

INEQUALITY IN AUSTRALIA: NEW ESTIMATES AND RECENT TRENDS
RESEARCH METHODOLOGY FOR 2018 REPORT

Peter Saunders, Melissa Wong and Bruce Bradbury
Social Policy Research Centre
University of New South Wales

JULY 2018

This paper provides details of the definitions and technical methods that were used to generate the updated income and wealth estimates for 2015-16 and the trends for earlier years. Any queries should be directed to either Peter Saunders at P.Saunders@unsw.edu.au or Bruce Bradbury at B.Bradbury@unsw.edu.au

Introduction and Overview

This document describes key features of the data and provides details of the methodology that have been used to produce the estimates of income and wealth inequality in 2015-16 and the trend results for earlier periods.

The document follows the outline developed in previous reports produced by the Social Policy Research Centre (SPRC) on poverty and inequality in Australia using the same data source (the Australian Bureau of Statistics *Survey of Income and Housing*). It explains how the estimates were derived and provides details of key definitions.

Overall, the methods employed in the inequality analysis (particularly in relation to income inequality) closely follow those used in the poverty analysis.

The methods used in the wealth inequality analysis differ somewhat from those used in the income inequality analysis and both are described separately below.

Data Sources

The latest estimates (for 2015-16) have been derived from the 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).

It is helpful to refer to the latest ABS income distribution report when reading this document as the definitional and other details are all contained in the ABS report. The basic approach adopted here has been to follow that adopted by the ABS unless we have a specific reason not to.

The SIH is currently conducted every two years, with the most recent survey referring to income data for the financial year 2015-16. This analysis draws on the latest data, but the trend analysis also makes comparisons with estimates derived from the CURFs for previous SIHs, covering at least every second year from 1999-2000 up to 2015-16 for income inequality and generally every second year from 2003-04 to 2015-16 for wealth inequality.

The ABS collects income information both for the 'current' period (based on the most recent payment) as well as for the financial year prior to the survey period. Over the last 15 years there have also been a number of changes to the SIH survey methodology. These have been introduced to improve the quality of income measurement but have meant that there is a break in the continuity of the series (particularly in the mid-1990s when a new survey methodology was introduced but also in several years since then when changes have been made to the scope of income measurement).

Our results for 2015-16 are based on the current (weekly) income measure using the most recent and comprehensive income measure that was introduced in 2007-08.

For the trend results, we present some information on both the weekly and annual income measures, but focus primarily on the current income measure calculated using the pre-2007-08 definitions (the ABS replicates the 2005-06 approach in the later years). This controls for many, but not all, of the comparability breaks over the period.

Section 1 describes the basic approach used throughout the income inequality analysis to produce the overall summary information contained in the report. This is followed by a description of the methods used to produce specific estimates that address particular aspects of inequality.

Section 1: Basic Income Distribution Descriptive Statistics

It is useful to start by defining the key variable that is used in the inequality analysis that follows – disposable income. The following is taken from a recent ABS SIH report:

'The estimates of disposable income in this publication are derived by deducting estimates of income tax liability, the Medicare levy and the Medicare levy surcharge

from the gross income data collected in the Survey of Income and Housing (SIH). Gross income is defined as income available for, or intended to support, current consumption, and are (sic) collected in respect of employment income (including non-cash benefits, bonuses, termination payments and irregular overtime), plus profit/loss from own unincorporated business, investment income (including interest, rent and dividends), lump sum workers' compensation receipts, private transfers (including superannuation, child support), other transfers from households and cash transfers from government pensions and allowances. Some limits have been placed on items included as income, where the magnitude of individual amounts received exceeds that likely to be used to support current consumption (e.g. termination payments, workers compensation payments)' (ABS, 2013: 4)

The SIH is conducted continuously throughout the year, with households interviewed in one of four quarters. Following the procedure adopted in the earlier poverty reports, the incomes reported in the different quarters have been adjusted in line with movements in the Consumer Price Index (CPI) over the survey year.

For the trend analysis, all results are reported in 2016-17 dollars per week. That is, for a household with income Y , interviewed in quarter q , calculations are based on Y/CPI_q where CPI_q is the CPI index for that quarter (scaled to average 1 across the 4 quarters of 2016-17). For the analysis of the 2015-16 survey results, the same approach was used across the four quarters of that year to scale results to 2015-16 average prices.

The CPI-adjusted estimates of household disposable (i.e. after-tax) income have then been adjusted for differences in the needs of different households using the modified OECD equivalence scale. This allows for the fact that larger households have greater needs and thus require a higher level of income to achieve the same standard of living.

As indicated by the ABS:

'Using an equivalising factor for household income enables the direct comparison of the relative economic wellbeing of households of different size and composition (for example, lone person households, families and group households of unrelated individuals). Equivalised disposable household income is calculated by adjusting disposable income by the application of an equivalence scale. The scale is based on the principle that larger households require a higher level of income to achieve the same standard of living as a smaller household. However, there are economies of scale, so each additional person does not equally add to the income needed to support household consumption' (ABS, 2017: Explanatory Notes)

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 (where dependent children are defined as being 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 available for spending to meet the consumption needs of the household and is widely used when studying poverty and inequality in Australia and by international bodies like the OECD.

