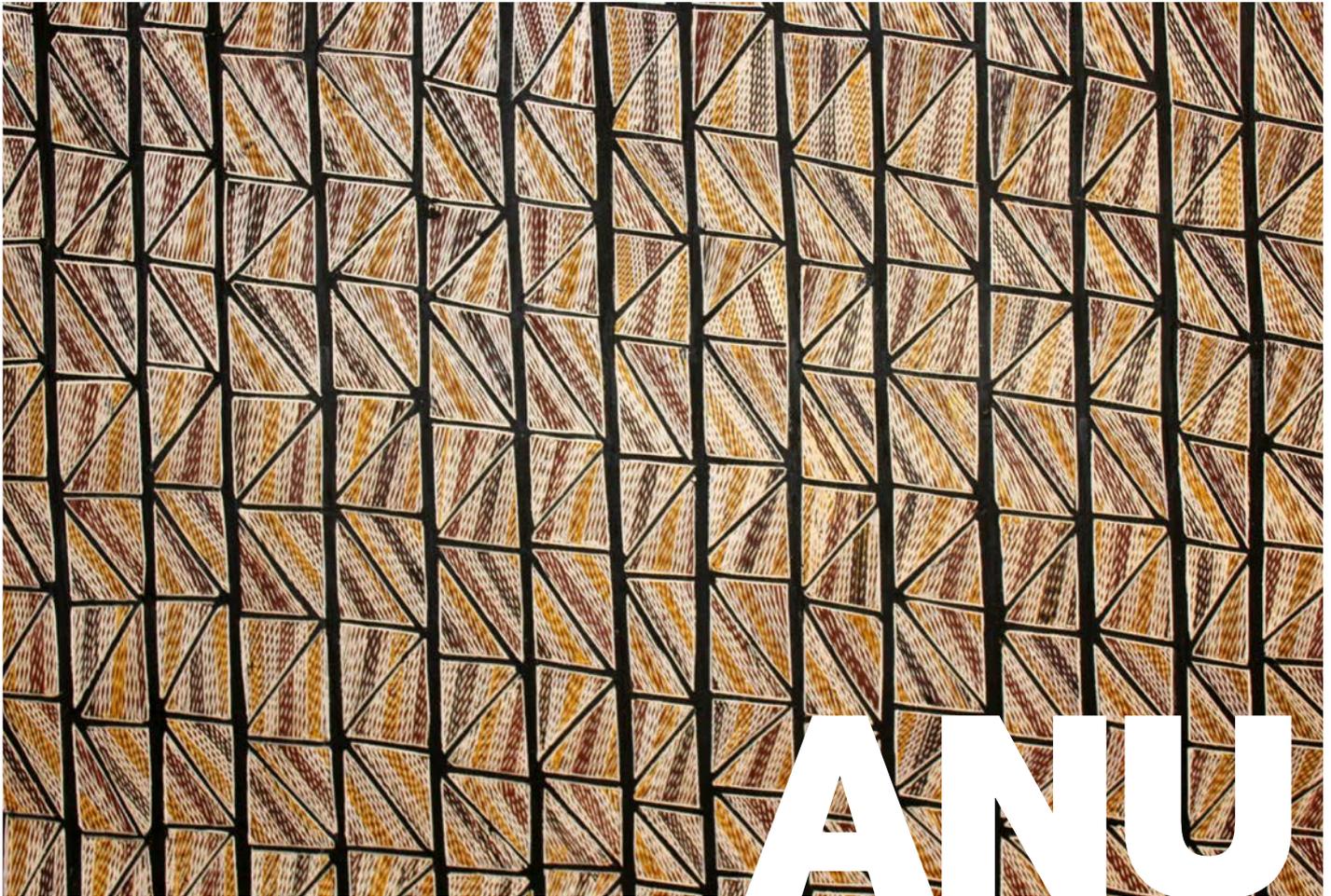




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POVERTY TRANSITIONS IN NONREMOTE
INDIGENOUS HOUSEHOLDS:
THE ROLE OF LABOUR MARKET AND
HOUSEHOLD DYNAMICS

D VENN AND B HUNTER

Centre for
Aboriginal Economic
Policy Research
ANU College of
**Arts & Social
Sciences**

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Poverty transitions in nonremote indigenous households: the role of labour market and household dynamics

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Abstract

Using data from the Household Income and Labour Dynamics in Australia (HILDA) Survey, this paper estimates year-to-year poverty entry and exit rates for Indigenous and non-Indigenous individuals living in nonremote areas of Australia. Indigenous Australians of working age have a higher probability of entering poverty and a lower probability of exiting poverty than non-Indigenous people. Changes in household size are the biggest triggers of poverty entry and exit for Indigenous people, accounting for almost 50% of poverty entries and 40% of poverty exits. Changes in household size are more prevalent for Indigenous than non-Indigenous people, due partly to higher birth and partnering rates, and to the greater proportion of Indigenous people who live in dynamic extended-family or multifamily households. Indigenous people who experience changes in household size have a greater likelihood of entering poverty and a smaller likelihood of exiting poverty than non-Indigenous people.

The labour market plays a prominent role in triggering poverty transitions for Indigenous people. Among those in poverty, increased exposure to the labour market (either by having more household members working or higher labour earnings) results in a 62% likelihood of exiting poverty, while reductions in employment and labour earnings trigger around one-quarter of poverty entries for Indigenous people. Changes in private income, such as business and investment income, play a much smaller role in triggering poverty entries and exits for Indigenous than

non-Indigenous people, largely because Indigenous people get far less of their income from such sources.

The results suggest that Indigenous poverty is likely to be more persistent than non-Indigenous poverty, thus having a bigger negative impact on wellbeing. Greater exposure to the labour market and more access to other sources of private income are likely to reduce poverty incidence among the Indigenous population, but the dynamics of Indigenous households leave them at greater risk of persistent poverty, all other things being equal.

Keywords: Indigenous, poverty, employment, household dynamics

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Acronyms

ANU	Australian National University
CAEPR	Centre for Aboriginal Economic Policy Research
HILDA	Household Income and Labour Dynamics in Australia
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
OECD	Organisation for Economic Co-operation and Development

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Introduction

It is well documented that Indigenous Australians have higher income poverty rates than non-Indigenous Australians (e.g. Ross & Whiteford 1992, Ross & Mikalauskas 1996, Altman & Hunter 1998, Hunter 2006, Markham & Biddle 2018a). Lack of employment has been identified by many authors as a key driver of Indigenous poverty – from the seminal work of Henderson (1975) and the reports he commissioned (Brown et al. 1974, Gale & Binnion 1975) onwards. For example, Altman and Nieuwenhuysen (1979) emphasise the role of labour market disadvantage in driving Indigenous economic status, while Ross and Mikalauskas (1996) conclude that unemployment among family members is the primary factor underlying Indigenous income poverty.

Family dynamics are also likely to contribute to high poverty rates among the Indigenous population. In a series of papers, Daly and Smith (1995, 1999; Smith & Daly 1996) examined the implications of Indigenous household structure and mobility for various socioeconomic indicators, including household income. They argue that the prevalence of large, multifamily households, and high mobility and visitor rates among Indigenous households, is likely to induce economic stress and ‘reinforce poverty entrapment for low income households’ (Daly & Smith 1999:11).

Most research on Indigenous income poverty has used cross-sectional data on income and other characteristics, primarily from the Census of Population and Housing or the National Aboriginal and Torres Strait Islander Social Survey (NATSISS).¹ The analyses have focused on describing the characteristics of those who are in poverty, as well as the relationships between income poverty and other indicators of financial stress, deprivation and social exclusion (e.g. Hunter 1999, 2012; Markham & Biddle 2018a).

However, cross-sectional analysis is limited in its ability to provide insights into the factors that push people into poverty and keep them there. Using longitudinal data, Headey et al. (2005) find that relatively few Australians live in persistent poverty, but that the likelihood of exiting poverty falls substantially as poverty duration increases. Policy interventions to alleviate income poverty (such as income support payments) can be targeted at the most needy by identifying those who are currently poor. However, interventions to prevent people falling into poverty in the first place, and help those at most risk of persistent poverty to exit, require a good

understanding of poverty dynamics and their drivers (Jenkins 2000). This is currently lacking for the Australian Indigenous population.

The study of poverty dynamics in Australia has been facilitated by the increasing availability of longitudinal data, notably from the Household Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey is not representative of the Australian Indigenous population because it does not include those living in very remote areas, who are disproportionately Indigenous.² Nevertheless, it provides a small but reasonably representative sample of Indigenous people living in nonremote areas of Australia. Wilkins’ analysis (2016) shows that Indigenous people in the HILDA Survey sample are around half as likely to exit poverty each year (and therefore have longer poverty spells) as non-Indigenous Australian-born people, all other things being equal. Buddelmeyer and Verick (2008) examine the factors associated with poverty entry and persistence, and find that employment and education protect people against entering and remaining in poverty, while living in a non-urban area is associated with a greater likelihood of poverty entry. These results suggest that, based on their average characteristics, Indigenous people may be more likely to enter and remain in poverty than non-Indigenous people. However, to our knowledge there are no published estimates of poverty entry and exit rates by Indigenous status, nor specific consideration of the factors that drive differences in poverty dynamics between Indigenous and non-Indigenous Australians.

This paper contributes to the poverty literature in Australia by presenting estimates of income poverty entry and exit rates for Indigenous people living in nonremote areas of Australia. It examines the contribution of various ‘trigger events’ such as changes in household size, the number of workers in the household, labour income, and other private income to entry and exit rates to determine which factors are most important in driving Indigenous poverty dynamics. The next section outlines the data and methods used in the analysis. Results are then presented for entry and exit rates, and their drivers. The results section concludes with a closer look at the role of family size changes on poverty dynamics. The final section discusses the results and their limitations, and provides some areas for further research.

Data and methods

HILDA Survey

The HILDA Survey is a nationally representative longitudinal survey of people aged over 15 years living in private dwellings. The survey covers a range of topics, including personal, labour market and family characteristics; income; health; and wellbeing. The survey has been conducted annually since 2001. We use data from waves 3 (2003) to 15 (2015), the latest year available at the time of writing. Data on the number of employed people per household, a key variable in our analysis, were not available in a comparable form in the 2002 wave, so waves 1 and 2 are excluded from the analysis.

All new survey entrants are asked in a face-to-face interview whether they identify as Aboriginal, Torres Strait Islander, both or neither. This information is then used in subsequent waves to identify Indigenous status (we define Indigenous people as those who identify as Aboriginal, Torres Strait Islander or both).

Indigenous people are underrepresented in the HILDA Survey for several reasons. First, the survey does not sample people from very remote areas and those in remote areas are undersampled. Second, Indigenous status is only collected when respondents enter the HILDA sample for the first time. Analysis of census data shows that significant numbers of people change their Indigenous identification over a five-year period, resulting in a net gain in the number of people identifying as Indigenous between 2006 and 2016 (Biddle & Crawford 2015, Markham & Biddle 2018b). It is likely the assumption used in the HILDA Survey that Indigenous status is unchanging will lead to an underestimate of the Indigenous population in the later waves of the HILDA Survey. Finally, attrition rates for the sample of Indigenous people in the HILDA Survey are around twice those for non-Indigenous respondents (attrition and its effect on sample representativeness are discussed in more detail below).

Despite these limitations, the HILDA Survey presents the most relevant source of annual longitudinal data on the incomes of Indigenous Australians (and their households) living in nonremote areas for analysing poverty transitions. We restrict our analysis to look only at Indigenous and non-Indigenous people living in nonremote areas of Australia, for which the HILDA Survey is broadly representative (see below for discussion of the representativeness of the sample). We pool observations across all available waves of the HILDA Survey to ensure

that our sample of Indigenous people is large enough to conduct meaningful analysis. Our final sample includes around 3600 observations across 666 Indigenous adults.

Defining poverty

Defining poverty is fraught with methodological and ideological complexity; defining Indigenous poverty even more so (Altman & Hunter 1997, Hunter 2012). Rather than revisiting this debate, we concentrate only on income poverty and adopt a definition of poverty that is comparable with other Australian research on poverty dynamics (Headey et al. 2005, Buddelmeyer & Verick 2008, Wilkins 2016). Drawing on previous research findings for Indigenous people (Smith & Daly 1996, Hunter et al. 2003), we focus on the household, rather than the family or income unit, as the primary unit of analysis for income. We leave analysis of the dynamics of other aspects of poverty, such as deprivation and social exclusion, for future research.

