POVERTY IN AUSTRALIA: NEW ESTIMATES AND RECENT TRENDS

RESEARCH METHODOLOGY FOR THE 2016 REPORT

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OCTOBER 2016

This document describes key features of the data and provides details of the methodology that have been used to produce the poverty estimates published in *Poverty in Australia 2016* (ACOSS, 2016). This is the fifth in a biennial series of Poverty and Inequality reports that the Social Policy Research Centre (SPRC) has provided to ACOSS.

The document follows the outline developed in the previous report (Saunders, Bradbury and Wong, 2014) in explaining how the estimates were derived and setting out key definitions. It also provides details of the changes from the approach used previously and explains why these have been made.

Data Sources

The poverty estimates have mainly been derived from the basic confidentialised unit record file (CURF) data based on the *Survey of Income and Housing* (SIH) conducted by the Australian Bureau of Statistics (ABS). Summary results from those surveys are published in ABS *Household Income and Income Distribution* reports *(ABS* Catalogue No. 6523.0).

The SIH is currently conducted every two years, with the most recent survey referring to income data for the financial year 2013-14. This analysis draws on the latest data, but the trend analysis also makes comparisons with the previous SIHs, covering the years 2003-04, 2005-06, 2007-08 2009-10, 2011-12 and 2013-14.

Income is collected in these surveys in current form (i.e. in the week before the survey) and in annual form (i.e. over the previous financial year). The estimates in this study are all based on current income.[1,2]

In 2009-10, the basic SIH sample was expanded to just over 18,000 households (of whom around 10,000 were also in the HES survey). The number of households participating in the subsequent two surveys (2011-12 and 2013-14) was around 14,000.

Definitional Issues

Over the period covered by this analysis, the ABS has introduced a series of measurement changes to improve the quality of the income data collected. These changes need to be taken into account when comparing changes over time and this is not always possible because the new modifications are not always available for earlier years.

Since 2003-04, the most important set of improvements were introduced in 2007-8 and are described in detail in ABS (2009, Appendix 4).[3]

> 'In addition to the regular and recurring cash receipts previously included, the new income measures now include non-cash benefits, bonuses, termination payments and payments for irregular overtime worked.' (ABS, 2009, p.61)

The ABS estimated that the inclusion of these new dimensions of measured income resulted in an $85 increase in mean weekly gross household income and affected 3.4 million (43%) of all households (see ABS, 2009, Appendix 4 and Kindermann and McColl, 2012).

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[1] We follow the ABS recommendations to correct an error in the 2005-06 income definition data in the 2011-12 CURF. See the June 2014 release of 6541.0.30.001, *Microdata: Income and Housing, Australia, 2011-12.*

[2] Wealth data has also been collected in every survey since 2003-04, except for 2007-08. Every six years, a sub-set of those who participate in the SIH also participate in the Household Expenditure Survey (HES). This collects information on expenditure and the incidence of different forms of financial stress. The latest combined survey took place in 2009-10, the previous one in 2003-04. The next combined survey is planned for 2015-16.

[3] Minor changes were made in the 2013-14 survey. The main change was an improvement in the modelling of franking credits.

The new estimates resulted in an increase in inequality as measured by the Gini coefficient. As was noted by ABS at the time:

> 'This reflects that most of the changes have been to the scope of employment income and *at the higher end of the income distribution i.e. fourth and highest quintiles*' (ABS, 2009, p. 63: emphasis added)

The definitional changes introduced in 2007-08 (and in earlier years in the 2000s) are described by Wilkins (2014), who confirms that these definitional changes increased measured inequality.[4] Although the ABS notes that the changes have mainly affected those at the top of the income distribution, this does not automatically imply that they have not affected poverty rates, for two reasons: firstly, because there will be some changes at the bottom that may cause some people to shift from one side of the poverty line to the other; and second, because the definitional changes will affect the level of median income and hence the poverty line itself.[5]

The detailed poverty estimates presented here for the latest year (2013-14) are based on the 'new' (introduced in 2007-08) income measure in order to ensure that they are of the highest quality. The new income measure is referred to in the accompanying poverty rate tables as the '2007-08 basis'. This is the basis now used in the official (ABS) income distribution reports.

