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**Male earnings inequality, women's employment and family income inequality in Australia, 1982 – 2007**

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# Male earnings inequality, women's employment and family income inequality in Australia, 1982 – 2007

Siobhan Austen[*]      Gerry Redmond[†]

## Abstract

This paper uses cross-sectional data to examine the relationship between the growth in earnings inequality among men, changes in women's earnings and changes in family income inequality in Australia between 1982 and 2007-08. Male earnings inequality increased substantially across this period, as did women's participation in paid work. Our analysis shows that both impacted on family income inequality, which rose by a relatively small amount. We also show that the impact of changes in women's employment and earnings on family income inequality changed over the study period. During the years associated with the Hawke-Keating Labor government (1982 to 1995-96), growth in women's earnings pushed family income inequality higher. However, during the tenure of the Howard government (1995-96 to 2007-08) the pattern reversed, with continued growth in women's earnings contributing a moderating influence on family income inequality. These findings deliver new evidence on the importance of trends in family formation and the correlation of husbands' and wives' earnings to the evolution of family income inequality. They also show the potential effects of a range of policy initiatives on this evolution.

Keywords: Earnings inequality, Women's employment, Family income inequality, Australia.

JEL classification numbers: D31, J21, J22

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## 1. Introduction

The Australian labour market has experienced dramatic change in recent decades. Male wage and earnings inequality has increased substantially in line with the experience of many other industrialized countries (see Gottschalk and Danziger, 2005, for US evidence; Acemoglu, 2002; and Hornstein et al., 2006, for an overview of international trends; and Keating, 2003, for recent Australian data). The labour market has also become increasingly feminised as a result of the large increase in women's involvement in paid work. Between the 1986 and 2006 Australian censuses, for example, the female labour force participation rate grew from 48 to 58 per cent and women's share of total employment (measured in jobs) rose from 40.0 to 46.2 per cent (ABS, 2009).

The dominant role of male earnings in the composition of family income typically yields a close relationship between male earnings inequality and family income inequality (see Gottschalk and Danziger, 2005, for US evidence). However, in Australia growth in inequality in family income in Australia over recent decades has been relatively modest despite the large growth in male earnings inequality (Saunders and Hill, 2008). One potential explanation for this pattern is that changes in women's employment have altered the relationship between male earnings inequality and family income inequality. This paper examines how changes in the distribution of women's earnings affected the evolution of family income inequality. Analyses are conducted for all women as a group and separately for partnered women.

The relationships examined in this paper are important for several reasons. First, the evolution of family income inequality as a critical determinant of change in the distribution of well-being attracts strong policy and academic interest (Gottschalk and Danziger 2005: 232). A considerable literature has developed around the reasons for growth in wage inequality and trends in family income inequality. In recent years too, a number of studies have attempted to explicitly link trends in wage and income inequality, focusing both on the direct relationship between inequality in earnings and inequality in net incomes and on interactions between men's and women's earnings and family income inequality (Burtless, 1999; Cancian and Reed, 1999; Hyslop, 2001; Reed and Cancian, 2001, 2009; Gottschalk and Danziger, 2005; Amin and Da Vanzo, 2004; Harkness, 2010; Schwartz, 2010). For example, Gottschalk and Danziger (2005) use US data from 1975 to 2002 to examine changes in four distinct distributions: the distribution of wage rates, individual earnings, family earnings and family income adjusted for family size. They identify a close nexus between growth in male wage inequality and family income inequality. However, they also find evidence that the impact of rising male wage inequality on family income inequality was offset by factors including the rise in women's earnings in the early 1980s.

The analyses summarized in this paper draw on evidence from another large market economy – Australia – regarding these important relationships. Using cross-sectional data drawn from the Australian Bureau of Statistics' (ABS) Survey of Income and Housing (SIH) we first focus on the impact of women's employee earnings on family income inequality in Australia. Using a number of income decomposition techniques proposed by Cancian and Reed (1999), we assess the impact of women's earnings on income inequality among all families and among couple families. We then turn our attention to the changing relationship between partnered men's and women's earnings, and its influence on the distribution of family incomes. Here our focus is not only on the earnings of partnered women, but on the hours they worked and on the pattern of

change in women's working hours across the male earnings distribution. The question we address is that if hourly wage rates are held constant, what is the impact of changes in the hours that partnered women worked over the study period, controlling for the earnings of their partners?

The analysis of the relationships between change in male earnings inequality, women's earnings and family income inequality is conducted for two distinct time periods, 1982 to 1995-96 and 1995-96 to 2007-08, each associated with a distinct policy approach to the labour market and women's roles. During the first period a slightly left-of-centre, Hawke-Keating Labour government prevailed. This government initiated an extensive program of labour market and economic restructuring through such mechanisms as floating the exchange rate and trade and financial reform (Shanahan 2009). It also oversaw large increases in income inequality that it attempted to offset by improvements in the implementation and design of the social welfare system under a 'restraint with equity' approach (Quiggan, 2007; Howe, 2003; Burke and Redmond, 2002). The Hawke-Keating government also introduced a range of measures aimed at the promotion of gender equality. McKinnon (2009) argues that the government "moved the world forward for women" with targeted policies aimed at promoting women's education and employment chances (including the introduction of the Sex Discrimination and Affirmative Action Acts) and large scale expansion in child care facilities (also see Ryan 2003: 204).

In 1995-96 a conservative Liberal-National Party coalition returned to power and it remained in government until late 2007. This government introduced further regulatory change in the labour market, largely aimed at reducing the role of trade unions in wage bargaining and with less expressed concern for social justice. The government had a clear preference for single earner (predominantly male) couple households, with concrete expression given to this through the tax and transfer system (Apps, 2006; Brennan, 2007). The participation of mothers in the workforce was not supported as operational subsidies for community child care centres were abolished, access to the Child Care Rebate was limited, and the number of child care places that were funded fell (Summers, 2003).

By dividing the years between 1982 and 2007-08 into these two sub-periods we are able to achieve the further aim to contribute information on changes in economic and gender inequality that have occurred under the watch of Australia's two dominant political parties. Our findings indicate that increases in women's earnings that occurred between 1982 and 1995-96 actually increased family income inequality during that time. However, increases in women's earnings acted to reduce family income inequality between 1995-96 and 2007-08. A significant part of this effect can be explained by changes in the relationship between hours worked by partnered women and the earnings of their partners. Between 1982 and 1995-96, women's involvement in the formal economy did improve. However, the expansion of hours worked by partnered women was concentrated among those with high earning partners. After 1995-96, women with low (or non-) earning partners started to catch up in terms of hours worked and there was also a slackening off in terms of hours worked by women with high earning partners. Thus, changes in the patterns of hours worked by Australian women acted first as an accelerator, and then as a brake on the trend toward higher family income inequality over recent decades.

