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Overview

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| Key points |
| * Between 1988-89 and 2009-10, the incomes of individuals and households in Australia have risen substantially in real terms and in comparison to trends in other OECD countries, with particularly strong growth between 2003-04 and 2009-10. * The increase has mainly been driven by growth in labour force earnings, arising from employment growth, more hours worked (by part-time workers) and increased hourly wages. * While real individual and household incomes have both risen across their distributions, increases have been uneven. * The rate of growth has been higher at the ‘top end’ of the distributions than the ‘bottom end’. * Incomes for those in the middle of the distribution have spread out (that is, they have become less concentrated around the average). * These changes underlie the recently observed increases in summary measures of inequality (such as the Gini Coefficient) in Australia for individual and household incomes. * At the individual level, the key drivers are the widening dispersion of hourly wages of full-time employees and (to a lesser extent) the relatively stronger growth in part-time employment. * At the household level, the key driver has been capital income growth amongst higher income households. The impact of growing dispersion of hourly wages on the distribution of labour income has been offset by increased employment of household members including a decline in the share of jobless households. * Final income is also influenced by government taxes and transfers. These have a substantial redistributive impact on the distribution of household income, substantially reducing measured inequality. * Although the progressive impact of the tax and transfer system declined slightly from the early 2000s (with the introduction of the GST and a fall in the number of recipients of government benefit payments associated with higher employment), real growth in the value of direct and indirect transfers contributed to growth in incomes for low income households. * The analysis highlights the need to examine the changes in various income components and population subgroups in order to understand the changes in the distribution of income and inequality measures such as the Gini coefficient. * Differences in individual income, and therefore household income levels, occur for a variety of reasons including personal choices and innate characteristics as well as opportunities and inheritances. These differences combine with broader economic forces and policy settings to influence the distribution of income over time. |
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# Overview

Variation in incomes is a feature of all economies. At any point in time, some individuals and households earn relatively less, while others earn relatively more, resulting in a distribution of different incomes. Differences in individual incomes occur for a variety of reasons including personal choices and innate characteristics (such as age, intelligence and choices made over work life balance) as well as opportunities and inheritances. These individual differences combine with broader economic forces and policy settings to influence the distribution of income over time.

The measurement and analysis of the distribution of income, including the analysis of inequality in incomes, are the focus of a well-established academic literature.[[1]](#footnote-1) This paper seeks to contribute to the existing analysis by examining what has happened to the distribution of income in Australia since the late 1980s, at both the individual and household level. Distributional changes are explored along with changes in summary measures of income inequality, such as the Gini coefficient, according to its technical meaning used within the academic literature.

A ‘build-up’ approach to income has been adopted, exploring first individual and then household income. This allows for the factors that influence individual income, such as the returns individual workers obtain from participating in the workforce, to be traced through to household income which is affected by a broader set of demographic, social and government policy influences. In doing so, changes in the distribution of income from various sources and for population subgroups are explored in detail, with a particular focus on types of employment, working hours, hourly wages, taxes and transfers and household composition. Figure 1 depicts the income sources and population groups examined.

The ‘build-up’ approach also helps to provide insights into changes in summary distributional measures — such as the widely used Gini coefficient. The approach also highlights the need for care when making assessments based on such summary measures alone.

The analysis makes use of data from five Australian Bureau of Statistics’ Household Expenditure Surveys (HESs), conducted from 1988-89 to 2009-10. The resulting changes identified, therefore, relate to this period and will be influenced by the specific characteristics of the start and end points — such as the economic, demographic and social conditions that prevailed. Given survey timing, only five snapshots of the distribution of income are available. However, the HES includes information on direct and indirect government transfers and taxes, making it an appropriate data source to examine various components of income in detail.[[2]](#footnote-2)

Figure 1 The ‘build up’ approach to income

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| This figure shows the various sources of income analysed in this study. Income is analysed at the individual level first, examining labour income of workers and then market income (labour plus capital and other income) of recipients. Household income is then explored, with gross (labour plus capital and other plus direct government payments), disposable (gross income less direct taxes) and final (disposable less indirect taxes plus indirect benefits) examined. |

### The broader context of increasing incomes in Australia over the past 20 years

The context for any analysis of Australia’s income distribution over the last 20 years is the widespread increases in real incomes driven by the growth in the Australian economy. Individual labour earnings have increased by around 38 per cent on average, while ‘equivalised’ final household incomes (which additionally includes direct government payments, the provision of government funded services (indirect transfers) and taxes, and takes into account household size and composition) increased by 64 per cent (figure 2).[[3]](#footnote-3) Real income growth has occurred ‘across the board’ — that is, for the lowest to highest income groups.