Households reporting zero or negative values of disposable income have been excluded from the analysis. After making this exclusion, income quintiles were derived by weighting the resulting sample by persons and then splitting it into five equal groups. This has the effect of creating income quintiles that each contain one-fifth of all individuals (adults and children), who are ranked by the equivalised disposable income of their households.

Although the ABS provides estimates of imputed rent in its latest income distribution analysis, these estimates have not been included in the definition of income used in this analysis.

Section 2: Analysis of Household Types and Contributing Factors

Several parts of the analysis refer to specific household types, defined on the basis of their age, labour force status (employed, unemployed or not in the labour force) or family status (single people, couple families or sole parent families). Where necessary (for example where one member of the household is employed and another person is not in the labour force), these classifications are based on the status of the person nominated as the reference person in each household.

This part of the analysis is designed to provide a more in-depth account of the profile of inequality and to help identify the factors contributing (in a statistical sense) to overall inequality by showing how they vary across the income quintiles.

Government benefits have been categorised as follows:

- *Pension payments*, which include current weekly income from war widows pension (DVA), disability pension (DVA), age pension, service pension (DVA), wife pension, disability support pension, pension supplement, overseas pensions and benefits, carer payment and carer allowance.
- *Allowance payments*, which include current weekly income from youth allowance, newstart allowance, widow allowance, partner allowance, sickness allowance, Special Benefit, Austudy/Abstudy and parenting payment.
- And *all other government benefits*, which include commonwealth rent assistance, current weekly income from carer supplement, paid parental leave payment, family tax benefits, utilities allowance, clean energy supplement, dad and partner pay, school kids bonus and other government pensions and allowances.
- The last panel show the dollar value of total income for each income component and for each income quintile (weighted by persons). This was calculated by multiplying the average income in each cell shown in Panel 1 by the number of persons in each quintile shown in Panel 4. Because of this, the estimates of total income should be not representative of national estimates and should be treated with care.

It is important to note that the estimates of average hours worked each week should be treated with caution for several reasons. These include the fact that the wage income and hours worked variables are not entirely consistent with each other, and because no attempt has been made to derive an hourly wage estimate for individuals because of the complexities involved in doing this. The SIH data are not really intended for this purpose and most researchers use alternative sources (ABS labour force data on earnings) when examining this issue. The figures presented are aggregate averages (i.e. the ratio of total wage income to total hours worked in each section of the income distribution) and are thus indicative only.

Section3: Tax Impact Analysis

The results shown on tax payments are based on income tax estimates calculated at the household level and weighted by persons. Data on income tax paid have been taken directly from those provided on the *Household Expenditure Survey (HES) CURF* for 2015-16.

Estimates of the dollar value of total income taxes paid by each income quintile (weighted by persons) were calculated by multiplying the average tax level in each cell by the number of persons in each quintile. The estimates for total income should not be interpreted as representative of national estimates (i.e. taxes as shown in the national accounts, for example).

Section 4: Income Distribution Trends and Methods

The income inequality trend analysis applies the methods described in Section 1 to the SIH CURF data for available years between 1999-2000 and 2015-16. The core income concept used in the trend analysis is the equivalised household current (weekly) disposable income of individuals using the ABS definitions of income that existed before 2007-08. (That is, the ABS preferred income measure in the years up to 2005-06, and the 2005-06 income definition for 2005-06 onwards).

The number of adults has been top-coded to 6 and the number of children top-coded to 4. This is to match ABS data restrictions in some years while maintaining overall consistency of treatment. (A looser top-coding for children is possible for the most recent years). The number of people in each household is top coded as for the equivalence scale.

The annual income trend analysis is based on measures that refer to income over the prior financial year. These are no longer the preferred measures for the ABS.

Wilkins (2014) provides a detailed investigation of the impact of changing income definitions during the first decade of the 2000s. Our inequality results generally mirror his, though we find a smaller discontinuity between the 2002-03 and 2003-04 current income results. He concludes that changes in ABS methods – particularly from 2002-03 to 2007-08 make it difficult to be certain about inequality changes over this period. (The ‘standard income definitions’ produced by the ABS only partly address these issues).

Section 5: The Distribution of Wealth

The following wealth summary variables have been derived from, and are as defined in, the 2015-16 SIH.