## 2. *Data and method*
We use the Australian Bureau of Statistics (ABS) Survey of Income and Housing (SIH) from 1982 to 2007-08 to summarise changes that have occurred in the distribution of men's and

women's earnings in Australian households and to relate these to changes in the distribution of Australian family incomes. The SIH is the only Australian income survey series that has been carried out throughout the period of interest, and although changes in method over the years have reduced somewhat the comparability of the different surveys in the series (Saunders and Bradbury, 2006), it is still the most comprehensive Australian data source available for the kind of analysis attempted here. Our approach, moreover, ensures maximum comparability between the different survey years.[1] In total, we analysed ten years of SIH data. We report on only three in this paper: 1982, 1995-96, and 2007-08, chosen for their relevance to changes in the policy context over the entire study period. We report some summary statistics and inequality estimates for all ten years in the Appendices.

Our primary sample includes all men and women aged 18-64 and their *income units*. An income unit is an administrative term for a nuclear family comprising an adult, their partner (if they have one) and any dependent children who live with them. Non-dependent children, other relatives and other household members are therefore placed in their own income units, and a household can comprise several of these units. In this paper we use the short-hand 'family' for income unit. In order to ensure consistency across all survey years, income units (or families) include all children aged up to 24 years living with their parents if those children are engaged in full-time study. Otherwise, only (non-partnered, non-parent) children aged up to 17 years are included in the family.

Our variables of interest include men's and women's employee earnings, self-employment earnings of family members, private incomes of family members from other sources, transfer payments received by family members, and incomes taxes paid by them. Where raw income figures from different years are reported, they are deflated (to December 2007 prices) to account for price inflation. Family incomes and the components of family incomes are also adjusted to account for family size and composition using what is commonly known as the 'adjusted OECD scale', where the first family member (the head) is assigned a weight of 1, the head's spouse (if there is one) is assigned a weight of 0.5, and each dependent child is assigned a weight of 0.3. This scale therefore suggests that a family comprising a couple and two dependent children would require 2.1 times the income of a single person in order to achieve the same standard of living.

We measure earnings and income inequality using three measures – the Gini Coefficient, the ratio of the 90th to the 10th percentiles, and the Squared Coefficient of Variation ($CV^2$). The P90/P10 ratio and the Gini are commonly used in analyses of income inequality and are widely understood. However, in common with several other authors who specifically examine the influence of women's earnings on family income inequality (Cancian and Reed, 1999; Harkness, 2010; Schwartz, 2010) we also make use of the $CV^2$ measure, as it is particularly sensitive to inequalities at the top of the family income distribution, and because it is decomposable. Interpretation of $CV^2$ (in common with other similar measures in the Generalised Entropy group of measures) is somewhat difficult in that, although a value of 0 signals equality (everyone has the same income), unlike the Gini, there is no upper limit on the value that the measure can take. The index is therefore best interpreted in comparison, across income groups, across types or across years.

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[1] Fortunately, we worked closely with the Australian Bureau of Statistics on these data when we worked on an analysis for Australian Social Trends (see Austen and Redmond, 2008), and benefited greatly from ABS staff advice on comparing Survey of Income and Housing (SIH) data through the years.

In this study we make use of the ability to decompose $CV^2$ to identify the contribution to family income inequality made by women's employee earnings in each survey period. We focus in particular on employee earnings because the SIH has good information on the hours that employees work, but little or no information in most years on the hours that self-employed people work.[2] We use two approaches. The first focuses on the impact of wives' earnings on changing family income inequality and makes use of a method proposed by Cancian and Reed (1999), which examines a number of counterfactuals to analyse this impact in the US over the period 1969 to 1994. We consider three of Cancian and Reed's counterfactuals as follows: That there was a marginal decline in women's earnings (counterfactual CF2 in Cancian and Reed's analysis); that the mean and dispersion of women's earnings had not changed (CF3); and that the mean, dispersion and correlation of women's earnings with income from other sources had not changed (CF4).

The first counterfactual simply involves multiplying women's earnings by 0.95 in each survey year and calculating the effect on $CV^2$. This counterfactual addresses the question 'were Australian women's employee earnings equalizing on family income at the margin between 1982 and 2007-08?'

The second counterfactual (that the mean and dispersion of women's earnings did not change between the study periods) addresses the question 'how did changes in the size and dispersion of Australian women's employee earnings contribute to changes in family income inequality in Australia between 1982 and 2007-08?'

The third counterfactual (that the mean, dispersion and correlation of women's earnings with income from other sources had not changed) is particularly important for our analysis, as it addresses the question of 'how did changes in the relationship between Australian couples' earnings after 1982 affect the evolution of family income inequality?'

Counterfactuals 2 and 3 are based on the following decomposition equations for $CV^2$ for family income $f$: First, inequality is decomposed by population group (within each population group, and between population groups) of families headed by a single person $s$, and families headed by a couple $m$:

$$CV_f^2 = \underbrace{\left( \begin{array}{c} P_s(\mu_S/\mu)^2 CV_s^2 + P_m(\mu_m/\mu)^2 CV_m^2 \\ + \left[ P_s(\mu_s/\mu)^2 + P_m(\mu_m/\mu)^2 \right]/\mu^2 \end{array} \right)}_{within} + \underbrace{\left( P_s(\mu_S/\mu)^2 + P_m(\mu_m/\mu)^2 - 1 \right)}_{between} \qquad (1)$$

Where $P_j$ is the share in the population of group $j$, $\mu_j$ is the mean income for group $j$, $\mu$ is the mean income for the population, and $CV^2_j$ is the dispersion measure for the subgroup. Inequality is then decomposed among families headed by couples as follows:

$$CV_f^2 = \left( \begin{array}{c} S_h^2 CV_h^2 + S_w^2 CV_w^2 + S_o^2 CV_o^2 + 2\rho_{hw} S_h S_w CV_h CV_w \\ + 2\rho_{ho} S_h S_o CV_h CV_o + 2\rho_{wo} S_w S_o CV_w CV_o \end{array} \right) \qquad (2)$$

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[2] However, we found that in analyses where we examined earnings from employment and self-employment together for men and women, results were generally comparable with those where we examined employee earnings separately.