Over the last 20 years, around 75 per cent of the growth in real household earnings has come from increased labour force earnings. This reflects:

* *Increased employment—* the proportion of adults in paid employment per household increased from 56 per cent in 1988-89 to 60 per cent in 2009-10.
* *Longer working hours amongst part-time workers —* average hours worked by Australians with part-time jobs has grown by around 16 per cent, from 17.6 hours in 1998-99 to around 20.4 hours in 2009-10.[[4]](#footnote-4)
* *Increased real wages —* between 1998-99 and 2009-10 real hourly wages increased by 22.7 per cent for full-time workers and 8.1 per cent for part-time workers.

That is, between 1988-89 and 2009-10, more Australians joined the labour force, got jobs, worked longer hours and were paid more per hour.

Figure 2 Individual and equivalised final household incomes, 1988-89 to 2009-10

Inflation adjusted 2011-12 dollars

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While these economic gains have been widespread, they have not been uniform. Growth for those in the top half of the distribution (above the median) has been greater than for the bottom half (in both absolute value and proportionate terms). This is true both in terms of individuals’ market based earnings (from the supply of labour and returns to capital plus private transfers) as well as in terms of equivalised final household income. The different rates of growth at the top and bottom of the income distribution, along with movements in summary measures such as the Gini coefficient (box 1), underlie the observation that income inequality has risen in Australia in recent years as widely reported by the OECD (2011) and researchers including Leigh (2005), Whiteford (2011) and Wilkins (2013) amongst others.

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| Box 1 What is the Gini coefficient ? | |
| The Gini coefficient can be depicted graphically using the Lorenz curve, which depicts the cumulative income shares against cumulative population share. | |
| The curvature of the Lorenz curve depicts the level of inequality. If all individuals (or households) had the same income (perfect equality), then the curve would lie along a 45 degree ray from the origin. The Gini coefficient is the ratio of the area enclosed by the Lorenz curve and the perfect equality line (A) to the total area below the perfect equality line (A+B). It ranges from 0 (perfect equality) to 1 (perfect inequality). | This figure depicts the calculation of the Gini coefficient graphically using the Lorenz curve. The Gini coefficient value is the ratio of the area under the Lorenz curve (which depicts the cumulative income shares against cumulative population share) to the area under a 45 degree ray from the origin. |
| *Source*: Jenkins and Van Kerm (2008). | |
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Given the complex nature of income inequality, detailed analysis of the underlying distributional change is necessary in order to understand the nature and significance of changes in simple aggregate measures.

### What has happened to individual earnings?

An individual’s market income is made up of labour earnings (from working full-time, part-time or being self-employed) and ‘capital & other’ income (such as interest from savings, dividends from shares, rents from investment properties and private transfers). Capital & other income is concentrated in the higher income groups and has become more so over time. Measured levels of inequality are sensitive to reported investment losses and have varied over time, but rose in aggregate between 1988-89 and 2009-10. However, it is a small proportion of overall market income (around 11 per cent in 2009-10).

Figure 3 Movements in the distribution of individual labour income, 1988-89 to 2009-10

Inflation adjusted 2011-12 dollars

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| *Probability distribution of labour incomea* | |
| *Per cent change in labour income by decilea* | *Gini Coefficientsb* |

a For people reporting labour incomes. Negative incomes are present in the data as these represent losses from an individual’s own unincorporated business b For people reporting incomes in each category. Capital & other income Gini coefficient estimates exceed 1 in 2003-04 as some individuals report negative incomes from own unincorporated businesses.

Labour income is the most important component of market income for most (figure 3, top panel). The distribution of labour income of workers has shifted to the right (indicating rising average incomes) and flattened (indicating greater spread of income). The ‘top’ tail of the distribution has also lengthened. These effects have led to the increase in the Gini coefficient from 0.35 in 1988-89 to 0.41 in 2009-10 — indicating rising inequality in labour incomes amongst those employed at the individual level (changes are all statistically significant at the 1 per cent level).

