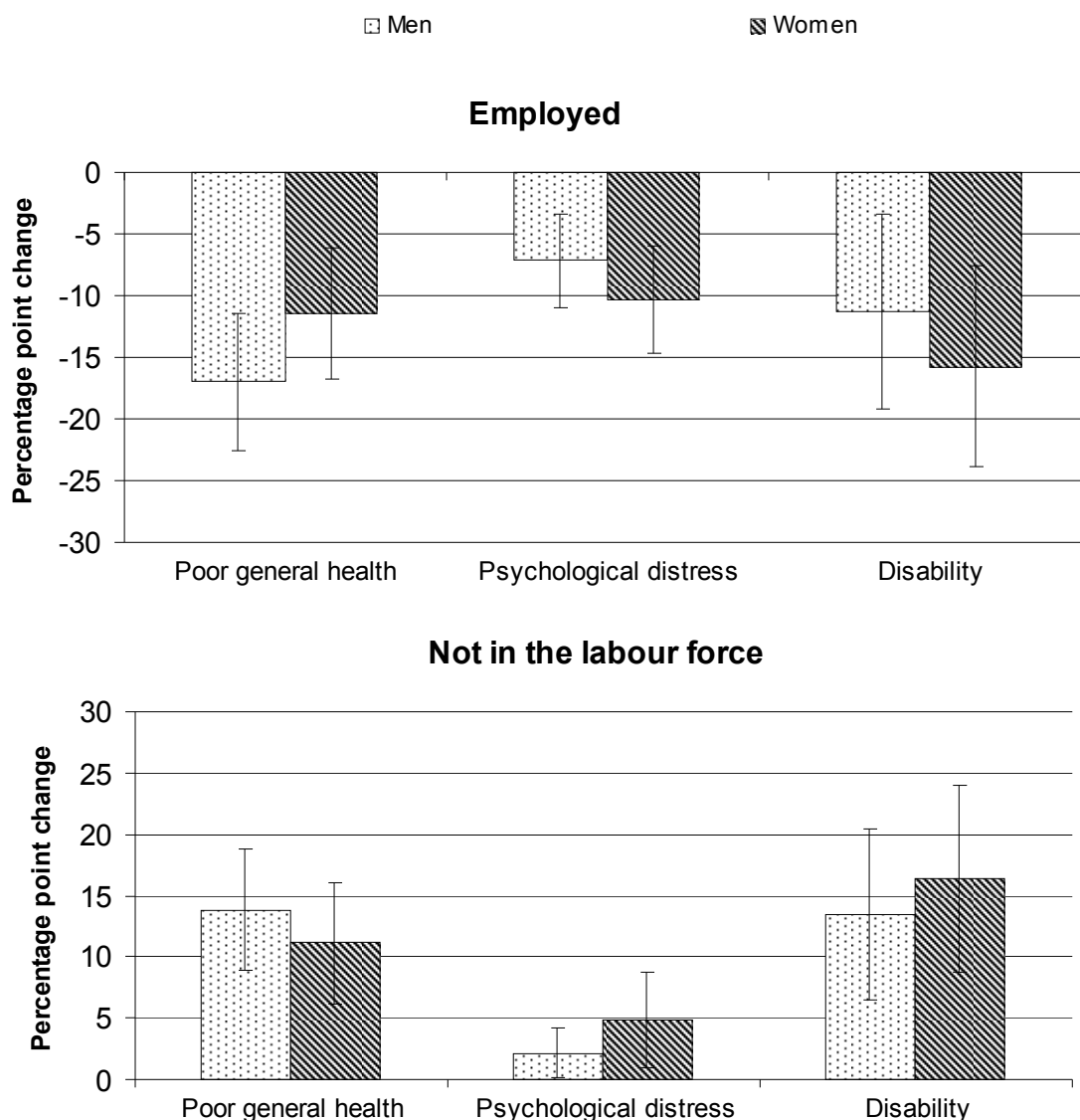
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can be found in tables 13A.2.5 and 13A.2.6 for researchers who want to undertake more complex analysis, such as deriving marginal effects for particular subgroups. Diagnostic statistics and predicted probabilities are in table 13A.2.7.

### *Health*

Better health is typically associated with better labour market outcomes. People with good general and mental health, and without a severe disability, are likely to participate in the paid labour market, and be employed, holding other factors constant. The marginal effects estimates of these three elements of health on the probability of being employed and not in the labour force of are reported in figure 13.2.1. The marginal effects for all three elements of health are significant for employment and labour force participation, with general health and disability having the largest marginal effects.

Figure 13.2.1 **Marginal effects of health, 2008<sup>a, b, c</sup>**



<sup>a</sup> General health and disability are self assessed. Mental health is measured in terms of psychological distress using responses to questions from the Kessler Psychological Distress Scale. The estimated marginal effect indicates the change in the predicted probability of a labour market outcome for changing from: being in good, very good or excellent health, to being in fair or poor health (self assessed); having low/moderate to having high/very high levels of psychological distress (as indicated by the Kessler Psychological Distress Scale); and having no disability to having a severe or profound disability. <sup>b</sup> The probability of the base person being employed is 88 per cent for men and 62 per cent for women. The probability of the base person not participating in the labour force is 5 per cent for men and 29 per cent for women. Definitions of all variables and the standard errors of the estimates are in attachment 13A. The definitions of marginal effects, predicted probability and the base person are in box 13.2.1. <sup>c</sup> The bars attached to each estimate indicate the 95 per cent confidence interval of the estimate.

Source: Productivity Commission estimates based on NATSISS 2008; tables 13A.2.3, 13A.2.4 and 13A.2.7.

- Indigenous males in poor or fair general health were 14 percentage points less likely to participate in the labour force, and 17 percentage points less likely to be

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employed, compared with Indigenous males in good general health (figure 13.2.1).

- Indigenous females in poor or fair general health were 11 percentage points less likely to participate in the labour force, and 12 percentage points less likely to be employed, compared with Indigenous females in good general health (figure 13.2.1).
- Indigenous males and females with a severe or profound disability were 11 and 16 percentage points respectively less likely to be employed than those without (figure 13.2.1).
- Indigenous males and females with high levels of psychological distress were 7 and 10 percentage points respectively less likely to be employed (figure 13.2.1), and 5 percentage points more likely to be unemployed (tables 13A.2.3 and 13A.2.4).
- Indigenous men with a disability are 3 percentage points less likely to be unemployed. This counter-intuitive result might be explained by the large increased probability of Indigenous men with a disability being out of the labour force (14 percentage points) and that people with a disability who select in the labour force are more likely to be employed than unemployed.

### *Education*

Most studies find that higher levels of education attainment are associated with improved labour market outcomes, holding other factors constant. This study examines the marginal effects of educational attainment relative to having completed year 10 or 11. For this report, a ‘pathways’ approach was used to combine years of schooling with non-school qualifications, recognising that people may take a number of different pathways through the education system.<sup>6</sup> In this study, the marginal effect of having a non-school (diploma or certificate) qualification was estimated separately for people who completed year 12, who completed year 10 or 11 only, and who had not completed year 10. The marginal effect of having a degree was estimated separately from the other education categories.

The estimated marginal effects of education on the probability of being employed and not in the labour force are reported in figure 13.2.2. For women, any education

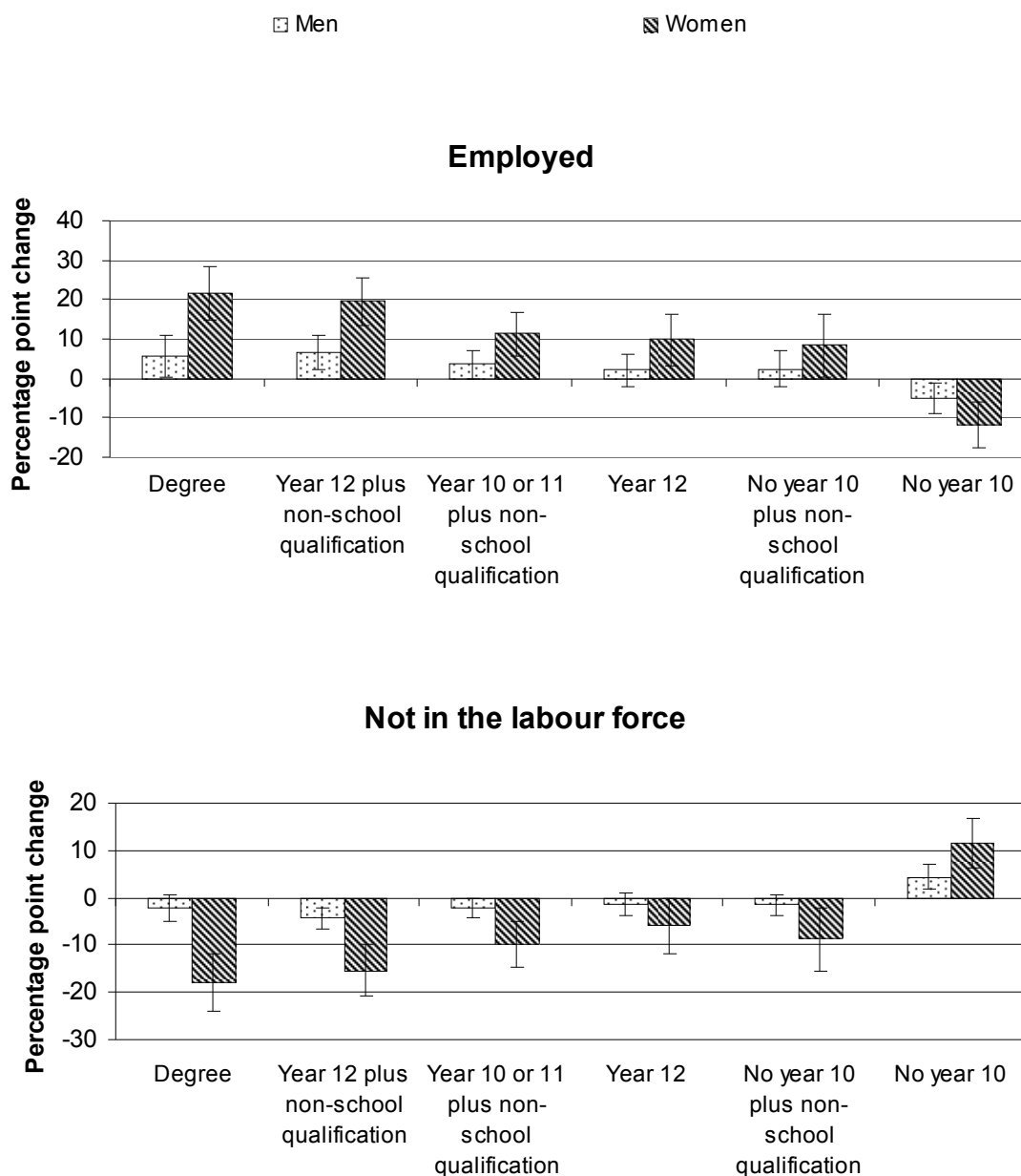
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<sup>6</sup> This approach is particularly relevant to the way that Indigenous people tend to engage with the education system compared to non-Indigenous people — on average, Indigenous people have lower levels of non-school qualifications and obtain them at a later age, often without having completed year 12.

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above the lowest level of education (no year 10) was associated with an increased probability of being in the labour force and with being employed. For men, the results were more varied. Some education pathways were associated with better LMOs, for example, a non-school qualification improved the probability of being employed provided it was accompanied by at least year 10 or 11. However, year 12 on its own, and non-school qualifications without year 10, were not associated with improved LMOs.

Figure 13.2.2 **Marginal effects of education, 2008<sup>a, b, c</sup>**



<sup>a</sup> Education variables reflect the combinations of years of secondary schooling and non-school qualifications. The estimated marginal effect indicates the change in the predicted probability of a labour market outcome for a change from year 10 or 11 and no non-school qualification. <sup>b</sup> The probability of the base person being employed is 88 per cent for men and 62 per cent for women. The probability of the base person not participating in the labour force is 5 per cent for men and 29 per cent for women. Definitions of all variables and the standard errors of the estimates are in attachment 13A. The definitions of marginal effects, predicted probability and the base person are in box 13.2.1. <sup>c</sup> The bars attached to each estimate indicate the 95 per cent confidence interval of the estimate.

Source: Productivity Commission estimates based on NATSISS 2008; tables 13A.2.3, 13A.2.4 and 13A.2.7.

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The marginal effects for employment and labour force participation for women were statistically significant and relatively large. Indigenous women with a degree were 22 percentage points more likely to be employed and 18 percentage points more likely to be in the labour force, compared to Indigenous women with a year 10 or year 11 and no non-school qualification (figure 13.2.2).

For men, the relationship between some education variables and improved labour market outcomes was weaker. An Indigenous man with a degree was 6 percentage points more likely to be employed, compared to an Indigenous man with a year 10 or 11 and no non-school qualification. However, an Indigenous man with year 12 and no non-school qualification was no more likely to be employed than an Indigenous man with year 10 or year 11 and no non-school qualification (figure 13.2.2). Indigenous men with degrees were 1 percentage point less likely to participate in CDEP, and there was no statistically significant relationship between education and unemployment for men (most likely due to high standard errors resulting from the small sample size for this outcome (table 13A.2.3).