Inequality is also decomposed among all families using Equation (2) on its own in order to test counterfactuals 1, 2 and 3 on all women's earnings. Equation (2) (discussed more fully in Cowell, 1995) comprises three summary statistics for each element of family income (comprising six elements in the analysis we conduct, but here shortened to three to simplify the description of the procedure – men's employee earnings $h$, women's employee earnings $w$, and income from other sources $o$). $S_k$ represents the share of each income source in the total; $CV_k^2$ represents the dispersion of each income source; and $\rho$ represents the correlation between each pair of income sources, $h, w$ and $o$. In order to model counterfactual 2, $S_k$ is recalculated for each income source in current year $y$ by holding the mean of women's employee earnings at the level prevailing in a previous year, denoted here by $x$ (adjusting for price inflation); and by holding $CV_w^2$ in year $y$ at the levels that prevailed in year $x$. Where only partnered women's earnings are decomposed, recalculated mean income and dispersion data are fed into the population decomposition equation (1) above, to re-estimate total dispersion across families headed by single people and by couples. To model the third counterfactual (the mean, dispersion and correlation of women's earnings with income from other sources had not changed), $\rho_{hw}$ and $\rho_{wo}$ are also held constant at year $x$ levels.

In our second approach to measuring the contribution to Australian family income inequality made by women's employee earnings, we focus on the relationship between changes in the paid work hours of partnered women and the earnings of their partners. For this analysis we develop a non-parametric technique, extending work by Reed and Cancian (2009), to simulate the effect on family income inequality of changes in the sorting of husbands' and wives' incomes between year $x$ and year $y$. We divide the distribution of partnered male earnings in year $x$ into 100 centiles. We then calculate mean female partners' hours worked in each centile in year $x$, and apply this mean to each centile in the distribution of partnered male earnings in year $y$. This gives a counterfactual family income distribution that can be used to assess the impact of sorting on changes in family income inequality. With this simulation we address the question 'how did changes in hours worked by partnered women as employees, given their husbands' earnings, modulate changes in the distribution of family incomes between 1982 and 2007-08?'

### 3. *Trends in earnings inequality in Australia*

Paralleling the experience of most other industrial countries, earnings inequality has risen in Australia since the early 1980s. Table 1 gives a number of inequality measures for men's and women's earnings in the years 1982, 1995-96 and 2007-08. It includes data on all men and women of working age (whether employed or not employed), and data for those who reported earnings from employment or self-employment in the SIH. The table also separately reports these data for partnered men and women only.

It shows that male earnings inequality increased over the entire study period – this is true of all inequality measures, including the Gini (which focuses on changes around the median of the distribution) and $CV^2$, which focuses on changes at the top. However, changes in male earnings inequality were concentrated in the 1982 to 1995-96 time period and were largest at the top of the male earnings distribution. The $CV^2$ measure for men almost doubled between 1982 and 1995-96, before moderating in the following decade. The much larger increase in $CV^2$ over

the other two measures implies a particularly marked growth in earnings inequality at the top of the distribution.

Changes in male earnings inequality reflect in part the decline that occurred in the male employment rate prior to 1995-96 and recovery in this rate in the second time period as the Australian economy expanded. As men become unemployed or leave the labour market, earnings inequality increases (and vice versa). The SIH data show that in 1982, almost three quarters of men (73 per cent) had some earnings from employment; by 1995-96, this proportion had decreased to 67 per cent; by 2007-08, it had risen to 71 per cent.

Changes in male earnings inequality also reflect growth in the inequality in male employee wage rates. Following a pattern similar to that described by Gottschalk and Danziger (2005: 237) for the US between 1975 and 2002, real hourly wages for employed Australian men at the 5th percentile of the male earnings distribution *fell* by 3 per cent between 1982 and 2007-08; rose by only 1 per cent at the 10th percentile, but increased by 33 per cent at the 90th percentile and by 40 per cent at the 95th percentile. These changes were pronounced in the 1982 to 1995-96 period when, for example, real hourly wages for men at the 5th percentile fell by 17 per cent while, at the 95th percentile, the real hourly wage rate increased by 3 per cent. In the decade to 2007-08 real hourly wage rates increased across the wage distribution but these changes were greatest at the top (for example, 36 per cent at the 95th percentile as compared to 16 per cent at the 5th percentile).(SIH data)

Growth in earnings inequality among partnered men was similar to growth in earnings inequality among all men, except that in the latter decade, growth in inequality at the top of the distribution of earnings was somewhat stronger among partnered men than among men overall.

**Table 1: Inequality Measures for Men's and Women's Earnings, Australia, 1982 to 2007-08**

| | All men and women | | | | | Only partnered men and women | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | All | | Those with earnings | | | All | | Those with earnings | | |
| | | | p90/p10 | | | | | p90/p10 | | |
| | Gini | $CV^2$ | p10 | Gini | $CV^2$ | Gini | $CV^2$ | p10 | Gini | $CV^2$ |
| Men | | | | | | | | | | |
| 1982 | 0.477 | 0.811 | 3.664 | 0.280 | 0.314 | 0.454 | 0.732 | 3.622 | 0.278 | 0.309 |
| 1995-96 | 0.561 | 1.422 | 4.400 | 0.329 | 0.586 | 0.544 | 1.308 | 4.387 | 0.331 | 0.573 |
| 2007-08 | 0.550 | 1.205 | 5.232 | 0.355 | 0.710 | 0.537 | 1.400 | 4.935 | 0.357 | 0.726 |
| % change | | | | | | | | | | |
| 82-96 | +18 | +75 | +20 | +18 | +87 | +20 | +79 | +21 | +19 | +85 |
| 96-08 | -2 | -15 | +19 | +8 | +21 | -1 | +7 | +12 | +8 | +27 |
| Women | | | | | | | | | | |
| 1982 | 0.698 | 2.088 | 5.171 | 0.305 | 0.344 | 0.708 | 1.484 | 6.119 | 0.331 | 0.397 |
| 1995-96 | 0.669 | 1.900 | 5.493 | 0.319 | 0.408 | 0.657 | 1.355 | 5.772 | 0.331 | 0.456 |
| 2007-08 | 0.636 | 1.812 | 5.647 | 0.338 | 0.545 | 0.620 | 1.751 | 5.730 | 0.343 | 0.594 |
| % change | | | | | | | | | | |
| 82-96 | -4 | -9 | +6 | +5 | +19 | -7 | -9 | -6 | 0 | +15 |
| 96-08 | -5 | -5 | +3 | +6 | +34 | -6 | 29 | -1 | +4 | +30 |

