



Australian Government

**Australian Institute of
Health and Welfare**

Determinants of wellbeing for Indigenous Australians



Australian Government

**Australian Institute of
Health and Welfare**

*Authoritative information and statistics
to promote better health and wellbeing*

Determinants of wellbeing for Indigenous Australians

Australian Institute of Health and Welfare
Canberra

Cat. no. IHW 137

The Australian Institute of Health and Welfare is a major national agency which provides reliable, regular and relevant information and statistics on Australia's health and welfare. The Institute's mission is authoritative information and statistics to promote better health and wellbeing.

© Australian Institute of Health and Welfare 2014



This product, excluding the AIHW logo, Commonwealth Coat of Arms and any material owned by a third party or protected by a trademark, has been released under a Creative Commons BY 3.0 (CC-BY 3.0) licence. Excluded material owned by third parties may include, for example, design and layout, images obtained under licence from third parties and signatures. We have made all reasonable efforts to identify and label material owned by third parties.

You may distribute, remix and build upon this work. However, you must attribute the AIHW as the copyright holder of the work in compliance with our attribution policy available at <www.aihw.gov.au/copyright/>. The full terms and conditions of this licence are available at <<http://creativecommons.org/licenses/by/3.0/au/>>.

Enquiries relating to copyright should be addressed to the Head of the Digital and Media Communications Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601.

This publication is part of the Australian Institute of Health and Welfare's Indigenous Observatory. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISBN 978-1-74249-602-3

Suggested citation

Australian Institute of Health and Welfare 2014. Determinants of wellbeing for Indigenous Australians. Cat. no. IHW 137. Canberra: AIHW.

Australian Institute of Health and Welfare

Board Chair
Dr Andrew Refshauge

Director
David Kalisch

Any enquiries about or comments on this publication should be directed to:

Digital and Media Communications Unit
Australian Institute of Health and Welfare
GPO Box 570
Canberra ACT 2601
Tel: (02) 6244 1032
Email: info@aihw.gov.au

Published by the Australian Institute of Health and Welfare

Contents

- Acknowledgments..... iv
- Abbreviations..... v
- Symbols..... v
- Summary vi
- 1 Introduction.....1**
 - 1.1 Purpose and structure of this paper1
 - 1.2 Data sources.....2
- 2 Comparing the subjective wellbeing of Indigenous and non-Indigenous people4**
- 3 Determinants of Indigenous wellbeing.....5**
 - 3.1 Health and subjective wellbeing5
 - 3.2 Income, employment and wellbeing.....5
 - 3.3 Education and wellbeing9
 - 3.4 Criminal activity and subjective wellbeing12
 - 3.5 Victims of crime and subjective wellbeing.....13
- Appendix A: Key data sources15**
- Appendix B: Additional tables17**
- References.....30**

Acknowledgments

This report is an abridged version of a paper that Dr Nicholas Biddle from the Centre for Aboriginal Economic Policy Research (CAEPR), Australian National University prepared for the Australian Institute of Health and Welfare (AIHW). The AIHW provided the funding for this paper.

Fadwa Al-Yaman, head of the AIHW Indigenous and Children's Group, provided advice on this paper over the course of its development.

Justine Boland, acting head of the AIHW Statistics and Communication Group, reviewed this paper and her comments are appreciated.

Paul Magnus assisted in preparing the final draft of this paper.

Special thanks go to the following external reviewers:

- Ian Ring (NAGATSIHID; University of Wollongong)
- Australian Bureau of Statistics
- Department of the Prime Minister and Cabinet.

Early drafts of related papers were presented as part of the 2011 CAEPR Lecture Series on 'Measures of Indigenous wellbeing and their determinants across the lifecourse'. Dr Biddle thanks those who provided feedback at those lectures. Funding for those papers was received from the Australian Ministerial Council for Aboriginal and Torres Strait Islander Affairs.

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ANU	Australian National University
CAEPR	Centre for Aboriginal Economic Policy Research
CDEP	Community Development Employment Projects
HILDA	Household Income and Labour Dynamics in Australia
NILF	Not in the labour force
NAGATSIHID	National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data
NATSISS	National Aboriginal and Torres Strait Islander Social Survey

Symbols

*	statistically significant difference at $p < 0.05$
–	when used in a table: nil or rounded to zero (including null cells)
..	not applicable

Summary

Wellbeing and this report

The wellbeing of Indigenous Australians is an important concern, given that so many have relatively poor health together with lower levels of income and employment. This paper examines the wellbeing of Indigenous Australians and the factors that may determine this. Where possible, comparisons with other Australians are provided. The focus is on subjective wellbeing – in particular, reported levels of happiness, sadness and life satisfaction – but some objective measures of wellbeing are also considered, including income and health status.

Some highlights of what we found

- Compared with non-Indigenous Australians, Indigenous people tended to report lower levels of emotional wellbeing but they were more likely to say that they were satisfied with life.
- When Indigenous (and non-Indigenous) people reported that their health had improved, they also tended to report a rise in happiness and life satisfaction.
- There was a weaker, albeit still positive, link between income and subjective wellbeing for Indigenous Australians living in remote areas compared with those in other areas of Australia.
- Indigenous people who were employed tended to report higher levels of wellbeing than those who were unemployed or not in the labour force.
- For some of measures of wellbeing – such as employment status, income and the ability to raise \$2,000 quickly – educational attainment was positively associated with wellbeing for Indigenous people, regardless of sex or remoteness. For other measures of wellbeing – such as emotional wellbeing and having a say – the link with educational attainment tended to vary according to sex and remoteness.
- Indigenous Australians with higher levels of education were significantly more likely than those with lower levels of education to have taken part in cultural events, ceremonies or organisations.
- Lower levels of subjective wellbeing were associated with the likelihood of being arrested for both Indigenous and non-Indigenous Australians.
- Indigenous people were more likely than non-Indigenous people to be victims of certain types of crime. Indigenous victims of physical or threatened violence reported lower levels of emotional wellbeing than those who had not been a victim.

Some caution needed

When comparing people from different cultural traditions, readers need to bear in mind that the cultures may differ to some degree in their ideas of wellbeing. As well, issues of language become important since survey questions used to explore wellbeing may not always translate well between cultures.

1 Introduction

It has long been clear that the health of Aboriginal and Torres Strait Islander Australians, on average, is worse than that of other Australians. For example, life expectancy at birth is about 10 years lower for Indigenous people than for other Australians (ABS 2013b; AIHW forthcoming). Indigenous people also have higher rates of major health conditions such as diabetes, heart disease and kidney disease (ABS 2013a; AHMAC 2012; AIHW 2011). This serious health gap has spurred many efforts to improve Indigenous health and wellbeing, including the national Closing the Gap Strategy (DSS 2013).

Despite the large body of research on ‘wellbeing’, there is no single widely accepted definition of this term, although most researchers agree that the concept of wellbeing is complex and multi-dimensional. Wellbeing can be described as ‘a state of health or sufficiency in all aspects of life’ (ABS 2001). Health is obviously a major part of an individual’s overall wellbeing. But so are other factors such as social and economic conditions. It is well known, for example, that Indigenous Australians tend to have high levels of social capital with 94% reporting in 2008 having contact with family or friends outside the household at least once per week and 89% indicating they were able to get support in a time of crisis from outside the household (ABS 2009). However, Indigenous Australians also have relatively lower levels of income, employment and home ownership than non-Indigenous Australians and have been found to be more likely to experience at least one stressor in the previous 12 months (ABS 2009; AHMAC 2012; AIHW 2011, 2014; SCRGSP 2011).

Given the multi-dimensional nature of the concept of wellbeing, there is no single measure of it (ABS 2001). Instead, wellbeing tends to be measured using information from a range of objective attributes (for example, income and health status) and/or from a person’s own subjective evaluation of their feelings.

1.1 Purpose and structure of this paper

This paper looks at the wellbeing of Australia’s Indigenous people and factors linked with wellbeing. While the focus is on subjective measures of wellbeing, a number of objective measures are also considered – for example, employment status, income and health status.

In Australia, subjective measures of wellbeing collected in large-scale surveys generally fall into two main types:

- emotional wellbeing – the balance between a person’s positive feelings (such as happiness) and negative feelings (such as sadness)
- life satisfaction – how a person feels about their life and the extent to which it has met and is meeting their expectations.

The paper is structured as follows:

- the remainder of this section describes the key data sources used in this paper, including how subjective wellbeing is measured in these data sources
- in Section 2, information is provided on the subjective wellbeing of Indigenous Australians compared with that of non-Indigenous Australians
- Section 3 examines the connection between Indigenous subjective wellbeing and a number of factors including health, income and employment, education levels, criminal activity, and victimisation rates.

1.2 Data sources

To present information on Indigenous wellbeing, this paper draws on a range of sources, the main one being the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). The Australian Bureau of Statistics (ABS) runs the NATSISS and it uses personal interviews of Indigenous Australians to collect information on a wide range of areas of social concern including health, education, culture and labour force participation. The ABS runs the NATSISS every 6 years, with the 2008 survey being the most recent.

In addition, some data are also presented from the Household Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey is a nationally representative panel study of Australian households which began in 2001. Managed by the Melbourne Institute of Applied Economic and Social Research at the University of Melbourne, it surveys the same people over time to provide longitudinal data on the lives of Australians. Each year it collects information about a wide range of topics, including health and wellbeing, household and family relationships, labour market dynamics, attitudes and values, and life events and experiences.

Section 2 of this paper uses data from Wave 8 of the HILDA Survey; these data pertain to 2008. While more recent HILDA Survey data are available, the 2008 data were used in order to align the time period of these data with those from the 2008 NATSISS. There were 216 Indigenous respondents aged 15 and over in Wave 8. For the analyses in Section 3, data from Wave 1 (collected in 2001) through to Wave 8 (2008) of the HILDA Survey were pooled to achieve a greater sample size. This pooling resulted in an effective sample size of 1,239 observations for the Indigenous population and 71,938 for the non-Indigenous population.