The relative magnitudes of the estimated marginal effects imply the following benefits<sup>7</sup> to higher levels of education:

- Indigenous men with year 10 or 11 plus a non-school qualification were 7 percentage points more likely to be in the labour force, and 9 percentage points more likely to be employed compared to Indigenous men with no year 10 and no non-school qualifications.
- Indigenous women with a degree were 12 percentage points more likely to be in the labour force compared to Indigenous women with year 12 and no non-school qualification.
- Indigenous women who had not completed year 10 but had a diploma or certificate qualification were around 20 percentage points more likely to participate in the labour force, compared to Indigenous women without year 10 or a non-school qualification.

### *Other factors*

The marginal effects of years of workplace experience, remoteness, living in a socio-economic disadvantaged location, having difficulty with the English language, and history of arrest and imprisonment associated with labour force participation and employment are presented in table 13.2.1.

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<sup>7</sup> To the extent that other factors, not included in the model, might influence LMOs, the association between LMOs and education could be overstated (see box 13.2.2 on omitted variable bias).

**Table 13.2.1 Marginal effects of other factors, 2008<sup>a</sup>**

Explanatory variable	Unit	Men		Women	
		Employed	Not in the labour force	Employed	Not in the labour force
Experience <sup>b</sup>	Years	2 ***	-1 ***	4 ***	-3 ***
Remoteness <sup>c</sup>	Binary	-14 ***	-2 **	3	-4 **
SEIFA <sup>d</sup>	No.	2 ***	-1 **	3 ***	-2 ***
Difficulty with English language <sup>e</sup>	Binary	-5	6 **	12	11 *
History of arrest <sup>f</sup>	Binary	8 ***	2 *	17 ***	9 ***
History of imprisonment <sup>g</sup>	Binary	9 ***	4 **	0	2

\*\*\* = significant at 1 per cent level (a 1 in 100 possibility that the result is due to chance); \*\* = significant at 5 per cent level (a 5 in 100 possibility that the result is due to chance); \* = significant at 10 per cent level (a 10 in 100 possibility that the result is due to chance). No stars indicate that the variable is not statistically significant (box 13.2.1). <sup>a</sup> The probability of the base person being employed is 88 per cent for men and 62 per cent for women. The probability of the base person not participating in the labour force is 5 per cent for men and 29 per cent for women. Definitions of all variables and the standard errors of the estimates are in attachment 13A. The definitions of marginal effects, predicted probability and the base person are in box 13.2.1. <sup>b</sup> The estimated marginal effect of experience represents the total effect of the experience and experienced squared variables. The estimated marginal effect indicates the change in the predicted probability of a labour market outcome for an increase in one year of experience over the average number of years of experience (15 years for men and 11 years for women). <sup>c</sup> The estimated marginal effect for remoteness indicates the change in the predicted probability of a labour market outcome for changing from living in a non-remote area to living in a remote area. <sup>d</sup> The estimated marginal effect for SEIFA indicates the change in the predicted probability of a labour market outcome associated with a change from living in an area with a SEIFA score in decile 3 to 4. <sup>e</sup> The estimated marginal effect for difficulty with English language indicates the change in the predicted probability of a labour market outcome for changing from having no difficulty to having difficulty. <sup>f</sup> The estimated marginal effect for history of arrest indicates the change in the predicted probability of a labour market outcome for changing from having no history of arrest to being arrested in the last five years. <sup>g</sup> The estimated marginal effect for history of imprisonment indicates the change in the predicted probability of a labour market outcome for changing from not having been in gaol to having been in gaol.

Source: Productivity Commission estimates based on NATSISS 2008; tables 13A.2.2, 13A.2.3, 13A.2.4 and 13A.2.7.

- An additional year of experience in the workplace was associated with an increase in the likelihood of employment of 2 and 4 percentage points for men and women respectively, compared to someone with average years of experience (around 15 years for men and 11 years for women). For Indigenous women, this was reflected in a 3 percentage point increase in the probability of participating in the labour force. For men, the associated increase in the likelihood of labour force participation was around 1 percentage point (table 13.2.1).
- English language skills<sup>8</sup> were associated with an increase in the probability of participating in the labour force. Indigenous men were approximately 6 percentage points, and women around 11 percentage points, more likely to

<sup>8</sup> Difficulty in speaking English is highly correlated with remoteness.



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participate in the labour force compared with Indigenous men and women who had difficulty communicating in English (table 13.2.1).

- Arrest in the last five years had a highly significant negative association with the probability of employment.<sup>9</sup> An Indigenous woman who had been arrested in the past five years was 17 percentage points less likely to be employed than an Indigenous woman without a recent history of arrest. The comparable result for Indigenous men was 8 percentage points. The magnitudes of the associations between history of arrest and labour force participation are smaller compared to the association with employment (2 percentage point decrease for men and 9 percentage point decrease for women). This may mean that arrest did not fully discourage labour force participation, but may have affected the ability to obtain a job (table 13.2.1).
- After accounting for other factors, including recent history of arrest,<sup>10</sup> an Indigenous man who had been imprisoned in his lifetime had a reduced probability of employment of 9 percentage points and a reduced probability of participation in the labour force of 4 percentage points compared to an Indigenous man who has never been imprisoned (table 13.2.1). The results indicate no significant impact of imprisonment on LMOs for women, although this may reflect the small number of women in the sample who had a history of imprisonment (box 13.2.1).
- Remoteness was associated with a increased probability of participating in the labour force of 2 percentage points for Indigenous men and 4 percentage points for Indigenous women (table 13.2.1). This might reflect the strong association between remoteness and CDEP participation. The results suggest that living in a remote area increased the probability of CDEP participation by 18 percentage points for Indigenous men and 10 percentage points for Indigenous women, relative to someone who does not live in a remote area (tables 13A.2.3 and 13A.2.4).
- Living in a relatively less disadvantaged area (as indicated by a higher SEIFA score) increased the probability of employment for Indigenous men by 2 percentage points and 3 percentage points for Indigenous women, compared to those that lived in a relatively more disadvantaged area (table 13A.2.3 and 13A.2.4).

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<sup>9</sup> Variables related to crime are likely to be strongly affected by what is known as endogeneity bias as people who are employed are less likely to engage in criminal activity (box 13.2.2). Previous studies show that people who are unemployed are more likely to commit crimes (Freeman (1999)).

<sup>10</sup> Arrest and gaol are correlated with each other.

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- Indigenous men who had been arrested in the last five years or imprisoned were 5 percentage points more likely to be unemployed. Indigenous women who had been arrested in the last five years were around 7 percentage points more likely to be unemployed (table 13A.2.3 and 13A.2.4).

### **Some qualifications**

Several qualifications need to be understood in interpreting and using the results of these kinds of models. The results provide estimates of the sign and magnitude of relationships between the LMOs and the explanatory variables. Whether the estimates are accurate depends on the extent to which assumptions that underlie the model (box 13.2.2) are true. These assumptions generally relate to:

- whether factors not included in the model influence LMOs (omitted variable bias)
- the direction of causality between the dependent and explanatory variables (endogeneity)
- the relatedness of the explanatory variables (multicollinearity)
- the coverage of the survey (sample selection bias).

Where it is not clear that these assumptions hold, results must be interpreted with caution. For example, a number of the explanatory variables are related to each other (remoteness and difficulty speaking English, arrest and imprisonment), which increases the standard errors of those explanatory variables, and makes it less likely that the estimates of the marginal effects will appear statistically significant. There are a number of omitted variables that theory suggests should be included in the model but that are not available from the NATSISS data set (for example, motivation and aptitude), which will bias results. Endogeneity is likely to play a role in the influence of health and crime on LMOs, and the simultaneous influence of LMOs on health and crime. And the sample may not be representative of all Indigenous people.

These qualifications are particularly important when seeking to use the results to quantify the increase in employment or labour force participation that might be expected, for example, from meeting COAG targets for year 12 attainment. A large and significant marginal effect between an explanatory variable and the dependent variable does not necessarily mean that the explanatory variable causes the LMO, or that a change in a particular factor will necessarily result in a change in the LMO of the magnitude implied by the marginal effect. This means that the relationships between the LMOs and the explanatory variables are best described as associations.

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Notwithstanding these qualifications, estimates from regression analysis are likely to be more accurate for the purposes of quantifying benefits from policy than those obtained from bivariate analysis, because regression analysis allows the effects of the factors of interest to be identified separately. Bivariate analysis, which also measures associations and are subject to the same sorts of bias, does not account for the concurrent effects of other relevant factors on the outcome of interest.

### **Box 13.2.2 Qualifications to the results**

Four fundamental assumptions in regression analysis are that:

- the explanatory variables influence the dependent variable but not the other way around (the direction of causality is one way)
- all variables that influence the dependent variables are included in the model
- the explanatory variables are not strongly related to each other
- the data are from a survey in which individuals are drawn at random from the population of interest.

When these assumptions are true, the estimates can provide meaningful information about the sign, magnitude and significance of the influence each explanatory variable has on the dependent variable. Where these assumptions are not satisfied, the estimates can be biased or significance tests can be misleading, and in such cases results need to be understood as associations and interpreted with caution.

#### **Omitted variable bias**

A model's results may be biased when the dependent variable and an explanatory variable are linked via a third variable that is not included in the model. An example is education and LMOs. A person's educational attainment and LMOs may be influenced by personal attributes, such as motivation, aptitude and preferences, some of which cannot readily be captured by surveys (resulting in what is known as omitted variable bias, in this case due to 'unobserved heterogeneity'). Omitting these attributes from the model could result in the marginal effects of education on LMOs being biased, since the marginal effects might capture in part the effects of these omitted attributes.

Results of other studies (Laplagne et al (2007), Cai (2009)) — using models of labour force participation and health, and Australian survey data — support the hypothesis of unobserved heterogeneity, especially for females, and concluded that results in these studies are likely to be upper bound estimates.

In the model developed for this study, omitted variable bias could mean that results represent an upper bound of the magnitude of the association between education and LMOs.

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### Box 13.2.2 (continued)

#### **Endogeneity (simultaneity) bias**

Results may also be biased when the direction of causality runs both ways between the dependent variable and an explanatory variable. An example is health and LMOs. People who are in good health are more likely to be able to work, but it is also true that working could affect a person's health (in some cases positively; in other cases negatively). This means that a person's health affects their LMO, but their LMO also affects their health. This is known as endogeneity bias.

The impact of this type of bias on model estimates is unknown. The marginal effects are likely to represent the 'net effect' of a change in the explanatory variable (that is, the change in the dependent variable caused by the change in the explanatory variable, in combination with the change in the explanatory variable caused by the change in the dependent variable).

An alternative type of model, such as a simultaneous equation model, might be considered where dependent and explanatory variables are likely to be interdependent. Using a simultaneous equation model that sought to identify endogeneity bias, Laplagne et al (2007) concluded that endogeneity was present in a model of labour force participation and health that used Australian survey data. Cai (2009) found that health had a positive effect<sup>11</sup> on labour force participation for men and women, and that labour force participation had a negative effect on health for men, and a positive effect for women.

#### **Multicollinearity**

Multicollinearity occurs when explanatory variables are highly correlated with each other, that is, they have a strong relationship. This might occur when people suffer multiple disadvantage (for example, poor health, poor education and a criminal record) and the factors associated with disadvantage are all included in the model. Multicollinearity will not bias estimates, but may inflate their standard errors, and make some explanatory variables appear not significant when they are.

#### **Sample selection bias**

When each person in the relevant population has an equal chance of being selected for the survey, the survey sample is described as being an 'equal probability of selection' sample design. In practice, this is difficult, and most surveys will produce various form of sample selection bias which might arise from particular groups having different probabilities of being selected in the sample, or from undercoverage where particular groups have no probability of being selected.<sup>12</sup> In particular, people in

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<sup>11</sup> The simultaneous equation model developed for Cai (2009) estimates the joint determination of health on labour force participation, and of labour force participation on health, and therefore allows the relationship to be described as an effect rather than an association.

<sup>12</sup> More information on NATSISS sampling and non-sampling errors can be found at ABS (2009).

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### Box 13.2.2 (continued)

non-private dwellings (including prisons) were excluded from the NATSISS. The 2008 NATSISS has a relatively high level of undercoverage and potential different selection probabilities for population groups, for example, in remote and non-remote areas. This is likely to result in the estimated results being biased due to sample selection.

Sample selection bias is often corrected by applying weights to the data. In this study, weighted data were not used because the added level of complexity makes it difficult to interpret results. This means that the estimated results are best described as representing the associations for individuals in the sample, and results cannot necessarily be extrapolated to the whole Indigenous population.

## Summary

The analysis presented in this section examined factors affecting Indigenous labour market outcomes. The results indicate that better levels of health, more education and additional years of work experience are associated with a greater probability of being in the labour force and being employed. History of arrest is negatively associated with the probability of being employed and participating in the labour force. Imprisonment is also negatively associated with the probability of being employed and participating in the labour force for men. The size and significance of the marginal effects vary for different explanatory variables and should be interpreted with caution, noting the issues of sample selection, heterogeneity, endogeneity and multicollinearity in the data (box 13.2.2).

## 13.3 References

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# 13A Measuring multiple disadvantage — attachment

The tables in this file accompany the report, *Overcoming Indigenous Disadvantage: Key Indicators 2011*, prepared by the Steering Committee for the Review of Government Service Provision. Background and definitions are available in the report, which is available on the Review website ([www.pc.gov.au/gsp](http://www.pc.gov.au/gsp)).