Income poverty is defined in this paper at the individual level as living in a household that has equivalised household disposable income below 50% of the median. The poverty threshold is recalculated each year. Household disposable income is adjusted for household size using a modified Organisation for Economic Co-operation and Development (OECD) equivalence scale, whereby a weight of 1 is given to the first adult (aged 15 years and over) in each household, 0.5 to each subsequent adult and 0.3 to each child aged under 15 years.

We test the sensitivity of our results to the definition of poverty by re-estimating poverty transition rates for several alternative poverty thresholds: equivalised gross household income below 50% of the median, equivalised disposable household income below 40% of the median and equivalised disposable household income below 60% of the median. We also test the sensitivity of our results using three commonly used alternative equivalence scales:

- old OECD scale: a weight of 1 is given to the first adult, 0.7 to each subsequent adult and 0.5 to each child. Compared with the modified OECD scale, it assumes fewer economies of scale
- per capita income: assumes that children and adults have equal needs and that there are no economies of scale within the household
- square root of household size: assumes that children and adults have equal needs but that overall needs double as household size increases by a factor of 4.

The household income variable used is household disposable financial year regular income. Most HILDA Survey interviews typically take place between July and December each year (Summerfield et al. 2016), so the financial year income variables in each wave of the data refer to income from the financial year finishing just before the survey is administered. Household financial year income is aggregated across all adult members of each household and imputed where missing. Tax and some transfer income are imputed, to compile an estimate of household disposable financial year income (Summerfield et al. 2016). A small number of individuals who live in households with negative disposable household income were dropped from our sample.

Aggregation and imputation of household income in the HILDA Survey is based on household composition in the survey year. For example, the 2005 wave of the HILDA Survey includes information for household financial year income that is the sum of financial year income for 2004–05 for each of the household members living in the household in mid-late 2005 (i.e. during the 2005–6 financial year). Ideally, we would use financial year income for 2005–06 and household composition data for 2006 (i.e. from the following wave of the survey) to estimate equivalised household financial year income. However, it is not possible to re-aggregate household financial year income for the household members who were present in the previous wave because not all were included in the survey in the previous wave and therefore financial year income data are not available for all. We therefore follow convention in other papers on poverty dynamics using the HILDA Survey (Headey et al. 2005, Buddelmeyer & Verick 2008, Wilkins 2016) and use data on household composition and financial year income from the same wave to calculate equivalised household income.

Estimating poverty transition rates

As attrition in the HILDA Indigenous sample is relatively high and we need to use data from two consecutive waves to construct household equivalised income, we consider only year-to-year poverty transitions. We assume any individual can be either poor (P) or nonpoor (NP) at any point in time. We construct two-year pairs of observations for individuals that compare poverty in year t and year $t + 1$. Two types of transitions can be identified: entry and exit:

$$\begin{aligned}\Pr(\text{entry}) &= \Pr(P_{t+1}|NP_t) \\ \Pr(\text{exit}) &= \Pr(NP_{t+1}|P_t)\end{aligned}$$

To maximise the sample size for the Indigenous population, we pool two-year pairs across the full HILDA Survey sample from 2003 to 2015 (base year $t = 2003-14$). As a result, each person is likely to appear in the sample more than once. We do not correct standard errors for correlations between different observations for the same individuals. As a result, our standard errors are likely to be lower bounds. All estimates are weighted using the cross-sectional person-level weights provided in the HILDA Survey for year t . Although longitudinal weights are available, we do not use them because they do not control specifically for attrition by Indigenous status. We discuss the impact of attrition and the representativeness of the resulting sample in more detail below.

Estimating the contribution of trigger events to poverty transitions

We define poverty as having household equivalised disposable income below a certain threshold, which is essentially household income divided by a weighted sum of household size. Households that move into or out of poverty must, by definition, have experienced a change in income, a change in household size/composition, or both. Therefore, following Bane and Ellwood (1983) and Jenkins and Schluter (2003), we can decompose poverty entry and exit rates to determine the contribution of various ‘trigger’ events such as changes in household size, employment, and labour and nonlabour income. We can also compare the Indigenous and non-Indigenous samples to understand how much of the difference in entry/exit rates by Indigenous status can be attributed to differences in the occurrence of each trigger event and how much to differences in the likelihood of poverty entry/exit, given the occurrence of a trigger event.

Assume there is an exhaustive set of J mutually exclusive trigger events, E_j , that occur between year t and year $t + 1$. For those who are in poverty in year t , the probability of exiting poverty between year t and year $t + 1$ can then be written as:

$$\Pr(\text{exit}) = \Pr(NP_{t+1}|P_t) = \sum_{j=1}^J \Pr(\text{exit}|E_j) \Pr(E_j)$$

For those who are not in poverty in year t , the probability of entering poverty between year t and year $t + 1$ can be written as:

$$\Pr(\text{entry}) = \Pr(P_{t+1}|NP_t) = \sum_{j=1}^J \Pr(\text{entry}|E_j) \Pr(E_j)$$

We initially define a series of eight mutually exclusive trigger events based on changes in household size, the number of employed people in a household, the amount of labour income earned by the household and the amount of private nonlabour income (business and investment income, regular private pensions and regular private transfer income) earned by the household. The trigger events are:

- increase/decrease in the number of people in the household
- increase/decrease in the number of employed adults in the household, with no change in total household size
- increase/decrease in the amount of gross annual household labour earnings, with no change in the number of employed adults or household size
- increase/decrease in the amount of gross annual household private nonlabour income, with no change in the amount of gross annual household labour earnings, the number of employed adults or household size.

As our eight events are not exhaustive of all the possible changes in household income and/or composition, we also include a residual category that captures all other changes that affect the likelihood of entry/exit, assuming that there are no other changes in household size, the number of employed adults or labour/nonlabour earnings.

We calculate the likelihood of each event and the probability of entry/exit, given the occurrence of each event for the Indigenous and non-Indigenous samples, separately. We can then compare the relative importance of each type of event in explaining overall entry/exit rates for both populations, as well as look at differences between populations in the likelihood of events and their effect on entry/exit rates.

While the above approach of examining an exhaustive, mutually exclusive list of trigger events has the advantage of fully accounting for changes that contribute to poverty entry and exit, it necessarily abstracts from the real-life events that underlie changes in household composition.³ To supplement our main analysis, we also examine a series of life events that either increase or decrease household size.⁴ This list is not exhaustive or mutually exclusive, but provides an insight into the types of household changes that have

the biggest effect on poverty entry and exit risks. The life events are defined as follows:

- Birth or adoption of a child in the household – an increase in the number of children (aged under 15 years) in the household, with no change in the number of adults in the household.
- Partnering – an individual's relationship in the household changes from lone person, lone parent, adult child⁵ or 'other' person to couple, or someone is the adult child of a parent who partners.
- Separation – an individual's relationship in the household changes from couple to lone person, lone parent or 'other' person, or someone is the adult child of a parent who separates.
- Adult child who leaves/moves in – an individual who is an adult child in year t and not an adult child in year $t + 1$, and vice versa.
- Parent of an adult child who leaves/moves in – being a couple or lone parent in a household that had a reduction/increase in the number of adult children.
- Family member joins/leaves household – being a member of a household that had an increase/decrease in the number of extended family members (not including adult children) present.
- Other person joins/leaves household – being a member of a household that had an increase/decrease in the number of other, unrelated people present.

Sample characteristics

Table 1 presents some descriptive statistics for our sample of nonremote Indigenous people from the HILDA Survey, and compares their characteristics with those of the nonremote Indigenous population from the 2002 and 2014–15 editions of the NATSISS conducted by the Australian Bureau of Statistics. Like the HILDA Survey, the NATSISS samples individuals living in private dwellings. Unlike the HILDA Survey, the NATSISS covers people living in remote areas and discrete Indigenous communities. However, the data presented in Table 1 from the NATSISS refer to the population living in nonremote areas.

Compared with the NATSISS, the pooled cross-sectional sample of nonremote Indigenous respondents in the HILDA Survey contains more women, fewer young people, fewer unemployed, more people living in major cities and more people living in multifamily households.⁶ Comparing estimates from the 2002 and 2014–15 NATSISS, it is clear that average education levels and

Table 1 Characteristics of HILDA Indigenous and non-Indigenous nonremote samples (% of sample unless otherwise stated)

Characteristic	Indigenous				Non-Indigenous
	HILDA nonremote		NATSISS nonremote		HILDA nonremote
	Pooled cross-section, base 2003–14	Analysis sample, ^a base 2003–14	2002	2014–15	Analysis sample, ^a base 2003–14
Women	54.0	55.2	52.4	52.0	50.9
15–24 years	34.7	33.3	29.5	32.0	16.6
25–34 years	21.3	20.8	25.0	21.3	17.1
35–44 years	17.8	18.1	20.7	17.0	18.1
45–54 years	12.6	13.2	13.8	14.7	17.6
55–64 years	6.6	7.1	6.8	9.4	14.5
65+ years	7.0	7.5	4.3	5.7	16.1
Average age (years)	35.0	35.6	34.7	35.9	44.6
Couple only	10.8	11.2	..	11.9	24.9
Couple + children ^b	35.4	36.2	..	..	44.1
Couple + dependent children ^c	..	..	..	22.5	..
Lone parent + children ^b	19.7	20.5	..	..	8.8
Lone parent + dependent children ^c	..	..	..	11.4	..
Extended one-family household ^d	15.3	13.9	..	..	6.4
Extended one-family household ^c (including those with adult children)	..	..	..	35.7	..
Lone person	9.4	9.9	..	11.3	11.8
Multifamily household	7.8	6.9	..	4.0	2.6
Group household	1.7	1.5	..	3.2	1.3
High school or less	68.6	68.2	70.6	63.6	49.3
Diploma or certificate	24.0	24.1	24.6	30.6	28.5
Tertiary qualification	7.3	7.7	4.0	5.8	22.2
Employed ^e	48.9	49.5	44.1	49.0	63.3
Unemployed	9.5	8.9	16.7	11.7	3.1
Not in labour force	41.6	41.5	39.1	39.3	33.6
Major city	51.4	51.6	..	44.8	72.3
Inner regional	26.1	26.9	..	27.5	18.8
Outer regional	22.5	21.4	..	27.8	8.9

Table 1 *continued*

Characteristic	Indigenous				Non-Indigenous
	HILDA nonremote		NATSISS nonremote		HILDA nonremote
	Pooled cross-section, base 2003–14	Analysis sample, ^a base 2003–14	2002	2014–15	Analysis sample, ^a base 2003–14
Number of individuals	813	666	6 802	5 644	23 004
Number of observations	4 194	3 647	6 802	5 644	153 540

.. = comparable data not available

a A pooled sample of survey respondents, with two consecutive years of data required to calculate poverty transitions.

b Includes children aged under 15 years, dependent students and nondependent children.

c NATSISS household type information does not allow us to distinguish between couple/lone-parent households who have nondependent children and those with 'other' people present.

d Includes couple and lone parent families with extended family members or unrelated people living in the household.

e Includes Community Development Employment Projects participation in the 2002 NATSISS.

Sources: HILDA Survey; 2002 NATSISS, accessed through the Remote Access Data Laboratory; 2014–15 NATSISS, accessed through TableBuilder

employment rates have increased. The HILDA Survey sample has education levels somewhere between the two NATSISS estimates (although with tertiary education levels higher than both) and employment rates at around the 2014–15 level. Except for geographical location, the differences in characteristics between the samples are relatively small, suggesting that the HILDA Survey nonremote sample is reasonably representative of the nonremote Indigenous population as measured by the NATSISS, but more urbanised.

As discussed above, the sample used in our analysis of poverty transitions contains pooled observations for all respondents for whom we can construct a two-year window of data. Attrition rates are higher for Indigenous than non-Indigenous people in the HILDA Survey and also tend to be higher for those who are poor than for those who are nonpoor (Figure 1), although the difference for the Indigenous sample is not statistically significant. However, despite relatively high attrition rates for the Indigenous sample, our analysis sample of Indigenous people is not substantially different to the pooled cross-sectional Indigenous sample (Table 1), with the main differences being that the analysis sample has fewer young people and more older people, as well as slightly more women.