Changes in full-time, part-time and self-employed subgroups, as well as increased employment, also help to explain the observed changes in the distribution of individual labour incomes. The different characteristics of these workers subgroups have both level and trend effects on measured inequality.

In terms of the *level* effect, a large part of labour income inequality simply reflects differences in the average earnings of the different types of worker. Taken alone, measured inequality amongst full-time workers (around 62 per cent of the workforce in 2009-10) is considerably lower than for labour earnings overall (Gini coefficients of 0.31 and 0.41 respectively). When full-time workers are combined with part-time workers (who have lower average incomes), measured inequality increases.[[5]](#footnote-5) Decomposition analysis suggests that differences in average earnings between different types of worker account for around half of labour income inequality.[[6]](#footnote-6)

The effect of pooling worker groups on aggregate distributional *trends* depends on changes in the relative share of each in the total workforce. Between 1988-89 and 2009-10, the share of the workforce employed part-time has increased alongside increased participation rates, particularly amongst women. As part-time workers earn considerably less on average than full-time and self-employed workers, this compositional change has increased measured inequality amongst those employed. Increased overall employment rates that have occurred with the increased share of part-time workers in the workforce, however, have had a different effect on measured levels of household income inequality (discussed below).

In addition to the changing composition of the workforce, much of the measured increase in income inequality for individuals has been due to the distributional changes that have occurred within worker subgroups — particularly amongst full-time workers. While full-time workers have the most equal distribution of income, they also exhibit the clearest upward trend in inequality over the last 20 years. On the other hand, measured inequality has been relatively stable among part-time workers while the trend is unclear for the self-employed. Rising weekly income inequality among full-time workers has been due to the dispersion of hourly wages between high and low earners. Hours worked by full-time workers have been relatively stable across all income levels.[[7]](#footnote-7)

While changes in the distribution of income can be examined in a multitude of different ways, two areas attract particular attention — the gender pay gap and incomes of the very top earners (the top ‘1 per cent’). Both involve complex causes and effects and have attracted considerable debate. However, in terms of summary distributional measures such as the Gini coefficient, HES data suggest that:

* the top 1 per cent have not been relatively more important in explaining movements in labour income inequality compared to other earners. Noting that while, as a group, it is more difficult to accurately measure the incomes of the top 1 per cent due to generally lower survey response rates, data from the HES suggests the top 1 per cent of labour force earners make a modest impact on measures like the Gini coefficient across survey periods (removing this group from the income distribution lowers the Gini coefficient by 6.5 per cent). However, their contribution to the Gini has been consistent in the data from each survey — rising inequality in Australia is also driven by the 99 per cent, not just the 1 per cent.
* the gender pay gap appears to be a relatively minor component of measured individual labour income inequality. Decomposition of most indicators suggest that less than 3 per cent of measured inequality is driven by difference in average hourly rates of pay between men and women (the highest estimate was 15 per cent). The overall increase in labour income inequality between 1988-89 and 2009-10 appears to have been a result of factors that affect men and women in similar ways.

### What has happened to household income?

The household story is both more complex and more important in economic welfare terms. While market income (at the individual level) describes the distribution of income arising from individuals’ interaction with the economy, ultimately equivalised final household income has the greatest impact on an individual’s consumption and material living standards. The Gini coefficient for equivalised household income has increased from around 0.25 in 1988-89 to around 0.27 in 2009-10, with most of this increase occurring since 2003-04.[[8]](#footnote-8)

The movements in the distribution of final equivalised household incomes are predominantly the result of changes in gross household income (pre-tax market income and direct government transfers). The basic distributional shifts in gross household income (figure 4, left panel) appear similar to those based on individual income measures. However, at the household level, this is not a story of higher deciles experiencing greater income growth than lower deciles (as is the case in terms of individual market earnings). Rather a U-shaped growth pattern is observed (figure 4, right panel). This indicates high growth at the bottom of the distribution (tending to decrease inequality), moderate growth at the middle (with an ambiguous effect on inequality), and very high growth at the top (tending to increase inequality). That is, there are both convergent and divergent forces affecting household income, with the latter dominating overall.