This file is available in both Microsoft Excel and Adobe PDF formats on the Review website ([www.pc.gov.au/gsp](http://www.pc.gov.au/gsp)). Users without Internet access can contact the Secretariat to obtain these tables (details inside the front cover of the report).

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Table 13A.1.1

Table 13A.1.1      **Associations between different indicators of disadvantage, Indigenous people aged 20–64 years, without a non-school qualification, 2008 (a)**

	<i>Unit</i>	<i>Without a non-school qualification</i>	<i>With a non-school qualification</i>	<i>All people</i>
<b>Selected indicators of disadvantage</b>				
Highest year of school completed was year 9 or below (b)	%	40.1	19.4	32.2
Unemployed	%	9.4	9.0	9.3
Long term unemployed		3.1	2.1	2.7
Not in the labour force	%	42.9	19.0	33.8
In the lowest quintile of equivalised gross weekly household income (c), (d)	%	57.4	30.7	47.1
In the lowest quintile of personal gross weekly income (c), (e)	%	26.8	16.8	22.9
Principal source of personal income was government pension, allowance or benefits	%	48.7	26.4	40.2
Principal source of personal income was CDEP (f)	%	6.6	2.4	5.0
Household members could not raise \$2000 in an emergency (f)	%	53.3	36.8	46.9
Household members ran out of money in the last two weeks for basic living expenses (f)	%	14.0	12.9	13.6
Not able to get support from outside the household in time of crisis (f)	%	13.3	7.4	11.0
Living in an overcrowded household (g)	%	29.2	16.5	24.3
Living in a home not owned by someone in the household	%	76.8	62.1	71.2
High risk alcohol consumption in last 12 months (f)	%	8.7	5.4	7.4
Risky/high risk alcohol consumption in last 12 months (f)	%	20.5	18.0	19.5
Current daily smoker	%	54.0	43.4	50.0
Has high/very high psychological distress (K5)	%	33.4	30.3	32.2
Has fair/poor self-assessed health status	%	25.6	21.5	24.0
Has a profound or severe core activity limitation (h)	%	9.4	6.2	8.0
Has been arrested in the last 5 years (f)	%	18.9	12.6	16.5
Has been incarcerated (f)	%	12.8	7.6	10.8
Removal — self or a relative has been taken away from family (f)	%	38.5	49.2	42.6
Has difficulty communicating with English speakers (f), (i)	%	5.3	1.3	3.8
<b>Indigenous people aged 20–64 years</b>	<b>'000</b>	<b>155.5</b>	<b>96.4</b>	<b>251.9</b>

Table 13A.1.1                    **Associations between different indicators of disadvantage, Indigenous people aged 20–64 years, without a non-school qualification, 2008 (a)**

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CDEP=Community Development Employment Projects.

- (a) Includes a small number of people aged 20–24 years who were still at school.
- (b) Includes people who never attended school.
- (c) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (d) Proportion based on people in households in which income was stated (124 000, 78 100 and 202 100).
- (e) Proportion based on people for whom income was stated (146 300, 92 100 and 238 400).
- (f) There is no equivalent indicator for non-Indigenous people.
- (g) Proportion based on people for whom housing utilisation could be determined (154 400, 95 900 and 250 300).
- (h) Data are for people in non-remote areas. Proportions are therefore calculated on Indigenous people aged 20–64 years in non-remote areas (106 700, 80 200 and 186 800).
- (i) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.2

Table 13A.1.2

**Associations between different indicators of disadvantage, Indigenous people aged 20–64 years, without a non-school qualification, 2008 (relative standard errors) (a), (b)**

	<i>Unit</i>	<i>Without a non-school qualification</i>	<i>With a non-school qualification</i>	<i>All people</i>
<b>Selected indicators of disadvantage</b>				
Highest year of school completed was year 9 or below (c)	%	3.1	6.8	3.1
Unemployed	%	8.4	10.3	6.6
Long term unemployed	%	13.4	23.1	11.7
Not in the labour force	%	2.7	7.2	2.9
In the lowest quintile of equivalised gross weekly household income (d)	%	3.0	6.8	3.2
In the lowest quintile of personal gross weekly income (d)	%	4.4	7.2	3.9
Principal source of personal income was government pension, allowance or benefits	%	3.0	6.3	3.1
Principal source of personal income was CDEP (e)	%	9.9	16.5	9.4
Household members could not raise \$2000 in an emergency (e)	%	3.0	4.7	3.0
Household members ran out of money in the last 2 weeks for basic living expenses (e)	%	7.2	8.6	5.9
Not able to get support in time of crisis (e)	%	8.2	12.9	7.3
Living in an overcrowded household	%	5.3	8.6	4.9
Living in a home not owned by someone in the household	%	1.7	2.9	1.7
High risk alcohol consumption in last 12 months (e)	%	10.3	12.2	8.2
Risky/high risk alcohol consumption in last 12 months (e)	%	6.3	6.7	4.8
Current daily smoker	%	2.4	3.6	2.2
Has high/very high psychological distress (K5)	%	4.2	4.5	3.3
Has fair/poor self-assessed health status	%	4.7	6.5	3.8
Has a profound or severe core activity limitation (f)	%	10.8	14.0	8.6
Has been arrested in the last 5 years (e)	%	5.9	7.9	4.9
Has been incarcerated (e)	%	7.8	10.7	6.9
Removal — self or a relative has been taken away from family (e)	%	3.2	3.5	2.6
Has difficulty communicating with English speakers (e), (g)	%	15.0	25.1	14.7
Indigenous people aged 20–64 years	%	–	–	–

Table 13A.1.2

**Associations between different indicators of disadvantage, Indigenous people aged 20–64 years, without a non-school qualification, 2008 (relative standard errors) (a), (b)**

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CDEP=Community Development Employment Projects.

- (a) Estimates with a relative standard error of between 25 per cent to 50 per cent should be used with caution.
- (b) Includes a small number of people aged 20–24 years who were still at school.
- (c) Includes people who never attended school.
- (d) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (e) There is no equivalent indicator for non-Indigenous people.
- (f) Data are for people in non-remote areas.
- (g) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

– Nil or rounded to zero.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.3

Table 13A.1.3 **Associations between different indicators of disadvantage, non-Indigenous people aged 20–64 years, without a non-school qualification, 2008 (a), (b)**

	<i>Unit</i>	<i>Without a non-school qualification</i>	<i>With a non-school qualification</i>	<i>All people</i>
<b>Selected indicators of disadvantage</b>				
Highest year of school completed was year 9 or below (c)	%	18.6	4.3	10.0
Unemployed	%	2.8	2.1	2.4
Long term unemployed	%	0.8	0.3	0.5
Not in the labour force	%	27.6	14.2	19.5
In the lowest quintile of equivalised gross weekly household income (d), (e)	%	16.7	7.5	11.1
In the lowest quintile of personal gross weekly income (d), (f)	%	23.9	13.0	17.3
Principal source of personal income was government pension, allowance or benefits	%	21.6	8.8	13.9
Living in an overcrowded household	%	5.8	4.2	4.8
Living in a home not owned by someone in the household	%	38.5	35.8	36.9
Current daily smoker		26.0	17.9	21.1
Has high/very high psychological distress (K5)	%	14.7	11.5	12.8
Has fair/poor self-assessed health status	%	16.3	9.9	12.5
Has a profound or severe core activity limitation (g)	%	5.0	2.6	3.5
<b>Non-Indigenous people aged 20–64 years</b>	<b>'000</b>	<b>4 931.0</b>	<b>7 484.3</b>	<b>12 415.2</b>

(a) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

(b) Includes a small number of people aged 20–24 years who were still at school.

(c) Includes people who never attended school.

(d) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(e) Proportion based on people in households in which income was stated (4 115 700, 6 458 700 and 10 574 400).

(f) Proportion based on people for whom income was stated (4 582 900, 6 988 300 and 11 571 200).

(g) Data are for people in non-remote areas. Proportions are therefore calculated on non-Indigenous people aged 20–64 years in non-remote areas (4 866 800, 7 408 800 and 12 275 700).

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.

Table 13A.1.4

Table 13A.1.4

**Associations between different indicators of disadvantage, non-Indigenous people aged 20–64 years, without a non-school qualification, 2008 (relative standard errors) (a), (b)**

	<i>Unit</i>	<i>Without a non-school qualification</i>	<i>With a non-school qualification</i>	<i>All people</i>
<b>Selected indicators of disadvantage</b>				
Highest year of school completed was year 9 or below (c)	%	3.5	8.0	3.6
Unemployed	%	11.8	11.4	8.1
Long term unemployed	%	21.9	23.9	18.4
Not in the labour force	%	3.4	3.6	2.7
In the lowest quintile of equivalised gross weekly household income (d)	%	4.3	5.3	3.5
In the lowest quintile of personal gross weekly income (d)	%	3.5	4.4	2.6
Principal source of personal income was government pension, allowance or benefits	%	4.5	5.0	3.5
Living in an overcrowded household	%	10.7	10.3	8.2
Living in a home not owned by someone in the household	%	2.4	2.0	1.6
Current daily smoker		3.1	3.6	2.5
Has high/very high psychological distress (K5)	%	5.4	4.1	3.2
Has fair/poor self-assessed health status	%	4.6	4.8	3.6
Has a profound or severe core activity limitation (e)	%	9.1	10.4	6.8
Non-Indigenous people aged 20-64 years	%	–	–	–

(a) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

(b) Includes a small number of people aged 20–24 years who were still at school.

(c) Includes people who never attended school.

(d) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(e) Data are for people in non-remote areas.

– Nil or rounded to zero.

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.

Table 13A.1.5

**Table 13A.1.5 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, unemployed, long term unemployed or not in the labour force, 2008**

	Unit	Unemployed			Not in the labour force	All people (a)
		Long term (unemployed for 12 months or more)	Less than 12 months	Total		
<b>Selected indicators of disadvantage</b>						
Highest year of school completed was year 9 or below (b)	%	47.2	30.1	34.1	49.3	33.1
Without a non-school qualification (c)	%	72.8	69.6	70.4	82.1	67.1
In the lowest quintile of equivalised gross weekly household income (d), (e)	%	84.3	69.1	72.5	76.5	48.7
In the lowest quintile of personal gross weekly income (d), (f)	%	66.1	72.5	71.0	50.7	32.8
Principal source of personal income was government pension, allowance or benefits	%	86.4	69.7	73.7	77.7	38.6
Principal source of personal income was government pension, allowance or benefits (18–64 years) (g)	%	88.5	79.1	81.6	86.8	40.4
Principal source of personal income was CDEP (h)	%	–	–	–	–	4.8
Household members could not raise \$2000 in an emergency (h)	%	65.6	57.9	59.7	62.6	47.6
Household members ran out of money in the last 2 weeks for basic living expenses (h)	%	20.1	21.5	21.2	17.5	13.7
Not able to get support in time of crisis (h)	%	17.4	14.2	15.0	15.3	11.4
Living in an overcrowded household (i)	%	28.3	26.9	27.2	33.0	25.7
Living in a home not owned by someone in the household	%	92.6	76.5	80.3	81.7	70.6
High risk alcohol consumption in last 12 months (h)	%	6.3	6.1	6.2	6.7	6.5
Risky/high risk alcohol consumption in last 12 months (h)	%	15.4	19.3	18.4	15.7	17.8
Current daily smoker	%	65.3	56.2	58.4	48.9	45.8
Has high/very high psychological distress (K5)	%	43.2	44.0	43.8	37.2	31.1



Table 13A.1.5

**Table 13A.1.5 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, unemployed, long term unemployed or not in the labour force, 2008**

	Unit	Unemployed			Not in the labour force	All people (a)
		Long term (unemployed for 12 months or more)	Less than 12 months	Total		
Has high/very high psychological distress (K5) - 18–64 years (g)	%	45.6	46.0	45.9	40.5	32.2
Has fair/poor self-assessed health status	%	24.5	19.5	20.7	30.0	20.8
Has a profound or severe core activity limitation (j)	%	5.7	6.0	5.9	11.8	7.3
Has been arrested in the last 5 years (h)	%	35.3	29.2	30.7	15.0	15.7
Has been incarcerated (h)	%	20.4	11.1	13.3	10.2	9.1
Removal — self or a relative has been taken away from family (h)	%	47.8	41.4	42.9	39.2	40.2
Has difficulty communicating with English speakers (h), (k)	%	2.3	2.1	2.1	4.5	3.4
<b>Indigenous people aged 15–64 years</b>	<b>'000</b>	<b>7.9</b>	<b>25.5</b>	<b>33.4</b>	<b>110.3</b>	<b>311.1</b>

(a) Includes employed people.

(b) Includes people who never attended school.

(c) Includes a small number of people aged 15–24 years who were still at school.

(d) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(e) Proportion based on people in households in which income was stated (6 100, 20 700, 26 900, 89 100 and 248 400).

(f) Proportion based on people for whom income was stated (7 500, 24 700, 32 300, 105 700 and 296 400).

(g) Proportion calculated on Indigenous people aged 18–64 years (7 400, 20 600, 27 900, 91 700 and 275 000).

(h) There is no equivalent indicator for non-Indigenous people.

(i) Proportion based on people for whom housing utilisation could be determined (7 900, 25 200, 33 100, 109 700 and 309 200).

(j) Data are for people in non-remote areas. Proportions are therefore calculated on Indigenous people aged 15–64 years in non-remote areas (6 500, 19 900, 26 400, 80 800 and 234 500).