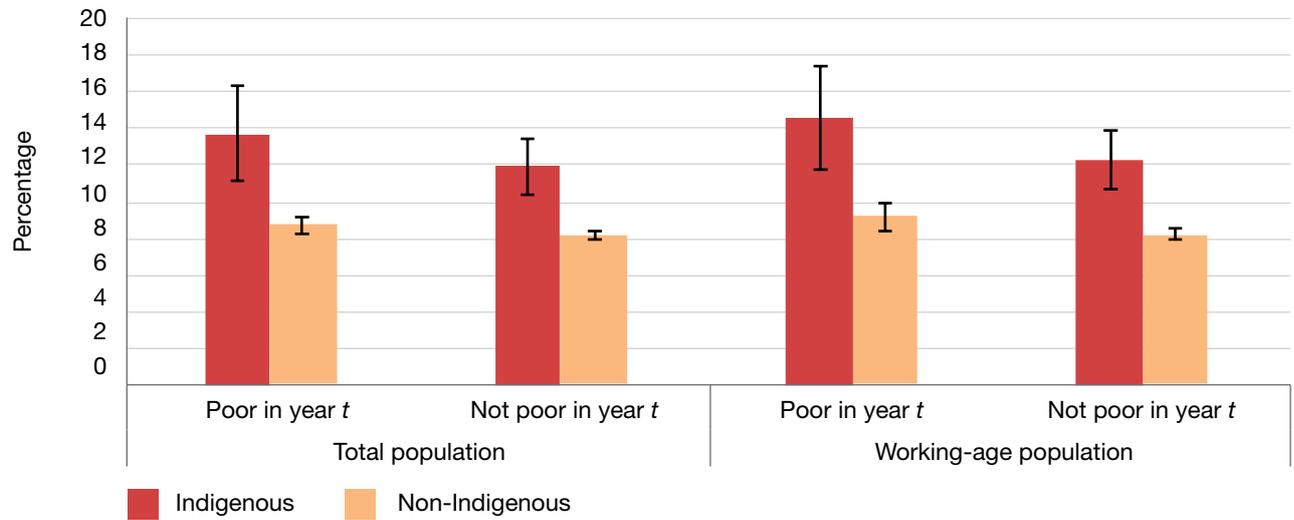
Results

Poverty transitions

Figure 2 shows the incidence of year-to-year poverty transitions for the total population as well as for the population of working age (15–64 years). Around 14% of the nonremote Indigenous population enter income poverty from year to year. Among those who are poor, 38% exit income poverty by the following year. Entry and exit rates are very similar to the working-age population. Poverty entry rates are higher for Indigenous than non-Indigenous people. Exit rates among the total population are not statistically different by Indigenous status, but this is largely because of low exit rates among poor non-Indigenous people aged 65 years and over. Among the working-age population, exit rates are significantly lower for Indigenous than non-Indigenous people.

Although the levels are somewhat different, a similar pattern of entry and exit is evident when using alternative definitions of poverty (Table 2). Each year, between 9% and 16% of Indigenous adults enter poverty, and between around 25% and 50% of Indigenous people in poverty exit. Indigenous people have higher entry rates than non-Indigenous people regardless of the definition of poverty used, while exit rates are generally significantly lower, the exception being for the standard poverty threshold of 50% of median disposable income using either the modified OECD or square root of household size equivalence

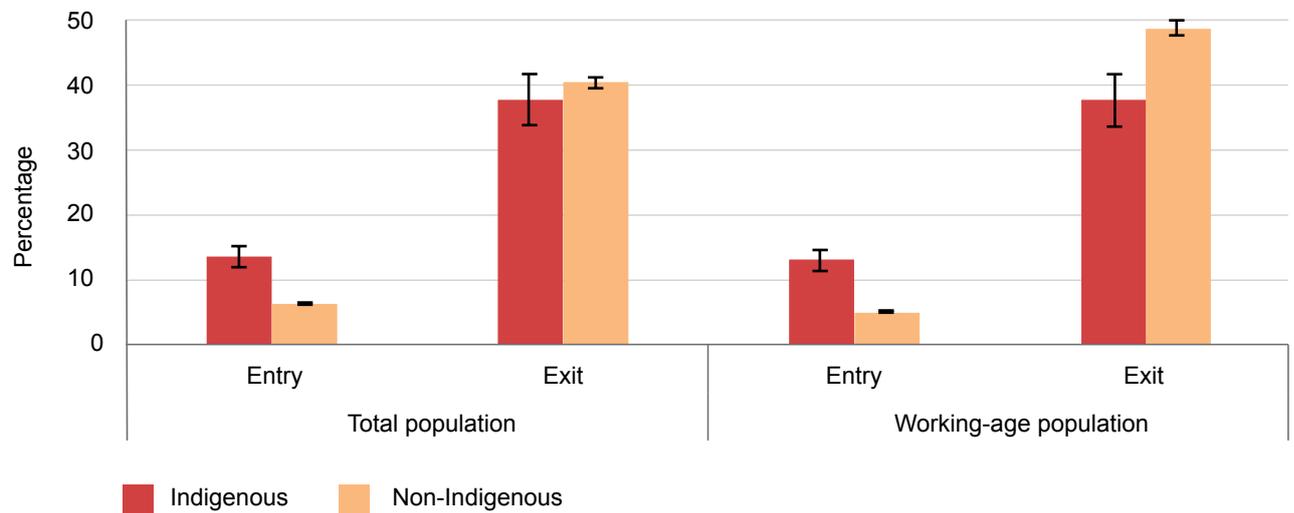
Figure 1 Year-to-year attrition rates for nonremote HILDA Survey sample by poverty status in year t



Notes:

1. Pooled sample with base years 2003–14.
2. Attrition rate is the proportion of the sample with nonmissing, nonnegative household equivalised disposable income in year t for whom there is no observation of household equivalised disposable income in year $t + 1$.
3. Poverty is defined as <50% median disposable equivalised household income.
4. Error bars show 95% confidence level around mean estimates.
5. Working-age population is aged 15–64 years.

Figure 2 Year-to-year poverty transitions (poverty defined as <50% median disposable equivalised household income) for nonremote population



Notes:

1. Pooled sample with base years 2003–14.
2. Error bars show 95% confidence level around mean estimates.
3. Working-age population is aged 15–64 years.

Table 2 Year-to-year poverty transition rates among Indigenous and non-Indigenous adults in nonremote areas using different poverty thresholds and equivalence scales

Equivalence scale	Poverty threshold		Total population		Working-age population	
			Entry rate	Exit rate	Entry rate	Exit rate
Modified OECD scale	50% of median disposable income	Indigenous (%)	13.6	37.8	13.0	37.7
		Non-Indigenous (%)	6.3	40.4	5.1	48.9
		<i>P</i> value	0.000	0.208	0.000	0.000
	50% of median gross income	Indigenous (%)	14.6	27.2	13.7	27.1
		Non-Indigenous (%)	7.1	31.3	5.8	39.5
		<i>P</i> value	0.000	0.016	0.000	0.000
	60% of median disposable income	Indigenous (%)	15.7	25.1	14.5	24.8
		Non-Indigenous (%)	8.0	31.3	6.8	39.1
		<i>P</i> value	0.000	0.000	0.000	0.000
	40% of median disposable income	Indigenous (%)	8.9	55.8	8.8	56.1
		Non-Indigenous (%)	4.2	65.7	3.3	66.7
		<i>P</i> value	0.000	0.000	0.000	0.000
Per capita income	50% of median disposable income	Indigenous (%)	11.0	29.0	11.1	28.3
		Non-Indigenous (%)	5.6	50.7	4.9	48.3
		<i>P</i> value	0.000	0.000	0.000	0.000
Square root of household size	50% of median disposable income	Indigenous (%)	13.0	34.8	12.4	34.8
		Non-Indigenous (%)	6.4	35.5	5.2	45.1
		<i>P</i> value	0.000	0.801	0.000	0.000
Old OECD scale	50% of median disposable income	Indigenous (%)	13.5	35.6	13.0	34.9
		Non-Indigenous (%)	6.1	47.6	5.0	50.3
		<i>P</i> value	0.000	0.000	0.000	0.000

Notes:

1. Pooled sample with base years 2003–14.
2. All income measures are for household equivalised income.
3. Figures in bold are statistically significantly different from non-Indigenous estimates at 95% confidence level or higher.
4. *P* values are for a test of difference in means between Indigenous and non-Indigenous estimates.
5. Working-age population is aged 15–64 years.

scales, where the difference by Indigenous status for the total population is not statistically significant.

Using a less extreme poverty threshold (less than 60% of median income) increases Indigenous poverty entry rates slightly, but greatly reduces exit rates. This suggests that even when Indigenous people escape poverty defined using the 50% threshold, many move only just above the poverty line, thereby risking poverty re-entry. Indigenous exit rates from extreme poverty (defined as less than 40% of median income) are relatively lower than for non-Indigenous people,

indicating that the non-Indigenous poor sit closer to the poverty threshold.

Although the choice of equivalence scale does not seem to alter the main patterns of poverty entry and exit, it has a different effect for Indigenous and non-Indigenous people. Using a scale that assumes greater economies of size within the household or allocates greater weight to children increases entry rates for both the Indigenous and non-Indigenous samples, but has a different effect on exit rates, which increase for the Indigenous sample and decrease for the non-Indigenous sample.

One reason that poverty entry rates are likely to be higher, on average, for Indigenous than non-Indigenous people is that Indigenous people have lower average incomes and so more are close to the poverty threshold. Among those who are not poor in year t , 39% of Indigenous people have household income in the bottom 40% of the distribution, compared with 27% of non-Indigenous people. Therefore, a uniform reduction in income is likely to push more Indigenous than non-Indigenous people below the poverty threshold, all other things being equal.

Figure 3 shows the proportion of nonpoor people who enter poverty between year t and year $t + 1$ by the decile of their household equivalised disposable income in year t . In the three deciles from which most poverty entries come (deciles 2–4 of the income distribution make up 76% of Indigenous and 72% of non-Indigenous poverty entries), Indigenous people have significantly higher poverty entry rates than non-Indigenous people.⁷ This suggests that there is something more than simply differences in income distribution driving differences in poverty entry rates between Indigenous and non-Indigenous people. To examine the impact of differences in the income distribution on poverty entry rates in more detail, entry rates in the next section are analysed

separately for the whole population, the working-age population and the low-income working-age population, defined as individuals aged 15–64 years with household equivalised disposable income in the bottom 40% of the income distribution.

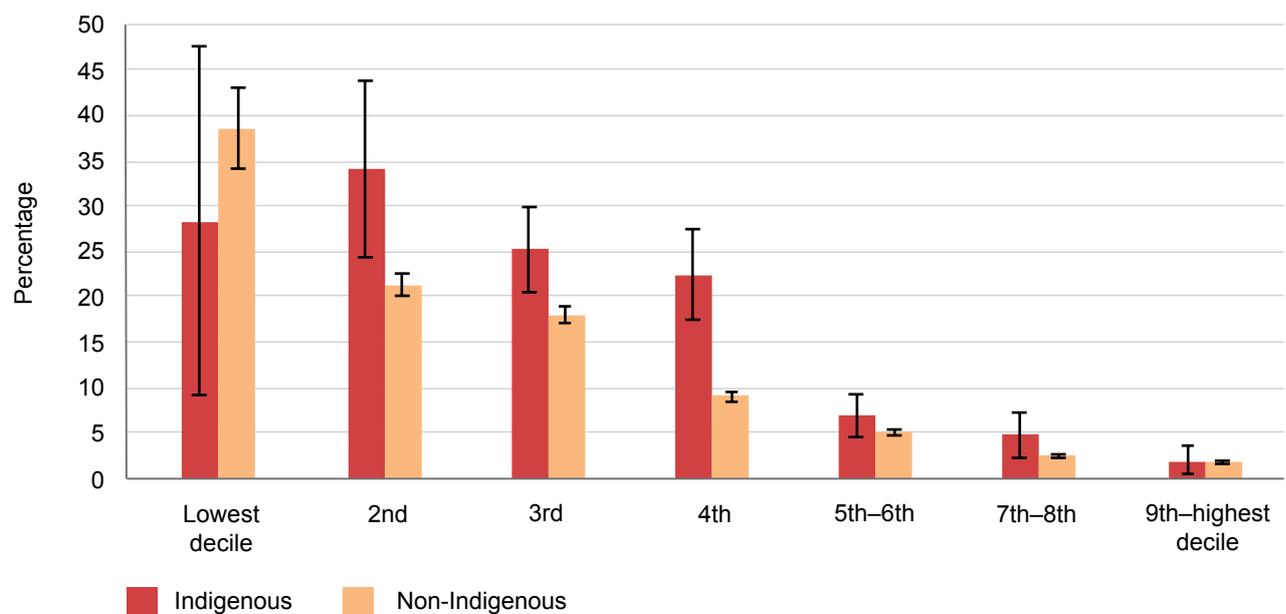
Trigger events and poverty entry

The previous section has shown that around 14% of Indigenous people enter poverty from one year to the next. This section will consider the relative importance of trigger events in contributing to poverty entries for those who were not in poverty in year t .