It is not possible to adopt the 2007-08 basis measure when examining the trend in poverty going back to 2003-04 because data that apply the new measure were only collect from 2007-08 onwards. There is, however, a consistent series that applies the 2005-06 income definition that covers the period 2005-06 to 2013-14 and this forms the basis of the trend analysis.

The estimate of poverty in 2003-04 is based on the income definition prevailing in that year, and an indication of the impact of this (less important) definitional change is provided by comparing the 'old' (2003-04) and 'new' (2005-06) estimates for the overlap year, 2005-06 (see accompanying Tables 10 and 11).

A consequence of adopting this approach is that the overall poverty estimate for 2013-14 (and the detailed estimates for 2013-14 presented separately) will in some instances differ from that used to track changes in poverty over time.

We estimate that the impact of moving from the 'old' (2005-06) to the 'new' (2007-08) income definition (using a poverty rate set at 50% of median income) is to increase the baseline poverty rate in 2013-14 (defined as set out below) from 9.5% to 10.5% or by 1.0 percentage points (See Figures 1 and 2 in ACOSS, 2016).

Poverty calculation
Wherever possible, the methods used to produce the estimates reported here replicate those used in the earlier studies produced by SPRC for ACOSS. (See Saunders, Hill and Bradbury, 2007; Saunders, Bradbury and Wong, 2012, 2014).

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[4] Wilkins (2014, p. 88) concludes that his analysis: 'reinforces the need for data providers to be cognisant of the importance of consistency in data over time' and he expresses the hope that; 'future revisions to ABS concepts and survey methods for its household income survey collections will be kept to a minimum'.

[5] The changes introduced in 2007-08 also affected income received in the form of termination payments and bonuses and, for the first time, included lump sum workers' compensation payments as part of income (previously only regular receipts were included as income). These changes impacted on some of the incomes of those in the middle and at the bottom of the income distribution (see ABS, 2009: Appendix 4 and Saunders, forthcoming for further details).

The basic income variable used in this analysis is household disposable (i.e. after-tax) income, adjusted for need using the modified OECD equivalence scale.

The OECD scale assigns a value of 1.0 to the first adult in the household, 0.5 to each subsequent adult in the household and 0.3 to each dependent child. We define dependent children as those under 15 years of age. Disposable income is divided by this scale to derive equivalised disposable income.

The resulting concept of equivalised household disposable income captures the ability of income to meet the consumption needs of the household, and is now widely used to estimate poverty in studies conducted in Australia and by international bodies like the OECD.

The SIH is conducted continuously throughout the year, with households interviewed in one of four quarters. Following the procedure adopted in the earlier report, the incomes reported in the different quarters have been adjusted for changes in the Consumer Price Index (CPI) that took place over the course of the year in order to make them more comparable. This involves adjusting the reported quarterly values of income by the ratio of the average CPI value for the whole year to the CPI value in that quarter.

The value of median equivalised disposable income (and hence the poverty line) has then been derived from the adjusted income data and poverty rates have been estimated using the CPI-adjusted incomes.

Poverty rates have been derived by first establishing the poverty status of the household and (unless elsewhere specified) weighting them by the number of persons in the household. This figure is then expressed as a percentage of all individuals in the relevant category.

The same person-weighting approach is used when calculating median incomes (and hence the poverty line). This approach thus provides estimates of how many individuals are living in households with incomes below the poverty line, and is now standard practice in Australian and international poverty line studies.

Separate poverty rates (and numbers in poverty) have been derived for all individuals, all adults (aged 15 and over) and all children (aged under 15).

The poverty gap is defined as the absolute difference between the actual income and the poverty line of those households with incomes below the poverty line (expressed in actual, not equivalised dollars). Average poverty gaps can then be derived for households in specific circumstances (e.g. those in receipt of a particular social security payment).

These average poverty gaps are averaged across individuals who are below the poverty line. They thus reflect the average income shortfall of individuals between their household income and the poverty line.[6] Since this gap is in actual (rather than equivalent) dollars, it will be greater in larger households even when both large and small households have the same equivalent income. This is because the larger household requires more additional actual income to obtain a given increase in its equivalent income.[7]

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[6] For sub-populations where the household size is fixed (e.g. couple-only households), the minimum expenditure required to lift all people to the poverty line is calculated as this poverty gap, times the number of people below the poverty line, divided by this household size.