(k) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

Table 13A.1.5

**Table 13A.1.5 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, unemployed, long term unemployed or not in the labour force, 2008**

Unit	Unemployed		Total	Not in the labour force	All people (a)
	Long term (unemployed for 12 months or more)	Less than 12 months			

– Nil or rounded to zero.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.6

**Table 13A.1.6 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, unemployed, long term unemployed or not in the labour force, 2008 (relative standard errors) (a)**

Unit	Unemployed			Not in the labour force	All people (b)
	Long term (unemployed for 12 months or more)	Less than 12 months	Total unemployed		
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (c)	%	11.1	9.0	7.2	3.1
Without a non-school qualification (d)	%	7.1	4.3	3.6	1.5
In the lowest quintile of equivalised gross weekly household income (e)	%	6.2	5.0	4.2	2.2
In the lowest quintile of personal gross weekly income (e)	%	8.0	4.0	3.4	2.9
Principal source of personal income was government pension, allowance or benefits	%	5.0	3.8	3.0	1.9
Principal source of personal income was government pension, allowance or benefits (18–64 years)	%	4.8	3.6	2.7	1.3
Principal source of personal income was CDEP (f)	%	–	–	–	–
Household members could not raise \$2000 in an emergency (f)	%	7.9	5.4	4.4	3.1
Household members ran out of money in the last week for basic living expenses (f)	%	19.7	11.3	10.1	7.5
Not able to get support in time of crisis (f)	%	22.5	17.5	14.6	9.1
Living in an overcrowded household	%	17.3	10.7	9.3	5.6
Living in a home not owned by someone in the household	%	2.9	3.9	3.0	1.9
High risk alcohol consumption in last 12 months (f)	%	39.4	21.5	19.5	11.4
Risky/high risk alcohol consumption in last 12 months (f)	%	23.5	13.1	11.7	7.4
Current daily smoker	%	8.5	6.0	4.7	3.2
Has high/very high psychological distress (K5)	%	11.5	6.4	5.4	4.0
Has high/very high psychological distress (K5) — 18–64 years	%	11.2	7.2	5.7	4.0

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Table 13A.1.6

**Table 13A.1.6 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, unemployed, long term unemployed or not in the labour force, 2008 (relative standard errors) (a)**

	Unit	Unemployed			Total unemployed	Not in the labour force	All people (b)
		Long term (unemployed for 12 months or more)	Less than 12 months				
Has fair/poor self-assessed health status	%	19.4	13.0	10.7	4.5	3.7	
Has a profound or severe core activity limitation(g)	%	49.4	37.9	31.3	9.0	7.6	
Has been arrested in the last 5 years (f)	%	13.0	11.3	8.7	6.9	4.7	
Has been incarcerated (f)	%	24.3	16.0	13.8	11.3	6.8	
Removal — self or a relative has been taken away from family (f)	%	10.8	7.6	6.5	4.5	2.7	
Has difficulty communicating with English speakers (f), (h)	%	63.8	37.2	37.3	16.5	13.9	
Indigenous people aged 15–64 years	%	—	—	—	—	—	

CDEP=Community Development Employment Projects.

- (a) Estimates with a relative standard error (RSE) of between 25 per cent to 50 per cent should be used with caution. Estimates with a RSE greater than 50 per cent are considered too unreliable for general use.
- (b) Includes employed people.
- (c) Includes people who never attended school.
- (d) Includes a small number of people aged 15–24 years who were still at school.
- (e) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (f) There is no equivalent indicator for non-Indigenous people.
- (g) Data are for people in non-remote areas.
- (h) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.
- Nil or rounded to zero.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.7

**Table 13A.1.7 Associations between different indicators of disadvantage, non-Indigenous people aged 15–64 years, unemployed, long term unemployment or not in the labour force, 2008 (a)**

	Unit	Unemployed			Not in the labour force	All people (b)
		Long term (unemployed for 12 months or more)	Less than 12 months	Total unemployed		
<b>Selected indicators of disadvantage</b>						
Highest year of school completed was year 9 or below (c)	%	30.0	15.8	18.4	24.1	11.1
Without a non-school qualification (d)	%	62.4	54.3	56.0	63.0	44.7
In the lowest quintile of equivalised gross weekly household income (e), (f)	%	49.9	28.1	32.6	31.9	11.1
In the lowest quintile of personal gross weekly income (e), (g)	%	71.5	74.1	73.5	56.6	18.3
Principal source of personal income was government pension, allowance or benefits (h)	%	80.8	47.4	54.3	51.4	13.8
Living in an overcrowded household	%	6.3	9.4	8.8	7.9	5.5
Living in a home not owned by someone in the household	%	59.1	63.2	62.7	39.9	37.7
Current daily smoker	%	35.5	28.2	29.7	20.9	20.0
Has high/very high psychological distress (K5) (h)	%	28.4	21.6	22.8	21.6	12.8
Has fair/poor self-assessed health status	%	35.7	13.4	17.4	23.4	11.9
Has a profound or severe core activity limitation (i)	%	7.4	3.0	3.8	8.9	3.4
<b>Non-Indigenous people aged 15–64 years</b>	<b>'000</b>	<b>71.5</b>	<b>322.0</b>	<b>395.5</b>	<b>2 910.6</b>	<b>13 781.3</b>

(a) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

(b) Includes employed people.

**Table 13A.1.7 Associations between different indicators of disadvantage, non-Indigenous people aged 15–64 years, unemployed, long term unemployment or not in the labour force, 2008 (a)**

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- (c) Includes people who never attended school.
  - (d) Includes a small number of people aged 15–24 years who were still at school.
  - (e) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
  - (f) Proportion based on people in households in which income was stated (61 400, 266 400, 329 700, 2 451 100 and 11 639 900).
  - (g) Proportion based on people for whom income was stated (66 200, 259 800, 328 000, 2 371 400 and 12 106 300).
  - (h) Data for non-Indigenous people was only collected from the adult population. Proportions are therefore calculated on non-Indigenous people aged 18–64 years (67 500, 269 800, 339 200, 2 517 500 and 12 960 900).
  - (i) Data are for people in non-remote areas. Proportions are therefore calculated on non-Indigenous people aged 15–64 years in non-remote areas (70 500, 318 500, 391 000, 2 876 800 and 13 638 100).

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.

Table 13A.1.8

**Table 13A.1.8 Associations between different indicators of disadvantage, non-Indigenous people aged 15–64 years, unemployed, long term unemployment or not in the labour force, 2008 (relative standard errors) (a), (b)**

	Unit	Unemployed			Not in the labour force
		Long term (unemployed for 12 months or more)	Less than 12 months	Total unemployed	
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (d)	%	21.3	16.8	12.1	4.9
Without a non-school qualification (e)	%	10.3	7.1	6.1	1.6
In the lowest quintile of equivalised gross weekly household income (f)	%	17.6	13.2	10.9	3.8
In the lowest quintile of personal gross weekly income (f)	%	11.8	5.6	4.9	2.1
Principal source of personal income was government pension, allowance or benefits (g)	%	9.1	10.3	8.3	2.9
Living in an overcrowded household	%	62.3	30.8	27.7	12.9
Living in a home not owned by someone in the household	%	13.8	5.9	5.4	3.1
Current daily smoker	%	22.0	12.2	11.0	4.7
Has high/very high psychological distress (K5) (g)	%	32.8	18.0	16.5	5.3
Has fair/poor self-assessed health status	%	25.3	20.3	17.8	5.3
Has a profound or severe core activity limitation (h)	%	63.7	38.8	32.4	9.8
Non-Indigenous people aged 15–64 years	%	–	–	–	–

(a) Estimates with a relative standard error (RSE) of between 25 per cent to 50 per cent should be used with caution. Estimates with a RSE greater than 50 per cent are considered too unreliable for general use.

**Table 13A.1.8 Associations between different indicators of disadvantage, non-Indigenous people aged 15–64 years, unemployed, long term unemployment or not in the labour force, 2008 (relative standard errors) (a), (b)**

- (b) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.
- (c) Includes employed people.
- (d) Includes people who never attended school.
- (e) Includes a small number of people aged 15–24 years who were still at school.
- (f) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (g) Data for non-Indigenous people was only collected from the adult population.
- (h) Data are for people in non-remote areas.
- Nil or rounded to zero.

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.



Table 13A.1.9

**Table 13A.1.9 Associations between different indicators of disadvantage, Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (a)**

	Unit	Lowest quintile	2nd–4th quintiles	Highest quintile	All people (b)
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (c)	%	42.7	32.2	18.6	33.7
Without a non-school qualification (d)	%	74.8	63.3	37.2	64.5
Unemployed	%	25.4	4.9	np	9.6
Long term unemployed	%	7.1	1.5	np	2.8
Not in the labour force	%	57.7	32.7	1.3	36.4
In the lowest quintile of equivalised gross weekly household income (a), (e)	%	75.0	45.5	0.7	49.2
Principal source of personal income was government pension, allowance or benefits	%	72.1	39.6	1.5	42.6
Principal source of personal income was CDEP (f)	%	6.0	5.3	np	4.8
Household members could not raise \$2000 in an emergency (f)	%	57.8	46.9	17.4	47.2
Household members ran out of money in the last week for basic living expenses (f)	%	18.2	12.7	4.6	13.3
Not able to get support in time of crisis (f)	%	14.6	9.5	9.1	10.8
Living in an overcrowded household (g)	%	31.7	23.0	16.0	24.8
Living in a home not owned by someone in the household	%	76.0	71.7	47.2	70.4
High risk alcohol consumption in last 12 months (f)	%	8.0	6.6	7.7	7.0
Risky/high risk alcohol consumption in last 12 months (f)	%	20.8	18.3	19.8	18.9
Current daily smoker	%	52.1	47.4	39.5	47.7
Has high/very high psychological distress (K5)	%	37.2	31.3	20.5	31.7
Has fair/poor self-assessed health status	%	27.2	25.2	11.0	24.4
Has a profound or severe core activity limitation (h)	%	9.2	9.1	3.0	8.6

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Table 13A.1.9

**Table 13A.1.9 Associations between different indicators of disadvantage, Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (a)**

	<i>Unit</i>	<i>Lowest quintile</i>	<i>2nd–4th quintiles</i>	<i>Highest quintile</i>	<i>All people (b)</i>
Has been arrested in the last 5 years (e)	%	23.2	13.9	11.0	15.8
Has been incarcerated (f)	%	15.0	8.7	7.5	10.1
Removal — self or a relative has been taken away from family (f)	%	37.4	42.9	53.1	42.1
Has difficulty communicating with English speakers (f), (i)	%	6.7	2.9	1.1	3.8
<b>Indigenous people aged 18 years and over</b>	<b>'000</b>	<b>69.8</b>	<b>184.4</b>	<b>21.6</b>	<b>290.9</b>

CDEP=Community Development Employment Projects.

(a) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(b) Includes people who did not report their personal income.

(c) Includes people who never attended school.

(d) Includes a small number of people aged 18–24 years who were still at school.

(e) Proportion based on people in households in which income was stated (58 000, 154 100, 19 400 and 231 400).

(f) There is no equivalent indicator for non-Indigenous people.

(i) Proportion based on people for whom housing utilisation could be determined (69 600, 183 000, 21 500 and 289 200).

(h) Data are for people in non-remote areas. Proportions are therefore calculated on Indigenous people aged 18 years and over in non-remote areas (47 100, 139 800, 17 800 and 215 800).

(i) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

**np** Not published.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.10

**Table 13A.1.10 Associations between different indicators of disadvantage, Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (relative standard errors) (a), (b)**

	Unit	Lowest quintile	2nd–4th quintiles	Highest quintile	All people (c)
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (d)	%	4.4	3.4	17.0	2.7
Without a non-school qualification (e)	%	2.1	1.9	11.0	1.6
Unemployed	%	6.3	10.1	np	6.2
Long term unemployed	%	13.9	17.6	np	11.6
Not in the labour force	%	3.2	3.7	47.3	2.5
In the lowest quintile of equivalised gross weekly household income (b)	%	2.5	3.4	65.3	3.0
Principal source of personal income was government pension, allowance or benefits	%	2.2	3.5	45.1	2.8
Principal source of personal income was CDEP (f)	%	15.0	10.5	np	8.8
Household members could not raise \$2000 in an emergency (f)	%	3.4	3.2	17.6	2.8
Household members ran out of money in the last week for basic living expenses (f)	%	8.1	7.0	27.0	5.7
Not able to get support in time of crisis (f)	%	9.4	8.2	41.2	6.8
Living in an overcrowded household	%	6.2	5.3	20.8	4.6
Living in a home not owned by someone in the household	%	2.4	1.9	9.1	1.7
High risk alcohol consumption in last 12 months (f)	%	12.6	10.4	47.9	8.6
Risky/high risk alcohol consumption in last 12 months (f)	%	7.9	5.6	17.9	4.7
Current daily smoker	%	3.7	2.6	10.9	2.1
Has high/very high psychological distress (K5)	%	4.5	4.0	13.5	3.1
Has fair/poor self-assessed health status	%	6.7	3.9	16.4	3.4
Has a profound or severe core activity limitation (g)	%	13.9	9.4	36.7	7.5
Has been arrested in the last 5 years (f)	%	7.6	6.2	20.0	4.7

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Table 13A.1.10

**Table 13A.1.10 Associations between different indicators of disadvantage, Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (relative standard errors) (a), (b)**

	Unit	Lowest quintile	2nd–4th quintiles	Highest quintile	All people (c)
Has been incarcerated (f)	%	9.9	7.3	28.4	6.7
Removal — self or a relative has been taken away from family (f)	%	5.3	2.9	6.7	2.5
Has difficulty communicating with English speakers (f), (h)	%	13.3	17.8	52.1	13.3
Indigenous people aged 18 years and over	%	—	—	—	—

CDEP=Community Development Employment Projects.