Table 3 shows the contribution of various trigger events to poverty entries. Two factors account for more than half of all poverty entries by Indigenous people. First, 18–19% of those who are nonpoor in any year experience a decrease in household size, and, of those, around 25% of the total population and 40% of the low-income working-age population will move into poverty. Decreases in household size account for 29–36% of all entries into poverty by Indigenous people.⁸

Second, 17% of all nonpoor Indigenous people will experience a reduction in labour income not

Figure 3 Poverty entry rates from t to $t + 1$ among nonpoor, nonremote population by decile of disposable equivalised household income in year t



Notes:

1. Pooled sample with base years 2003–14.
2. Poverty is defined as <50% of median disposable equivalised household income.
3. Error bars show 95% confidence level around mean estimates.
4. Income deciles are calculated for the total (Indigenous and non-Indigenous) sample.

Table 3 Trigger events contributing to poverty entry among nonremote population, by Indigenous status

		Total population			Working-age population			Low-income working-age population		
		Indigenous (%)	Non-Indigenous (%)	<i>P</i> value ^a	Indigenous (%)	Non-Indigenous (%)	<i>P</i> value ^a	Indigenous (%)	Non-Indigenous (%)	<i>P</i> value ^a
Entry probability: Pr(poor _{t+1} | nonpoor _t)		13.6	6.3	0.000	13.0	5.1	0.000	25.6	12.9	0.000
Increase in household size	Pr(event)	12.3	7.6	0.000	12.8	8.4	0.000	13.2	9.1	0.001
	Pr(entry | event)	9.4	4.2	0.002	9.6	4.1	0.001	19.0	12.1	0.061
	% of all entries	8.5	5.1		9.5	6.8		9.9	8.6	
Decrease in household size	Pr(event)	17.7	11.7	0.000	18.3	12.6	0.000	19.1	11.7	0.000
	Pr(entry | event)	27.7	12.9	0.000	26.5	11.8	0.000	41.0	25.9	0.001
	% of all entries	36.2	24.0		37.4	29.4		30.6	23.6	
Increase in employed people ^b	Pr(event)	10.9	10.5	0.652	11.2	11.5	0.745	12.5	14.9	0.134
	Pr(entry | event)	11.4	5.0	0.037	11.7	4.7	0.024	23.1	10.2	0.045
	% of all entries	9.1	8.4		10.1	10.6		11.3	11.9	
Decrease in employed people ^b	Pr(event)	7.8	7.9	0.936	7.9	8.1	0.784	8.1	8.2	0.947
	Pr(entry | event)	10.6	5.7	0.026	11.1	5.2	0.010	24.1	12.2	0.027
	% of all entries	6.1	7.1		6.8	8.3		7.7	7.8	
Increase in labour income ^c	Pr(event)	27.2	32.8	0.000	27.9	35.6	0.000	22.3	32.4	0.000
	Pr(entry | event)	0.8	1.0	0.552	0.8	0.9	0.792	2.5	3.3	0.507
	% of all entries	1.6	5.1		1.7	6.3		2.2	8.2	
Decrease in labour income ^c	Pr(event)	16.8	17.9	0.198	16.6	18.7	0.021	13.0	13.1	0.917
	Pr(entry | event)	15.9	6.8	0.000	14.7	6.4	0.000	36.0	20.4	0.003
	% of all entries	19.7	19.2		18.8	23.5		18.3	20.8	
Increase in other private income ^d	Pr(event)	1.8	4.8	0.000	1.3	2.0	0.002	2.7	4.2	0.006
	Pr(entry | event)	16.3	5.6	0.072	14.3	4.8	0.079	16.6	7.8	0.165
	% of all entries	2.2	4.2		1.4	1.8		1.8	2.6	
Decrease in other private income ^d	Pr(event)	2.5	5.4	0.000	1.6	2.1	0.078	3.5	3.8	0.628
	Pr(entry | event)	36.5	24.2	0.058	42.1	21.0	0.013	48.9	34.0	0.132
	% of all entries	6.9	20.6		5.3	8.8		6.7	10.2	
Other entries	% of all entries	9.6	6.3		9.1	4.5		11.6	6.4	

a *P* value from a test of difference of means between non-Indigenous and Indigenous samples.

b No change in household size.

c No change in the number of employed people in the household or in household size.

d No change in labour income, in the number of employed people in the household or in household size.

Notes:

1. Pooled sample with base years 2003–14.

2. Poverty is defined as living in a household with equivalised disposable household income below 50% of the median.

3. Figures in bold are statistically significantly different from non-Indigenous estimates at the 95% confidence level or higher.

accompanied by a change in either household size or the number of people employed in their household. Around 15% of Indigenous people experiencing falling labour income will enter poverty, with such changes accounting for almost 20% of all poverty entries. Decreases in labour income are less common among the low-income working-age population, possibly because they are less likely to be employed (and have labour income) in the first place. However, low-income people experiencing falling labour income are more than twice as likely as the total Indigenous population to enter poverty. By contrast, increases in labour income seem to be protective against poverty entry. More than one-quarter of nonpoor Indigenous people experience an increase in labour income (i.e. the increase is not accompanied by a change in household size or the number of people employed) and only 1–2% of these will enter poverty.⁹

Changes in the number of people in the household who are employed (in households where there is no overall change in household size) account for around 15–18% of poverty entries by Indigenous people. Somewhat counterintuitively, increases and decreases in the number of people employed carry with them a similar risk of poverty entry (11% among the total population, increasing to around 24% for the low-income working age population). It may be that changes in the number of people employed are sufficiently offset by changes in other sources of income, so that total income is relatively unchanged.

The incidence of changes in other private income among the Indigenous sample is low, but decreases carry a high poverty entry risk: 37–49% of those who experience a fall in other private income enter poverty.

Comparing the Indigenous and non-Indigenous samples, several results are worthy of note. First, Indigenous people are significantly more likely to enter poverty after experiencing most types of trigger event, with the poverty entry risk for Indigenous people typically around twice that for non-Indigenous people. As discussed in the previous section, this is likely to be, in part, because Indigenous people have lower average incomes than non-Indigenous people so require a smaller change to income or household composition to push them over the poverty threshold. However, the difference in poverty entry risk between Indigenous and non-Indigenous people is only slightly ameliorated when the sample is restricted to those in the bottom 40% of the income distribution.

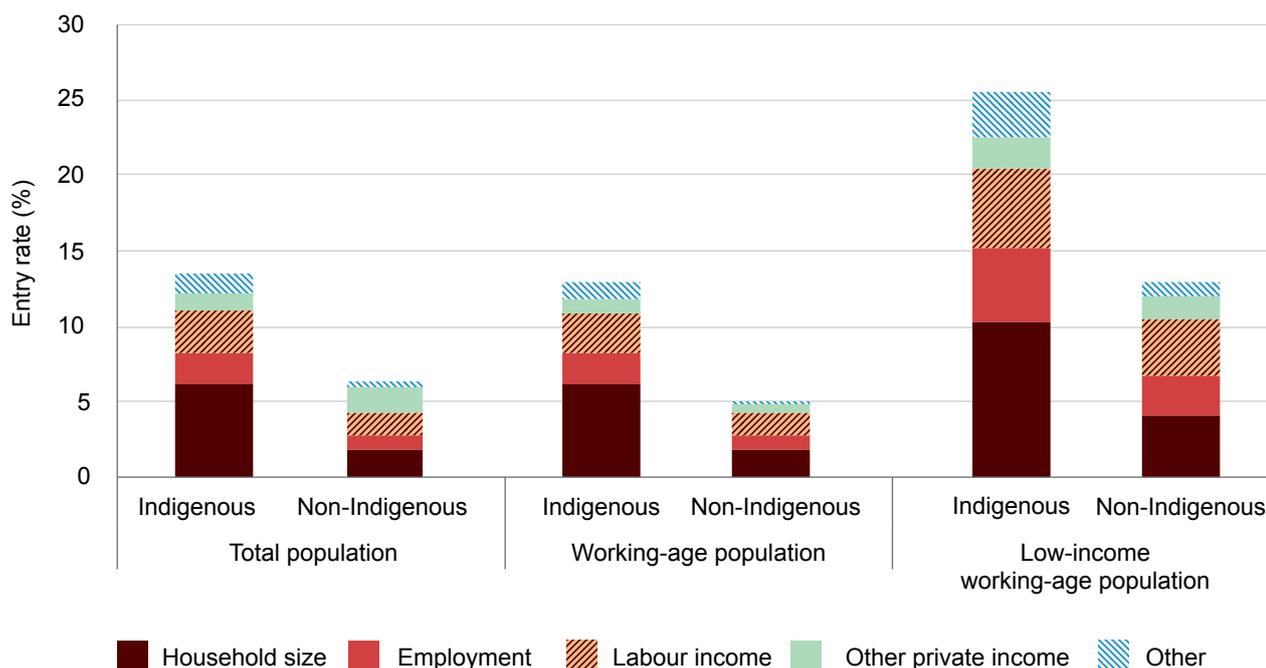
Second, Indigenous people are much more likely than non-Indigenous people to experience events relating to changes in household size. Only 19–21% of non-Indigenous people experience a change in household size from year-to-year compared with 30–32% of Indigenous people. In particular, Indigenous people are about 1.5 times more likely to experience a decrease in household size, the event associated with the highest risk of poverty entry except decreases in private income for both Indigenous and non-Indigenous people. As a result, a much larger share of poverty entries for Indigenous people are attributable to changes in household size (41–47%) compared with non-Indigenous people (29–36%).

By contrast, Indigenous people are significantly less likely than non-Indigenous people to experience events relating to changes in income – both increases and decreases – that are not linked to changes in either household size or the number of people employed in their household. This may reflect their lower average reliance on wages/salaries and other private income than non-Indigenous people (Howlett et al. 2016). The residual category (‘other entries’) accounts for the larger proportion of poverty entries for Indigenous compared with non-Indigenous people. This category is likely to largely capture changes in welfare payments that are not accompanied by changes in household size, labour force participation or private income.

The trigger event contributing the most to the difference between Indigenous and non-Indigenous poverty entry rates comes from differences in the incidence and effect of changes to household size, with household size changes contributing to more than 3 times as many poverty entries for Indigenous as for non-Indigenous people (Figure 4). As discussed above, this is due to both a higher incidence of household size changes among the Indigenous population and a higher risk of poverty entry for those experiencing household size changes. The importance of household size changes in triggering poverty entries for Indigenous people is robust to alternative equivalence scales (see Figure A1 in the Appendix), so does not appear to be driven by our choice of equivalence scale.

Changes in employment trigger more than twice as many poverty entries for Indigenous than non-Indigenous people, due to the higher risk of poverty entry for Indigenous people experiencing changes in household employment rather than the probability of the event itself. The difference in contribution of events relating to changes in income is smaller. This is because

Figure 4 Contribution of trigger events to total poverty entry rate by Indigenous status



Note: Pooled sample with base years 2003–14.

while Indigenous people are less likely to experience such events, they typically have a higher risk of poverty entry if they do.

Figure 5 shows differences by gender, age and education in the contribution of each type of trigger event to poverty entry rates for Indigenous people. Overall, Indigenous women have higher poverty entry rates than men, young Indigenous people have higher entry rates than older people (although this difference is not statistically significant) and those Indigenous Australians who have completed Year 12 or a post-school qualification have lower entry rates than those with lower educational attainment.