Trends in earnings inequality among all Australian women are somewhat different, with both the Gini and $CV^2$ *decreasing* in both periods examined, most likely reflecting the influence of the growth in the female participation rate. Among women with earnings, on the other hand, the p90/p10 ratio, the Gini and $CV^2$ each increased, albeit by a smaller amount than the growth in

male earnings inequality. This could reflect a re-balancing of working hours across the female earnings distribution or a less rapid growth in inequality in women's hourly rates of pay or both. Change in the real hourly wage rates of Australian women employees between 1982 and 2007-08 was somewhat less unequal than that recorded by their male counterparts. At the 5th percentile of the female earnings distribution, the real hourly wage rose by 23 per cent; it increased by 21 per cent at the 10th percentile, 30 per cent at the 90th percentile and 36 per cent at the 95th percentile. As was the case with men, increases in real hourly wages were concentrated in the latter part of the study period, that is, in the years after 1995-96 when Australia entered a period of economic expansion.(SIH data)

The changes in the inequality of earnings among partnered women are more complex. For all partnered women the Gini decreased in both periods, reflecting growth in the workforce participation rate of partnered women. However, whilst the $CV^2$ fell in the first sub-period it rose in the second. Similarly, among partnered women with earnings, the p90/p10 ratio fell, but the $CV^2$ rose. This indicates that changes in female earnings inequality were driven by changes at the top of the earnings distribution.

### 4. Trends in family income inequality in Australia

Table 2 shows that in each of the two time periods examined, the measured trend in family income inequality was moderately upwards. The p90/p10 measure remained fairly stable for all families and couple families between 1982 and 1995-96 but increased (slightly) between 1995-96 and 2007-08. The Gini increased moderately for all families and couple families throughout the period examined. $CV^2$ shows quite a different pattern. It increased substantially from 1982 to 1995-96 among all households and couple households. It continued to increase from 1995-96 to 2007-08 at an even faster rate for all families, and at the same rate for couple families.[3]

**Table 2: Inequality Measures for Family Income, 1982 to 2007-08**

|  | P90/P10 | Gini | $CV^2$ | Per cent people in couple families |
|---|---|---|---|---|
| All |  |  |  |  |
| 1982 | 4.30 | 0.296 | 0.304 |  |
| 1995-96 | 4.21 | 0.309 | 0.384 |  |
| 2007-08 | 4.50 | 0.324 | 0.528 |  |
| % change 82-96 | -2% | +4% | +26% |  |
| % change 96-08 | +7% | +5% | +38% |  |
| Couple families |  |  |  |  |
| 1982 | 3.93 | 0.283 | 0.284 | 69.5 |
| 1995-96 | 3.91 | 0.302 | 0.365 | 66.9 |
| 2007-08 | 3.97 | 0.309 | 0.468 | 67.1 |
| % change 82-96 | -1% | +7% | +29% | -4% |
| % change 96-08 | +2% | +2% | +28% | 0% |

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[3] Note that much of the increase in inequality in the more recent decade as recorded in the Income Surveys occurred between the two most recent survey periods (2005-06 to 2007-08). For example, in 2005-06 the Gini was 0.296; and the $CV^2$ was 0.365. See Appendix Table 3.

Comparison of trends in Tables 1 and 2 shows that family income inequality did not increase as rapidly as male earnings inequality over the study period. On the P90/P10 measure, for example, family income inequality fell by 2 per cent between 1982 and 1995-6 whilst male earnings inequality increased by 20 per cent. Between 1995-96 and 2007-08 male earnings inequality, on the P90/P10 measure, increased by 19 per cent whilst family income inequality rose by only 7 per cent. The one exception to this pattern occurs with the $CV^2$ measure in the second sub-period. It shows an increase in family income inequality (of 38 per cent) that exceeded the growth in male earnings inequality (of 21 per cent), and contrasted with a decline in earnings inequality among *all* men of 15 per cent. See Figure 1.

The crossing distributions for male earnings (Mearn) between 1982 and 1995-96, coupled with a reduction in the proportion of men with earnings, signals an increase in male earnings inequality. On the other hand, the significant increase in the proportion of women with earnings offsets growth in inequality at the top of the women's earnings distribution (Fearn). The shift in the distribution of net family incomes (Netinc) is slight, but most pronounced at the top of the distribution, giving rise to the increases in $CV^2$ as reported in Table 2. Between 1995-96 and 2007-08, both male and female earnings distributions shift upward, especially toward the top of each distribution, but the proportions of men and women with earnings also increases, so that earnings inequality measures fall. Family income inequality increases in this period, with gains at the top of the distribution outstripping gains at the bottom.

**Figure 1: Men's and women's weekly earnings and net weekly family incomes, all families, 1982 to 2007-08 ($, December 2007 prices)**
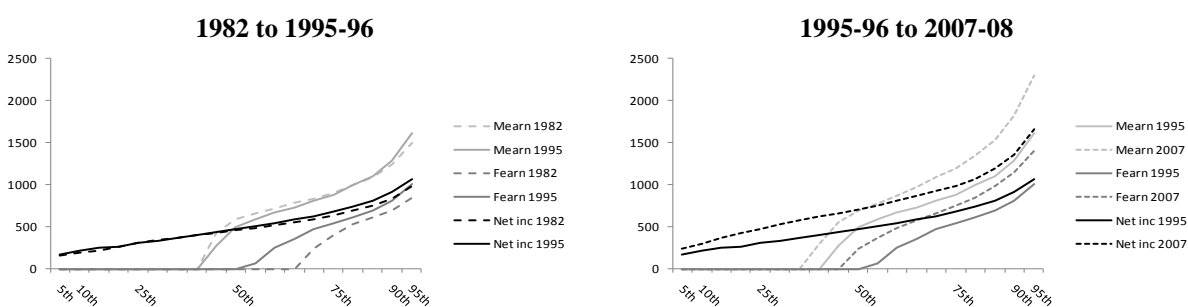


Note: Earnings and incomes are deflated to December 2007 prices using Consumer Price Index data for all Australian capital cities.