Compared with the HILDA Survey, the NATSISS has the advantage of having a much larger sample size of Indigenous Australians. However, although the Indigenous sample in the HILDA Survey is quite small, the longitudinal data allow for the study of change over time in a person's circumstances, views, and health and wellbeing (with such data presented in Section 3.1). This is not possible using data from cross-sectional surveys such as the NATSISS. As well, unlike the NATSISS (which only collects data from Indigenous people), the HILDA Survey data allow for direct comparisons between Indigenous and non-Indigenous Australians.

Information about how each of these data collections measure subjective wellbeing is in Box 1.1, while further details about each collection can be found in Appendix A.

Those reviewing Indigenous wellbeing and its determinants need to bear in mind the strengths and weaknesses of the data used, including the fact that different surveys can use different wording for the same kinds of questions. It is also important to note that there are other factors that may influence the answers that Indigenous Australians give to questions. One factor is language, where the questions used to explore wellbeing may not always translate well between cultures. Another is the importance of community in Indigenous notions of wellbeing. This means, for example, that an Indigenous person with relatively high individual levels of economic resources who lives in a community that is not doing so well may report quite low levels of personal wellbeing. However, evaluating the wellbeing of whole communities is beyond the scope of this paper.

Box 1.1: Measuring subjective wellbeing using NATSISS and HILDA Survey data

2008 National Aboriginal and Torres Strait Islander Social Survey

Among the survey questions asked of respondents aged 15 and over in the 2008 NATSISS, 2 questions captured aspects of subjective wellbeing. The first asked respondents how often they felt happy in the previous 4 weeks, and the second, how often they felt so sad that nothing could cheer them up over the same period. For each of these questions, there were 5 response options: 1 meaning 'all of the time', 2 'most of the time', 3 'some of the time', 4 'a little of the time' and 5 'none of the time'.

Household Income and Labour Dynamics in Australia Survey

Subjective wellbeing questions that were asked in the HILDA Survey include those about life satisfaction, happiness and sadness. Specifically, respondents were asked: 'All things considered, how satisfied are you with your life?', with response options ranging from 0 meaning 'completely dissatisfied' to 10 'completely satisfied'.

Respondents were also asked to indicate how much of the time, during the previous 4 weeks:

- they have been a happy person
- they have 'felt so down in the dumps' that nothing could cheer them up.

For these 2 questions there were 6 possible responses, from 1 meaning 'all of the time' through to 6 'none of the time'.

Technical notes

In a number of instances in this paper, results from multivariate analyses are presented. Multivariate analyses are a set of statistical techniques used to measure the unique contributions of various factors (referred to as the independent variables) to an outcome of interest (referred to as the dependent variable). For example, multivariate statistics can allow us to assess if educational attainment affects subjective wellbeing, once the influence of other variables (for example, age and family composition) are taken into account.

For those tables that were derived from multivariate analyses (rather than other types of analyses), details about the specific statistical methods used to produce those results are indicated in the footnotes to the table (see Appendix Table B3.1 for example). Differences which are statistically significant at the 5% level of significance have been indicated by asterisks in the tables; such differences are often referred to in this paper as showing 'significant associations' between variables.

2 Comparing the subjective wellbeing of Indigenous and non-Indigenous people

Indigenous Australians are more likely to be unemployed, have lower levels of household income and wealth, be lone parents and, on average, live in neighbourhoods which are more disadvantaged (AHMAC 2012; Biddle 2009; Biddle & Yap 2010; SCRGSP 2011). And according to the 2008 NATSISS, Indigenous respondents were around twice as likely as non-Indigenous respondents of the same age to report that their health was either fair or poor (ABS 2009).

Given such differences, we could expect that Indigenous Australians would report lower levels of subjective wellbeing than non-Indigenous Australians. However, there is mixed support for this supposition from analyses of HILDA Survey data. That is, based on analyses of the eighth wave of the HILDA Survey:

- 53% of Indigenous respondents reported that they had 'been a happy person' all or most of the time in the previous 4 weeks compared with 61% of non-Indigenous Australians
- 51% of Indigenous people reported that they had 'felt so down in the dumps' nothing could cheer them up at least some of the time over the same period compared with 37% of non-Indigenous Australians.

Both differences are statistically significant, implying that Indigenous Australians were less likely to report a high frequency of happiness and more likely to report intense feelings of sadness. Therefore, using HILDA Survey data, emotional wellbeing was found to be lower for Indigenous Australians than non-Indigenous Australians.

In contrast, evidence from the same survey presents a different picture for life satisfaction. Data from the eighth wave of the HILDA Survey suggest that the median and mode value for life satisfaction for both populations was 8, on a scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied). Around one-third of both Indigenous and non-Indigenous respondents reported levels of life satisfaction lower than 8 (34% and 32%, respectively). However, at the other end of the distribution, a significantly higher proportion of Indigenous (41%) than non-Indigenous respondents (32%) reported a value of 9 or 10. Furthermore, detailed analyses of the first wave of HILDA Survey data suggested that Indigenous people had significantly higher levels of life satisfaction than non-Indigenous people, holding a wide range of other factors constant (Shields et al. 2009).

Thus, based on the eighth wave of the HILDA Survey, while Indigenous Australians report lower levels of emotional wellbeing, they are more likely than non-Indigenous people to say that they are satisfied with their life.

3 Determinants of Indigenous wellbeing

3.1 Health and subjective wellbeing

Overseas research has clearly shown that having a health condition is associated with lower levels of emotional wellbeing and life satisfaction (for example, Kahneman & Deaton 2010). And, as would be expected, the link between mental health and subjective wellbeing (especially emotional wellbeing) has been found to be particularly strong (Andrews & Slade 2001; Kahneman & Deaton 2010).

Interestingly, the reverse effect also seems to apply: using HILDA Survey data, relatively low levels of subjective wellbeing have been found to be associated with lower levels of self-assessed health into the future (Siahpush et al. 2008). That is, this research suggests that not only does physical health determine emotional wellbeing and life satisfaction, but it can also be determined by it.

What other Australian evidence is there? The first 8 waves of the HILDA Survey offer the chance to explore the link between health and wellbeing further – what is the association between changes in self-assessed health and changes in subjective wellbeing? Analyses of the data showed that, for both Indigenous and non-Indigenous Australians, there was a significant association between improvements in self-assessed health and a rise in life satisfaction, and being happy more often (Appendix Table B3.1). For non-Indigenous people, but not Indigenous people, improvements in self-assessed health were also associated with feeling intensely sad less often.

Furthermore, with one exception, there was a significant association between a related variable – reporting a serious personal injury or illness in the previous 12 months – and happiness, sadness and life satisfaction for both Indigenous and non-Indigenous participants in the HILDA Survey. The 1 exception is that for Indigenous people, the relationship with life satisfaction was not statistically significant.

Therefore, these HILDA Survey results tend to indicate a statistically significant and potentially causal influence of physical and self-assessed health on subjective wellbeing for Indigenous people, as well as for non-Indigenous people.

3.2 Income, employment and wellbeing

Income

Research has shown a significant positive relationship between income and life satisfaction for the general population (for example, Shields et al. 2009). But does this association apply to Indigenous Australians?

To examine the link between income and subjective wellbeing among Indigenous Australians, data about self-reported happiness and sadness were used from the 2008 NATSISS. The analyses made use of the following two wellbeing measures:

- Happiness – felt happy ‘all or most of the time’ in the previous 4 weeks, compared with those who felt happy less often
- Sadness – felt sad a little of the time or more often compared with those who did not report feeling sad (that is, they responded ‘none of the time’).

These measures of subjective wellbeing were compared with two income measures:

- weekly personal income
- equivalised household income (for this measure, adjustments are made to the actual incomes of households to enable comparison of households of varying sizes and composition) (ABS 2011b).

As shown in Figure 3.1, the analyses were carried out for 4 separate groups according to sex and remoteness. (Further notes about the analyses are shown in the footnotes to the figure.)

Although self-reported happiness and sadness are only 2 aspects of subjective wellbeing, the results suggest a complex relationship between subjective wellbeing and income for the Indigenous population.