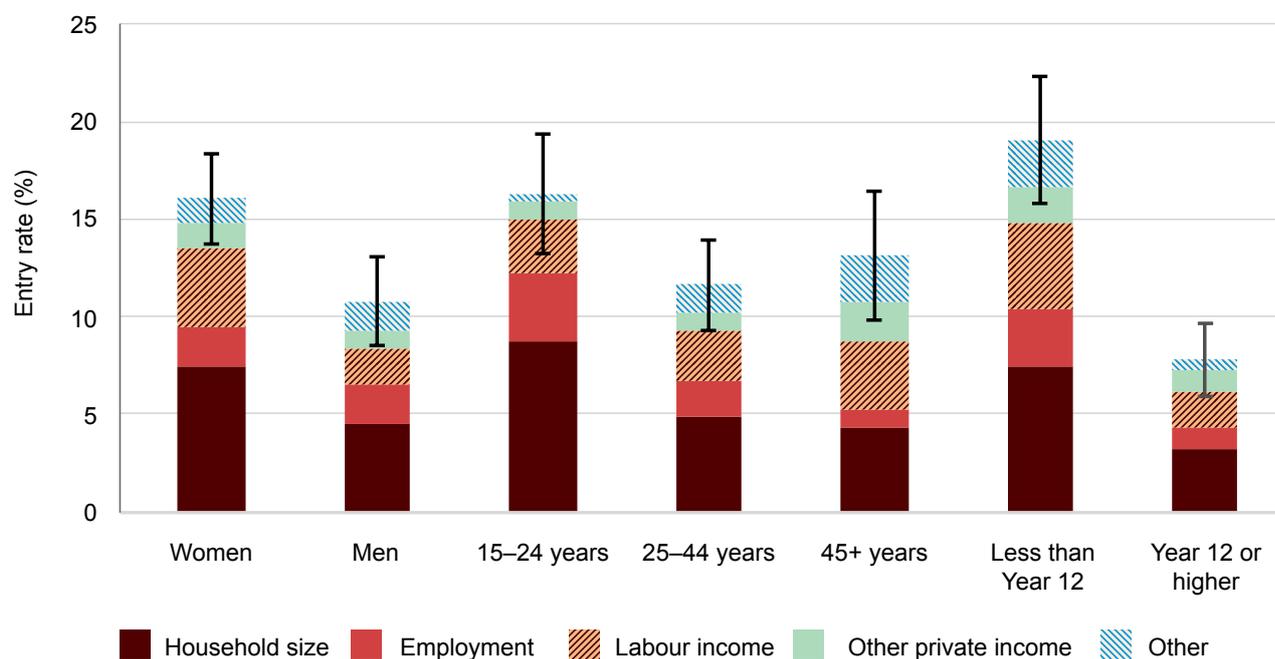
The higher entry rate for women is largely driven by two factors. First, women are significantly more likely to experience changes in household size than men and have a higher risk of poverty entry if they do. Second, women have a significantly higher risk of poverty entry than men if they experience changes in labour income. By contrast, age differentials in poverty entry rates are due mainly to the higher risk that young people will experience certain trigger events (changes in household size and employment) rather than a higher risk of poverty entry after experiencing trigger events.

Those with Year 12 or higher education experience most trigger events at a similar rate as those without Year 12, but education greatly reduces the risk of poverty entry after each type of trigger event. Having Year 12 also significantly increases the likelihood of experiencing positive changes in labour income.

Trigger events and poverty exits

Table 4 shows the contribution of trigger events to poverty exit rates for those who were in poverty in year *t*. The single biggest contributor to Indigenous poverty exit rates is decreases in household size between waves. Around 37–40% of Indigenous people in poverty experience a decrease in household size, and more than half of these will exit poverty. In total, decreases in household size contribute to 44–47% of all poverty exits for the Indigenous sample. A further third of exits are accounted for by increases in either labour income or the number of workers in the household. More than 70% of people experiencing one of these labour market events in their household will exit poverty. The relative importance of household size changes and other events in triggering poverty exits is robust to using different equivalent scales (see Figure A2 in the Appendix).

Figure 5 Contribution of trigger events to total poverty entry rate for Indigenous people, by gender, age and highest educational attainment



Notes:

1. Pooled sample with base years 2003–14.
2. Educational attainment excludes those who are currently studying.
3. Error bars show 95% confidence intervals around mean estimates of entry rates.

Comparing the Indigenous and non-Indigenous samples, we see that changes in household size are again more common among the Indigenous sample, but they are less likely to lead to poverty exit than for non-Indigenous people. For example, around 55% of Indigenous people in poverty who experience a decrease in household size exit poverty, compared with around 70% of non-Indigenous people. As a result, the overall contribution of changes in household size to exit rates is similar for Indigenous and non-Indigenous people.

The incidence of increases in the number of workers per household is similar for Indigenous and non-Indigenous people, but result in a higher chance of poverty exit for Indigenous people (although this difference is only marginally significant). However, non-Indigenous people are more likely to exit poverty after experiencing an increase in labour income: around three-quarters of non-Indigenous people will exit poverty after experiencing an increase in labour income compared with around 60% of Indigenous people.

Indigenous people are far less likely to experience changes in private income than non-Indigenous people. This is partly explained by the age distribution of the

non-Indigenous sample – with those of retirement age having more private nonlabour income (e.g. from superannuation) than those of working age – but the effect is still evident within the working-age population. Increases in private income are significantly less likely to result in poverty exit for Indigenous people: around 22–24% of Indigenous people experiencing increases in private income exit poverty compared with 47–52% of non-Indigenous people.

Among the total population in poverty in year t , exit rates are similar for Indigenous and non-Indigenous people, with higher exits attributable to family composition and labour income changes for Indigenous people offset by a smaller contribution from other private income (Figure 6). The higher exit rate for working-age non-Indigenous than Indigenous people results from a slightly larger number of exits for all the events examined. As discussed above, this is due to both an increased likelihood of particular events for non-Indigenous people (e.g. changes in the number of workers or other private income) as well as a higher likelihood of exit among those who experience particular events (e.g. changes in household size, the number of workers and other private income).

Table 4 Trigger events contributing to poverty exits among nonremote population

		Total population			Working-age population		
		Indig-enous (%)	Non-Indig-enous (%)	<i>P</i> value ^a	Indig-enous (%)	Non-Indig-enous (%)	<i>P</i> value ^a
Exit probability: Pr(nonpoor _{<i>t</i>+1} | poor _{<i>t</i>})		37.8	40.4	0.208	37.7	48.9	0.000
Increase in household size	Pr(event)	17.8	6.7	0.000	19.2	10.4	0.000
	Pr(exit | event)	44.1	68.4	0.000	42.4	67.8	0.000
	% of all exits	20.8	11.4		21.6	14.4	
Decrease in household size	Pr(event)	19.9	6.8	0.000	22.5	9.7	0.000
	Pr(exit | event)	35.0	47.9	0.012	33.9	53.1	0.000
	% of all exits	18.4	8.1		20.2	10.6	
Increase in employed people ^b	Pr(event)	8.6	8.2	0.634	9.6	12.7	0.008
	Pr(exit | event)	61.5	55.4	0.295	63.8	54.9	0.045
	% of all exits	14.0	11.2		16.2	14.2	
Decrease in employed people ^b	Pr(event)	4.8	5.1	0.827	4.1	7.1	0.000
	Pr(exit | event)	45.8	54.1	0.519	32.4	56.9	0.002
	% of all exits	5.9	6.8		3.5	8.3	
Increase in labour income ^c	Pr(event)	14.2	13.9	0.856	14.7	21.0	0.000
	Pr(exit | event)	61.5	74.5	0.025	57.7	74.1	0.009
	% of all exits	23.0	25.5		22.4	31.9	
Decrease in labour income ^c	Pr(event)	5.2	4.9	0.775	5.9	7.0	0.268
	Pr(exit | event)	28.8	32.7	0.610	29.1	32.9	0.619
	% of all exits	4.0	4.0		4.6	4.7	
Increase in other private income ^d	Pr(event)	6.4	19.1	0.000	4.9	9.1	0.000
	Pr(exit | event)	25.2	45.8	0.001	27.7	50.8	0.003
	% of all exits	4.3	21.7		3.6	9.5	
Decrease in other private income ^d	Pr(event)	2.5	12.5	0.000	2.0	5.3	0.000
	Pr(exit | event)	19.3	14.3	0.616	5.2	12.6	0.074
	% of all exits	1.3	4.4		0.3	1.4	
Other exits	% of all exits	8.4	7.0		7.7	5.0	

a *P* value from a test of difference of means between non-Indigenous and Indigenous samples.

b No change in household size.

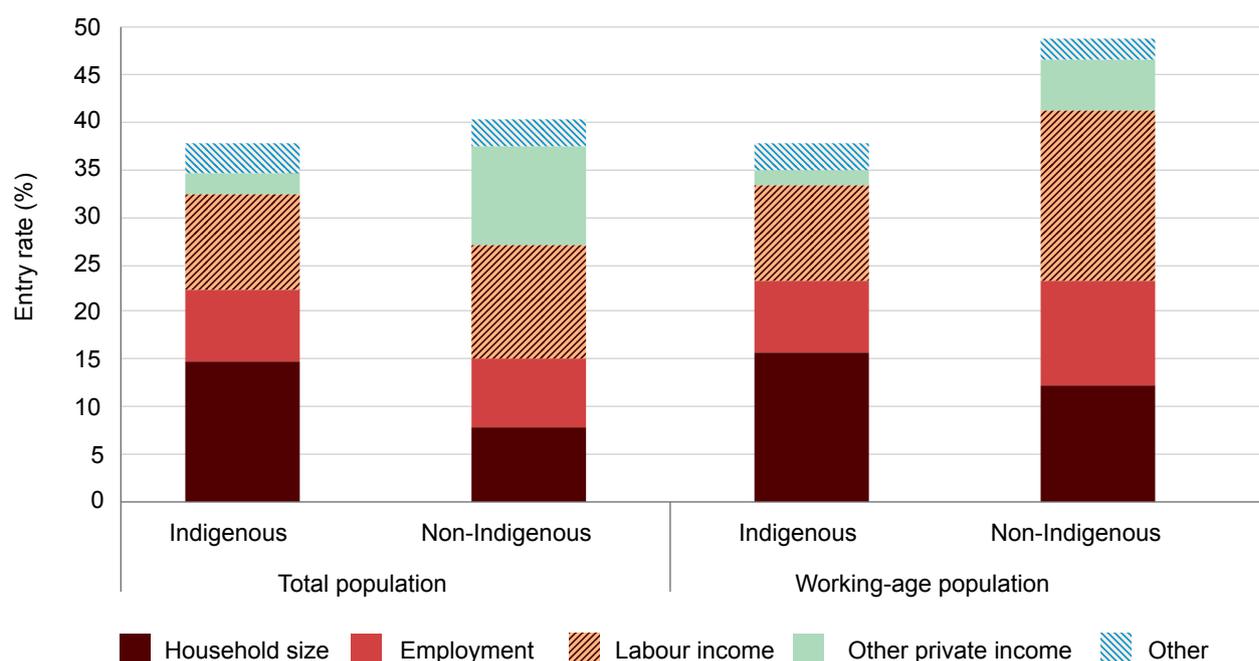
c No change in the number of employed people in the household or in household size.

d No change in labour income, in the number of employed people in the household or in household size.

Notes:

1. Pooled sample with base years 2003–14.

2. Figures in bold are statistically significantly different from non-Indigenous estimates at 95% confidence level or higher.

Figure 6 Contribution of trigger events to total poverty exit rate by Indigenous status

Note: Pooled sample with base years 2003–14.

Figure 7 shows the gender, age and education breakdown of differences in poverty exit rates for Indigenous people. Indigenous men are more likely to exit poverty than women, young Indigenous people are more likely to exit than older people, and Indigenous Australians with Year 12 or higher qualification are more likely to exit than those without Year 12. However, these differences are small and not statistically significant, possibly because of the small sample size. Gender differences in the contribution of various trigger events are not statistically significant. Young people are significantly more likely to experience changes in household size and labour income than people aged 45+ years, and less likely to experience changes in other private income. However, there is no statistically significant age differential in the likelihood of exiting poverty given a particular trigger event. Higher educational attainment increases the likelihood of experiencing changes in labour income and tends to increase the likelihood of exits after each type of trigger event, but these effects are not statistically significant.