*Trends in the components of family income*

The distribution of male earnings drives the distribution of family incomes in many countries because of the dominant role of these earnings in families' incomes. Table 3 shows that male employee earnings also compose the majority of Australian family income.[4] Although their importance declined in the study period, they still accounted for more than six of every ten dollars (before deduction of taxes) of disposable family income in 2007-08.

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[4] As noted in Section 2, we separate employee earnings for men and women from self-employment earnings from this point because we do not have hours of work data for self-employed persons in most of the Income Surveys. In Section 7 we decompose changes in inequality in Australia controlling for changes in hours in paid work among women employees.

Nonetheless, the table also shows that the decline in the importance of male employee earnings over the study period was substantial, falling from 66.7 per cent of family earnings in 1982 to 63.2 per cent in 1995-96 and further, to 61.0 per cent in 2007-08. This change was matched by an increase in the importance of women's employee earnings. Between 1982 and 1995-96 the share of total family income accounted for by women's earnings rose from 27.2 to 34.7 per cent. However, this share stabilized in the next sub-period, growing to only 35.0 per cent by 2007-08.

The trends in incomes from other sources are also worth noting. The share of self-employment income in the total declined (in part for methodological reasons – see the footnote to Table 3). The share of private incomes in the total increased, especially in the more recent decade (although these data in particular are subject to the influence of large outliers). The share of transfers in disposable income increased in the early period, not least as a result of falling levels of employment among men, but then fell back in the most recent decade as employment expanded, despite a significant rise in levels of transfer payments to families with children. But the share of taxes in total income remained fairly constant throughout the period, only falling in the most recent years (after 2005-06).[5]

**Table 3: Average Shares of Income Components in Total Family Income, 1982 to 2007-08 (per cent)**

|  | Men's employee earnings | Women's employee earnings | Self-employ-ment income | Other private income | Transfers | Taxes | All |
|---|---|---|---|---|---|---|---|
|  | All families | | | | | | |
| 1982 | 66.7 | 27.2 | 18.7 | 6.8 | 6.9 | -26.3 | 100.0 |
| 1995-96 | 63.2 | 34.7 | 12.3 | 6.9 | 9.5 | -26.5 | 100.0 |
| 2007-08 | 61.0 | 35.0 | 8.7 | 11.8 | 6.4 | -23.0 | 100.0 |
|  | Couple families | | | | | | |
| 1982 | 69.2 | 23.0 | 22.6 | 7.1 | 5.2 | -27.1 | 100.0 |
| 1995-96 | 65.4 | 33.1 | 14.9 | 7.3 | 7.4 | -28.0 | 100.0 |
| 2007-08 | 63.2 | 33.8 | 9.9 | 12.1 | 5.1 | -24.1 | 100.0 |

Notes: All = Men's earnings + Women' earnings + Self-employment income + Other private income + Transfers – Taxes. Self-employment income is affected by changes in definition after 1982; therefore, some income reported as coming from self employment in 1982 would likely be reported as being employee earnings in later years.

The share of male and female earnings in family income has important consequences for trends in family income inequality. For one, the large share of male earnings in total family income means that changes in male earnings inequality are likely to strongly impact family income inequality. As women's earnings increase in significance, inequality in their distribution will have a larger influence on family income inequality. However, these relationships are complex because the correlation between male and female earnings across households will also affect how the addition of women's earnings impacts on family income inequality. These observations motivate the analysis conducted in the next section.

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[5] See Appendix Table 2, from which shares of income components in the total for all survey years analysed (including 2005-06) can be calculated.

## 5. *Women's earnings and family income inequality in Australia*

In order to assess the impact of women's earnings on family income inequality, we replicate three counterfactuals proposed by Cancian and Reed (1999). First, what would be the effect on family income inequality if all women's employee earnings were reduced by a marginal amount (5%) in all years? Second, what would be the effect of holding constant in later years the mean and dispersion of women's employee earnings? And third, what would be the effect of holding constant in later years the mean and dispersion of women's employee earnings, and the correlation of their earnings with income from other sources? With the first counterfactual, therefore, we are only concerned with a change in average women's earnings; with the second, we simulate a change in the mean and dispersion of women's earnings; with the third, we model changes in mean, dispersion and correlations associated with women's earnings. We perform this analysis using Equation (2) above, recalculating $CV^2$ for family income in the later year (1995-96 and 2007-08) after substituting the dispersion and share of women's earnings in family income from the earlier year (1982 and 1995-96). Appendix tables 4A and 4B provide data on mean incomes, shares, dispersions and correlations between components used in this analysis.

Table 4, Columns 2 and 3 contain results on the first counterfactual showing that a marginal reduction in women's employee earnings would have reduced inequality in 1982 and 1995-96, but increased it in 2007-08. These findings hold for all families and for couple families. Increases that occurred in women's share of total family income in the early parts of the study period actually had a dis-equalising effect on family income, whilst a small equalizing impact was apparent by 2007-08.

**Table 4: Impact on $CV^2$ for couple families and all families of counterfactual changes in women's employee earnings**

| | ACTUAL | | | COUNTERFACTUAL | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) Hold mean earnings, dispersion & correlations constant | (7) |
| | Actual | Reduce earnings | % Difference (2)/(1) | Hold mean earnings & dispersion constant | % Difference (4)/(1) | | % Difference (6)/(1) |
| All families | | | | | | | |
| 1982 | 0.304 | 0.302 | -0.7 | | | | |
| 1995-96 | 0.384 | 0.381 | -0.7 | 0.353 | -8.2 | 0.286 | -25.5 |
| 2007-08 | 0.528 | 0.531 | +0.6 | 0.573 | +8.5 | 0.567 | +7.4 |
| Couples | | | | | | | |
| 1982 | 0.284 | 0.280 | -1.5 | | | | |
| 1995-96 | 0.365 | 0.360 | -1.3 | 0.338 | -7.5 | 0.324 | -11.3 |
| 2007-08 | 0.468 | 0.469 | +0.1 | 0.491 | +4.7 | 0.520 | +11.1 |

Columns 4 and 5 summarise the results on the second counterfactual, which involve holding constant the mean and dispersion of women's employee earnings in each sub-period. They show, first, that if the mean and dispersion of women's incomes had not changed between

1982 and 1995-96, family income inequality would have been substantially lower in 1995-96 (at $CV^2$=0.353 for all families) than was actually recorded ($CV^2$= 0.384). This effect was reversed in the second sub-period where holding the mean and dispersion of women's earnings constant would have produced a level of family income inequality in 2007-08 that was about 9 per cent higher than recorded levels.