[7] An alternative approach employed in the literature is to define the poverty gap as the average of the income shortfall divided by the poverty line (averaged over all people including those above and below the poverty line) (e.g. Deaton, 1997, p146) . While this provides a measure that can be used to compare the welfare of different family types, it is defined in terms of equivalent rather than actual income and so has a less straightforward policy interpretation.

Poverty rates and poverty gaps have been estimated using poverty lines set at 50% and 60% of median income (or income minus housing costs). Almost all Australian poverty researchers now use one of these two poverty lines. The use of both provides an insight into the sensitivity of the estimates to shifts in the poverty line.

Baseline Case

The baseline estimates utilise all of the data provided on the CURF for each year and apply the methods described above to estimate the overall poverty rate and its level for different groups. No adjustments have been made to the full ABS sample, nor are any changes (other than the CPI-adjustment described above) made to the reported values of income used to derive the median value and hence the poverty line.

Sample Exclusions and Income Adjustments

Building on the approach developed in previous SPRC studies conducted for ACOSS, the baseline data have been adjusted to reflect two aspects that have been shown to be important when estimating poverty.

The first adjustment (identified here as an exclusion) involves removing from the sample in each year the following two groups:

1. All households who report zero or negative incomes

2. All self-employed households

In both cases, the rationale is that the reported income data is likely to be an unreliable measure of the standard of living of the household and is thus not suitable for establishing their poverty status. The rationale for this is self-evident in the case of those reporting zero or negative income, while the exclusion of the self-employed reflects the difficulty involved in distinguishing between personal and business income.

Self-employed households are defined for this purpose very broadly to include those households that either report any income (negative or positive) from their own unincorporated business, or who contain individuals who report their labour force status as employer, own account worker, contributing family worker or employee paid in kind in their main or second job. There is substantial overlap between these two exclusion categories. Around half of those with zero or negative income are also classified as self-employed.[8]

In our previous reports, the number of people in poverty is calculated by applying the estimated poverty rate to the estimating population. This approach effectively assumes that there is no poverty among those households who have been excluded from the estimating sample. While this might be a reasonable assumption for those who report zero or negative income, it is less justifiable in its treatment of the self-employed.

For this reason, this report has changed the method used to estimate the numbers in poverty (the change does not affect poverty rates). This new method instead assumes that the poverty rate among the people in the two excluded groups is not zero is but the same as the estimated poverty rate for all other households. In practice, this is implemented by multiplying the number of people estimated to be poor within the restricted population

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[8] Application of the zero/negative income exclusion results in 2011-12 resulted in the removal from the actual (unweighted) sample of 93 households with zero and/or negative household income when measured on a Current (2007-08) basis and 102 households when measured on a 2005-06 basis. A total of 2,064 households fitted the definition of being self-employed (using either income definition) and there were 2,108 (Current basis) or 2,116 (2005-06 basis) that had zero or negative income and were self-employed.

(people who are not excluded) by the ratio of the total population to the restricted population. To ensure adding up consistency, the same ratio is applied both to the overall population and to any sub-populations.

The second adjustment relates to the treatment of housing costs. As is well known, the high home ownership rates that exist in Australia mean that many households face low housing costs once they have paid off their mortgage. Low housing costs means that a given level of income can go further in meeting other needs and thus that the exposure to poverty may be lower than otherwise – particularly for older households where outright home ownership is most common.

Reflecting these considerations, it is common for poverty to be estimated in the Australian context before and after housing costs by using income concepts and poverty lines that include and exclude housing costs (Melbourne Institute, 2014; Saunders, 2013).

When estimating poverty on an after housing costs basis, weekly housing costs have been deducted from income, and the difference (income after housing) has then been divided by the equivalence scale. (The same equivalence scale is used for both the before and after housing costs poverty calculations). The median of this adjusted measure is then derived, the poverty line is set at the relevant percentage of the new median and poverty is estimated by comparing income after housing costs with the after housing costs poverty line.

For this purpose, housing costs include recurrent outlays by household members in providing for their shelter and is limited to major cash outlays on housing, that is, mortgage repayments (including for any dwelling alterations or additions) and general and water rates for owners, and rent payments for renters.[9]

The benchmark estimates of median equivalised income derived from the latest SIH on this basis for 2013-14 (using the 'new, i.e. 2007-08' income measure) are $844.9 (before housing costs) and $682.1 (after housing costs), a difference of $162.7 or 23.9% (Table A).