(a) Estimates with a relative standard error (RSE) of between 25 per cent to 50 per cent should be used with caution. Estimates with a RSE greater than 50 per cent are considered too unreliable for general use.

(b) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(c) Includes people who did not report their personal income.

(d) Includes people who never attended school.

(e) Includes a small number of people aged 18–24 years who were still at school.

(f) There is no equivalent indicator for non-Indigenous people.

(g) Data are for people in non-remote areas.

(h) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

— Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.11

**Table 13A.1.11 Associations between different indicators of disadvantage, non-Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (a), (b)**

	Unit	Lowest quintile	2nd–4th quintiles	Highest quintile	All people (c)
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (d)	%	25.8	16.8	3.6	15.9
Without a non-school qualification (e)	%	60.7	47.8	21.1	45.1
Unemployed	%	8.3	1.0	np	2.2
Long term unemployed	%	1.6	0.2	–	0.4
Not in the labour force	%	69.2	27.7	4.4	31.1
In the lowest quintile of equivalised gross weekly household income (b), (f)	%	45.0	12.9	np	16.3
Principal source of personal income was government pension, allowance or benefits	%	51.0	22.4	0.1	22.1
Living in an overcrowded household	%	6.4	5.0	1.8	4.7
Living in a home not owned by someone in the household	%	31.7	40.5	22.8	34.8
Current daily smoker	%	16.2	20.6	15.5	18.6
Has high/very high psychological distress (K5)	%	15.7	13.0	6.8	12.2
Has fair/poor self-assessed health status	%	24.8	15.1	7.4	15.5
Has a profound or severe core activity limitation (g)	%	8.7	4.7	1.5	4.8
<b>Non-Indigenous people aged 18 years and over</b>	<b>'000</b>	<b>2 891.1</b>	<b>8 694.4</b>	<b>2 929.4</b>	<b>15 553.8</b>

(a) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

(b) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(c) Includes people who did not state or know their personal income.

**Table 13A.1.11 Associations between different indicators of disadvantage, non-Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (a), (b)**

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- (d) Includes people who never attended school.
- (e) Includes a small number of people aged 18–24 years who were still at school.
- (f) Proportion based on people in households in which income was stated (2 522 900, 7 912 200, 2 811 500 and 13 246 600).
- (g) Data are for people in non-remote areas. Proportions are therefore calculated on non-Indigenous people aged 18 years and over in non-remote areas (2 858 800, 8 611 700, 2 897 100 and 15 398 200).  
 – Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.

Table 13A.1.12

**Table 13A.1.12 Associations between different indicators of disadvantage, non-Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (relative standard errors) (a), (b), (c)**

	Unit	Lowest quintile	2nd–4th quintiles	Highest quintile	All people (d)
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (e)	%	4.1	3.1	10.7	2.4
Without a non-school qualification (f)	%	2.0	1.3	4.5	1.1
Unemployed	%	10.0	14.3	np	7.9
Long term unemployed	%	20.5	33.6	-	17.4
Not in the labour force	%	2.0	1.7	12.6	1.5
In the lowest quintile of equivalised gross weekly household income (c)	%	2.8	3.5	np	2.3
Principal source of personal income was government pension, allowance or benefits	%	2.6	2.2	64.6	2.0
Living in an overcrowded household	%	13.2	9.4	20.4	7.9
Living in a home not owned by someone in the household	%	4.4	1.8	5.1	1.6
Current daily smoker	%	5.3	2.7	6.1	2.4
Has high/very high psychological distress (K5)	%	5.9	4.0	9.1	3.0
Has fair/poor self-assessed health status	%	5.1	2.6	7.6	2.4
Has a profound or severe core activity limitation (g)	%	9.4	6.0	19.2	5.3
Non-Indigenous people aged 18 years and over	%	-	-	-	-

(a) Estimates with a relative standard error (RSE) of between 25 per cent to 50 per cent should be used with caution. Estimates with a RSE greater than 50 per cent are considered too unreliable for general use.

(b) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

**Table 13A.1.12 Associations between different indicators of disadvantage, non-Indigenous people aged 18 years and over, personal gross weekly income (quintiles), 2008 (relative standard errors) (a), (b), (c)**

(c) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(d) Includes people who did not state or know their personal income.

(e) Includes people who never attended school.

(f) Includes a small number of people aged 18–24 years who were still at school.

(g) Data are for people in non-remote areas.

– Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.



Table 13A.1.13

**Table 13A.1.13 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, principal source of personal income, 2008**

	Unit	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income	All people (b)
		Government pension, allowance or benefits	CDEP (a)		
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below (c)	%	43.2	34.6	42.2	20.1
Without a non-school qualification (d)	%	76.8	82.7	77.5	52.6
Unemployed	%	20.5	–	18.2	0.2
Long term unemployed	%	6.2	–	5.5	–
Not in the labour force	%	71.5	np	63.5	0.7
In the lowest quintile of equivalised gross weekly household income (e), (f)	%	79.7	70.1	78.8	17.4
In the lowest quintile of personal gross weekly income (e), (g)	%	45.7	34.0	44.4	7.7
Household members could not raise \$2000 in an emergency (a)	%	65.8	70.3	66.3	30.3
Household members ran out of money in the last week for basic living expenses (a)	%	19.6	11.7	18.7	8.7
Not able to get support in time of crisis (a)	%	14.6	11.6	14.3	7.6
Living in an overcrowded household (h)	%	31.6	51.5	33.8	17.4
Living in a home not owned by someone in the household	%	84.2	97.5	85.7	57.6
High risk alcohol consumption in last 12 months (a)	%	7.6	7.9	7.6	6.4
Risky/high risk alcohol consumption in last 12 months (a)	%	18.6	20.2	18.7	19.5
Current daily smoker	%	56.7	65.3	57.6	38.4
Has high/very high psychological distress (K5) (i)	%	41.5	27.7	40.0	23.1
Has fair/poor self-assessed health status	%	31.8	12.0	29.6	13.9
Has a profound or severe core activity limitation (j)	%	11.6	np	11.5	3.7
Has been arrested in the last 5 years (a)	%	20.8	32.4	22.1	10.5

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Table 13A.1.13

Table 13A.1.13 **Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, principal source of personal income, 2008**

	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income	All people (b)		
	Unit	CDEP (a)			Total	
Has been incarcerated (a)	%	12.1	16.8	12.6	6.4	9.1
Removal — self or a relative has been taken away from family (a)	%	41.9	27.5	40.3	42.2	40.2
Has difficulty communicating with English speakers (a), (k)	%	3.9	15.1	5.1	1.7	3.4
<b>Indigenous people aged 15–64 years</b>	<b>'000</b>	<b>120.0</b>	<b>15.0</b>	<b>135.0</b>	<b>132.1</b>	<b>311.1</b>

CDEP=Community Development Employment Projects.

(a) There is no equivalent indicator for non-Indigenous people.

(b) Includes people whose principal source of income was: property (rental income; other sources; no sources of income; and not stated).

(c) Includes people who never attended school.

(d) Includes a small number of people aged 15–24 years who were still at school.

(e) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(f) Proportion based on people in households in which income was stated (101 800, 11 100, 112 900, 111 500 and 248 400).

(g) Proportion based on people for whom income was stated (119 900, 14 900, 134 800, 132 000 and 296 400).

(h) Proportion based on people for whom housing utilisation could be determined (119 100, 14 800, 133 900, 131 400 and 309 200).

(i) Proportion calculated on Indigenous people aged 18–64 years (111 000, 14 000, 124 900, 122 500 and 275 000).

(l) Data are for people in non-remote areas. Proportions are therefore calculated on Indigenous people aged 15–64 years in non-remote areas (90,700, 2,300, 93,000, 108,100 and 234,500).

(k) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

– Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.14

**Table 13A.1.14 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, principal source of personal income, 2008 (relative standard errors) (a)**

	Unit	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income (c)		
		Government pension, allowance or benefits	CDEP (b)		Total	
<b>Selected indicators of disadvantage</b>						
Highest year of school completed was year 9 or below (d)	%	3.1	10.3	3.0	5.9	2.9
Without a non-school qualification (e)	%	1.7	2.9	1.5	3.1	1.4
Unemployed	%	5.5	–	5.6	64.0	5.6
Long term unemployed	%	11.5	–	11.5	np	11.6
Not in the labour force	%	1.7	np	2.0	27.5	2.8
In the lowest quintile of equivalised gross weekly household income (f)	%	1.7	6.0	1.7	8.3	3.0
In the lowest quintile of personal gross weekly income (f)	%	2.8	13.2	3.0	10.4	2.6
Household members could not raise \$2000 in an emergency (b)	%	2.5	5.0	2.3	5.1	2.9
Household members ran out of money in the last week for basic living expenses (b)	%	6.6	17.0	6.3	11.4	5.5
Not able to get support in time of crisis (b)	%	7.7	16.8	7.3	13.5	7.6
Living in an overcrowded household	%	5.7	8.5	4.8	8.1	4.7
Living in a home not owned by someone in the household	%	1.5	1.1	1.3	3.2	1.8
High risk alcohol consumption in last 12 months (b)	%	9.7	23.2	9.1	14.1	8.2
Risky/high risk alcohol consumption in last 12 months (b)	%	6.2	14.8	6.0	6.0	4.6
Current daily smoker	%	2.6	5.2	2.4	4.0	2.2
Has high/very high psychological distress (K5)	%	3.4	14.3	3.3	5.0	3.1
Has fair/poor self-assessed health status	%	4.4	16.1	4.2	7.5	3.7
Has a profound or severe core activity limitation (g)	%	9.1	np	8.9	19.3	7.6

Table 13A.1.14

**Table 13A.1.14 Associations between different indicators of disadvantage, Indigenous people aged 15–64 years, principal source of personal income, 2008 (relative standard errors) (a)**

	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income (c)			
	Unit	CDEP (b)		Total		
Has been arrested in the last 5 years (b)	%	6.1	12.1	5.5	8.1	4.7
Has been incarcerated (b)	%	8.8	16.2	8.0	10.7	6.8
Removal — self or a relative has been taken away from family (b)	%	3.8	13.6	3.6	3.3	2.7
Has difficulty communicating with English speakers (b), (h)	%	15.6	15.2	12.1	28.8	13.9
Indigenous people aged 15–64 years	%	—	—	—	—	—

CDEP=Community Development Employment Projects.

- (a) Estimates with a relative standard error (RSE) of between 25 per cent to 50 per cent should be used with caution. Estimates with a RSE greater than 50 per cent are considered too unreliable for general use.
- (b) There is no equivalent indicator for non-Indigenous people.
- (c) Includes people whose principal source of income was: property (rental income; other sources; no sources of income; and not stated).
- (d) Includes people who never attended school.
- (e) Includes a small number of people aged 15–24 years who were still at school.
- (f) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (g) Data are for people in non-remote areas.
- (h) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

— Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.15

**Table 13A.1.15 Associations between different indicators of disadvantage, Indigenous people aged 18–64 years, principal source of personal income, 2008**

	Unit	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income	All people (b)
		Government pension, allowance or benefits	CDEP (a)		
<b>Selected indicators of disadvantage</b>					
Highest year of school completed was year 9 or below(c)	%	43.6	34.6	42.6	31.0
Without a non-school qualification (d)	%	75.8	82.6	76.5	63.6
Unemployed	%	20.5	–	18.2	10.2
Long term unemployed	%	6.5	–	5.8	3.0
Not in the labour force	%	71.7	np	63.7	33.4
In the lowest quintile of equivalised gross weekly household income (e), (f)	%	80.2	70.5	79.2	47.6
In the lowest quintile of personal gross weekly income (e), (g)	%	41.9	29.8	40.6	25.0
Household members could not raise \$2000 in an emergency (a)	%	65.5	70.7	66.1	47.4
Household members ran out of money in the last week for basic living expenses (a)	%	19.5	12.4	18.7	13.7
Not able to get support in time of crisis (a)	%	14.6	11.7	14.3	11.0
Living in an overcrowded household (h)	%	31.0	53.7	33.5	25.5
Living in a home not owned by someone in the household	%	84.5	97.6	86.0	71.0
High risk alcohol consumption in last 12 months (a)	%	8.1	8.5	8.1	7.2
Risky/high risk alcohol consumption in last 12 months (a)	%	19.5	19.9	19.6	19.7
Current daily smoker	%	58.9	64.2	59.5	49.3
Has high/very high psychological distress (K5)	%	43.0	26.9	41.2	32.2
Has fair/poor self-assessed health status	%	33.9	12.8	31.5	22.8
Has a profound or severe core activity limitation (i)	%	12.4	–	12.2	7.8

Table 13A.1.15

**Table 13A.1.15 Associations between different indicators of disadvantage, Indigenous people aged 18–64 years, principal source of personal income, 2008**

	Unit	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income (b)	All people (b)
		Government pension, allowance or benefits	CDEP (a)		
Has been arrested in the last 5 years (a)	%	21.7	30.1	22.7	10.8
Has been incarcerated (a)	%	13.0	16.6	13.4	6.9
Removal — self or a relative has been taken away from family (a)	%	42.6	27.2	40.9	43.9
Has difficulty communicating with English speakers (a), (j)	%	4.0	16.2	5.4	1.8
<b>Indigenous people aged 18–64 years</b>	<b>'000</b>	<b>111.0</b>	<b>14.0</b>	<b>124.9</b>	<b>122.5</b>

CDEP=Community Development Employment Projects.