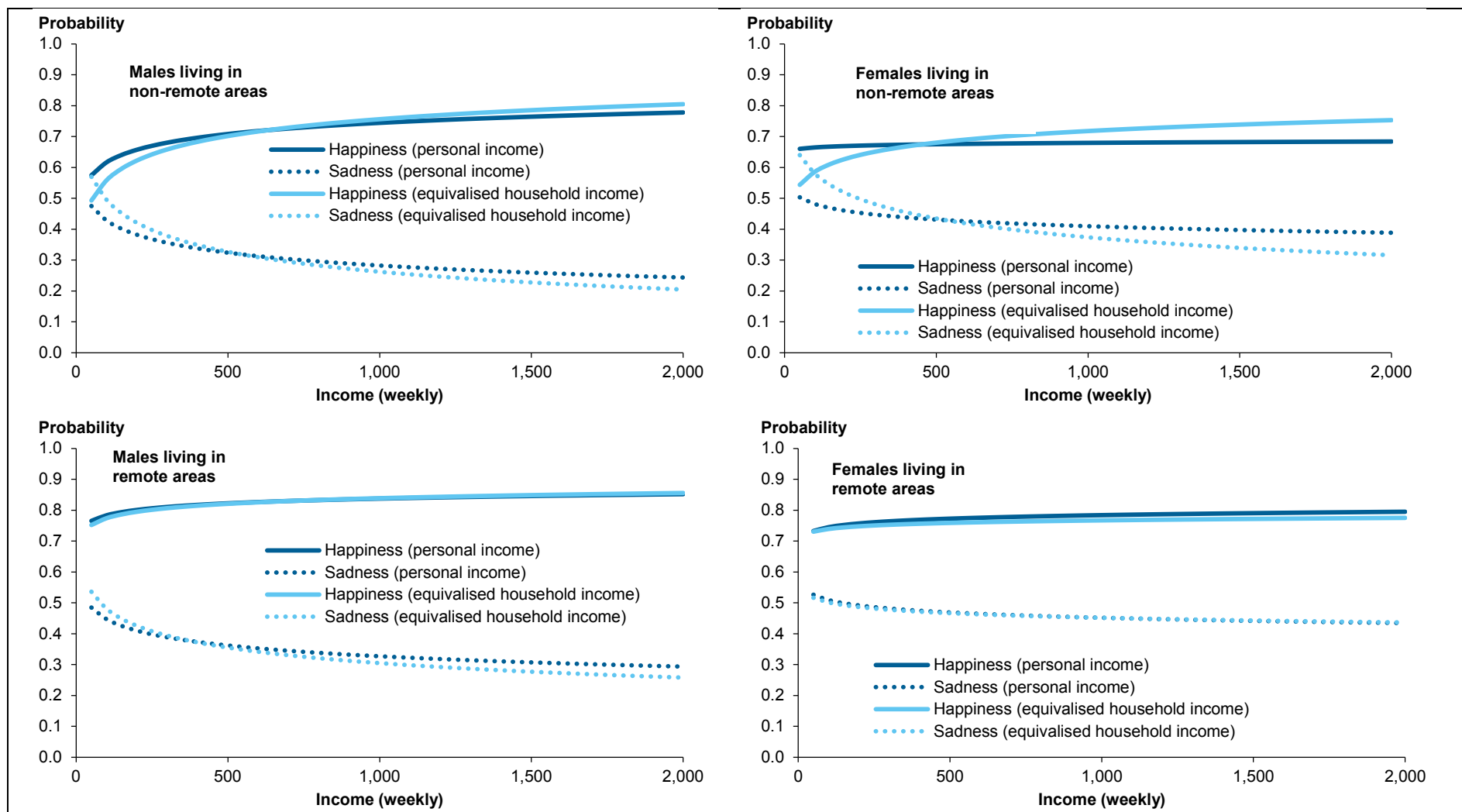
For Indigenous males living in non-remote areas:

- there is a positive relationship between income and both of the subjective wellbeing measures
- this relationship tended to be stronger for equivalised household income than for personal income, though there was still a statistically significant association for the latter.

In contrast, for the other 3 groups, the results are not as clear cut, indicating that the relationship between income and the 2 subjective wellbeing measures depends highly on remoteness and sex. In particular, while the relationship between equivalised household income and both measures of wellbeing held for Indigenous females living in non-remote areas, there was no statistically significant association between their personal income and happiness and only a small association with sadness. Thus for Indigenous females in non-remote Australia, it appears that their equivalised household income (rather than their personal income) is more closely associated with subjective wellbeing.

For Indigenous Australians living in remote areas, the relationship between income and subjective wellbeing was less apparent. There was still an association between sadness and both measures of income for Indigenous males living in remote areas, but it was weaker than for those living in non-remote Australia and it does not hold for Indigenous females. In addition, there was no significant relationship for either sex between income and happiness.

In summary, for males living in non-remote areas of Australia, there is a strong positive association between subjective wellbeing and income for the Indigenous population. For those living in remote Australia, however, the relationship was less apparent. These findings may be explained, at least partly, by economic resources being shared more widely beyond the household in many remote Indigenous communities and by there being other activities outside the mainstream economy that support Indigenous livelihoods in these areas.



Notes: Results show the probability of reporting the measure of subjective wellbeing (happiness or sadness). The probabilities were estimated using maximum likelihood estimation of the probit model with the measure of wellbeing as the dependent variable and log of income as the independent variable. Remoteness is based on the Australian Standard Geographical Classification (ABS 2006).

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey.

Figure 3.1: Relationship between income and subjective wellbeing, by remoteness and sex, Indigenous Australians aged 15 and over, 2008

Employment

Using the 2008 NATSISS, the relationship between measures of wellbeing and labour force status was examined for Indigenous Australians. In addition to the 2 emotional wellbeing measures (that is, happiness and sadness) used in the income analyses, 3 extra measures were used to provide further information about cultural, social and economic wellbeing:

- Cultural – had either been involved or not involved in cultural events, ceremonies or organisations in the previous 12 months
- Have a say – felt they could have a say within the general community on issues important to them all or most of the time, compared with those who said they could have a say less often
- Raise \$2,000 – thought that they or household members could raise \$2,000 for something important within a week, compared with those who did not think they could do this.

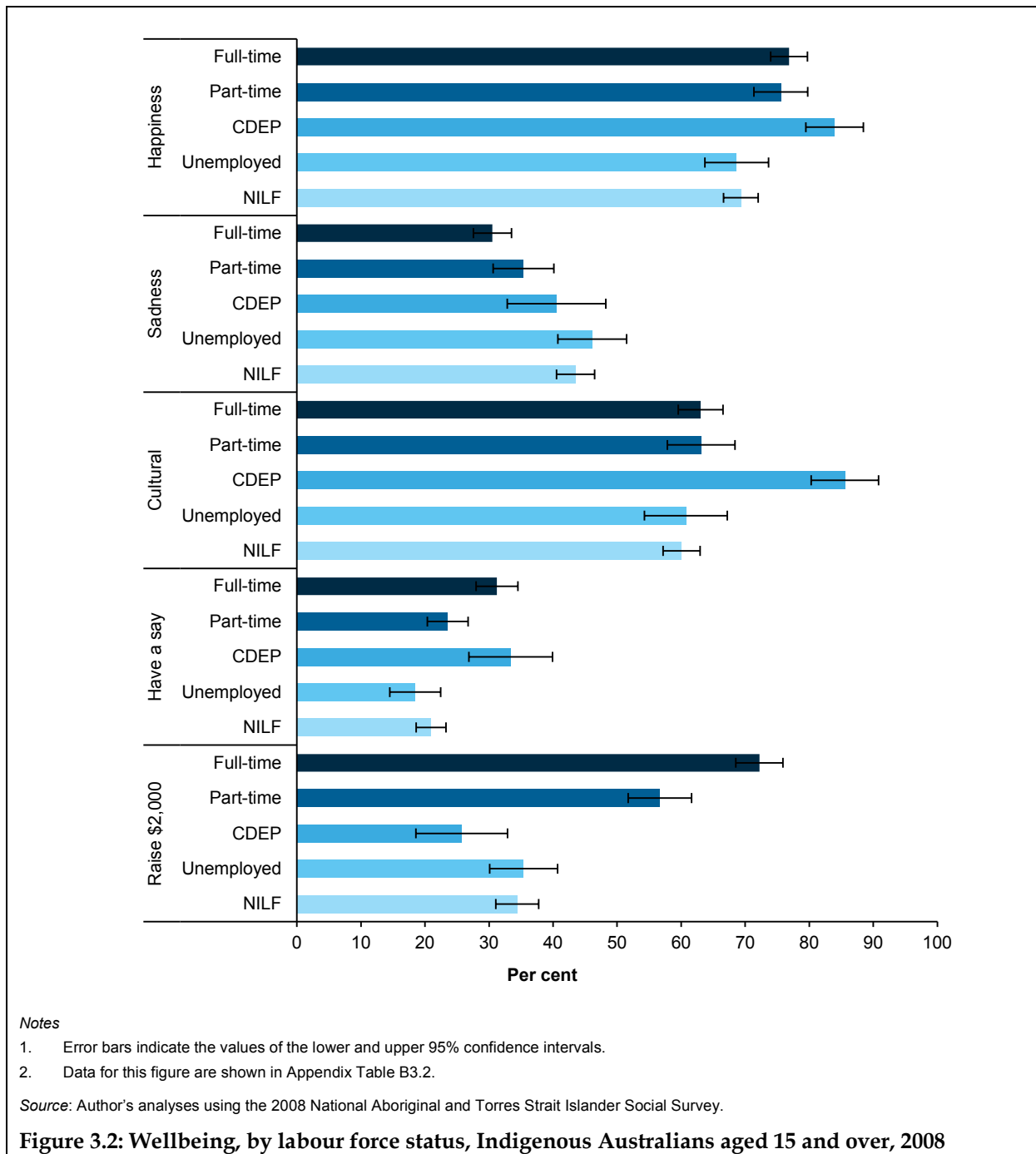
Respondents were also asked about their labour force status in the week before the survey. For these analyses, 5 categories of labour force were considered:

- Full-time employment – employed full time in employment other than Community Development Employment Projects (CDEP) (referred to as non-CDEP employment)
- Part-time employment – employed part time in employment other than CDEP
- CDEP – employed in CDEP
- Unemployed – not employed but actively seeking work and able to commence work
- NILF – not in the labour force.

As shown in Figure 3.2, with 1 exception, Indigenous respondents who were employed were significantly more likely to report higher levels of emotional wellbeing than those who were unemployed or not in the labour force. The 1 exception is that those employed in CDEP were not significantly more likely than those not employed to report lower levels of sadness. This observed connection between employment and emotional wellbeing does not, of course, mean that employment necessarily causes higher levels of wellbeing. There may be other factors that influence both labour force status and emotional wellbeing. However, the results do show that those who were unemployed or not in the labour force were the most likely to report lower levels of wellbeing.

The second thing to note is that the type of employment appears to matter – this includes whether it was full time or part time, as well as if it was in the CDEP scheme or not. For example, those employed in CDEP had significantly higher levels of self-reported happiness and cultural participation than those in non-CDEP employment (whether part time or full time). In addition, those employed in CDEP and those working full time were significantly more likely to report that they were able to have a say within the community on important issues than those in part-time, non-CDEP employment.