We thus end up with four alternative definitions of poverty. Results for each of these have been calculated using the 2005-06 and 2007-08 income basis:

1. <u>Definition 1</u>: The benchmark definition that includes all observations and takes no account of housing costs

2. <u>Definition 2</u>: As above, but excluding all observations that either report having zero or negative income or are self-employed

3. <u>Definition 3</u>: As 1 above, but deducting housing costs from income and using an after-housing costs poverty line

4. <u>Definition 4</u>: As 2 above, but deducting housing costs from income and using an after-housing costs poverty line

The application of the first exclusion (i.e. moving from definition 1 to definition 2) results in a small increase in the value of median income and hence the poverty line. In 2013-14, for example, this change caused the benchmark median to change from $844.9 a week to $852.6 a week, an increase of just under one per cent (Table B). **The estimates of poverty *rates* presented in ACOSS (2016) are all based on Definition 4.** Some poverty *lines* based on Definition 2 are also presented in the ACOSS report.

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[9]   This definition of housing costs is available in all the ABS income (and expenditure) surveys and is the standard definition used for calculation of after-housing poverty.

Changes Over Time

When examining changes over time, comparability demands that account must be taken of the changes to the definition of income that have been introduced by ABS over the period.

For the trend analysis we therefore use the most recent definition that allows us to produce consistent estimates over the longest possible period. As explained in our previous reports (Saunders, Bradbury and Wong, 2012, 2014) the best measure to use for this purpose is that based on the 2005-06 definition, since we are able to derive estimates for all years since 2005-06 using this measure.

The 2005-06 income definition is not available for 2003-04, so for this year we have estimated poverty using the definition that prevailed in that year (the 2003-04 definition). We are, however, able to estimate poverty in 2005-06 using both the definition that applied in that year (the 2005-06 definition) and the one that applied previously (the 2003-04 definition). A comparison of these two estimates for the overlap year (2005-06) provides an indication of the impact of moving between the two income definitions.

Comparing the Different Income Measures – Summary Statistics

Table A summarises movements in median income (before and after housing costs), the CPI and household disposable income per head (HDI) over the period covered in this analysis.

Table A: Movements in Median Income, Consumer Prices and Household Disposable Incomes, 2005-06 to 2013-14

Year	Median income (2005-06 basis):		Consumer Price Index (CPI) (1989-90 = 100)	CPI excluding housing (1989-90=100)	Household disposable income per head (1989-90 = 100)
	Definition 1 - Before housing costs ($/week)	Definition 3 - After housing costs ($/week)			
2005-06	563.6	453.3	151.7	154.9	195.9
2007-08	668.4	541.4	161.4	163.9	228.6
2009-10	692.9	558.3	170.3	170.3	251.2
2011-12	757.0	603.2	179.6	178.1	277.6
2013-14	805.8	641.5	188.7	185.0	289.0
			Change (%)		
2005-06 to 2007-08	18.6	19.4	6.4	5.8	16.0
2007-08 to 2009-10	3.7	3.1	5.5	3.9	10.7
2009-10 to 2011-12	9.3	8.0	5.5	4.6	11.9
2011-12 to 2013-14	6.4	6.3	5.1	3.8	4.1
2005-06 to 2013-14	42.9	41.5	24.4	19.3	47.5

Sources: SIH CURFs; ABS Catalogue 6401.0 (for CPI) and Melbourne Institute *Poverty Lines: Australia, June Quarter 2012,* Table 3.

As can be seen from Table A, median income rose faster than the CPI over the period (whether or not housing costs are deducted), particularly between 2005-06 and 2007-08 (the high-growth years prior to the GFC). This implies that the relative poverty line used here increased in real terms over this period.[10]

The sharp slowdown in the growth of median income following the onset of the GFC in late-2008 is also evident in the figures shown in Table A. In fact, real median income declined slightly between 2007-08 and 2009-10, so that the poverty line also declined in real terms.

The table also includes information on the increase in the CPI excluding housing costs. Non-housing prices increased by slightly less than the overall CPI over the period – implying an even greater increase in the purchasing power of income after deducting housing costs overall, and particularly between 2005-06 and 2007-08.

Table B indicates the impact of different data sources and income definitions on median income (and hence the poverty lines) in 2013-14.