- (a) There is no equivalent indicator for non-Indigenous people.
- (b) Includes people whose principal source of income was: property (rental income; other sources; no sources of income; and not stated.
- (c) Includes people who never attended school.
- (d) Includes a small number of people aged 18–24 years who were still at school.
- (e) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (f) Proportion based on people in households in which income was stated (94 000, 10 300, 104 300, 103 700 and 218 800).
- (g) Proportion based on people for whom income was stated (110 800, 14 000, 124 800, 122 400 and 260 700).
- (h) Proportion based on people for whom housing utilisation could be determined (110 100, 13 800, 124 000, 121 900 and 273 300).
- (i) Data are for people in non-remote areas. Proportions are therefore calculated on Indigenous people aged 18–64 years in non-remote areas (83 000, 1 600, 84 600, 99 400 and 204 700).
- (j) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

– Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.1.16

**Table 13A.1.16 Associations between different indicators of disadvantage, Indigenous people aged 18–64 years, principal source of personal income, 2008 (relative standard errors) (a)**

	Principal source of income was CDEP or government pension, allowance or benefits			Principal source of income was wages, salary or unincorporated business income		
	Unit	Government pension, allowance or benefits	CDEP (b)	Total	Principal source of income was wages, salary or unincorporated business income	
<b>Selected indicators of disadvantage</b>						
Highest year of school completed was year 9 or below (d)	%	3.2	10.4	3.1	6.4	3.1
Without a non-school qualification (e)	%	1.8	2.9	1.6	3.3	1.7
Unemployed	%	5.7	–	5.8	52.3	6.2
Long term unemployed	%	11.4	–	11.4	np	11.6
Not in the labour force	%	1.7	np	2.1	29.0	2.8
In the lowest quintile of equivalised gross weekly household income (f)	%	1.7	5.8	1.7	8.9	3.2
In the lowest quintile of personal gross weekly income (f)	%	3.4	13.6	3.4	15.1	3.5
Household members could not raise \$2000 in an emergency (b)	%	2.6	4.4	2.4	5.2	2.9
Household members ran out of money in the last week for basic living expenses (b)	%	7.0	17.3	6.7	12.4	5.8
Not able to get support in time of crisis (b)	%	7.8	17.3	7.4	14.3	7.0
Living in an overcrowded household	%	5.9	7.7	5.0	8.3	4.7
Living in a home not owned by someone in the household	%	1.5	1.2	1.4	3.2	1.7
High risk alcohol consumption in last 12 months (b)	%	9.9	22.7	9.3	14.4	8.5
Risky/high risk alcohol consumption in last 12 months (b)	%	6.3	14.8	6.2	6.0	4.6
Current daily smoker	%	2.5	5.4	2.3	4.0	2.2
Has high/very high psychological distress (K5)	%	3.3	14.2	3.3	5.3	3.1
Has fair/poor self-assessed health status	%	4.3	16.1	4.2	7.6	3.8
Has a profound or severe core activity limitation (g)	%	9.1	–	9.1	20.5	8.2

Table 13A.1.16 **Associations between different indicators of disadvantage, Indigenous people aged 18–64 years, principal source of personal income, 2008 (relative standard errors) (a)**

	Principal source of income was CDEP or government pension, allowance or benefits		Principal source of income was wages, salary or unincorporated business income	
	Unit	Government pension, allowance or benefits	CDEP (b)	Total
Has been arrested in the last 5 years (b)	%	6.1	12.0	5.5
Has been incarcerated (b)	%	8.8	16.1	7.9
Removal — self or a relative has been taken away from family (b)	%	3.9	14.1	3.7
Has difficulty communicating with English speakers (b), (h)	%	16.0	14.5	12.1
Indigenous people aged 15–64 years	%	—	—	—

(a) Estimates with a relative standard error (RSE) of between 25 per cent to 50 per cent should be used with caution. Estimates with a RSE greater than 50 per cent are considered too unreliable for general use.

(b) There is no equivalent indicator for non-Indigenous people.

(c) Includes people whose principal source of income was: property (rental income); other sources; no sources of income; and not stated.

(d) Includes people who never attended school.

(e) Includes a small number of people aged 18–24 years who were still at school.

(f) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.

(g) Data are for people in non-remote areas.

(h) Includes people who, with assistance from others, were able to communicate effectively with English speakers. This question was only asked of people who spoke an Indigenous language at home.

— Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.



Table 13A.1.17

**Table 13A.1.17 Associations between different indicators of disadvantage, non-Indigenous people aged 18–64 years, principal source of personal income, 2008 (a)**

	<i>Unit</i>	<i>Principal source of personal income was government pension, allowance or benefits</i>	<i>Principal source of income was wages, salary or unincorporated business income</i>	<i>All people (b)</i>
<b>Selected indicators of disadvantage</b>				
Highest year of school completed was year 9 or below (c)	%	24.2	6.5	9.8
Without a non-school qualification (d)	%	62.9	36.4	41.5
Unemployed	%	10.3	-	2.6
Long term unemployed	%	3.0	-	0.5
Not in the labour force	%	72.1	0.7	19.4
In the lowest quintile of equivalised gross weekly household income (e), (f)	%	43.2	3.1	11.1
In the lowest quintile of personal gross weekly income (e), (g)	%	51.6	4.5	18.3
Living in an overcrowded household	%	8.5	4.5	5.3
Living in a home not owned by someone in the household	%	53.9	36.6	38.1
Current daily smoker	%	30.7	19.8	20.8
Has high/very high psychological distress (K5)	%	26.9	10.1	12.8
Has fair/poor self-assessed health status	%	32.4	8.2	12.3
Has a profound or severe core activity limitation (h)	%	13.1	1.5	3.5
<b>Non-Indigenous people aged 18–64 years</b>	<b>'000</b>	<b>1 792.0</b>	<b>8 895.3</b>	<b>12 960.9</b>

(a) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether they had been arrested, whether they had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

**Table 13A.1.17 Associations between different indicators of disadvantage, non-Indigenous people aged 18–64 years, principal source of personal income, 2008 (a)**

- 
- (b) Includes people whose principal source of personal income was: profit or loss from rental property; dividends or interest; child support or maintenance; superannuation or annuity; workers' compensation; other regular source; no source of income and not known/not stated.
- (c) Includes people who never attended school.
- (d) Includes a small number of people aged 18–24 years who were still at school.
- (e) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (f) Proportion based on people in households in which income was stated (1 634 400, 8 110 400, 10 964 600).
- (g) Proportion based on people for whom income was stated (1 792 000, 8 895 300 and 12 106 300).
- (h) Data are for people in non-remote areas. Proportions are therefore calculated on non-Indigenous people aged 18–64 years in non-remote areas (1 766 300, 8 803 200, 12 820 800).

– Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.

Table 13A.1.18

**Table 13A.1.18 Associations between different indicators of disadvantage, non-Indigenous people aged 18–64 years, principal source of personal income, 2008 (relative standard errors) (a), (b)**

	Unit	Principal source of personal income was government pension, allowance or benefits	Principal source of income was wages, salary or unincorporated business income	All people (c)
<b>Selected indicators of disadvantage</b>				
Highest year of school completed was year 9 or below (d)	%	5.3	5.1	3.6
Without a non-school qualification (e)	%	2.5	1.9	1.3
Unemployed	%	8.7	48.7	7.9
Long term unemployed	%	19.8	-	17.5
Not in the labour force	%	1.9	19.4	2.7
In the lowest quintile of equivalised gross weekly household income (f)	%	3.7	7.7	3.4
In the lowest quintile of personal gross weekly income (f)	%	2.7	6.6	2.4
Living in an overcrowded household	%	12.4	10.1	8.1
Living in a home not owned by someone in the household	%	3.1	1.8	1.6
Current daily smoker	%	5.2	3.0	2.5
Has high/very high psychological distress (K5) (g)	%	5.4	4.4	3.2
Has fair/poor self-assessed health status	%	5.2	5.0	3.6
Has a profound or severe core activity limitation (h)	%	8.6	10.1	6.6
Non-Indigenous people aged 18–64 years	%	-	-	-

(a) Estimates with a relative standard error of between 25 per cent to 50 per cent should be used with caution.

(b) The National Health Survey 2007-08 did not ask questions about whether the respondent was a recipient of Community Development Employment Projects income, whether they were able to get support in time of crisis, whether household members were able to raise \$2000 in a week for an emergency, whether household members ran out of money for basic living expenses, whether had been arrested, whether had been incarcerated, removed from family, or had difficulty communicating with English speakers. Therefore it is not possible to provide a non-Indigenous comparison for those indicators. In addition, the questions used to measure the level of risk attached to alcohol consumption in the last 12 months were not comparable between the National Aboriginal and Torres Strait Islander Social Survey 2008 and the National Health Survey 2007-08.

**Table 13A.1.18 Associations between different indicators of disadvantage, non-Indigenous people aged 18–64 years, principal source of personal income, 2008 (relative standard errors) (a), (b)**

- 
- (c) Includes people whose principal source of personal income was: profit or loss from rental property; dividends or interest; child support or maintenance; superannuation or annuity; workers' compensation; other regular source; no source of income and not known/not stated.
- (d) Includes people who never attended school.
- (e) Includes a small number of people aged 18–24 years who were still at school.
- (f) Based on national income quintiles as defined in the 2008 National Aboriginal and Torres Strait Islander Social Survey user guide.
- (g) Data for non-Indigenous people was only collected from the adult population.
- (h) Data are for people in non-remote areas.
- Nil or rounded to zero. **np** Not published.

Source: ABS (unpublished) *National Health Survey 2007-08*, Cat. no. 4364.0.

Table 13A.2.1

Table 13A.2.1 Definition of variables, Indigenous people aged 15 to 64 years, 2008 (a)

<i>Variable name</i>	<i>NATSISS variable</i>	<i>Variable type (b)</i>	<i>Definition</i>
<b>Dependent variable</b>			
<i>Labour market outcome</i>			
Mainstream (non-CDEP) employment	EMPSTAC, WONCDEP	..	Had a job or business for a minimum of one hour in the week prior to the survey interview, excluding CDEP participants
CDEP participation	EMPSTAC, WONCDEP	..	CDEP participant
Unemployed	EMPSTAC	..	Unemployed (not employed, but actively looking for work and able to start work in the four weeks prior to the survey interview)
Not in the labour force	EMPSTAC	..	Not in the labour force (neither employed or unemployed)
<b>Explanatory variables</b>			
<i>Population characteristics</i>			
Age	AGEC	no.	Age in years
Age squared	AGEC	no.	Age in years squared
Not married	SMS	binary	Is not married. This is defined as 'social marital status'. A marriage exists when two people live together as husband and wife, or partners, regardless of whether the marriage is formalised through registration
Dependent children (c)	FAMCOMPH, STHTYC, RELHHL, DEPS14C	no.	Number of dependent children aged 0 -14 (derived from NATSISS variables including household type, family composition of households, relationship in household and number of persons aged 0 to 14 in the household)
Remote	ARIAC	binary	Lives in a remote area as defined by the Australian Standard Geographical Classification
SEIFA	CDDIS	no.	Decile value based on the Socio-economic Index of Relative Disadvantage for the Census collection district of the household (a high number indicates less disadvantage)
Difficulty with English	WDIFFENG	binary	Has difficulty communicating with English speakers
<i>Self assessed health</i>			
Poor general health	SAHQ1	binary	Is in fair or poor health (self assessed)

Table 13A.2.1

Table 13A.2.1 **Definition of variables, Indigenous people aged 15 to 64 years, 2008 (a)**

<i>Variable name</i>	<i>NATSISS variable</i>	<i>Variable type (b)</i>	<i>Definition</i>
Psychological distress	K5GRP	binary	Has high or very high levels of psychological distress (has a Kessler score between 12 and 25; a high score indicates high levels of psychological distress)
Disability	DSTAT	binary	Has a severe or profound core-activity limitation - a specified condition for which the person requires help or supervision in one or more core activities (for example, self-care, mobility or communication)
<i>Education</i>			
Degree or higher	HIGHSCHC, HINSCLC	binary	Has a degree or higher (with or without year 12)
Year 12 plus non-school qualification	HIGHSCHC, HINSCLC	binary	Has completed year 12 and has a diploma or certificate qualification
Year 10 or 11 plus non-school qualification	HIGHSCHC, HINSCLC	binary	Has completed year 10 or 11 and has a diploma or certificate qualification
Year 12, no non-school qualification	HIGHSCHC, HINSCLC	binary	Has completed year 12 and has no non-school qualification
Year 10 or 11, no non-school qualification	HIGHSCHC, HINSCLC	binary	Has completed year 10 or 11 and has no non-school qualification
No year 10 plus non-school qualification	HIGHSCHC, HINSCLC	binary	Did not complete year 10 and has a diploma or certificate qualification
No year 10, no non-school qualification	HIGHSCHC, HINSCLC	binary	Did not complete year 10 and has no non-school qualification
<i>Work experience</i>			
Years in paid employment (d)	DUREMP	no.	Years in paid employment
Years in paid employment squared	DUREMP	no.	Years in paid employment squared
<i>Crime</i>			
Arrested	WARST5Y	binary	Was arrested by police in last five years
Imprisoned	WJAILLT	binary	Has been imprisoned in lifetime. Includes time spent in gaol without being arrested (for example, respondent was placed in gaol for their own safety) and in gaol awaiting a court hearing. Excludes time spent in custody of a 'night patrol', in a police lock up or visiting other people in gaol

(a) For more information on the definitions in this section, see the NATSISS Users' Guide.