For the other two variables – self-reported sadness and the ability to raise \$2,000 – it was those in full-time, non-CDEP employment that had the most favourable outcomes.



3.3 Education and wellbeing

Data from the 2008 NATSISS were used to examine the relationship between educational attainment and measures of wellbeing, holding a range of other factors constant. These analyses used the same 5 outcome measures of wellbeing as in Section 3.2 for employment: happiness, sadness, cultural, have a say, and raise \$2,000. In addition, measures of

employment, income and self-reported health were also used as these also can be considered to be aspects of wellbeing:

- Employment – employed (including in CDEP) or not in the week before the survey
- Income – personal gross weekly income (the analyses for this measure were restricted to those who were employed)
- Health fair/poor – self-reported their health as either ‘fair’ or ‘poor’ rather than as ‘good’, ‘very good’ or ‘excellent’.

Two measures of educational attainment were used in the analyses: highest year of school completed and highest post-school qualification. For highest year of school completed, 3 categories were considered:

- Year 9 or less
- Year 10 or 11 only
- Year 12.

For highest post-school qualification (also known as non-school qualifications), the categories were:

- No post-school qualification
- Certificate I or II
- Certificate III or IV
- Diploma or Advanced diploma
- Bachelor degree or higher.

Those without complete information on the education measures were left out of the analyses. A number of factors were controlled for in the analyses, including age, family composition, and whether any non-Indigenous people lived in the household (as shown in the relevant appendix tables).

In Yap’s (2011) paper on gender and Indigenous wellbeing, she noted that when data are not analysed separately by sex this can sometimes mask key disparities between males and females. Therefore, analyses of the association between education and subjective wellbeing were performed separately for Indigenous males and females; the results of these analyses are shown in Appendix tables B3.3 and B3.4. The analyses were also done separately for those in remote and non-remote areas, as shown in Appendix tables B3.5 and B3.6. Further notes about the analyses are shown in the footnotes to these tables.

Overall, the results suggest that for several measures of wellbeing – such as employment status, income and the ability to raise \$2,000 quickly – there was a significant positive association between educational attainment and wellbeing for Indigenous Australians, regardless of sex or remoteness (although the strength of the association varied). In other words, in many cases for males and females and in remote and non-remote areas, the higher the level of educational attainment, the greater the reported wellbeing. By contrast, the association between educational attainment and some of the other measures of wellbeing – such as emotional wellbeing and having a say – tended to vary according to sex and remoteness.

More detailed findings from the analyses are outlined below.

Differences by sex

Employment: Taking into account a range of other factors, the analyses indicated that both Indigenous males and females were significantly more likely to be employed if they have relatively high levels of educational attainment, although the size of the effect appears to be greater for Indigenous females (particularly for the measure of post-school qualifications). This is a consistent finding across the literature (Biddle & Yap 2010).

Income: Considering only those who were employed, the analyses suggest that for both Indigenous males and females, those with higher levels of education had significantly higher levels of income. The difference in income levels according to education level was greater for Indigenous males than Indigenous females, particularly at the lower end of the education distribution.

Health: The association between educational status and reported health status was fairly similar by sex. For both Indigenous males and females, those whose highest year of school completion was Year 9 or less were significantly more likely than those who had completed Year 12 to report their health was fair or poor. In addition, those whose highest qualification was a Certificate III or IV were significantly less likely to report this than those who had no post-school qualification.

Emotional wellbeing: There is a much weaker association between education and the measures of happiness and sadness for both Indigenous males and females, although the patterns differed somewhat by sex. For males and females, Indigenous people who had completed Year 9 or less were significantly less likely to report being happy and more likely to report feeling sad than those who had completed Year 12. In addition, for females, those who had completed Year 10 or 11 reported significantly lower levels of sadness than those who had completed Year 12, and having a Diploma or Advanced diploma was also significantly associated with a lower level of sadness than having no post-school qualification.

Cultural participation: In regard to participating in cultural events, ceremonies and organisations, the results tended to be similar for Indigenous males and females, such that those with higher levels of education were more likely to have reported participating in such events.

Having a say: Indigenous females with higher levels of education were significantly more likely to feel they were able to have a say within the community on issues important to them. For males, those who have completed Year 9 or less were significantly less likely to feel they had a say than those who have completed Year 12; however, no statistically significant trend was apparent according to level of post-school qualification.

Raising \$2,000: For both Indigenous males and females, those with higher levels of educational attainment were significantly more likely to say that their household could raise \$2,000 within a week for something important. Possible reasons for this include:

- those with higher levels of education are more likely to have greater income and wealth
- those with higher levels of education are more likely to be married to someone who also has relatively high levels of education (so called assortative mating – Mare 1991), compounding the income effect at the household level
- those with higher levels of education may be better able to plan their finances and seek other forms of credit beyond household income.

There may also be a reverse causal effect, whereby those who had greater financial security growing up within their household and within their wider social networks were more likely to gain a higher level of education.

Differences by remoteness

Employment and income: Differences in the economic measures (that is, employment status and income) by education were statistically significant for Indigenous people regardless of whether they lived in remote or non-remote areas, controlling for other factors. Although the associations at the higher levels of educational attainment were slightly stronger for those living in non-remote areas of Australia compared with remote areas (especially in terms of income), the results still suggest that the economic incentives for Indigenous people to undertake education are reasonably strong in remote Australia. Alternatively, it could also be the case that some people moved to remote areas for employment once they had finished their education.

Health: In terms of reporting one's health as fair or poor, there were no significant differences for either educational measure in remote areas. In non-remote areas, Indigenous respondents who had completed more years of school were less likely to say their health was fair or poor.

Emotional wellbeing: The association between educational attainment and emotional wellbeing differed somewhat by remoteness, although there were limited statistically significant differences in subjective wellbeing by education in both remote and non-remote Australia. For example, in both remote and non-remote areas, Indigenous people who had completed Year 9 or less were significantly less likely to report feelings of happiness than those who had completed Year 12. However, in non-remote areas but not remote areas, highest year of school completed was significantly associated with reporting feelings of sadness.

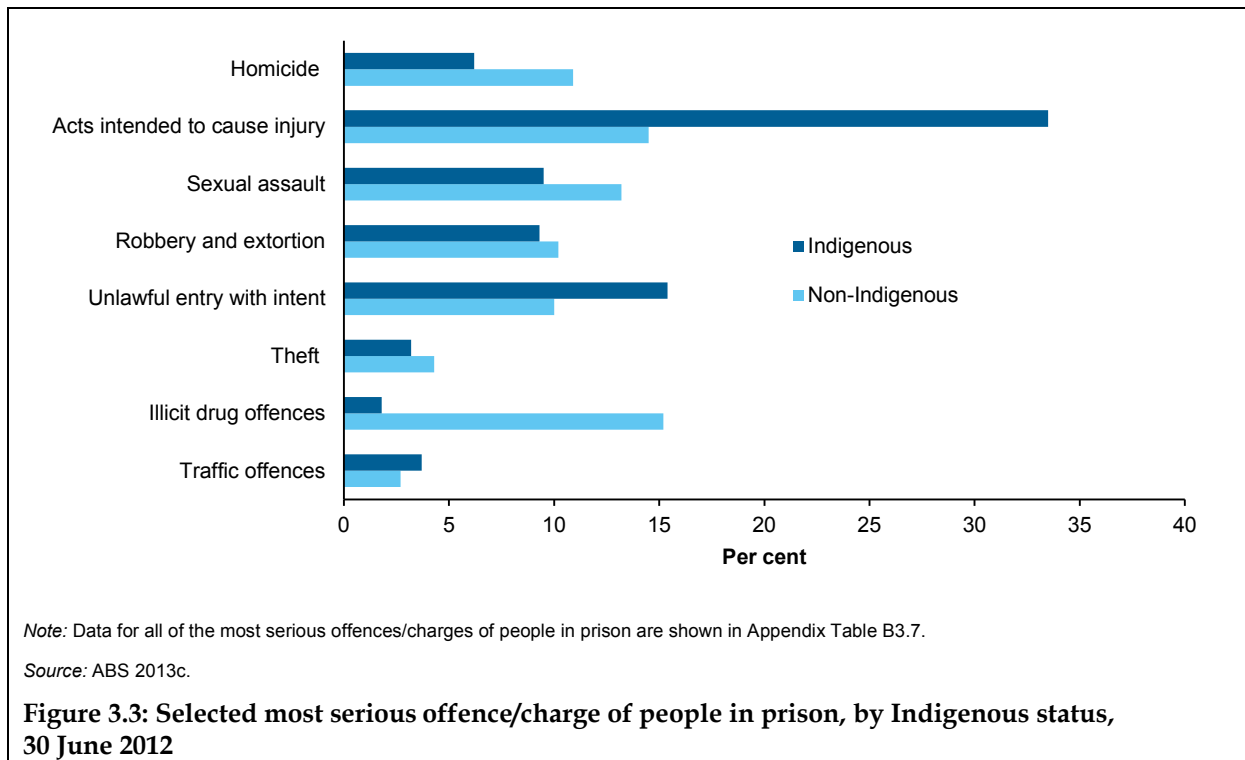
Cultural participation: For Indigenous Australians living in non-remote areas, levels of education were significantly associated with involvement in cultural events, ceremonies or organisations. In contrast, for those living in remote areas, there was only one statistically significant difference by education – those with a Bachelor degree or higher were more likely to be involved in cultural activities than those with no post-school qualification.

Having a say and Raising \$2,000: there were significant differences for Indigenous people living in both remote and non-remote areas in relation to the association between educational attainment and between having a say and being able to raise \$2,000 quickly, with one exception. That is, in remote areas, there was no significant difference in regard to feeling they could have a say among those whose highest qualification was a Diploma or higher and those with no post-school qualification.

3.4 Criminal activity and subjective wellbeing

Previous research has shown that Indigenous Australians are much more likely to be imprisoned than non-Indigenous people (ABS 2012, 2013c) and that they have a different pattern of offences (Figure 3.3).