Figure 4 Change in gross household incomes, 1988-89 and 2009-10a

Inflation adjusted 2011-12 dollars

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| *Probability distribution* | *Per cent change in income by decile* |

a All households.

The income sources underpinning these changes differ by decile.

* At the bottom of the distribution, increases in government payments have been very important. In particular, increases in government payments (particularly related to the Aged Pension) accounted for, on average, around 45 per cent of income growth in the 1st decile and 57 per cent of income growth in the 2nd decile. The impact of government payments diminishes for higher deciles, but still comprises around 4 per cent of the income growth of the 9th decile.
* Labour income is the biggest source of growth for most households, but is particularly important for the 6th to 9th deciles (above 70 per cent).
* Capital & other income has grown relatively evenly across most deciles, but has had the biggest effect on the 10th decile. This ‘top-end’ capital income growth occurred mainly between 2003-04 and 2009-10 (more than doubling in this period).

The combined result of these changes is that there is no clear trend in measured gross household income inequality between 1988-89 and 2003-04. The Gini coefficient only increased slightly from 0.39 in 1988-89 to 0.40 in 2003-04. Since 2003-04, however, measured inequality rose — to 0.43 by 2009-10. The top-end growth in capital & other income is the main driver of the change between 2003-04 and 2009-10. But even with capital & other income included, both the level and the growth in household inequality is lower than that experienced by individuals — a result of the equalising effect of household members combining income, a greater proportion of household members working, as well as government payments targeting people on lower incomes (discussed further below).

In contrast to individual market income, changes in household labour earnings have not contributed to the recent increase in measured gross household income inequality. The difference arises because individual market income only includes people that are working (or have some capital & other income) and does not capture the distributional consequences of the marked increase in employment. This increase has been most prevalent among families in the bottom half of the income distribution and among households containing dependent children — employment for sole parent families and couples increased by around 11 per cent and 6 per cent, respectively. As people in these groups would have otherwise earned no labour income, the increase in employment exerts an equalising force on the distribution of income that offsets the dispersion of average hourly wages.

Demographic and social factors, such as family formation and age, have some readily observable impacts on the distribution of (gross) household income. For example:

* the vast majority of households at the bottom of the distribution (the 1st and 2nd deciles) are either lone persons or single parents. Around half of these households have an average adult age over 65. Fewer than 21 per cent contain an employed adult.
* conversely, the top of the distribution (the 9th and 10th deciles) is made up almost entirely of working age households, with 80 per cent of resident adults in the labour force. Almost all of these households contain couples.

Family formation can also directly affect household inequality if people with higher earnings tend to partner with other people with high earnings. The OECD (2011) found that this partnering pattern has been an important contributor to rising inequality in the 1980s and 1990s, both in Australia and internationally. In practice, this phenomenon is difficult to observe, generating some uncertainty as to its importance. At any rate, between 1998-99 and 2009-10, rates of partnering between people with similar individual earnings appear to have stabilised, suggesting its role in explaining distributional changes, if any, would have diminished over the last decade.

At the other end of the spectrum, the proportion of households with no employed members (jobless households) has been in decline since 1993-94. This has contributed to the growth in household incomes and exerted downward pressure on measured inequality. However, during this period, the average income gap between households with employed members and jobless households increased.

Finally, government tax and transfer policies (both direct and indirect) substantially decreased measured income inequality (figure 4). In 2009-10, the combined effect of taxes and transfers was a reduction in the Gini coefficient from 0.52 (household market income) to 0.34 (final income) — slightly lower than in previous years. Taking account of household size (in particular the economies of scale in consumption when working adults cohabitate), further reduces the Gini coefficient to 0.27 (equivalised final income).

Figure 5 The impact of taxes, transfers and household size on the Gini coefficienta, 1988-89 to 2009-10

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a All households.

The impact on inequality of Australia’s system of taxes and transfers varies. Some parts of the system, such as consumption taxes, make the distribution of household income less equal (though this effect is relatively minor). In general, however, the tax and transfer system reduces inequality through a number of means.