The results on counterfactual 3 provide further insights to sources of change in family income inequality. The data for the first sub-period (1982 to 1995-96) in columns 6 and 7 of Table 4 indicate that the combined effect of the changes in the mean, dispersion and correlations associated with women's earnings was to *increase* family income inequality among all families. That is, where mean, dispersion and correlations associated with women's earnings are held constant at 1982 levels, the simulated $CV^2$is only 0.286, a quarter lower than the actual $CV^2$ in 1995-96, of 0.384. Comparison of $CV^2$ in columns 4 and 6 show that taking account of the change in the correlations associated with women's earnings altered the impact of changes in women's earnings on family income inequality from negative 8.2 per cent to negative 25.5 per cent. This indicates that in the first sub-period increases in women's earnings were concentrated in couple households and, within this group, in those with relatively high male earnings. The correlation between partnered men's and women's earnings rose from 0.22 to 0.28 between 1982 and 1995-96 (Appendix 4b). This alone explains a large proportion of the total increase in family income inequality recorded in the first sub-period.

The results on counterfactual 3 for the second sub-period reveal a different pattern. Holding the mean, correlations and dispersion of women's earnings constant at their 1995-96 levels would have yielded a level of family income inequality in 2007-08 about 7 per cent higher than the level actually recorded. Holding the correlations associated with women's earnings constant at 1995-96 levels did not greatly alter the effects of changes in women's earnings on family income inequality in this time period. Indeed, a decrease in the correlation between partnered men's and women's earnings in this period (from 0.28 to 0.21 – see Appendix 4b) exerted downward pressure on family income inequality. This is seen in the differential effects of counterfactuals 2 and 3 for couple families in Table 4 (columns 4-7). Holding the mean and dispersion of partnered women's earnings constant at 1995-96 levels would result in a 5 per cent increase in income inequality among couple families in 2007-08; if correlations associated with partnered women's earnings were also held constant at 1995-96 levels, income inequality among couple families would be 11 per cent higher than actually occurred.

The impact of changes in the level and pattern of partnered women's earnings on overall levels of family income inequality can be identified using a further technique pioneered by Cancian and Reed (1999). The three counterfactuals discussed above and in Table 4 can be estimated for couple families alone using Equation (2), from Section 3. The data on simulated means and dispersions can then be fed into Equation (1) to give an estimate of the impact of changes in the level and pattern of partnered women's earnings on overall income inequality.

Table 5 shows results of this simulation. The effect of reducing partnered women's earnings by a marginal amount would have been to reduce total inequality in all years (columns 3 and 4). This is consistent with the effect of reducing all women's earnings by a marginal amount in 1982 and 1995-96 where family income inequality also falls, but different to that in 2007-08, where family income inequality rises (see also columns 3 and 4, Table 4). In the latter year, the dampening effect on family income inequality brought about by reducing just partnered women's incomes is the result of increased concentration of partnered families in the top half of the

income distribution. On the other hand, a reduction in *all* women's incomes causes family income inequality to rise in 2007-08 because of the concentration of single women earners in the bottom half of the distribution of family incomes.

**Table 5: Impact on $CV^2$ for all families of changes in partnered women's employee earnings**

| | ACTUAL | | | COUNTERFACTUAL | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | | | | | | Hold mean earnings, dispersion & correl- | |
| | | | | Hold mean earnings & dispersion | | | |
| | | Reduce | % | dispersion | % | ations | % |
| | Actual | earnings | Difference | constant | Difference | constant | Difference |
| | | | (2)/(1) | | (4)/(1) | | (6)/(1) |
| Impact of change in partnered women's earnings | | | | | | | |
| 1982 | 0.304 | 0.301 | -1.2 | | | | |
| 1995-96 | 0.384 | 0.379 | -1.4 | 0.354 | -7.8 | 0.344 | -10.4 |
| 2007-08 | 0.528 | 0.526 | -0.3 | 0.533 | +1.0 | 0.556 | +5.2 |

Results for counterfactuals 2 and 3 confirm that the role of partnered women's employee earnings in influencing inequality is consistent with the role of women's earnings overall. Together, the results suggest that Australian women's earnings generally had a dis-equalising effect on inequality between 1982 and 1995-96, driven in large part by a growing correlation between partnered men's and women's earnings and a generally equalizing effect between 1995-96 and 2007-08, driven in part by a diminishing correlation between partners' incomes. These results nuance somewhat the existing international literature on the role of women's earnings in influencing changes in inequality. Amin and DaVanzo (2004) state that the majority of international studies find that partnered women's earnings had an equalizing effect on over-time changes in family income inequality. More recently, Harkness (2010) finds in her international comparison that the effect of female earnings on household income inequality is generally equalising. Schwartz (2010) on the other hand argues that growing correlation between spouses' earnings, particularly at the top of the distribution, has contributed to significant growth in family income inequality in the US. Our findings for Australia are consistent with those of Schwartz in that they suggest that correlations between male and female partners' earnings were an important influence on changes in family income inequality. However, we also find that while the effect was inequality-increasing in the earlier period examined, it was inequality-reducing in the latter period.

## 6.   *Partnered women's hours of work and family income inequality in Australia*

This section takes the analysis of the effects of changes in partnered women's earnings on family income inequality one step further by exploring the separate impact of changes in women's working hours. The discussion in preceding sections has alluded to changes in the mean, dispersion and correlations of women's earnings as being produced by changes in distribution of wage rates and changes in the distribution of working hours.

Figure 2 shows average hours worked by partnered women, by centiles of their partners' earnings in 1982, 1995-96 and 2007-08. It reveals that while hours worked by partnered women increased across the board after 1982, increases in the first period (1982 to 1995-96) were more concentrated toward the upper half of the male earnings distribution, while increases in the second period were more concentrated toward the bottom half. Moreover, there appears to have been a decline in the hours worked by women with very high earning partners between 1995-96 and 2007-08.