As part of a series of questions on major life events, the HILDA Survey collected information from respondents on whether, in the previous 12 months, they had been arrested. While these data do not allow one to look at variables associated with being imprisoned, it does allow for the examination of factors associated with being arrested.



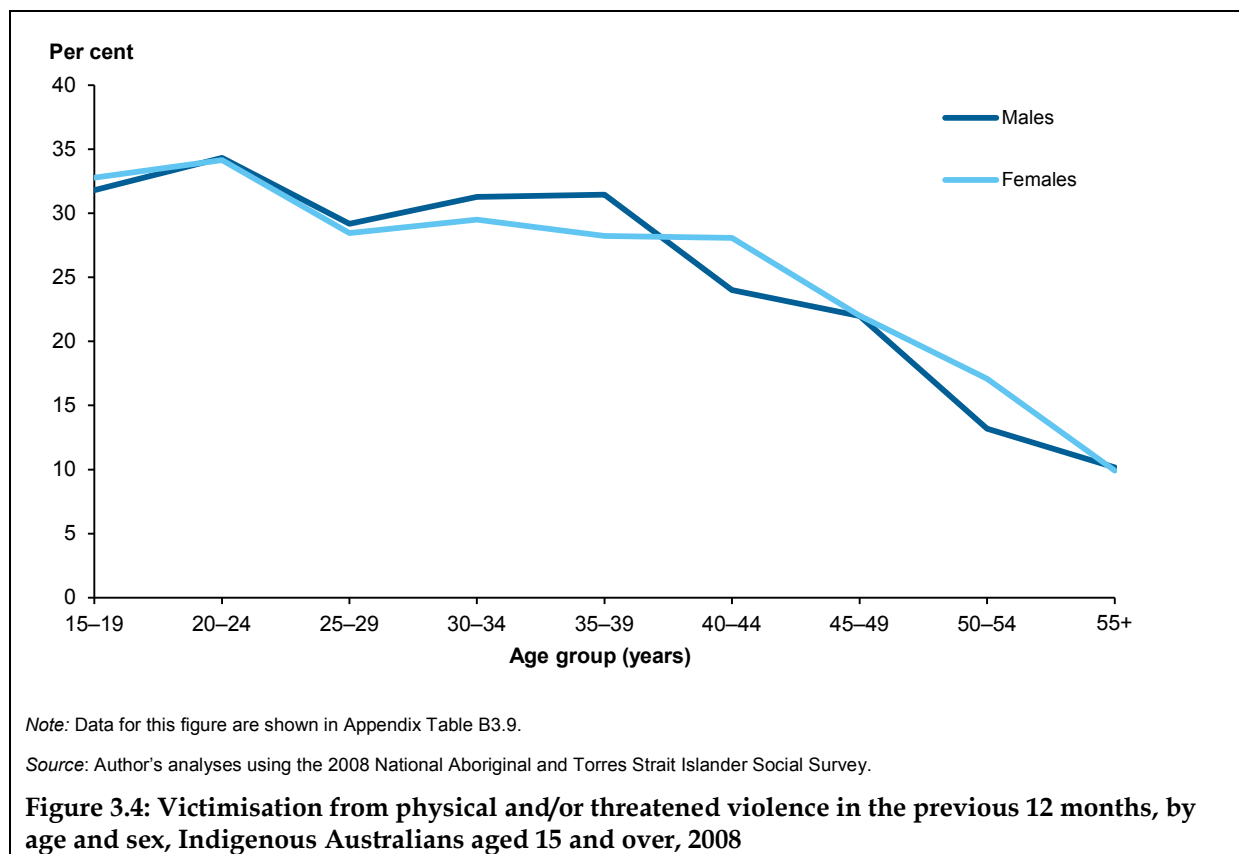
Analyses of these HILDA Survey data suggest that Indigenous Australians with poorer socioeconomic conditions and lower subjective wellbeing had higher rates of arrest (Appendix Table B3.8). However, after controlling for socioeconomic and subjective wellbeing, Indigenous Australians were still substantially more likely to have been arrested in the previous year, indicating that there are other factors influencing the likelihood of being arrested.

3.5 Victims of crime and subjective wellbeing

In addition to a greater likelihood of being arrested than non-Indigenous people, available data also suggest that Indigenous people are more likely to be victims of certain types of crime.

Analyses of the 2008 NATSISS showed that, for Indigenous Australians, the risk of being a victim of physical and/or threatened violence varied by age, and was greatest if they were between the ages of 15 to 39 (Figure 3.4). Indigenous people were also more likely to have been a victim of violence if they had been arrested in the previous 5 years, or reported high-risk alcohol use in the previous 12 months.

The 2008 NATSISS also showed that there is a negative association with subjective wellbeing and victimisation for Indigenous males. The data showed that Indigenous males who had been a victim of physical or threatened violence in the previous 12 months were significantly less likely to report that they had been a happy person all or most of the time in the previous 4 weeks than those who had not been a victim (64% compared with 78%), and more likely to report that they had been so sad that nothing could cheer them up at least some of the time (45% compared with 30%).



The same finding holds for Indigenous females, but the difference in subjective wellbeing between those who were victims and those who had not been victims was greater than for the males. That is, for happiness, 58% of female Indigenous victims reported being a happy person all or most of the time in the previous 4 weeks compared with 75% of non-victims, whereas for sadness the proportions were 61% for victims and 40% for non-victims. While the available data do not allow one to determine the direction of causality, the relationship was also found in more detailed multivariate analyses (Biddle 2011). Furthermore, the results clearly indicate that being a victim of violence is associated with poorer subjective wellbeing for Indigenous people, and particularly so for Indigenous females.

Appendix A: Key data sources

2008 National Aboriginal and Torres Strait Islander Social Survey

The ABS conducted the 2008 NATSISS between August 2008 and April 2009. The NATSISS provides data about Indigenous Australians across a range of areas of social concern including health, education, culture and labour force participation. Information was collected by personal interview from 13,300 Indigenous Australians living in private dwellings in both remote and non-remote areas of Australia.

Among the survey questions asked of respondents aged 15 and over, 2 questions captured aspects of subjective wellbeing:

- how often they felt happy in the previous 4 weeks
- how often they felt so sad that nothing could cheer them up over the same period.

For each of these questions, there were 5 response options: 1 meaning 'all of the time', 2 'most of the time', 3 'some of the time', 4 'a little of the time' and 5 'none of the time'.

The ABS conducts the NATSISS every 6 years, with the next survey planned for late 2014. Further information about the survey can be found in the NATSISS users' guide and related ABS reports (ABS 2009, 2010).

The Household Income and Labour Dynamics in Australia Survey

The HILDA Survey is a nationally representative panel study of Australian households which began in 2001. The survey is designed to provide longitudinal data on the lives of Australians. It collects information about a wide range of topics annually. Interviews are conducted with all adult members of each household.

Subjective wellbeing questions that are asked in this survey include questions about life satisfaction, happiness and sadness. That is, respondents are asked: 'All things considered, how satisfied are you with your life?', with response options ranging from 0 (completely dissatisfied) to 10 (completely satisfied). They are also asked to indicate how much of the time, during the previous 4 weeks:

- they have been a happy person
- they have 'felt so down in the dumps' that nothing could cheer them up.

For these latter 2 questions, there were 6 possible responses: 1 'all of the time', 2 'most of the time', 3 'a good bit of the time', 4 'some of the time', 5 'a little of the time' and 6 'none of the time'.

Data from the first 8 waves of the HILDA Survey are used in this paper, with the sample size for Wave 8 (which was carried out in 2008) being about 7,100 households and 16,400 individuals. There were 216 Indigenous respondents aged 15 and over in Wave 8. Note that to achieve a greater sample of observations using HILDA Survey data, a number of the analyses presented in this paper use pooled data from Wave 1 (collected in 2001) through to Wave 8 (2008). This pooling resulted in an effective sample size of 1,239 observations for the Indigenous population and 71,938 for the non-Indigenous population.

Further details about the HILDA Survey are available in survey annual reports and related reports that the Melbourne Institute has produced (for example, Kecmanovic & Wilkins 2012; Melbourne Institute 2013; Wilkins et al. 2011).

Appendix B: Additional tables

Table B3.1: Factors associated with change in life satisfaction, happiness and sadness, by Indigenous status, 2001–2008

Explanatory variable	Life satisfaction		Happiness		Sadness	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
Level of reported satisfaction/happiness/sadness in previous year	-0.475 *	-0.442 *	-0.544 *	-0.498 *	-0.561 *	-0.538 *
Change in self-assessed health status	0.162 *	0.129 *	0.103 *	0.120 *	-0.073	-0.081 *
Serious personal injury/illness	-0.144	-0.245 *	-0.334 *	-0.227 *	0.324 *	0.241 *
Changed residence	-0.039	0.030 *	-0.203 *	-0.007	0.066	0.006
Death of close relative/family member	0.061	0.003	-0.181 *	-0.031 *	0.125	0.046 *
Serious injury/illness to family member	-0.019	-0.051 *	-0.090	-0.075 *	0.195 *	0.038 *
Changed jobs	-0.023	-0.031 *	0.201 *	0.013	-0.187 *	-0.002
Death of a close friend	0.086	0.043 *	0.095	0.010	0.105	0.035 *
Close family member detained in jail	0.205	-0.072	-0.059	-0.097 *	0.136	0.148 *
Separated from spouse	-0.481 *	-0.447 *	-0.087	-0.236 *	0.329 *	0.329 *
Pregnancy	0.319	0.103 *	0.103	0.039	-0.009	-0.048 *
Promoted at work	0.074	-0.017	0.112	0.058 *	-0.212	-0.079 *
Victim of a property crime	-0.609 *	-0.164	-0.040	-0.057 *	0.074	0.022
Victim of physical violence	-0.350	-0.349	-0.172	-0.228 *	0.273	0.346 *
Birth/adoption of new child	0.013	-0.015	0.160	-0.042	-0.268	0.005
Change in equivalised household disposable income (\$'00,000)	-0.040	0.012 *	-0.055	0.004	0.024	-0.006 *
Constant	3.815 *	3.543 *	-1.431 *	-1.242 *	-2.945	-2.949 *
Adjusted R-Squared	0.2656	0.2783	0.2921	0.2812	0.3081	0.2604
Number of observations	1,024	66,309	1,036	64,135	1,041	64,268

* statistically significant difference at $p < 0.05$

Notes

1. These analyses were conducted using Ordinary Least Squares.
2. Three dependent variables were considered: the change in a person's reported life satisfaction, with a positive value indicating an increase in life satisfaction over time; the change in the frequency with which the person is happy, with a positive value indicating an increase in happiness over time; and the change in the frequency of experiencing intense feelings of sadness, with a positive value indicating an increase in sadness over time. The value of the dependent variables equals the number of categories that the person moved from 1 survey period to the next.
3. The independent (explanatory) variables are shown in the table. Apart from the first one, the independent variables were measured as whether or not the event occurred over the previous year or changes in outcomes from the previous year.