Summary measure	Components
1 Own home (less mortgage)	Estimated sale price of the dwelling (for home-owners) – principal outstanding on loans for the selected dwelling
2 Other real estate (net)	Value of residential property excluding selected dwelling + Value of non-residential property – Principal outstanding on loans for other property (excl business and investment loans) – Principal outstanding on rental property loans
3 Other non-financial assets (net)	Value of contents of selected dwelling + Value of vehicles + Value of assets nec – Principal outstanding on loans for vehicle purchases (excluding business and investment loans) – Principal outstanding on loans for other purposes (excluding business and investment loans)
4 Superannuation account	Balance of accounts with non-government superannuation funds + Balance of accounts with government superannuation funds
5 Shares, business, financial (net)	Value of offset accounts + Value of accounts held with financial institutions (excluding offset accounts) + Value of children's assets + Value of debentures and bonds + Value of loans to persons not in the same household + Value of other financial investments + Value of own incorporated business (net of liabilities) + Value of own unincorporated business (net of liabilities) + Value of private trusts + Value of public unit trusts + Value of shares + Value of silent partnerships – Principal outstanding on investment loans (excluding business and rental property loans)
6 Other debts	Amount of credit card debt + Amount of HECS/HELP liability + Amount of Student Financial Supplement liability
Net wealth	= 1 + 2 + 3 + 4 + 5 – 6

3. Equivalising wealth

Compared to income distribution research, there is less consensus in the literature about the most useful way to report wealth distributions. From one perspective, wealth represents the household's potential for future consumption. This suggests that it should be pooled within the household, equivalised and counted in the same way as income.

However, in many circumstances, wealth held by a household will be used to finance consumption in future circumstances when the household composition is quite different to that at the time of observation. For example, when people retire or when wealth is passed on to descendants. In this case, equivalising for current household circumstances is not likely to be appropriate and a more straightforward accounting of wealth might be more informative.

Finally, wealth might be seen as representing social power, in which case adults in the household might be considered differently from children. Three examples of recent research follow these different approaches. Jantti, Sierminska and Van Kerm (2013), examine the equivalent wealth of persons, Sierminska, Smeeding and Allegrezza (2013) examine household wealth without equivalisation (though it is not clear whether they count households or persons), and Credit Suisse Research Institute (2014) describe the distribution of per-adult wealth across the adult population.

The logical extension of the last approach would be to report wealth at the individual level allocating shared wealth to those with legal entitlements to it. Unfortunately, this is not possible with the ABS wealth data, since most wealth data is collected at the household level.

The approach adopted here is to report wealth estimates on a per-household basis, with no equivalisation. These results are easiest to interpret in a descriptive sense. Tables which show both wealth and income are calculated on a per-household basis (i.e. with equal numbers of households in each income quintile group) and with income adjusted by the equivalence scale.¹

Decomposition by wealth component

For the decomposition of the Gini index of wealth inequality by wealth component, the wealth share of each component, times the concentration coefficient equals the 'contribution to Gini' of the component. These add up across the components to the Gini coefficient.

- The concentration coefficient for a wealth component is calculated in a similar fashion to the Gini coefficient for total wealth, except that the ranking used in the calculation is the overall wealth ranking rather than the ranking for that particular component.
- Note that the concentration coefficient is thus not the same as the Gini coefficient of each component of wealth. For example, other real estate has extremely high Gini coefficient – greater than one in one year. This is because some households have negative wealth. (Presumably because of negative gearing of property investments). However, the lower concentration coefficient for this component indicate that these households are not necessarily concentrated at the bottom of the total wealth distribution.
- Where the concentration coefficient is less than the Gini for the same year, this implies that this component has a relatively equalising impact on the overall distribution of wealth.
- The concentration coefficients indicate the extent to which the wealth component is held by people at the top of the wealth distribution. Over the period, these increased for other real estate and for non-financial assets.
- The 'contribution to Gini' is the combination of both the share and concentration coefficient effect. Because of its increasing share of wealth, superannuation made an increasing contribution to overall wealth inequality.

¹ The equivalence scale for the trend analysis is used, with household size top-coded.

References

ABS (SIH 2015-16 and earlier years, as cited)

Jantti, M., Sierminska, E. and Van Kerm, P. (2013), 'The joint distribution of income and wealth' in Janet C. Gornick and Markus Jantti (eds), *Economic disparities and the middle class in affluent countries*, Stanford: Stanford University Press, pp. 312-33.

Shorrocks, A., Davies, J. B. and Lluberas, R. (2014), *Global Wealth Databook 2014* Zurich: Credit Suisse Group AG.

Sierminska, E., Smeeding, T. M. and Allegrezza, S. (2013), 'The distribution of assets and debt' in Janet C. Gornick and Markus Jantti (eds.), *Economic disparities and the middle class in affluent countries* Stanford: Stanford University Press, pp. 285-311.

Wilkins (2014)

Appendix: Specification of Disaggregated Groups

Demographic variables

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 (DCOMPH). This is a more detailed version of a previously used variable (FAMILYCOM) that is no longer available in the dataset. 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. 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.

6. 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.

7. Labour Force Status

The labour force status of all persons 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.

8. 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).

9. Country of Birth

The country of birth of all adults has been classified into 3 groups: Australia; Main English speaking countries (Canada, Republic of Ireland, New Zealand, South Africa, United Kingdom, United States of America); and all other countries.