**Figure 3: Average hours worked by partnered women, by centiles of their partners' earnings from employment (employee and self-employed)**
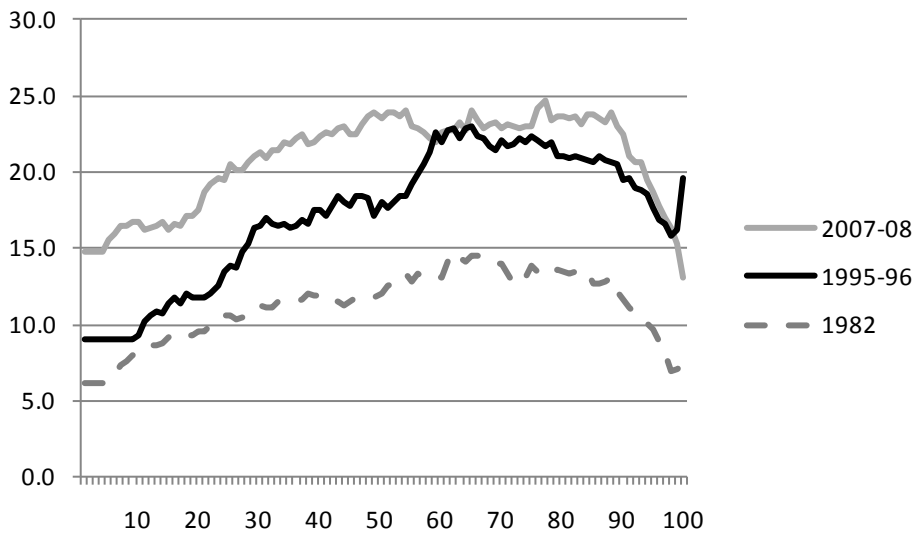


Note: data are presented in moving 10 percentile averages.

The hours worked by Australian women are now more equally distributed across their partners' earnings than was the case in the mid 1990s. The distribution of hours worked by women in the mid 1990s was, in turn, more unequally spread across their partner's earnings than was the case in 1982. The question we wish to address here is how have shifts in hours worked by partnered women, controlling for the earnings of their partners, influenced the distribution of family income since 1982?

We extend a technique proposed by Reed and Cancian (2009) to measure the impact of changes in the joint distribution of two income elements between two points in time. We sort all couple families according to male earnings (employee and self-employed). We also sort families with no male earnings randomly (like Reed and Cancian, we tried a few alternative methods of sorting men with no earnings, but the effects on the results were not large). We divide the male earnings distribution into centiles and simulate the distribution of hours worked by women in year $t+1$ based on their actual hours worked and their husbands' earnings in year $t$. That is, for each centile of male earnings in 1982, we calculate the average number of hours worked by their employee partners (the SIH data do not include hours worked by self-employed people in most years). We repeat this process for each centile of male earnings in 1995-96. We then apply the 1982 distribution of hours to women according to the centile of their partners' earnings in 1995-

96. We repeat the process in 2007-08 using the 1995-96 distribution of hours worked by women according to their partners' earnings.[6]

In order to estimate family income using the simulated working hours of women in 1995-96 and 2007-08, we multiply the estimated hours by the average actual hourly wage rates of partnered women in each centile of male earnings in each survey year. That is, we multiply imputed working hours from the previous year by hourly wage rates for the survey year. We then adjust income taxes paid by the family according to the proportional change in total family market income after adjusting partnered women's' earnings, and recalculate family income. Results are presented for all families in Table 6. Because this exercise is based on a simulation rather than a decomposition of $CV^2$, it is possible to present results for the three inequality indices used earlier in the paper. Not all indices give consistent findings across the two sub-periods. If women in 1995-96 changed their hours to those worked by women whose partners had similar levels of earnings in 1982, the three measures are agreed that family income inequality would fall. On the other hand, if women in 2007-08 switched their hours to those worked by women whose partners had similar levels of earnings in 1995-96, the P90/P10 measures suggests that inequality would fall, while the Gini and $CV^2$ measures suggest it would increase.

**Table 6: Inequality among all families in the counterfactual situation where women's hours of work are fixed at 1982 and 1995-96 levels in relation to partner earnings**

| | P90/P10 | | | Gini | | | $CV^2$ | | Difference (%) |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | Adjusted | Difference (%) | Actual | Adjusted | Difference (%) | Actual | Adjusted | |
| 1982 | 4.30 | | | 0.296 | | | 0.304 | | |
| 1995-96 | 4.21 | 3.89 | -7.7 | 0.309 | 0.300 | -2.7 | 0.384 | 0.375 | -2.5 |
| 2007-08 | 4.50 | 4.46 | -0.8 | 0.324 | 0.330 | +2.1 | 0.528 | 0.543 | +2.8 |

A qualified conclusion from this analysis is that the increase in women's working hours between 1982 and 1995-96 was dis-equalising in terms of its impacts on family income, but that the further increase between 1995-96 and 2007-08 had a general, but not universal, equalizing effect on family income. Comparison of the results in Table 6 with those in Table 5 suggests that between 1982 and 1995-96 changes in the distribution of partnered women's working hours across the male earnings distribution contributed to the dis-equalising effects of partnered female earnings on family income. The results also confirm that a significant factor in the moderating impact of changes in women's earnings on family income inequality between 1995-96 and 2007-08 was associated with an equalizing of the distribution of partnered women's hours of work across the male earnings distribution.

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[6] It is worth noting that data on hours worked are only available for employees in most SIH years. Moreover, in most years the hours-worked indicator is banded into a few categories in the publicly released dataset. However, our estimates of average hourly wages for male and female employees in the SIH match well with those from other sources produced by ABS. Details are available from the authors on request.

## 7. Discussion

This paper has identified a number of different trends in wage and income inequality in Australia across the study period, 1982 to 2007-08. Our findings show that male earnings continue to dominate the determination of family income in Australia. However, their importance has lessened over time, while the importance of women's earnings to total family income has increased. The contribution of other components of family income, such as government transfers and taxes, changed only marginally over the study period.

Our analysis reveals a number of important points that have not perhaps been sufficiently emphasized in the literature on the relationship between women's incomes and family income inequality. First, that conclusions about the contribution of women's incomes to inequality are likely to be influenced by the period of time examined, the counterfactual, and the inequality measure used; second, that changes in *all* women's earnings, and *partnered* women's earnings can have differential effects on family income inequality. In short, the relationship between changes in male earnings inequality, women's employment and family income inequality is complex.