Source: Author's analyses using waves 1 to 8 (2001 to 2008) of the Household Income and Labour Dynamics in Australia Survey.

Table B3.2: Wellbeing, by labour force status, Indigenous Australians aged 15 and over, 2008

Wellbeing measure/labour force status	Per cent	Lower 95% confidence interval	Upper 95% confidence interval
Happiness			
Employed full time in non-CDEP employment	76.8	74.0	79.7
Employed part time in non-CDEP employment	75.6	71.4	79.8
CDEP employment	84.0	79.5	88.5
Unemployed	68.7	63.7	73.7
Not in the labour force	69.3	66.6	72.0
Sadness			
Employed full time in non-CDEP employment	30.5	27.5	33.5
Employed part time in non-CDEP employment	35.4	30.6	40.1
CDEP employment	40.5	32.8	48.2
Unemployed	46.1	40.8	51.5
Not in the labour force	43.5	40.5	46.5
Cultural			
Employed full time in non-CDEP employment	63.0	59.5	66.5
Employed part time in non-CDEP employment	63.1	57.8	68.4
CDEP employment	85.6	80.3	90.8
Unemployed	60.7	54.3	67.2
Not in the labour force	60.1	57.2	62.9
Have a say			
Employed full time in non-CDEP employment	31.2	28.0	34.5
Employed part time in non-CDEP employment	23.6	20.4	26.7
CDEP employment	33.4	26.8	39.9
Unemployed	18.5	14.5	22.5
Not in the labour force	21.0	18.6	23.3
Raise \$2,000			
Employed full time in non-CDEP employment	72.2	68.5	75.9
Employed part time in non-CDEP employment	56.7	51.7	61.6
CDEP employment	25.7	18.6	32.9
Unemployed	35.4	30.1	40.7
Not in the labour force	34.4	31.1	37.8

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey.

Table B3.3: Association between educational attainment and selected measures of wellbeing^(a), Indigenous males aged 15 and over, 2008

Explanatory variable ^(b)	Employed	Income ^(c)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Age group (years)								
15–24	–0.028	–315 *	0.052 *	–0.090 *	–0.222 *	0.008	–0.128 *	–0.017
25–34	0.010	–114 *	0.041	–0.071 *	–0.135 *	0.001	–0.071 *	–0.048
55 and over	–0.262 *	–67	0.052 *	–0.096 *	0.110 *	–0.008	0.051	0.069 *
Lives in a remote area	0.099 *	–60	0.096 *	–0.022	–0.094 *	0.160 *	0.022	–0.056 *
Not married	–0.236 *	–384 *	0.013	–0.005	–0.046	–0.045	–0.052	0.012
Family composition								
Couple family with dependent children	0.003	13	0.004	–0.030	–0.063 *	0.071 *	0.031	–0.073 *
Couple family with no dependent children but with dependent students or non-dependent children	0.053	109	0.003	–0.025	–0.072	–0.063	0.151 *	–0.030
One-parent family with dependent children	0.059	311 *	–0.041	–0.013	0.017	0.031	0.042	–0.154 *
One-parent family with no dependent children but with dependent students or non-dependent children	0.075 *	250 *	–0.039	0.032	0.097	–0.010	0.067	–0.101 *
Other family type	0.109 *	404 *	–0.103 *	0.062	0.053	–0.006	0.049	–0.113 *
Non-Indigenous person lives in household	0.085 *	66	–0.011	–0.054 *	–0.025	–0.206 *	0.028	0.171 *
Main language spoken at home is not English	–0.020	–346 *	0.025	0.085 *	–0.052	0.156 *	0.164 *	–0.170 *
Changed usual residence in the previous 5 years	–0.031	13	–0.015	0.021	0.031	0.000	–0.061 *	–0.049 *
Highest year of school completed								
Year 9 or less	–0.294 *	–278 *	–0.068 *	0.091 *	0.151 *	–0.076 *	–0.057 *	–0.199 *
Year 10 or 11 only	–0.111 *	–178 *	–0.012	0.023	0.010	–0.063 *	–0.037	–0.079 *

(continued)

Table B3.3 (continued): Association between educational attainment and selected measures of wellbeing^(a), Indigenous males aged 15 and over, 2008

Explanatory variable^(b)	Employed	Income^(c)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Highest post-school qualification								
Certificate I or II	0.056 *	139 *	0.040	-0.016	-0.003	0.098 *	0.048	0.023
Certificate III or IV	0.142 *	218 *	0.009	-0.029	-0.058 *	0.070 *	0.046	0.091 *
Diploma or Advanced diploma	0.136 *	294 *	-0.053	0.053	-0.077	0.177 *	0.060	0.142 *
Bachelor degree or higher	0.152 *	373 *	0.060	-0.026	-0.061	0.180 *	0.058	0.147 *
Probability of base case	0.768	959	0.729	0.362	0.314	0.630	0.320	0.674
Pseudo/Adjusted R-Squared	0.1582	0.2681	0.0256	0.0245	0.1219	0.1103	0.0485	0.1315
Number of observations	3,259	1,839	3,202	3,199	3,259	3,259	3,259	3,094

* statistically significant difference at $p < 0.05$

(a) Results are presented as marginal effects (or the difference in predicted probability relative to the base case) with estimates found using maximum likelihood estimation of the probit model.

(b) The base case individual: is aged 35–54; lives in a non-remote area; is married; lives in a couple family with no children; all people living in the household are Indigenous; main language spoken at home is English; did not change usual residence in the previous 5 years; completed Year 12; and has no post-school qualification.

(c) Analysis for 'Income' was restricted to those who were employed in the week prior to the survey.

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey (first presented in Biddle and Cameron 2012a, 2012b).

Table B3.4: Association between education and selected measures of wellbeing^(a), Indigenous females aged 15 and over, 2008

Explanatory variable^(b)	Employed	Income^(c)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Age group (years)								
15–24	–0.169 *	–270 *	0.050 *	–0.032	–0.155 *	–0.042	–0.101 *	–0.027
25–34	–0.086 *	–25	0.017	–0.035	–0.111 *	–0.041 *	–0.066 *	–0.025
55 and over	–0.315 *	–77 *	0.080 *	–0.101 *	0.071 *	–0.031	0.056 *	0.117 *
Lives in a remote area	0.099 *	38	0.078 *	0.000	–0.065 *	0.138 *	–0.005	–0.018
Not married	0.096 *	–209 *	0.006	0.025	–0.022	0.035	–0.013	0.018
Family composition								
Couple family with dependent children	–0.103 *	–72 *	0.033	–0.038	–0.027	0.045	–0.017	–0.072 *
Couple family with no dependent children but with dependent students or non-dependent children	–0.018	9	0.036	0.004	0.010	–0.044	0.012	0.073
One-parent family with dependent children	–0.272 *	333 *	–0.039	0.008	0.029	–0.052	0.055	–0.207 *
One-parent family with no dependent children but with dependent students or non-dependent children	–0.118 *	233 *	–0.007	0.004	0.055	–0.055	0.046	–0.191 *
Other family type	–0.135 *	323 *	–0.025	–0.004	0.093 *	–0.082	0.032	–0.128 *
Non-Indigenous person lives in household	0.125 *	–59 *	0.024	–0.056 *	–0.016	–0.186 *	0.047 *	0.178 *
Main language spoken at home is not English	–0.020	–189 *	0.063 *	0.028	–0.023	0.092 *	0.100 *	–0.186 *
Changed usual residence in the previous 5 years	–0.049 *	26	–0.043 *	0.058 *	0.009	0.023	–0.024	–0.079 *
Highest year of school completed								
Year 9 or less	–0.317 *	–188 *	–0.122 *	0.120 *	0.147 *	–0.074 *	–0.085 *	–0.260 *
Year 10 or 11 only	–0.136 *	–106 *	–0.039	0.067 *	0.043	–0.025	–0.024	–0.119 *
Highest post-school qualification								
Certificate I or II	0.110 *	57	0.013	0.050	0.030	–0.002	0.066 *	–0.006
Certificate III or IV	0.236 *	180 *	0.040	–0.030	–0.048 *	0.109 *	0.071 *	0.114 *
Diploma or Advanced diploma	0.225 *	357 *	0.033	–0.084 *	–0.052	0.150 *	0.137 *	0.093 *
Bachelor degree or higher	0.259 *	382 *	–0.039	–0.028	–0.058	0.173 *	0.119 *	0.183 *

(continued)

Table B3.4 (continued): Association between education and selected measures of wellbeing^(a), Indigenous females aged 15 and over, 2008

Explanatory variable^(b)	Employed	Income^(c)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Probability of base case	0.649	717	0.710	0.391	0.263	0.689	0.283	0.664
Pseudo/Adjusted R-Squared	0.1814	0.2866	0.0257	0.0212	0.0855	0.0813	0.0337	0.1614
Number of observations	4,303	1,751	4,256	4,249	4,303	4,303	4,303	4,051

* statistically significant difference at $p < 0.05$

- (a) Results are presented as marginal effects (or the difference in predicted probability relative to the base case) with estimates found using maximum likelihood estimation of the probit model.
- (b) The base case individual: is aged 35–54; lives in a non-remote area; is married; lives in a couple family with no children; all people in the household are Indigenous; main language spoken at home is English; did not change usual residence in the previous 5 years; completed Year 12; and has no post-school qualification.
- (c) Analysis for 'Income' was restricted to those who were employed in the week prior to the survey.