Table 13A.2.1 **Definition of variables, Indigenous people aged 15 to 64 years, 2008 (a)**

<i>Variable name</i>	<i>NATSISS variable type (b)</i>	<i>Definition</i>
(b)		For the binary variables, the definition describes a person who has been coded to the value '1'. The excluded category for the education variables is year 10 or 11 and no non-school qualifications. The base person is someone who is married, lives in a non-remote area, has no difficulty communicating in English, is in good health, has no or low levels of psychological distress, does not have a severe or profound disability, has a year 10 or 11 education and no non-school qualifications, has not been arrested in the last five years and has never been imprisoned.
(c)		The number of dependent children has been derived using variables including household type, family composition of households, relationship in household and number of persons aged 0 to 14 in the household. Because it is difficult to determine who are parents in multifamily households from the data, and because the NATSISS variable had an upper bound of five children, the estimate of the number of dependent children is likely to be an underestimate.
(d)		Years of experience in paid employment is total actual time in paid employment. This variable has an upper bound of 25 years.
	..	Not applicable.

Source: ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008, Cat. no. 4714.0.*

Table 13A.2.2

**Table 13A.2.2 Selected descriptive statistics of variables used in the models of labour market outcomes, Indigenous people aged 15 to 64 years, 2008 (a)**

Variable name	Variable type	Men		Women	
		Mean (b)	S.D. (c)	Mean (b)	S.D. (c)
<b>Explanatory variables</b>					
<i>Population characteristics</i>					
Age	no.	37.08	12.90	36.79	12.68
Age squared	no.	1 541.50	1 011.23	1 513.93	998.87
Not married	binary	0.46	0.50	0.52	0.50
Dependent children	no.	0.80	1.27	1.17	1.35
Remote	binary	0.35	0.48	0.34	0.47
SEIFA	no.	3.10	2.45	2.88	2.34
Difficulty with English	binary	0.05	0.21	0.03	0.18
<i>Self assessed health</i>					
Poor general health	binary	0.23	0.42	0.24	0.43
Psychological distress	binary	0.28	0.45	0.37	0.48
Disability	binary	0.07	0.25	0.08	0.28
<i>Education</i>					
Degree or higher	binary	0.04	0.21	0.07	0.25
Year 12 plus non-school qualification	binary	0.07	0.26	0.08	0.28
Year 10 or 11 plus non-school qualification	binary	0.17	0.37	0.15	0.35
Year 12, no non-school qualification	binary	0.10	0.29	0.09	0.29
Year 10 or 11, no non-school qualification	binary	0.28	0.45	0.31	0.46
No year 10 plus non-school qualification	binary	0.07	0.26	0.05	0.23
No year 10, no non-school qualification	binary	0.27	0.44	0.25	0.43
<i>Work experience</i>					
Years in paid employment	no.	14.63	8.91	10.70	8.78



Table 13A.2.2

**Table 13A.2.2 Selected descriptive statistics of variables used in the models of labour market outcomes, Indigenous people aged 15 to 64 years, 2008 (a)**

Variable name	Variable type	Men		Women	
		Mean (b)	S.D. (c)	Mean (b)	S.D. (c)
Years in paid employment squared	no.	293.43	252.06	191.53	228.94
<i>Crime</i>					
Arrested	binary	0.25	0.43	0.11	0.31
Imprisoned	binary	0.20	0.40	0.04	0.19

S.D. = Standard deviation.

(a) See table 13A.2.1 for definitions of variables.

(b) The mean (or average) is the sum of all values for each variable in the sample, divided by the number of observations. For binary variables, the mean indicates the proportion of the sample population in the category that is defined as '1'.

(c) The standard deviation is a measure of the variability of observations for each variable from the mean value. A low standard deviation indicates that observations tend to be close to the mean while a large standard deviation indicates that observations are 'spread out' over a large range of values.

Source: Productivity Commission estimates; ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.2.3

Table 13A.2.3 Marginal effects of explanatory variables in the model of labour market outcomes, Indigenous men, 2008  
(a), (b), (c), (d)

Variable name	Variable type	Employed			CDEP			Unemployed			NILF			Value held at (e)
		M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	
<b>Explanatory variables</b>														
<i>Population characteristics</i>														
Age	no.	- 2.2 ***	0.6	0.1	- 0.0	0.1	1.2 ***	0.4	1.1 ***	0.3	37.1			
Age squared	no.	0.0 **	0.0	0.0	- 0.0	0.0	- 0.0 **	0.0	- 0.0	0.0	1 374.9			
Not married	binary	- 11.1 ***	2.1	0.3	0.1	0.3	2.6 *	1.4	8.3 ***	1.7	-			
Dependent children	no.	- 2.0 ***	0.6	0.1	- 0.2	0.1	1.3 ***	0.4	1.0 ***	0.3	0.8			
Remote	binary	- 14.3 ***	3.3	3.7	18.2 ***	3.7	- 1.9 *	1.0	- 2.0 **	0.8	-			
SEIFA	no.	2.1 ***	0.4	0.3	- 0.7 ***	0.3	- 0.9 ***	0.3	- 0.5 **	0.2	3.1			
Difficulty with English	binary	- 5.1	4.1	0.7	0.9	0.7	- 2.0	1.9	6.3 **	3.2	-			
<i>Self assessed health</i>														
Poor general health	binary	- 17.0 ***	2.8	0.2	- 0.2	0.2	3.4 **	1.7	13.8 ***	2.5	-			
Psychological distress	binary	- 7.1 ***	2.0	0.2	0.1	0.2	4.9 ***	1.6	2.2 **	1.0	-			
Disability	binary	- 11.2 ***	4.0	0.9	0.7	0.9	- 3.0 *	1.6	13.5 ***	3.6	-			
<i>Education</i>														
Degree or higher	binary	5.7 **	2.7	0.4	- 0.8 **	0.4	- 2.6	2.3	- 2.3	1.5	-			
Year 12 plus non-school qualification	binary	6.7 ***	2.1	0.3	- 0.6 *	0.3	- 1.9	1.7	- 4.2 ***	1.1	-			
Year 10 or 11 plus non-school qualification	binary	3.6 **	1.8	0.3	- 0.4	0.3	- 1.0	1.4	- 2.2 **	1.0	-			
Year 12, no non-school qualification	binary	2.1	2.1	0.3	- 0.2	0.3	- 0.7	1.6	- 1.3	1.2	-			
No year 10 plus non-school qualification	binary	2.4	2.4	0.3	- 0.5	0.3	- 0.4	1.9	- 1.5	1.2	-			
No year 10, no non-school qualification	binary	- 4.9 **	2.0	0.2	0.0	0.2	0.5	1.3	4.4 ***	1.4	-			
<i>Work experience</i>														
Years in paid employment	no.	3.8 ***	0.5	0.1	0.1	0.1	- 1.9 ***	0.4	- 2.0 ***	0.4	14.6			
Years in paid employment squared	no.	- 0.1 ***	0.0	0.0	- 0.0	0.0	0.0 ***	0.0	0.0 ***	0.0	214.0			

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Table 13A.2.3

**Table 13A.2.3 Marginal effects of explanatory variables in the model of labour market outcomes, Indigenous men, 2008 (a), (b), (c), (d)**

Variable name	Variable type	Employed		CDEP		Unemployed		NILF		Value held at (e)
		M.E.	S.E.	M.E.	S.E.	M.E.	S.E.	M.E.	S.E.	
Arrested	binary	- 8.0 ***	2.1	0.8 *	0.5	5.1 ***	1.7	2.2 *	1.1	-
Imprisoned	binary	- 9.1 ***	2.5	0.0	0.3	5.5 ***	2.0	3.6 **	1.4	-

M.E. = marginal effect. S.E. = standard error. ppt = percentage point change. \*\*\* = significant at 1 per cent level (a 1 in 100 possibility that the result is due to chance); \*\* = significant at 5 per cent level (a 5 in 100 possibility that the result is due to chance); \* = significant at 10 per cent level (a 10 in 100 possibility that the result is due to chance). No stars indicate that the variable is not statistically significant (box 13.2.1). no.= number. CDEP = Community Development Employment Projects. NILF = Not in the Labour Force.

(a) See table 13A.2.1 for definitions of variables.

(b) The results for this study were derived using the Stata statistical package and the ABS' Remote Access Data Laboratory. A multinomial model is used because there are four possible labour market outcomes. There are other discrete choice modelling options, such as binary and nested models. There are two types of discrete choice models — logit and probit models. The difference between the two is largely theoretical. A probit model is used because there is reason to believe that the LMOs are not independently determined, based on there being reasonable doubt that the data would pass a logic test for the Independence of Irrelevant Alternatives assumption, which is necessary for a logit specification (see Fry and Harris (1998)).

(c) Marginal effects are derived from the coefficients of the regression and the predicted probabilities. The coefficients are reported in tables 13A.2.5 and 13A.2.6, and the predicted probabilities in table 13A.2.7. Formulae for the marginal effects can be found in the Stata base reference manual.

(d) Economic theory indicates the factors that might influence or determine labour market outcomes. However, regression analysis only reflects associations between the explanatory and dependent variables, which are the net effect after accounting for endogeneity and other bias (box 13.2.2). Policymakers need to interpret results with caution when using estimated marginal effects to measure the benefits of a policy change.

Table 13A.2.3

**Table 13A.2.3 Marginal effects of explanatory variables in the model of labour market outcomes, Indigenous men, 2008 (a), (b), (c), (d)**

Variable name	Employed			Unemployed			NILF			Value held at (e)
	M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	
(e) Marginal effects are generally calculated with continuous variables held at mean values and binary variables held at the mode (most common) values. These values align with the base person, described in box 13.2.1. The exceptions are marital status, age squared and experienced squared. The base man and base woman are both married, even though a majority of women in the sample are not married. Age squared and experienced squared values are held at the square of the mean values of the age and experience variables, respectively. For the other continuous variables, the marginal effects represent the percentage point change in the probability of a labour market outcome associated with an infinitely small increase in the variable from its mean value, holding the value of all other explanatory variables constant (known as the instantaneous rate of change in the predicted probability associated with the explanatory variable). For binary variables other than the education variables, the marginal effects represent the percentage point change in probability of a labour market outcome associated with a change from '0' to '1', holding the value of all other explanatory variables constant.										
For the education variables, the marginal effects represent the percentage point change in the probability of a labour market outcome associated with an increase in education compared to having year 10 or 11 but no non-school qualification, holding the value of all other explanatory variables constant.										

- Nil or rounded to zero.

Source: Productivity Commission estimates; ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.2.4

Table 13A.2.4 Marginal effects of explanatory variables in the model of labour market outcomes, Indigenous women, 2008 (a), (b), (c), (d)

Variable name	Variable type	Employed			CDEP			Unemployed			NILF			Value held at (e)
		M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	
<b>Explanatory variables</b>														
<i>Population characteristics</i>														
Age	no.	0.7	0.6	0.1	- 0.0	0.1	0.5 *	0.3	- 1.2 **	0.5	36.8			
Age squared	no.	- 0.0 ***	0.0	0.0	0.0	0.0	- 0.0 **	0.0	0.0 ***	0.0	1 352.8			
Not married	binary	- 1.7	2.1	0.2	- 0.1	0.2	2.7 **	1.2	- 0.9	1.8	-			
Dependent children	no.	- 6.6 ***	0.9	0.1	- 0.2	0.1	- 1.2 **	0.5	8.0 ***	0.7	1.2			
Remote	binary	- 3.4	2.6	2.5	9.8 ***	2.5	- 2.1 **	1.0	- 4.3 **	2.0	-			
SEIFA	no.	3.2 ***	0.5	0.3	- 0.8 ***	0.3	- 0.7 **	0.3	- 1.7 ***	0.4	2.9			
Difficulty with English	binary	- 11.5	7.1	1.0	1.1	1.0	- 0.1	3.2	10.5 *	6.3	-			
<i>Self assessed health</i>														
Poor general health	binary	- 11.5 ***	2.7	0.3	- 0.1	0.3	0.4	1.3	11.1 ***	2.5	-			
Psychological distress	binary	- 10.3 ***	2.2	0.2	0.0	0.2	5.4 ***	1.5	4.9 **	2.0	-			
Disability	binary	- 15.8 ***	4.2	0.3	- 0.3	0.3	- 0.3	1.9	16.4 ***	3.9	-			
<i>Education</i>														
Degree or higher	binary	21.8 ***	3.4	0.4	- 0.7 *	0.4	- 3.2 *	1.9	- 17.9 ***	3.0	-			
Year 12 plus non-school qualification	binary	19.5 ***	3.1	0.4	- 0.2	0.4	- 3.9 **	1.5	- 15.5 ***	2.8	-			
Year 10 or 11 plus non-school qualification	binary	11.3 ***	2.8	0.3	- 0.2	0.3	- 1.3	1.4	- 9.9 ***	2.5	-			
Year 12, no non-school qualification	binary	9.8 ***	3.2	0.3	- 0.2	0.3	- 3.6 **	1.4	- 6.0 **	3.0	-			
No year 10 plus non-school qualification	binary	8.3 **	4.0	0.4	- 0.4	0.4	0.8	2.3	- 8.7 ***	3.4	-			
No year 10, no non-school qualification	binary	- 11.8 ***	3.0	0.3	0.2	0.3	0.0	1.4	11.6 ***	2.7	-			
<i>Work experience</i>														
Years in paid employment	no.	6.8 ***	0.5	0.2	0.2 **	0.1	- 0.9 ***	0.2	- 6.1 ***	0.5	10.7			