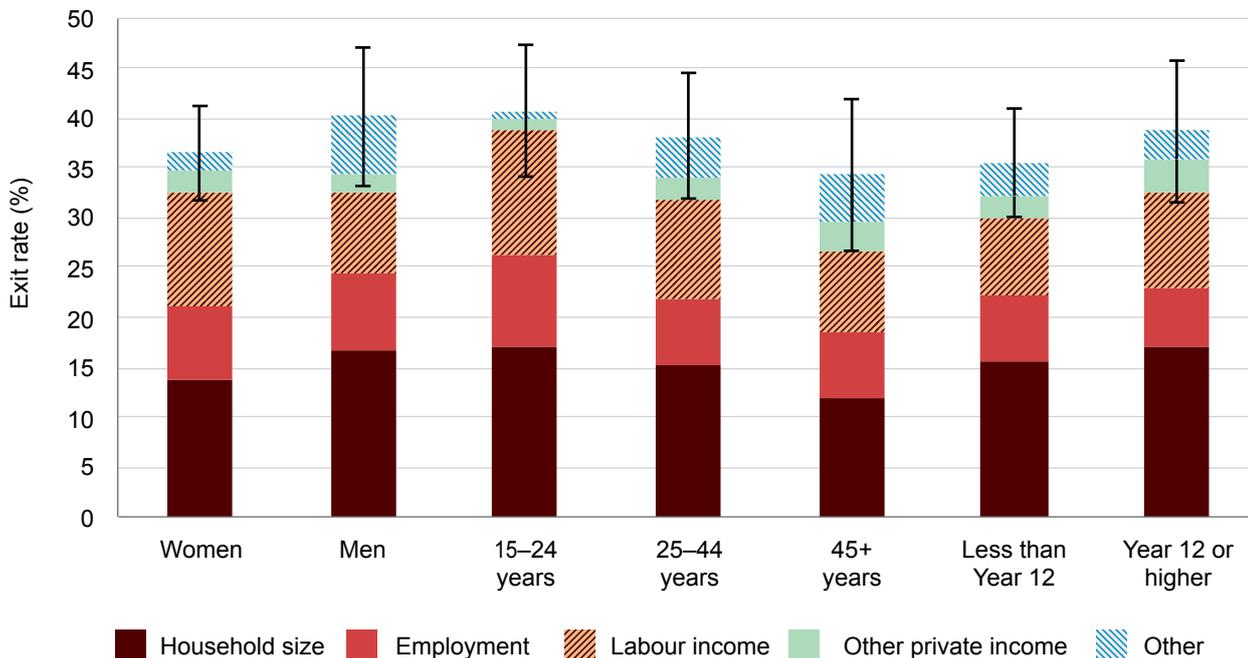
A closer look at changes in household size

One of the key findings in the previous sections is that changes in household size explain a large proportion of poverty entries and exits for Indigenous people,

accounting for almost half of all exits and entries. Indigenous people are significantly more likely to experience changes in household size than non-Indigenous people, and those that experience such changes are more likely to enter poverty and less likely to exit. This section will first explore some of the reasons why Indigenous people are more likely to experience changes in household size by examining the incidence of household size changes by household type and for different types of changes, such as births, partnering, separations, and other movements of people into and out of households. The likelihood of poverty entry and exit will then be examined for selected types of household size changes. Finally, changes in income will be examined for those experiencing changes in household size, to help understand why Indigenous people are more likely than non-Indigenous people to experience poverty entry and less likely to experience poverty exit when their household size changes.

Indigenous people are more likely to experience increases in household size than non-Indigenous people across all household types (except for group households); however, there is little significant difference in the incidence of household size changes across household types within the Indigenous population (Figure 8). One reason for this may be that some of the reasons for household size increases that are most common for Indigenous people (birth/adoption,

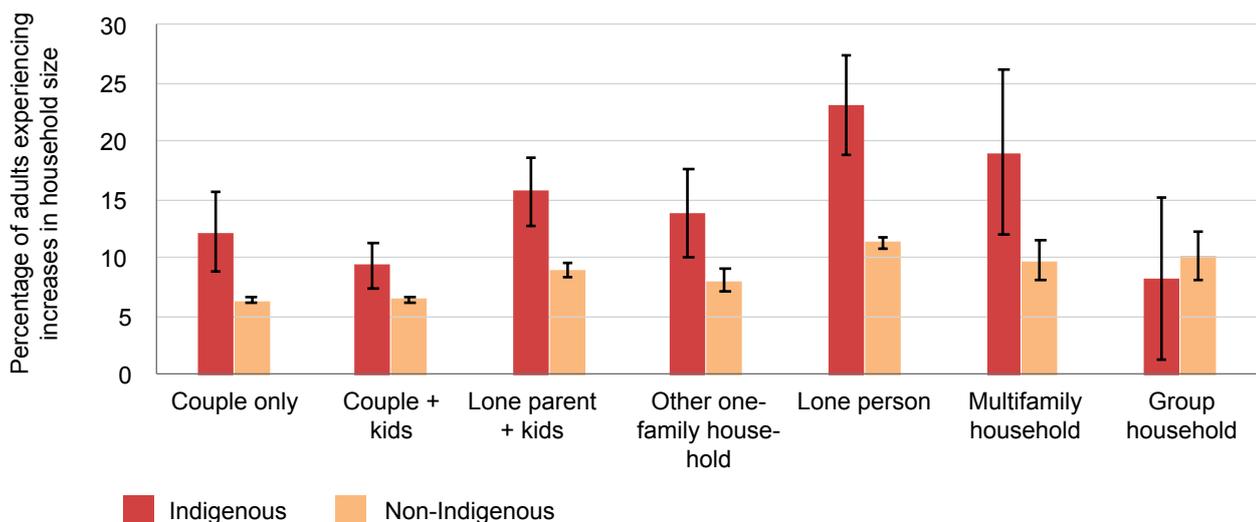
Figure 7 Contribution of trigger events to total poverty exit rate for Indigenous people, by gender, age and highest educational attainment



Notes:

1. Pooled sample with base years 2003–14.
2. Educational attainment excludes those who are currently studying.
3. Error bars show 95% confidence intervals around mean estimates of exit rates.

Figure 8 Proportion of adults in nonremote areas experiencing an increase in household size from year t to year $t + 1$, by Indigenous status and household type in year t



Note: Error bars show 95% confidence intervals around mean estimates of exit rates.

partnering and being the parent of an adult child who moves in) are likely to occur across most household types.

The most common types of household size increases for both Indigenous and non-Indigenous adults are the birth/adoption of children, partnering and being the parent of an adult child who moves in (Figure 9). The incidence of birth/adoption and partnering is significantly higher for the Indigenous than non-Indigenous sample, probably in part because of the younger age profile of the Indigenous population. Indigenous adults are also significantly more likely to experience having a family member (other than a child) move into their household than non-Indigenous adults.

The pattern of decreases in household size is somewhat different. There is very little difference between Indigenous and non-Indigenous adults in the likelihood of experiencing household size decreases for those living in couple only, couple plus children and lone-parent households (Figure 10). By contrast, almost one-third of Indigenous extended family households and more than half of multifamily households experience decreases in household size from one year to the next. Recall from Table 1 that around 21% of the Indigenous sample lives in these types of households compared with 9% of the non-Indigenous sample. The relative overrepresentation of Indigenous people in these types of households with very high incidence of household size decreases explains much of the difference in

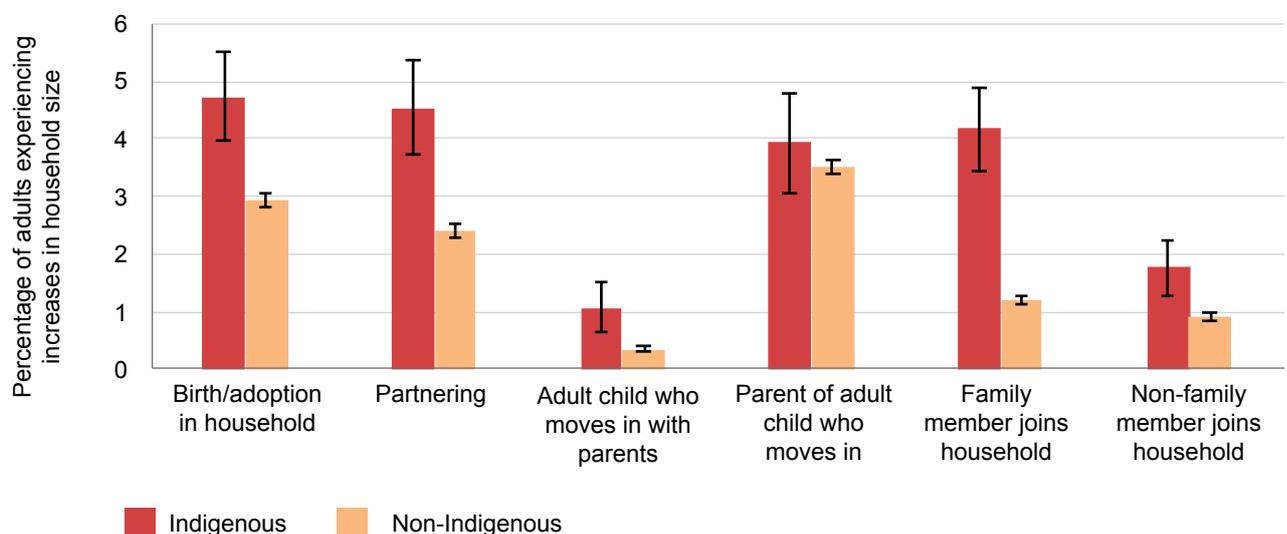
the overall incidence of household size decreases by Indigenous status.

This finding is reinforced in Figure 11, which shows that having a family member leaving the household is the most common type of household size decrease for Indigenous adults. Adult children leaving home is relatively common for both Indigenous and non-Indigenous households, whereas separations are less common for both, with Indigenous adults slightly more likely to experience separations than non-Indigenous adults.

Table 5 shows how selected events relating to household size changes contribute to poverty entries and exits for the total population. For Indigenous people, partnering and having a family member move in or out of the household explain the largest proportion of exits from poverty. More than half of Indigenous people living in poor households who start living with a partner (or whose parent partners) or who have a family member move into their household will exit poverty. Almost 40% of those who have a family member leave their household will also move out of poverty. The biggest contributors to poverty entry for Indigenous people are being an adult child who leaves home or having a family member leave the household. In both cases, the likelihood of poverty entry is almost 40% (but not for the parents of adult children who leave home, only 6% of whom will enter poverty).

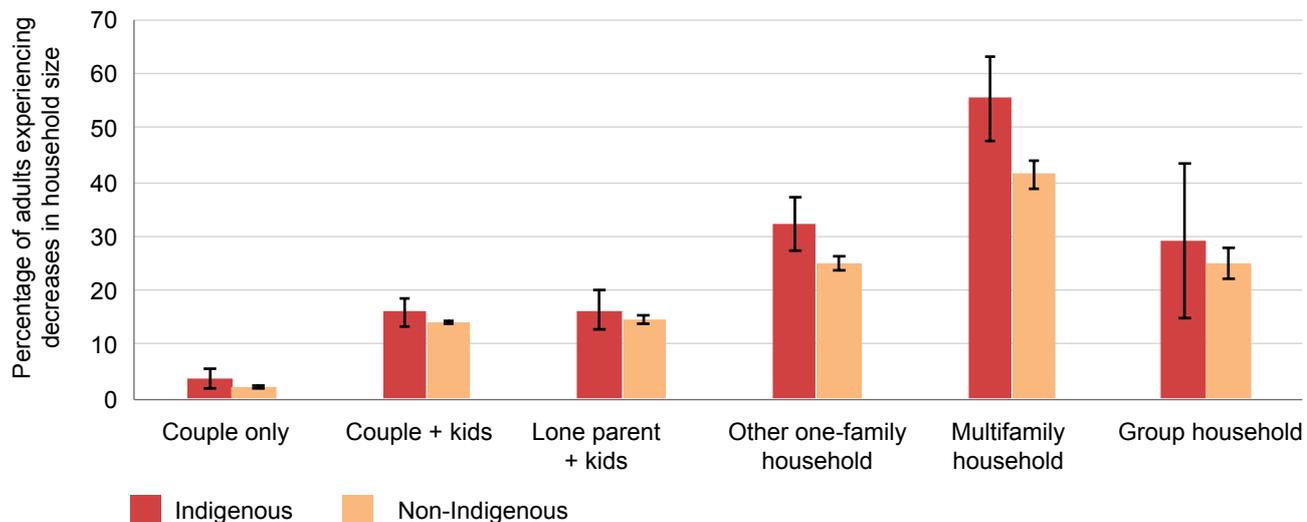
Only about 25% of poor people who separate from their partner (or whose parents separate) will exit poverty, and

Figure 9 Proportion of adults experiencing selected types of household size increases from year t to year $t + 1$, by Indigenous status



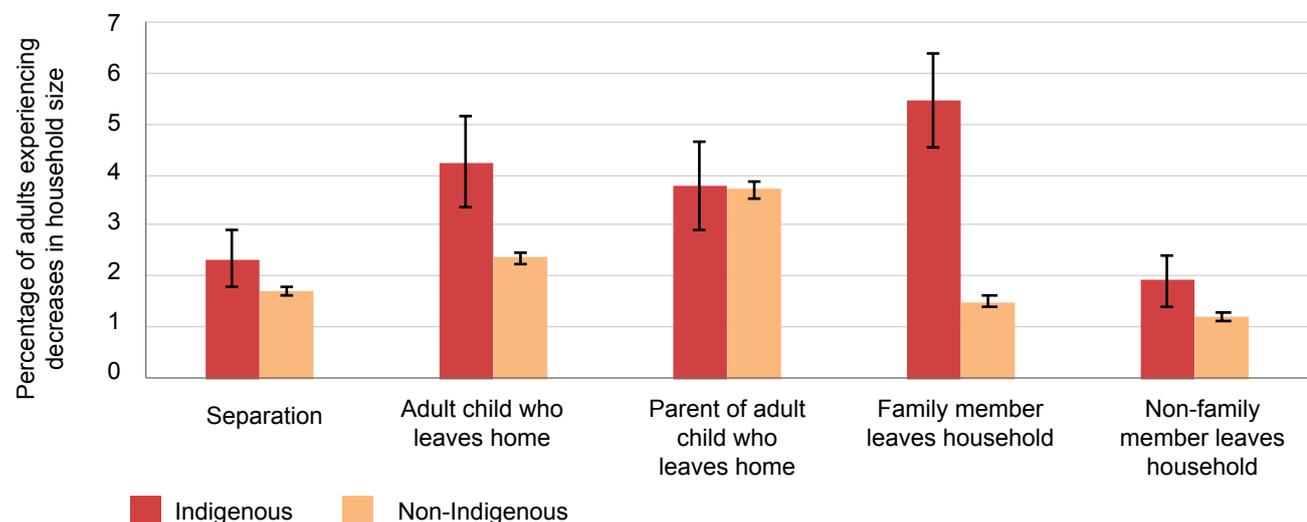
Note: Error bars show 95% confidence intervals around mean estimates of exit rates.