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey (first presented in Biddle and Cameron 2012a, 2012b).

Table B3.5: Association between education and selected measures of wellbeing^(a), Indigenous Australians aged 15 and over in non-remote areas^(b), 2008

Explanatory variable^(c)	Employed	Income^(d)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Female	-0.132 *	-282 *	-0.015	0.104 *	0.008	0.079 *	-0.001	-0.054 *
Age group (years)								
15–24	-0.083 *	-459 *	0.043 *	-0.064 *	-0.141 *	-0.004	-0.103 *	-0.022
25–34	-0.037 *	-92 *	0.030	-0.043 *	-0.080 *	-0.024	-0.048 *	-0.037 *
55 and over	-0.284 *	-132 *	0.057 *	-0.101 *	0.090 *	-0.004	0.048 *	0.100 *
Not married	-0.040	-428 *	0.021	0.026	-0.039	0.012	0.014	0.032
Family composition								
Couple family with dependent children	-0.043 *	-105 *	0.013	-0.036	-0.038 *	0.060 *	-0.019	-0.076 *
Couple family with no dependent children but with dependent students or non-dependent children	0.013	100	0.022	-0.028	-0.027	-0.049	0.062 *	0.020
One-parent family with dependent children	-0.099 *	568 *	-0.095 *	-0.002	0.033	-0.036	-0.006	-0.217 *
One-parent family with no dependent children but with dependent students or non-dependent children	-0.011	277 *	-0.034	-0.007	0.081 *	-0.022	-0.008	-0.189 *
Other family type	-0.003	482 *	-0.080 *	0.023	0.092 *	-0.051	-0.034	-0.169 *
Non-Indigenous person lives in household	0.090 *	-90 *	-0.002	-0.053 *	-0.018	-0.194 *	0.031	0.138 *
Main language spoken at home is not English	-0.124 *	-354 *	-0.011	0.175 *	0.061	0.162 *	0.025	-0.221 *
Changed usual residence in the previous 5 years	-0.043 *	23	-0.017	0.034 *	0.031 *	0.032 *	-0.031 *	-0.074 *
Highest year of school completed								
Year 9 or less	-0.302 *	-356 *	-0.099 *	0.138 *	0.190 *	-0.087 *	-0.052 *	-0.240 *
Year 10 or 11 only	-0.111 *	-218 *	-0.029	0.050 *	0.057 *	-0.052 *	-0.017	-0.092 *
Highest post-school qualification								
Certificate I or II	0.063 *	121 *	0.020	0.015	0.010	0.048 *	0.042	0.004
Certificate III or IV	0.144 *	217 *	0.007	-0.019	-0.052 *	0.109 *	0.042 *	0.084 *
Diploma or Advanced diploma	0.145 *	384 *	0.000	-0.044	-0.056 *	0.199 *	0.113 *	0.086 *
Bachelor degree or higher	0.163 *	458 *	-0.008	-0.027	-0.040	0.194 *	0.119 *	0.153 *

(continued)

Table B3.5 (continued): Association between education and selected measures of wellbeing^(a), Indigenous Australians aged 15 and over in non-remote areas^(b), 2008

Explanatory variable^(c)	Employed	Income^(d)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Probability of base case	0.781	1,124	0.740	0.313	0.225	0.597	0.296	0.732
Pseudo/Adjusted R-Squared	0.1883	0.2985	0.0153	0.0355	0.1000	0.0541	0.0264	0.1331
Number of observations	5,003	2,381	4,968	4,961	5,003	5,003	5,003	4,724

* statistically significant difference at $p < 0.05$

- (a) Results are presented as marginal effects (or the difference in predicted probability relative to the base case) with estimates found using maximum likelihood estimation of the probit model.
- (b) Remoteness was based on the Australian Standard Geographical Classification (ABS 2006).
- (c) The base case individual: is male; is aged 35–54; is married; lives in a couple family with no children; all people living in the household are Indigenous; main language spoken at home is English; did not change usual residence in the previous 5 years; completed Year 12; and has no post-school qualification.
- (d) Analysis for 'Income' was restricted to those who were employed in the week prior to the survey.

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey (first presented in Biddle and Cameron 2012a, 2012b).

Table B3.6: Association between education and selected measures of wellbeing^(a), Indigenous Australians aged 15 and over in remote areas^(b), 2008

Explanatory variable^(c)	Employed	Income^(d)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Female	-0.153 *	-27	-0.050 *	0.103 *	0.031	0.017	-0.070 *	-0.027
Age group (years)								
15–24	-0.089 *	-158 *	0.049 *	-0.035	-0.225 *	-0.054 *	-0.174 *	-0.018
25–34	-0.042 *	-48	0.012	-0.051 *	-0.181 *	-0.028	-0.129 *	-0.031
55 and over	-0.197 *	-1	0.066 *	-0.071 *	0.078 *	-0.043	0.080 *	0.056
Not married	-0.071 *	-159 *	-0.015	-0.020	-0.032	-0.026	-0.126 *	-0.019
Family composition								
Couple family with dependent children	-0.028	61	0.024	-0.022	-0.028	0.039	0.059	-0.052
Couple family with no dependent children but with dependent students or non-dependent children	-0.001	19	-0.010	0.056	0.016	-0.063	0.117 *	-0.043
One-parent family with dependent children	-0.028	250 *	0.016	0.040	0.026	0.026	0.218 *	-0.141 *
One-parent family with no dependent children but with dependent students or non-dependent children	0.017	209 *	-0.005	0.060	0.058	-0.045	0.186 *	-0.064
Other family type	0.022	199 *	-0.027	0.031	0.052	-0.030	0.186 *	-0.021
Non-Indigenous person lives in household	0.031	131 *	0.023	-0.017	0.025	-0.156 *	0.004	0.252 *
Main language spoken at home is not English	-0.004	-189 *	0.047 *	0.046 *	-0.043	0.067 *	0.153 *	-0.159 *
Changed usual residence in the previous 5 years	-0.015	7	-0.048 *	0.053 *	-0.024	-0.017	-0.059 *	-0.038
Highest year of school completed								
Year 9 or less	-0.224 *	-123 *	-0.068 *	0.032	0.025	-0.036	-0.129 *	-0.199 *
Year 10 or 11 only	-0.091 *	-61 *	-0.017	0.038	-0.049	-0.017	-0.055	-0.110 *
Highest post-school qualification								
Certificate I or II	0.057 *	77	0.020	0.043	0.033	0.017	0.116 *	-0.004
Certificate III or IV	0.107 *	210 *	0.069 *	-0.060 *	-0.027	0.033	0.142 *	0.140 *
Diploma or Advanced diploma	0.097 *	379 *	0.017	-0.040	-0.053	0.038	0.120	0.163 *
Bachelor degree or higher	0.113 *	364 *	-0.001	-0.025	-0.097	0.126 *	0.034	0.168 *

(continued)

Table B3.6 (continued): Association between education and selected measures of wellbeing^(a), Indigenous Australians aged 15 and over in remote areas^(b), 2008

Explanatory variable^(c)	Employed	Income^(d)	Happiness	Sadness	Health	Cultural	Have a say	Raise \$2,000
Probability of base case	0.878	646	0.818	0.327	0.312	0.839	0.373	0.584
Pseudo/Adjusted R-Squared	0.1697	0.1990	0.0235	0.0180	0.1034	0.0544	0.0704	0.1082
Number of observations	2,559	1,209	2,490	2,487	2,559	2,559	2,559	2,421

* statistically significant difference at $p < 0.05$

- (a) Results are presented as marginal effects (or the difference in predicted probability relative to the base case) with estimates found using maximum likelihood estimation of the probit model.
- (b) Remoteness was based on the Australian Standard Geographical Classification (ABS 2006).
- (c) The base case individual: is male; is aged 35–54; is married; lives in a couple family with no children; all people living in the household are Indigenous; main language spoken at home is English; did not change usual residence in the previous 5 years; completed Year 12; and has no post-school qualification.
- (d) Analysis for 'Income' was restricted to those who were employed in the week prior to the survey.

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey (first presented in Biddle and Cameron 2012a, 2012b).

Table B3.7: Most serious offence/charge of people in prison, by Indigenous status, 30 June 2012

Most serious offence/charge ^(a)	Indigenous		Non-Indigenous		Total ^(b)	
	No.	%	No.	%	No.	%
Homicide and related offences	494	6.2	2,326	10.9	2,834	9.6
Acts intended to cause injury	2,673	33.5	3,076	14.5	5,776	19.7
Sexual assault and related offences	758	9.5	2,808	13.2	3,579	12.2
Dangerous or negligent acts endangering persons	290	3.6	441	2.1	734	2.5
Abduction, harassment and other offences against the person	80	1.0	270	1.3	350	1.2
Robbery, extortion and related offences	739	9.3	2,169	10.2	2,921	9.9
Unlawful entry with intent	1,231	15.4	2,126	10.0	3,360	11.4
Theft and related offences	258	3.2	921	4.3	1,183	4.0
Fraud, deception and related offences	48	0.6	711	3.3	762	2.6
Illicit drug offences	146	1.8	3,223	15.2	3,408	11.6
Prohibited and regulated weapons and explosives offences	47	0.6	206	1.0	256	0.9
Property damage and environmental pollution	102	1.3	293	1.4	398	1.4
Public order offences	61	0.8	128	0.6	189	0.6
Traffic and vehicle regulatory offences	294	3.7	584	2.7	885	3.0
Offences against justice procedures, gov't security and operations	738	9.2	1,905	9.0	2,647	9.0
Miscellaneous offences	20	0.3	69	0.3	89	0.3
Unknown	—	—	12	0.1	12	—
Total	7,979	100.0	21,268	100.0	29,383	100.0

(a) For details on offences included in each category, see ABS 2011a.