#### Direct transfers

These include government payments such as the Age Pension, the Disability Support Pension, unemployment benefits and Family Tax Benefits (A and B). These payments, by design, are targeted toward individuals and families on lower incomes and reduce income inequality considerably. In 2009-10, direct transfers accounted for around half of the total fall in inequality between market and final income.

As employment has increased, the share of households receiving direct payments has decreased, although for those that do receive payments, amounts have risen significantly in real terms (from $266 in 1993-94 to $346 in 2009-10 in 2011-12 prices). The relative decline in the number of transfer recipients has also reduced the marginal effect of transfers on household inequality (the percentage reduction associated with an increase in the average level of benefits has become smaller).

Overall, despite considerable growth in the value of direct transfers, the impact on inequality has also diminished. Direct transfers lowered inequality of equivalised market income by 28 per cent in 1993-94 and 23 per cent in 2009-10.

#### Direct taxes

Primarily comprising income tax, taxes reduce inequality by taxing those on higher incomes at a higher rate. In 2009-10, direct taxes accounted for around 18 per cent of the total reduction in inequality between household market and final income. Over time, the equalising effect of direct taxation has diminished slightly — lowering inequality of equivalised market income by 9 per cent in 2009-10 compared with 10 per cent in 1993-94.

#### Indirect transfers

These refer to the direct provision of services such as education, health, housing and childcare assistance (together, education and health comprise 83 per cent of indirect transfers). While all Australians are entitled to these services, they make up a greater share of final income for those on lower incomes, reducing measured inequality. In 2009-10, indirect transfers account for around 37 per cent of the fall in inequality between market and final income. Indirect transfers have increased by around 77 per cent in real terms since 1993-94 and, due to the relatively high share of indirect benefits in gross income for those in lower deciles, the increases have helped to further reduce inequality — reducing measured inequality of equivalised market income by 17 per cent in 2009-10 compared with 15 per cent in 1993-94.

### Are the distributional movements in Australia different from other countries?

Some of the observed developments in Australia’s income distribution between 1988-89 and 2009-10 are also evident in other OECD countries. The stronger growth in incomes for those (individuals and households) at the top of the distribution compared with those at the bottom has also occurred in most other OECD countries. In particular, the growing dispersion in full-time earnings, especially amongst men, is commonly observed across OECD countries.

However, in contrast to other OECD countries, the growing dispersion in full-time earnings has not translated into a greater spread of household labour earnings in Australia. Australia’s increases in workforce participation and employment, particularly for households in lower income deciles, have more than offset this development. In other words, growth in labour force participation and hours for part-time workers and declining unemployment have meant that labour market earnings have had a moderating impact on measured household labour income inequality.

1. See Nolan, Salverda and Smeeding (2011) for a comprehensive survey of the income inequality literature. [↑](#footnote-ref-1)
2. All surveys suffer from misreporting and non-response bias — the HES is no different. However, with the quality assurance practices of the ABS and a large sample size, these should be minimised. It should also be noted that compulsory superannuation payments are not treated as income for workers. Instead, as per international convention, superannuation is treated as income when it is drawn down. [↑](#footnote-ref-2)
3. Household incomes are adjusted to reflect the requirement of larger households to have a higher level of income to achieve the same standard of living. This process, called equivalisation, adjusts household income by a factor related to the size and composition of the household. The Australian Bureau of Statistics equivalisation factor has been used in this study and is equal to the inverse of the sum of 1 times the number adults plus 0.5 times the number of children present in the household. [↑](#footnote-ref-3)
4. Due to data constraints, hours worked and hourly wage rate analysis is not possible for 1988-89 and 1993-94. [↑](#footnote-ref-4)
5. Only the self-employed — who by far have the most unequal distribution of income — have a Gini coefficient (0.59) that exceeds that of overall labour force earnings. [↑](#footnote-ref-5)
6. A subgroup decomposition was used to identify how much of the income variation that occurs within a subgroup, compared to that which exists between subgroups, contributes to the overall Gini coefficient result. [↑](#footnote-ref-6)
7. However, there is considerable cross sectional variation in hours worked by full-time employees, with the highest decile working around 10 hours longer per week than those in the first decile. [↑](#footnote-ref-7)
8. These changes are statistically significant at the 1 per cent level. [↑](#footnote-ref-8)