Figure 10 Proportion of adults experiencing a decrease in household size from year t to year $t + 1$, by Indigenous status and household type in year t



Note: Error bars show 95% confidence intervals around mean estimates of exit rates.

Figure 11 Proportion of adults experiencing selected types of household size decreases from year t to year $t + 1$, by Indigenous status



Note: Error bars show 95% confidence intervals around mean estimates of exit rates.

Table 5 Trigger events relating to household size changes contributing to poverty exits and entries among nonremote population

		Poverty exit: Pr(nonpoor _{t+1} | poor _t)			Poverty entry: Pr(poor _{t+1} | nonpoor _t)		
		Indig- enous (%)	Non-Indig- enous (%)	P value	Indig- enous (%)	Non-Indig- enous (%)	P value
Transition probability		37.8	40.4	0.208	13.6	6.3	0.000
Birth/ adoption of child in household	Pr(event)	4.2	1.8	0.000	4.9	3.1	0.000
	Pr(transition|event)	47.8	56.9	0.280	9.4	4.5	0.036
	% of all entry/exit	5.3	2.5		3.4	2.2	
Partnering	Pr(event)	5.1	2.0	0.001	4.4	2.5	0.000
	Pr(transition|event)	57.4	73.1	0.088	10.6	5.8	0.148
	% of all entry/exit	7.7	3.6		3.4	2.3	
Adult child who returns home	Pr(event)	1.8	0.6	0.030	0.8	0.3	0.017
	Pr(transition|event)	44.1	84.2	0.011	9.1	3.6	0.396
	% of all entry/exit	2.1	1.2		0.5	0.2	
Parent of adult child who returns home	Pr(event)	3.0	2.0	0.154	4.2	3.7	0.394
	Pr(transition|event)	62.0	59.8	0.858	7.6	3.1	0.081
	% of all entry/exit	4.9	3.0		2.3	1.8	
Family member moves in	Pr(event)	7.0	1.2	0.000	3.3	1.2	0.000
	Pr(transition|event)	50.6	71.4	0.004	15.2	8.7	0.103
	% of all entry/exit	9.3	2.1		3.7	1.7	
Separation	Pr(event)	3.4	1.0	0.000	1.2	0.9	0.142
	Pr(transition|event)	24.7	64.2	0.000	18.4	7.2	0.063
	% of all entry/exit	2.2	1.6		1.7	1.0	
Nonfamily member moves in	Pr(event)	1.5	1.6	0.730	2.6	1.7	0.012
	Pr(transition|event)	53.5	37.6	0.190	13.5	17.9	0.246
	% of all entry/exit	2.1	1.5		2.6	4.9	
Adult child who leaves home	Pr(event)	4.3	1.2	0.001	4.2	2.5	0.001
	Pr(transition|event)	41.7	54.9	0.285	39.8	21.3	0.002
	% of all entry/exit	4.7	1.6		12.5	8.6	
Parent of adult child who leaves home	Pr(event)	2.7	1.7	0.283	4.1	4.0	0.862
	Pr(transition|event)	59.9	45.9	0.401	6.1	7.4	0.647
	% of all entry/exit	4.3	1.9		1.8	4.7	
Family member leaves	Pr(event)	7.3	1.2	0.000	4.9	1.6	0.000
	Pr(transition|event)	38.9	62.3	0.005	37.6	9.5	0.000
	% of all entry/exit	7.5	1.8		13.5	2.4	
Nonfamily member leaves	Pr(event)	1.9	0.8	0.006	1.9	1.2	0.030
	Pr(transition|event)	46.5	61.0	0.262	20.3	11.4	0.209
	% of all entry/exit	2.4	1.2		2.9	2.2	

Notes:

1. Pooled sample with base years 2003–14.
2. Figures in bold are statistically significantly different from non-Indigenous estimates at 95% confidence level or higher.

18% of nonpoor people who separate will enter poverty. By contrast, for Indigenous people, having children is associated with a higher than average likelihood of moving out of poverty and a lower than average likelihood of entering poverty.

Comparing the Indigenous and non-Indigenous samples, we see that some of the difference in overall entry and exit rates is due to the higher incidence of most types of household size changes for Indigenous people. However, it is also clear that some types of household size changes are associated with significantly different risks of poverty entry and exit for Indigenous and non-Indigenous people. For example, Indigenous people are significantly less likely to exit poverty than non-Indigenous people after having family members move in or leave their household, or if they are an adult child who moves back in with their parents. They are significantly more likely to enter poverty than non-Indigenous people after the birth/adoption of a child, having a family member leave or if they are an adult child leaving home.¹⁰

Some of these differences can be explained by what happens to household equivalised disposable income when household size changes (Table 6). Around 56% of Indigenous people experience an increase in income when their household size increases, while 39% experience an increase in income when their household size decreases. For the total population, the difference

in income changes between Indigenous and non-Indigenous people is small and typically not significant. However, when we look just at the population who are poor in year t , Indigenous people are significantly less likely to experience an increase in income (and around twice as likely to experience a decrease in income), after increases and decreases in household size, than non-Indigenous people. This is likely to explain at least some of the lower likelihood of poverty exit for Indigenous people than non-Indigenous people.

More than half of those who are nonpoor in year t and experience a decrease in household size also experience a fall in household equivalised disposable income. Indigenous people are significantly less likely to experience an increase in income in this situation than non-Indigenous people. This again is likely to explain why household size decreases, such as being an adult child who leaves home or having a family member leave, are likely to result in higher poverty entry rates for Indigenous than non-Indigenous people. However, there is little difference in the distribution of income changes for Indigenous and non-Indigenous people who experience an increase in household size. It may be that events that increase household size and are associated with higher poverty entry for Indigenous than non-Indigenous people do so simply because Indigenous people are likely to be closer to the poverty threshold than non-Indigenous people, rather than due to any difference in the impact of the events on household income.

Table 6 Proportion of population experiencing a change in household equivalised disposable income when household size increases or decreases

Population	Change in income	Household size increases			Household size decreases		
		Indigenous	Non-Indigenous	<i>P</i> value	Indigenous	Non-Indigenous	<i>P</i> value
Total	Increase	55.9	48.6	0.006	38.8	42.5	0.133
	Decrease	35.5	39.0	0.152	49.2	47.7	0.538
	No change	8.7	12.4	0.013	12.0	9.9	0.205
Poor in year t	Increase	72.0	87.9	0.000	54.8	69.1	0.005
	Decrease	16.1	8.8	0.013	42.8	24.9	0.000
	No change	11.9	3.4	0.003	2.4	6.0	0.008
Nonpoor in year t	Increase	48.4	43.5	0.146	33.0	40.2	0.008
	Decrease	44.5	43.0	0.642	51.6	49.6	0.512
	No change	7.2	13.5	0.000	15.4	10.2	0.016

Notes:

1. Increase/decrease in income is change in household equivalised disposable income of more than 5% between year t and year $t + 1$. No change in income is where change in household equivalised disposable income is 5% or less between year t and year $t + 1$.
2. Figures in bold are where the mean value for the Indigenous sample is significantly different from that of the non-Indigenous sample at the 95% confidence level or higher.

Discussion

This paper presents estimates of income poverty entry and exit rates for Indigenous Australians living in nonremote areas. Around 1 in 7 nonpoor Indigenous adults will enter poverty from one year to the next, while 38% of those who are in poverty will exit, where poverty is defined as having household equivalised disposable income less than 50% of the median level. Indigenous people generally have higher entry and lower exit rates than non-Indigenous people. Within the Indigenous population, women have higher entry rates and lower exit rates than men, although the difference in exits rates is not statistically significant.

The observed pattern of poverty dynamics among the nonremote Indigenous population is perhaps not surprising given their average characteristics and what is already known about the importance of employment and education in driving poverty transitions (Buddelmeyer & Verick 2008). It also concurs with the findings of Wilkins (2016) that Indigenous people are less likely than non-Indigenous people to exit poverty. Nevertheless, our results provide further evidence that Indigenous poverty is likely to be more persistent than non-Indigenous poverty (more so for women than men), thus having a bigger negative impact on wealth accumulation over the longer term.

One of the reasons that poverty entry rates are higher for Indigenous people than non-Indigenous people is that they have lower average household income and therefore are closer to the poverty threshold. Policies that raise average income levels for Indigenous households – including lifting social security payment levels – are likely to reduce the risk of poverty entry. Higher educational attainment also reduces the risk of poverty entry for most types of trigger events. Overall, Indigenous people with Year 12 or higher qualifications are less than half as likely to fall into poverty as those without Year 12.

Initial income explains only part of the difference in poverty entry rates: entry rates are significantly higher for Indigenous than non-Indigenous people across much of the income distribution, suggesting that other factors are also in play. A major contribution of this paper is to establish the relative importance of changes in household composition, employment, labour income and other nonprivate income in triggering poverty entry and exit for Indigenous Australians. Changes in household size are the biggest triggers of poverty entry and exit for Indigenous people, accounting for

almost 50% of poverty entries and 40% of poverty exits. Indigenous women and youth experience more household size changes than men and older people, contributing to higher poverty entry rates for these groups.

Changes in household size can have two possible effects on equivalised income and therefore on the risk of poverty. First, an arriving (or departing) household member may bring (take) some income, either directly as in the case of an adult with labour, social security or other income, or indirectly in the case of a child who carries with them an entitlement to social security income or child support. Second, an arriving (departing) household member consumes a proportion of household income (with the amount assumed to vary according in line with the type of equivalence scale used), reducing the amount left for other household members. The balance of these two effects will determine whether household equivalised income falls or rises when household size changes.

An important and novel finding is that, on average, the income effect outweighs the consumption effect. Poverty entries are much more common when household size falls than when it rises: 27% of Indigenous people living in a household that has decreased in size enter poverty, compared with 9% of those living in households that have increased in size. Likewise, increases in household size carry a higher chance of poverty exit (44%) than decreases in household size (35%), although the difference here is smaller and more than half of poor people experiencing a reduction in household size will actually see their equivalised household income rise. These results challenge existing research that suggests that increases in household size have a largely negative effect on household economic wellbeing (e.g. Smith & Daly 1996). However, our analysis assumes that new household members share their income with existing household members, something that may not always be the case (Schwab 1995).

Some demographic events have a bigger impact on poverty transitions than others. Among the already-poor, partnering, having a family member move in or being the parent of an adult child who leaves home carry with them a 50% chance or higher of exiting poverty. By contrast, only 25% of people who separate from their partner will exit poverty. Separation also carries with it a higher than average risk of poverty entry (18%). However, the highest risk of poverty entry is for adult

children who leave home (40%) or people who have a family member leave the household (38%).

Changes in household size are more prevalent for Indigenous than non-Indigenous people, partly due to higher birth and partnering rates and partly due to the greater proportion of Indigenous people who live in dynamic extended or multifamily households. Indigenous people are significantly more likely than non-Indigenous people to experience an increase in household size across almost all household types, with births, partnering and having a family member join the household all significantly more common for Indigenous than non-Indigenous people. However, within the Indigenous population there is little significant variation in the incidence of household size increases by household type.

By contrast, there is little difference between Indigenous and non-Indigenous people in the likelihood of experiencing a decrease in household size in households made up of couples, lone parents, or couples and their children only. In extended family and multifamily households, however, Indigenous people are much more likely to experience decreases in household size than non-Indigenous people. In particular, Indigenous people are more likely than non-Indigenous people to experience an extended family member or adult child leaving the household, the types of decreases in household size that carry the biggest risk of poverty entry.

Indigenous people who experience changes in household size are less likely to have a concurrent increase in household equivalised disposable income and therefore have a greater likelihood of entering poverty and a smaller likelihood of exiting than non-Indigenous people. This may be because Indigenous people have lower average incomes, and so departing or arriving household members have a smaller impact on total household income. Understanding the extent to which changes in household size result in more/fewer workers in the household, and the subsequent impact on household income, may be a fruitful area for future work.