(b) Includes prisoners for whom Indigenous status was not recorded.

Source: ABS 2013c.

Table B3.8: Difference in the predicted number of people arrested in the previous year (per 100,000 population), people aged 15 and over, 2001–2008^(a)

Explanatory variable^(b)	Model 1^(c)	Model 2^(c)
Indigenous	215 *	94 *
Female	–54 *	–31 *
Age group (years)		
15–24	105 *	66 *
25–34	41	11
55 and over	–34	–10
Family composition		
Couple family with dependent children aged under 15	–11	5
Couple family with dependent children aged 15 and over (but no younger children)	–28	–7
One-parent family with dependent children aged under 15	85	55
One-parent family with dependent children aged 15 and over (but no younger children)	9	–7
Other family types	–5	–11
Marital status		
Separated, divorced or widowed and not in a de facto relationship	90 *	61 *
In a de facto relationship	68	47
Never married and currently not in a de facto relationship	111 *	64 *
Highest year of school completed		
Year 9 or less	76 *	34
Year 10 or Year 11 only	86 *	41 *
Highest post-school qualification		
Has a non-degree qualification	–8	–3
Has a degree or higher	–52 *	–28 *
Labour force status		
Not in the labour force	33	13
Unemployed	79 *	33
Household income ^(d)	–18 *	–16 *
Life satisfaction ^(d)	..	–7 *
Had felt 'down in the dumps' some of the time or more often	..	51 *
Predicted number with base case characteristics	66	37
Pseudo R-Squared	0.1260	0.1323
Number of observations	72,826	69,079

* statistically significant difference at $p < 0.05$

- (a) The dependent variable was the predicted probability of a person reporting that they had been arrested in the past year (that is, between time $t-1$ and time t). The independent variables were a range of characteristics of the individual at time $t-1$. Two models were analysed—one that did not include measures of subjective wellbeing (Model 1) and one that included 2 such measures (sadness and life satisfaction) (Model 2).
- (b) The base case individual: is non-Indigenous; is male; is aged 35–54; lives in a couple family with no dependent children; is married; has completed Year 12; does not have a post-school qualification; is employed; has a household income of \$76,378 per annum; has a life satisfaction rating of 8 out of 10; and did not report feeling down in the dumps.
- (c) The predicted probabilities, as derived from the analyses, were converted to rates per 100,000 people and the association with the independent variables presented as marginal effects (that is, the differences in those rates whilst holding other characteristics constant).
- (d) The marginal effect for household income is calculated as a 1-standard deviation increase and for life satisfaction, a 1-unit change.

Source: Author's analyses using waves 1 to 8 (2001 to 2008) of the Household Income and Labour Dynamics in Australia Survey.

Table B3.9: Victimisation from physical and/or threatened violence in the previous 12 months, by age and sex, Indigenous Australians aged 15 and over, 2008 (per cent)

Age group (years)	Males	Females
15–19	31.8	32.8
20–24	34.3	34.1
25–29	29.2	28.4
30–34	31.3	29.5
35–39	31.4	28.2
40–44	24.0	28.1
45–49	22.0	22.0
50–54	13.2	17.1
55 and over	10.2	9.9

Source: Author's analyses using the 2008 National Aboriginal and Torres Strait Islander Social Survey.

References

- ABS (Australian Bureau of Statistics) 2001. Measuring wellbeing: frameworks for Australian social statistics. ABS cat. no. 4160.0. Canberra: ABS.
- ABS 2006. Statistical geography volume 1: Australian Standard Geographical Classification (ASGC). ABS cat. no. 1216.0. Canberra: ABS.
- ABS 2009. National Aboriginal and Torres Strait Islander Social Survey, 2008. ABS cat. no. 4714.0. Canberra: ABS.
- ABS 2010. National Aboriginal and Torres Strait Islander Social Survey: users' guide, 2008. ABS cat. no. 4720.0. Canberra: ABS.
- ABS 2011a. Australian and New Zealand Standard Offence Classification (ANZSOC), 2011. ABS cat. no. 1234.0. Canberra: ABS.
- ABS 2011b. Household income and income distribution, Australia, 2009–10. ABS cat. no. 6523.0. Canberra: ABS.
- ABS 2012. Aboriginal and Torres Strait Islander peoples: law and justice. In Year book Australia, 2012. ABS cat. no. 1301.0. Canberra: ABS.
- ABS 2013a. Australian Aboriginal and Torres Strait Islander Health Survey: first results, Australia 2012–13. ABS cat. no. 4727.0.55.001. Canberra: ABS.
- ABS 2013b. Life tables for Aboriginal and Torres Strait Islander Australians, 2010–2012. ABS cat. no. 3302.0.55.003. Canberra: ABS.
- ABS 2013c. Prisoners in Australia, 2012. ABS cat. no. 4517.0. Canberra: ABS.
- AHMAC (Australian Health Ministers' Advisory Council) 2012. Aboriginal and Torres Strait Islander health performance framework 2012 report. Canberra: AHMAC.
- AIHW 2011. The health and welfare of Australia's Aboriginal and Torres Strait Islander people: an overview 2011. Cat. no. IHW 42. Canberra: AIHW.
- AIHW 2014. Housing circumstances of Indigenous households: tenure and overcrowding. Cat. no. IHW 132. Canberra: AIHW.
- AIHW forthcoming. Mortality and life expectancy of Aboriginal and Torres Strait Islander people. Canberra: AIHW.
- Andrews G & Slade T 2001. Interpreting scores on the Kessler Psychological Distress Scale (K10). Australian and New Zealand Journal of Public Health 25(6):494–7.
- Biddle N 2009. Location and segregation: the distribution of the Indigenous population across Australia's urban centres. CAEPR Working paper 53. Canberra: CAEPR, ANU.
- Biddle N 2011. Crime and feelings of safety. Lecture 6, Measures of Indigenous wellbeing and their determinants across the lifecourse: 2011 CAEPR Online Lecture Series. Canberra: CAEPR, ANU. Viewed 15 April 2014, <<http://caepr.anu.edu.au/Crime-and-feelings-safety.php>>.
- Biddle N & Yap M 2010. Demographic and socioeconomic outcomes across the Indigenous Australian lifecourse: evidence from the 2006 Census. CAEPR Research monograph 31. Canberra: ANU EPress.

- Biddle N & Cameron T 2012a. Potential factors influencing Indigenous education participation and achievement. National Vocational Education and Training Research Program research report. Adelaide: National Centre for Vocational Education Research.
- Biddle N & Cameron T 2012b. Potential factors influencing Indigenous education participation and achievement: support document. Adelaide: National Centre for Vocational Education Research.
- DSS (Department of Social Services) 2013. Closing the gap. The Indigenous reform agenda. Canberra: DSS. Viewed 14 March 2014, <<http://www.dss.gov.au/our-responsibilities/indigenous-australians/programs-services/closing-the-gap>>.
- Kahneman D & Deaton A 2010. High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Science* 107(38):16489-93.
- Kecmanovic M & Wilkins R 2012. Life satisfaction and satisfaction with specific aspects of life. In Wilkins R (ed.), *Families, incomes and jobs, volume 8: a statistical report on waves 1 to 10 of the Household, Income and Labour Dynamics in Australia survey*. Melbourne: Melbourne Institute of Applied Economic and Social Research, The University of Melbourne.
- Mare RD 1991. Five decades of educational assortative mating. *American Sociological Review* 56(1):15-32.
- Melbourne Institute 2013. *HILDA Survey annual report 2012*. Melbourne: Melbourne Institute of Applied Economic and Social Research, The University of Melbourne.
- SCRGSP (Steering Committee for the Review of Government Service Provision) 2011. *Overcoming Indigenous disadvantage: key indicators 2011 report*. Canberra: Productivity Commission.
- Shields MA, Wheatley Price S & Wooden M 2009. Life satisfaction and the economic and social characteristics of neighbourhoods. *Journal of Population Economics* 22(2):421-43.
- Siahpush M, Spittal M & Singh GK 2008. Happiness and life satisfaction prospectively predict self-rated health, physical health, and the presence of limiting, long-term health conditions. *American Journal of Health Promotion* 23(1):18-26.
- Wilkins R, Warren D, Hahn M & Houng B 2011. *Families, incomes and jobs, volume 6: a statistical report on waves 1 to 8 of the Household, Income and Labour Dynamics in Australia survey*. Melbourne: Melbourne Institute of Applied Economic and Social Research, The University of Melbourne.
- Yap M 2011. Indigenous experience of violence and Indigenous empowerment: gender and Indigenous wellbeing. Lecture 7, *Measures of Indigenous wellbeing and their determinants across the lifecourse*. 2011 CAEPR Lecture Series. Canberra: CAEPR, ANU.

Determinants of wellbeing for Indigenous Australians examines the wellbeing of Indigenous Australians and factors that may contribute to this. The focus is on subjective wellbeing but a number of objective measures of wellbeing are also considered. Compared with non-Indigenous Australians, Indigenous people tended to report lower levels of emotional wellbeing but they were more likely to say that they were satisfied with life.