Table 13A.2.4

**Table 13A.2.4 Marginal effects of explanatory variables in the model of labour market outcomes, Indigenous women, 2008 (a), (b), (c), (d)**

Variable name	Variable type	Employed			CDEP			Unemployed			NILF			Value held at (e)
		M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	M.E.	S.E.	ppt	
Years in paid employment squared	no.	- 0.1 ***	0.0	0.0	- 0.0 *	0.0	0.0	0.0 **	0.0	0.0	0.1 ***	0.0	0.0	114.5
<i>Crime</i>														
Arrested	binary	- 17.3 ***	3.8	0.9	1.6 *	0.9	6.8 ***	2.3	9.0 ***	3.3	-	-	-	-
Imprisoned	binary	- 0.2	6.0	0.5	- 0.2	2.2	- 2.0	2.2	2.4	5.3	-	-	-	-

M.E. = marginal effect. S.E. = standard error. ppt = percentage point change. \*\*\* = significant at 1 per cent level (a 1 in 100 possibility that the result is due to chance); \*\* = significant at 5 per cent level (a 5 in 100 possibility that the result is due to chance); \* = significant at 10 per cent level (a 10 in 100 possibility that the result is due to chance). No stars indicate that the variable is not statistically significant (box 13.2.1). no.= number. CDEP = Community Development Employment Projects. NILF = Not in the Labour Force. – Nil or rounded to zero.

- (a) See table 13A.2.1 for definitions of variables.
- (b) The results for this study were derived using the Stata statistical package and the ABS' Remote Access Data Laboratory. A multinomial model is used because there are four possible labour market outcomes. There are other discrete choice modelling options, such as binary and nested models. There are two types of discrete choice models — logit and probit models. The difference between the two is largely theoretical. A probit model is used because there is reason to believe that the LMOs are not independently determined, based on there being reasonable doubt that the data would pass a logic test for the Independence of Irrelevant Alternatives assumption, which is necessary for a logit specification (see Fry and Harris (1998)).
- (c) Marginal effects are derived from the coefficients of the regression and the predicted probabilities. The coefficients are reported in tables 13A.2.5 and 13A.2.6, and the predicted probabilities in table 13A.2.7. Formulae for the marginal effects can be found in the Stata base reference manual.
- (d) Economic theory indicates the factors that might influence or determine labour market outcomes. However, regression analysis only reflects associations between the explanatory and dependent variables, which are the net effect after accounting for endogeneity and other bias (box 13.2.2). Policymakers need to interpret results with caution when using estimated marginal effects to measure the benefits of a policy change.

Table 13A.2.4

Table 13A.2.4 Marginal effects of explanatory variables in the model of labour market outcomes, Indigenous women, 2008 (a), (b), (c), (d)

Variable name	Variable type	Employed		CDEP		Unemployed		NILF		Value held at (e)
		M.E.	S.E.	M.E.	S.E.	M.E.	S.E.	M.E.	S.E.	

(e) Marginal effects are generally calculated with continuous variables held at mean values and binary variables held at the mode (most common) values. These values align with the base person, described in box 13.2.1. The exceptions are marital status, age squared and experienced squared. The base man and base woman are both married, even though a majority of women in the sample are not married. Age squared and experienced squared values are held at the square of the mean values of the age and experience variables, respectively. For the other continuous variables, the marginal effects represent the percentage point change in the probability of a labour market outcome associated with an infinitely small increase in the variable from its mean value, holding the value of all other explanatory variables constant (known as the instantaneous rate of change in the predicted probability associated with the explanatory variable). For binary variables other than the education variables, the marginal effects represent the percentage point change in probability of a labour market outcome associated with a change from '0' to '1', holding the value of all other explanatory variables constant.

For the education variables, the marginal effects represent the percentage point change in the probability of a labour market outcome associated with an increase in education compared to having year 10 or 11 but no non-school qualification, holding the value of all other explanatory variables constant.

– Nil or rounded to zero.

Source: Productivity Commission estimates; ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.2.5

Table 13A.2.5 **Estimated coefficients in the model of labour market outcomes, Indigenous men, 2008 (a), (b), (c)**

Variable name	Employed		CDEP		Unemployed	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<b>Explanatory variables</b>						
<i>Population characteristics</i>						
Age	-0.16	0.03	-0.12	0.04	-0.02	0.03
Age squared	0.00	0.00	0.00	0.00	-0.00	0.00
Not married	-0.77	0.11	-0.51	0.15	-0.39	0.14
Dependent children	-0.14	0.05	-0.22	0.06	0.01	0.05
Remote	0.05	0.11	2.04	0.17	0.07	0.13
SEIFA	0.09	0.02	-0.35	0.06	-0.03	0.03
Difficulty with English	-0.57	0.23	-0.14	0.22	-0.70	0.27
<i>Self assessed health</i>						
Poor general health	-1.09	0.11	-0.92	0.17	-0.58	0.13
Psychological distress	-0.32	0.11	-0.17	0.14	0.14	0.12
Disability	-0.99	0.18	-0.51	0.27	-1.17	0.24
<i>Education</i>						
Degree or higher	0.43	0.27	-1.07	0.78	0.04	0.39
Year 12 plus non-school qualification	1.04	0.29	0.31	0.40	0.72	0.33
Year 10 or 11 plus non-school qualification	0.37	0.16	0.02	0.23	0.21	0.19
Year 12, no non-school qualification	0.20	0.19	0.05	0.25	0.10	0.21
No year 10 plus non-school qualification	0.25	0.19	-0.22	0.30	0.17	0.24
No year 10, no non-school qualification	-0.45	0.12	-0.36	0.16	-0.33	0.14
<i>Work experience</i>						
Years in paid employment	0.29	0.03	0.28	0.04	0.04	0.03
Years in paid employment squared	-0.00	0.00	-0.00	0.00	-0.00	0.00
<i>Crime</i>						
Arrested	-0.33	0.12	0.13	0.15	0.15	0.13
Imprisoned	-0.46	0.12	-0.28	0.16	0.07	0.14
<i>Constant</i>	3.79	0.50	1.69	0.67	1.13	0.55

Coef. = Coefficient. S.E. = Standard error.

(a) See table 13A.2.1 for definitions of variables.

(b) The coefficients are estimated with reference to the base category of 'not in the labour force'. The coefficients cannot be interpreted as slope coefficients because the model is non-linear. Given the complexity of interpreting coefficient estimates, it is more informative to interpret the marginal effects of the explanatory variables (tables 13A.2.3 and 13A.2.4). The coefficients are published here for the convenience of researchers who may wish to undertake more advanced analysis.

(c) The standard error is a measure of the extent to which an estimate is likely to deviate from its true value and is related to the standard deviation of the sample. The larger the sample size, the smaller the standard error.

Source: Productivity Commission estimates; ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.



Table 13A.2.6

Table 13A.2.6 **Estimated coefficients in the model of labour market outcomes, Indigenous women, 2008 (a), (b), (c)**

Variable name	Employed		CDEP		Unemployed	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
<b>Explanatory variables</b>						
<i>Population characteristics</i>						
Age	0.04	0.02	0.01	0.03	0.08	0.03
Age squared	-0.00	0.00	-0.00	0.00	-0.00	0.00
Not married	-0.00	0.08	-0.04	0.12	0.21	0.10
Dependent children	-0.31	0.03	-0.29	0.05	-0.31	0.04
Remote	0.07	0.08	1.46	0.15	-0.05	0.10
SEIFA	0.10	0.02	-0.40	0.07	-0.01	0.02
Difficulty with English	-0.43	0.25	0.16	0.23	-0.25	0.29
<i>Self assessed health</i>						
Poor general health	-0.44	0.10	-0.28	0.16	-0.23	0.12
Psychological distress	-0.29	0.08	-0.08	0.12	0.21	0.10
Disability	-0.63	0.15	-0.55	0.25	-0.39	0.18
<i>Education</i>						
Degree or higher	1.00	0.19	-0.05	0.42	0.35	0.27
Year 12 plus non-school qualification	0.83	0.15	0.41	0.26	0.13	0.21
Year 10 or 11 plus non-school qualification	0.47	0.12	0.20	0.20	0.19	0.15
Year 12, no non-school qualification	0.32	0.13	0.05	0.21	-0.20	0.18
No year 10 plus non-school qualification	0.39	0.16	-0.05	0.33	0.33	0.21
No year 10, no non-school qualification	-0.46	0.11	-0.14	0.15	-0.26	0.12
<i>Work experience</i>						
Years in paid employment	0.27	0.02	0.28	0.03	0.09	0.02
Years in paid employment squared	-0.01	0.00	-0.01	0.00	-0.00	0.00
<i>Crime</i>						
Arrested	-0.51	0.13	0.30	0.18	0.19	0.13
Imprisoned	-0.07	0.22	-0.20	0.34	-0.24	0.24
<i>Constant</i>	-1.29	0.37	-2.04	0.60	-1.83	0.44

Coef. = Coefficient. S.E. = Standard error.

(a) See table 13A.2.1 for definitions of variables.

(b) The coefficients are estimated with reference to the base category of 'not in the labour force'. The coefficients cannot be interpreted as slope coefficients because the model is non-linear. Given the complexity of interpreting coefficient estimates, it is more informative to interpret the marginal effects of the explanatory variables (tables 13A.2.3 and 13A.2.4). The coefficients are published here for the convenience of researchers who may wish to undertake more advanced analysis.

(c) The standard error is a measure of the extent to which an estimate is likely to deviate from its true value and is related to the standard deviation of the sample. The larger the sample size, the smaller the standard error.

Source: Productivity Commission estimates; ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.

Table 13A.2.7

Table 13A.2.7 **Sample sizes and diagnostic statistics, 2008**

	<i>Men</i>		<i>Women</i>	
	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>
<b>Sample and sub-sample sizes (a)</b>				
<i>Labour market outcome</i>				
Mainstream (non-CDEP) employment	1 508	56.6	1 478	42.0
CDEP participation	275	10.3	184	5.2
Unemployed	299	11.2	282	8.0
Not in the labour force	580	21.8	1 576	44.8
<b>Total</b>	<b>2 662</b>	<b>100.0</b>	<b>3 520</b>	<b>100.0</b>
<b>Base predicted probabilities (b)</b>				
<i>Labour market outcome</i>				
Mainstream (non-CDEP) employment	..	87.6	..	62.4
CDEP participation	..	0.8	..	0.8
Unemployed	..	6.5	..	7.7
Not in the labour force	..	5.1	..	29.1
<b>Total</b>	..	<b>100.0</b>	..	<b>100.0</b>
<b>Indicators of model fit</b>				
<i>Log likelihood</i>	- 1 971.39		- 2 672.40	
<i>Likelihood ratio tests (c)</i>	<i>test statistic</i>	<i>significance</i>	<i>test statistic</i>	<i>significance</i>
Age	283.7	***	272.6	***
Not married	47.9	***	5.9	
Dependent children	22.6	***	130.8	***
Remote	239.7	***	137.1	***
SEIFA	115.8	***	122.3	***
Difficulty with English	11.5	***	5.9	
Poor general health	67.9	***	135.3	***
Psychological distress	99.5	***	21.7	***
Disability	19.3	***	27.9	***
All health (d)	44.9	***	20.9	***
Education	218.2	***	99.4	***
Work experience	358.6	***	543.4	***
Arrested	21.7	***	30.0	***
Imprisoned	20.4	***	1.2	
All crime (d)	58.9	***	31.5	***

(a) The modelled sample size differs from the full sample of people aged 15-64 because some respondents did not answer all questions. Non-response mostly related to level of education.

(b) The base predicted probability is the probability associated with the labour market outcome of a 'base person' (box 13.2.1). The base person in this study is someone who is 37 years old, is married, lives in a non-remote area, has no difficulty communicating in English, is in good health, has no or low levels of psychological distress, does not have a severe or profound disability, has a year 10 or 11 education and no non-school qualifications, has not been arrested in the last five years and has never been imprisoned.

Table 13A.2.7 **Sample sizes and diagnostic statistics, 2008**

	<i>Men</i>	<i>Women</i>
(c)	A likelihood ratio test compares the log likelihoods of a full model and an identical model that excludes one or a group of explanatory variables. The row label indicates the variable or group of variables excluded. A result significantly different from zero indicates that the explanatory variable improves the fit of the model. The stars indicate the level of significance based on the critical values of the test statistic. One, two and three stars represent significance at the 10, 5 and 1 per cent levels, respectively — the more stars, the more confidence in the test result.	
(d)	'All health' variables include poor general health, psychological distress and disability. 'All crime' variables includes arrested and imprisoned.	

*Source:* Productivity Commission estimates; ABS (unpublished) *National Aboriginal and Torres Strait Islander Social Survey 2008*, Cat. no. 4714.0.