Among the roughly two-thirds of Indigenous people who do not experience changes in household size from one year to the next, the labour market plays a prominent role in triggering poverty transitions. For those in poverty, increased exposure to the labour market (either by having more household members working or higher labour earnings) results in a 62% likelihood of exiting poverty, while reductions in employment and labour earnings trigger around one-quarter of all poverty

entries for Indigenous people. Changes in private income, such as business and investment income, play a much smaller role in triggering poverty entries and exits for Indigenous than non-Indigenous people, largely because Indigenous people get far less of their income from such sources (Howlett et al. 2016).

These results highlight the importance of employment in general, and stable employment in particular, in reducing poverty incidence and persistence among the Indigenous population. For those in poverty, increasing employment leads to an increased chance of exiting. However, it is important to ensure that employment is sustained: Indigenous people are significantly more likely to move from employment to non-employment than non-Indigenous people (Hunter & Gray 2016), risking poverty re-entry. Our results have several implications for policy makers. The dynamic nature of Indigenous households and the prevalence of complex, multifamily households have implications for income support and housing policy, among other areas. For example, Daly and Smith (1999) point out that fluctuations in household size and composition are likely to lead to more rapid deterioration of the housing stock and poor health outcomes. Targeting and administering income support payments is also likely to be complicated by household dynamics. Our results suggest that it is the most complex households that are most at risk of poverty entry and persistence.

There is mounting evidence that the impact of equivalence scales on poverty estimates is likely to differ by Indigenous status (Hunter et al. 2003, 2004; Breunig et al. 2017). We show that the choice of equivalence scale has differential effects on poverty exit rates for Indigenous and non-Indigenous people, with scales that assume greater economies of size and allocate a higher weight to children reducing exit rates for Indigenous people but increasing exit rates for non-Indigenous people. However, our main results – that poverty entry rates are higher and exit rates lower for Indigenous than non-Indigenous people, and that changes in household size account for a large proportion of poverty transitions in the Indigenous population – are quite robust to using alternative equivalence scales. Our results do not suggest that one equivalence scale is superior to the others tested in this paper.

Our analysis has several limitations that should be taken into account when examining the results. First, because of sample attrition, we were only able to examine poverty transitions over two consecutive years. As such, exit rates are calculated for the entire poor

population and do not take into account that some people may have already been in poverty for several years before being observed in year t , the so-called ‘initial conditions effect’ (Cappellari & Jenkins 2002). Previous research using the HILDA Survey for the total Australian population has shown that the likelihood of exiting poverty falls quickly with poverty duration (Heady et al. 2005). It is likely that the relatively low exit rates for Indigenous people capture both a lower likelihood of exiting for a given duration, as well as a larger proportion of the in-poverty sample who have relatively long poverty duration when we observe them at year t . However, it is not possible to differentiate between these two effects. In the data we have, we are also not able to observe intra-year poverty transitions nor changes in household composition or labour market status that occur more frequently than annually. Previous research shows that short-term mobility rates are high within Indigenous households (Schwab 1995, Biddle & Prout 2009), and we are unable to determine the extent to which these changes trigger poverty transitions.

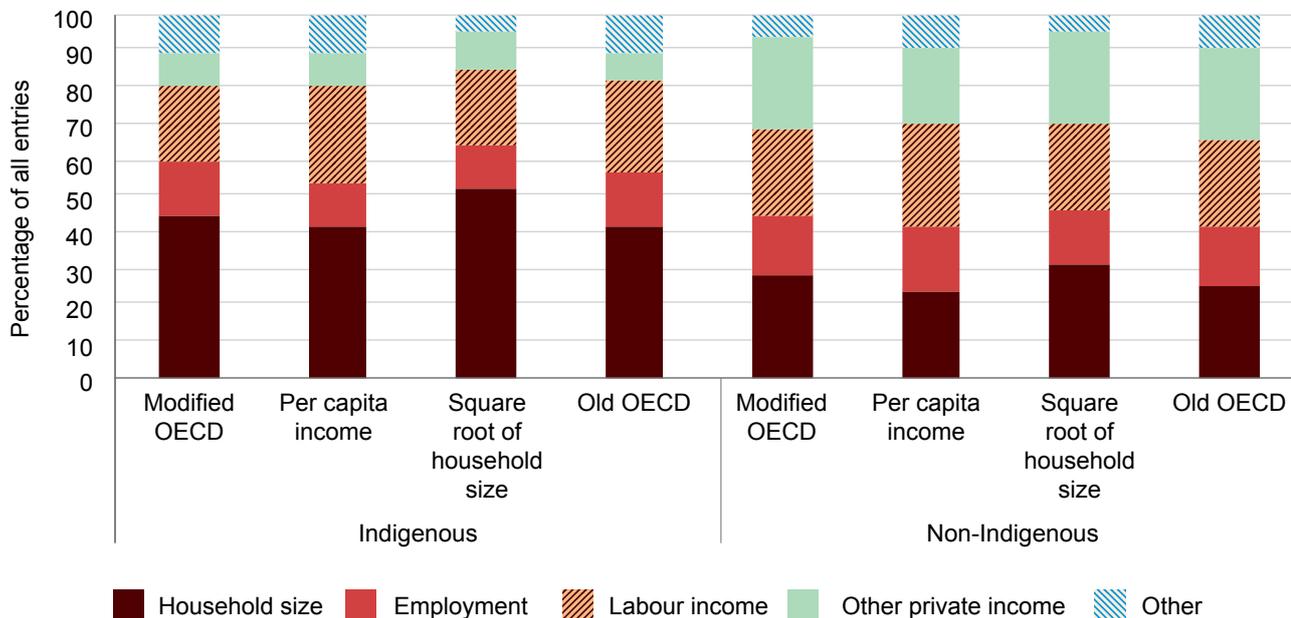
Second, there is some doubt about the reliability of our data source in accurately identifying poverty risk. Household disposable income data from the HILDA Survey is not measured concurrently with household composition. Recall that household income is for the financial year preceding the survey and is aggregated over all current household members. Where household composition is unchanged, this assumption will have little effect on the results. But as we have found, around one-third of Indigenous people live in households that change size from year to year. This introduces measurement error in our poverty measures that is likely to vary by Indigenous status. It also means that some poverty entries and exits are likely to be the drivers of, rather than the results of, changes in household size.

Finally, our results are based on analysis of Indigenous Australians living in nonremote areas, and, as a result of attrition, our sample is probably more urbanised than the nonremote Indigenous population in general. Our results suggest that Indigenous people living in remote areas are likely to experience even higher poverty entry rates and lower poverty exit rates than those in nonremote areas, based on existing research that shows that they have higher transitions out of employment (Hunter & Gray 2016), and are more likely to live in extended family and multifamily households than Indigenous people in nonremote areas. However, caution should be used when generalising our results to the wider Indigenous population.

Despite these limitations, our results provide important insights into the dynamics of income poverty in Indigenous households. Future research could usefully extend this analysis to examine the extent to which changes in income poverty translate into changes in household wellbeing, using measures of deprivation or financial stress that are included in the HILDA Survey. This approach may shed some light on the extent to which financial resources and costs are shared within households. The increasing availability of linked survey and administrative data such as the Multi-Agency Data Integration Project dataset, which links longitudinal income tax and census data, could further advance the study of income dynamics for a more geographically representative sample of Indigenous Australians.

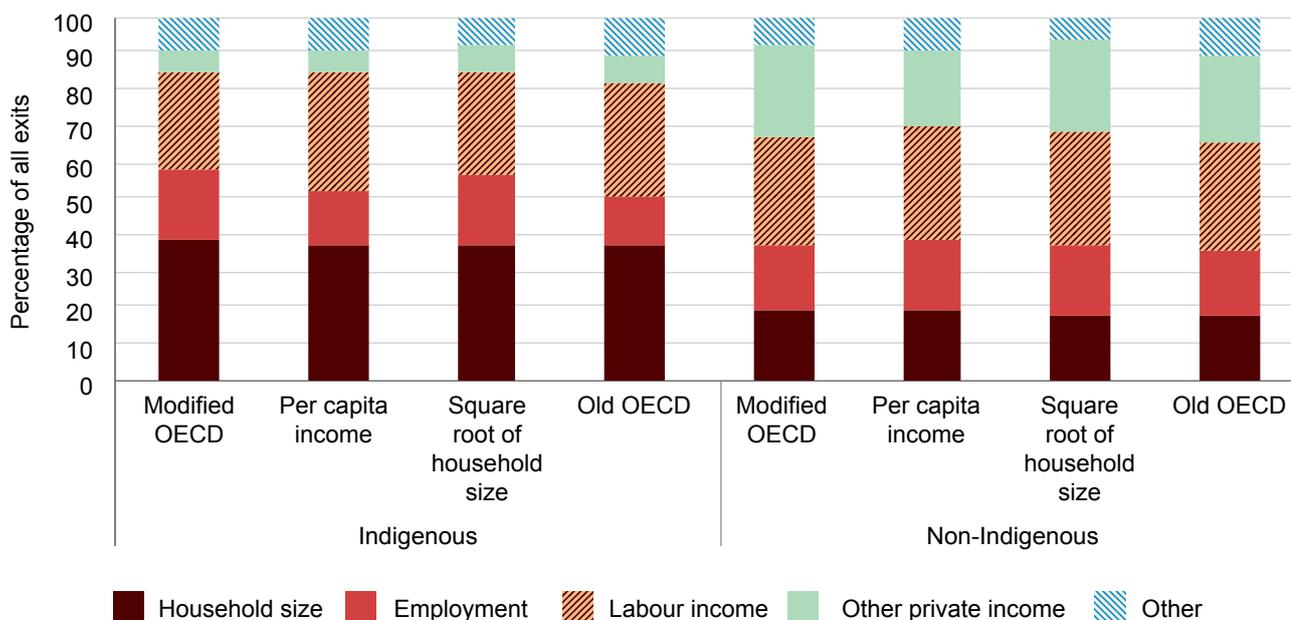
Appendix: Additional figures

Figure A1 Contribution of trigger events to total poverty entry rate using alternative equivalence scales



Note: Pooled sample with base years 2003–14.

Figure A2 Contribution of trigger events to total poverty exit rate using alternative equivalence scales



Note: Pooled sample with base years 2003–14.

Notes

1. The Australian Bureau of Statistics Survey of Income and Housing, one of the principal sources of information on income and poverty prevalence in Australia, does not collect data in very remote areas or Indigenous communities and does not release information on Indigenous status.
2. The Australian Census Longitudinal Dataset provides linked data on individuals from five-yearly censuses. While it has a larger and more representative sample of Indigenous adults than the HILDA Survey, it provides only limited information on income and it does not allow researchers to examine short-term income and family size dynamics.
3. There is some debate about the appropriateness of the 'household' construct for describing Indigenous family structures. Morphy (2006) argues that Indigenous families often share food and resources across several dwellings and that the nuclear family is a poor model for Indigenous households, including those in nonremote areas.
4. The HILDA Survey includes information on the occurrence of life events, including birth, death, marriage and separation, in the 12 months preceding the survey. However, we base our life events analysis on changes in household structure and individuals' relationship in their household. The life events questions in the HILDA Survey are contained in the Self Completion Questionnaire and have significant numbers of missing values (especially for the Indigenous sample). Our approach also allows us to examine life events that lead to increases and decreases in household size that are not included in the life event questions, such as adult children and other family members leaving and joining the household.
5. Adult children include both dependent students aged 15–24 years and nondependent children aged 15 years and over.
6. Comparable data on the proportion of people living in households with a couple/lone parent plus their dependent and nondependent children only are not available from the 2014–15 NATSISS, so it is difficult to compare the HILDA Survey sample and the NATSISS for these household types or for extended one-family households.
7. Less than 3% of poverty entries are from people in the bottom income decile because most of them are already in poverty in year t . A very similar pattern of poverty entry by income decile is evident when looking only at the working-age population.
8. Changes in household size may also be accompanied by changes in the number of employed people, labour income and other private income.
9. Although it may seem counterintuitive that increases in labour income result in poverty entry for a small number of people, this can occur because we are holding constant only household size and the number of employed people per household. Those experiencing an increase in labour income may be simultaneously experiencing changes in other income sources, including welfare payments. It is likely to be the combination of changes in labour and other income that result in poverty entry rather than the change in labour income itself.
10. Indigenous people are also less likely than non-Indigenous people to exit poverty after partnering, and more likely to enter after separations, having family members move in or being the parents of an adult child who moves back in, but these differences are only significant at the 90% confidence level.

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