Table B: Alternative Estimates of Median Income in 2013-14 ($ per week)

	Income Definition:			
	Definition 1: Benchmark case (no exclusions)	Definition 2: Excludes zero or negative incomes and the self-employed	Definition 3: As definition 1 but excluding housing costs	Definition 4: As definition 2 but excluding housing costs
'New' 2007-08 income measure	844.9	852.6	682.1	685.9
'Old' 2005-06 income measure	805.8	807.8	641.5	644.1

The most significant point to note here is that the new income definition produces a higher value for median income in 2013-14 than when the earlier (2005-06) income measure is used. The benchmark (definition 1) difference is equal to $39.0 per week, equivalent to 4.8% of the 'old' (2005-6 basis) figure.

These differences imply that the impact of the latest definitional change is not restricted to those in the top two quintiles of the distribution, as ABS claimed at the time they were introduced in 2007-08 (see earlier). In fact, even in 2007-08, the benchmark case medians were equal to $691.7 ('new' basis) and $668.4 ('old' basis), a difference of a $23.3 or 3.5%.

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[10] As noted earlier, the CPI-adjusted median incomes used here differ slightly from those contained in the ABS reports. This is because the method used here re-bases all incomes to the mid-point of the financial year (end of December) and are deflated using the CPI centred at that time, whereas the ABS estimates cover the entire financial year and are adjusted using the average CPI over the year. The differences are, however, very small.

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Appendix A: Specification of Disaggregated Groups

1.   Gender

All persons in the household have been categorised according to their gender.

2.   Adults and Children

Following the ABS definitions, adults are defined as 15 years and over while dependent children are defined as being under 15 years of age.

3.   Adult Age Categories

The age groups of adults have been categorised into: 15 to 24 years, 25 to 64 years, and 65 years and above.

4.   Family Type

Household family type has been derived from the family composition household variable identified in the ABS data file (FAMLYCOM). Lone person households have been mapped into single person households with no children. One parent families with dependent children only and one parent families with dependent children and other persons households have been categorised as lone parent households. Couple families with dependent children only and couple families with dependent children and other persons have been allocated to couples with children households. Couple only have been mapped into couple only households while all other remaining groups have been categorised into the "Other" household type group.

5.   Family Type by Age

Household family type has been further cross-tabulated according to the age of the household reference person.

6.   Children in household type

Children have been categorised as living in lone parent households, couple households and other households as described in family type above.

7.   Social Security Payment Recipients

Household that received social security payments include those where the Household Reference Person received any positive payments from either Newstart Allowance, Parenting Payment, Carer Payment, Disability Support Pension, Age Pension or Youth Allowance. In cases where the household reference person received more than one payment type, they were assigned to the payment category from which they received the higher value payment.

8.   Social Security Payment Recipients by Family Type

Social security payment recipients have been further disaggregated by family type i.e. single, lone parent and couples with and without children using family type variable described earlier.

9.   Main Income Source

The main source of household income has been classified into wage and salary, own unincorporated business income, government pensions and allowances and other income.

10. Labour Force Status

The labour force status of the Household Reference Person has been classified into employed, unemployed and not in the labour force. Those who were employed have been further disaggregated into full-time and part-time employment, while those who are not in the labour force have been separated into those aged under 65 and those aged 65 and above.

11. Location

Households have been disaggregated into state or territory of usual residence and further broken down by greater capital city area and rest of state (using the new ABS geographic classification). The data for the ACT and NT are not released separately by ABS.

12. Number of Earners

The number of earners in each household has been categorised as having no earners, 1 earner and 2 or more earners.

13. Disability or long-term health condition

Adults aged 15 years and above are defined as having a disability if they have responded yes to having a disability or long-term health condition.

14. Housing tenure

Households are categorised into owners who owns the dwelling outright, or own the dwelling but have a mortgage or loan secured against it. Renters are further categorised according to those paying rent to a private landlord i.e. real estate agent or someone who they live with or not, while public renters are those who pay rent to a state/territory housing authority or trust. Other renters are households who pay rent to the owner/manager or a caravan park, an employer (including a government authority), a housing cooperative, a community or church group, or any other body not included elsewhere. Other tenure types are households that do not fall into any of the above categories i.e. households which are not owners (with or without mortgage) or renters and includes households that are rent free.