The results presented in this paper show that in the first sub-period (between 1982 and 1995-96) increases in women's earnings occurred primarily in couple households, especially those with relatively high male earnings. The correlation between partnered men's and women's earnings rose during this period and was a major reason for the increase in recorded family income inequality. However, in the second sub-period (between 1995-96 and 2007-08) a different pattern emerged; the correlation between partnered men's and women's earnings fell in this time period, and this exerted downwards pressure on family income inequality.

These results cast some light on the impact of different policy environments on gender and family income inequality. Growth in women's employment in the first sub-period in our study – associated with the Hawke-Keating Labor government – followed the implementation of equality legislation, the expansion of child care provision and, most important, extensive labour market deregulation, which was accompanied by expansion of part-time service sector employment and a concomitant decline in mostly male industrial employment (Burke and Redmond, 2002). However, our results indicate that the strongest advances in women's earnings occurred in households with relatively high male earnings. Thus, improved gender equity was achieved at some cost to family income inequality. The growth in women's earnings that occurred in the second sub-period of our study – associated with the tenure of the conservative Howard government - was most likely the result of a long period of economic growth that also saw male earnings increase rapidly. However, the tax-benefit policies implemented by this government in the late 1990s arguably provided disincentives for women with young children and an employed partner to seek paid work. A generous payment, Family Tax Benefit Part B, was instituted for families with just one earner with the implicit intention of encouraging partnered mothers to remain in the home (Apps, 2007; Brennan, 2004). The fact that growth in the correlation of men's and women's earnings within households stalled after 1995-96, despite the strong employment growth recorded in the economy as a whole, suggests that this particular policy affected the employment earnings of women in relatively affluent households the most, resulting in positive effects on family income inequality.

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**Appendix Table 1: Basic statistics, Income and Housing Surveys, 1982 to 2007-08**

| year | N | population | Mean income | Std dev | p10 | p50 | p90 |
|------|-----|------------|-------------|---------|--------|--------|----------|
| ALL | | | | | | | |
| 1982 | 15792 | 8704344 | 494.67 | 272.956 | 194.71 | 457.17 | 836.90 |
| 1990 | 15002 | 9972747.7 | 515.96 | 304.668 | 220.52 | 471.82 | 862.61 |
| 1994 | 6870 | 10610445 | 540.99 | 341.379 | 227.09 | 486.62 | 914.98 |
| 1995 | 6985 | 10723234 | 531.05 | 329.074 | 216.18 | 477.39 | 909.74 |
| 1996 | 7314 | 10864629 | 546.27 | 325.361 | 231.56 | 494.30 | 922.69 |
| 2000 | 6573 | 11447082 | 613.61 | 401.849 | 238.51 | 552.14 | 1049.83 |
| 2002 | 9645 | 11848974 | 625.65 | 402.929 | 242.17 | 558.55 | 1075.65 |
| 2003 | 10929 | 11847668 | 641.48 | 396.993 | 253.78 | 576.99 | 1090.05 |
| 2005 | 9427 | 12270669 | 716.76 | 468.845 | 270.00 | 637.05 | 1217.90 |
| 2007 | 8938 | 12585638 | 811.71 | 589.886 | 303.01 | 707.00 | 1362.08 |
| COUPLE FAMILIES | | | | | | | |
| 1982 | 8491 | 6052324 | 514.18 | 274.054 | 219.49 | 463.88 | 861.43 |
| 1990 | 8045 | 6924230 | 544.05 | 309.433 | 244.69 | 487.36 | 909.60 |
| 1994 | 3553 | 7189679 | 572.27 | 352.051 | 250.74 | 511.89 | 971.75 |
| 1995 | 3495 | 7176868 | 569.31 | 343.869 | 246.80 | 508.91 | 963.78 |
| 1996 | 3667 | 7226385 | 583.79 | 342.042 | 257.29 | 516.48 | 973.70 |
| 2000 | 3204 | 7559554 | 666.01 | 431.897 | 265.82 | 594.66 | 1,123.62 |
| 2002 | 4679 | 7923269 | 677.48 | 423.710 | 275.45 | 605.99 | 1,144.64 |
| 2003 | 5684 | 7997146 | 699.59 | 411.106 | 289.64 | 633.84 | 1,160.88 |
| 2005 | 4774 | 8174492 | 795.40 | 480.445 | 328.85 | 710.57 | 1,304.36 |
| 2007 | 4457 | 8449629 | 889.28 | 608.600 | 367.08 | 785.71 | 1,457.33 |

Note: N is number of income units in the samples. Population is grossed up number of persons in the sample. Mean and percentiles are in Australian dollars per week, are deflated to December 2007 prices and equivalised using the modified OECD scale.

**Appendix Table 2: Means of income components, Income and Housing Surveys, 1982 to 2007-08**

| | Men's employee earnings | Women's employee earnings | Self-employ-ment earnings | Other private income | Transfers | Taxes | Total |
|---|---|---|---|---|---|---|---|
| ALL | | | | | | | |
| **1982** | 330.13 | 134.46 | 92.39 | 33.81 | 33.95 | -130.08 | 494.67 |
| **1990** | 335.11 | 167.08 | 59.31 | 57.41 | 36.97 | -139.92 | 515.96 |
| **1994** | 357.06 | 183.64 | 56.8 | 38.8 | 50.67 | -145.99 | 540.99 |
| **1995** | 335.85 | 184.11 | 65.07 | 36.44 | 50.48 | -140.91 | 531.05 |
| **1996** | 347.68 | 188.63 | 59.48 | 41.35 | 52.73 | -143.61 | 546.27 |
| **2000** | 379.88 | 218.88 | 65.06 | 52.26 | 53.63 | -156.11 | 613.6 |
| **2002** | 396.45 | 230.11 | 67.17 | 48.36 | 51.46 | -167.9 | 625.65 |
| **2003** | 411.92 | 233.9 | 63.93 | 46.85 | 53.59 | -168.72 | 641.48 |
| **2005** | 451.21 | 248.56 | 73.85 | 64.25 | 57.6 | -178.71 | 716.76 |
| **2007** | 494.94 | 284.28 | 70.99 | 96.11 | 52.22 | -186.84 | 811.71 |
| COUPLE FAMILIE S | | | | | | | |
| **1982** | 355.95 | 118.14 | 116.39 | 36.76 | 26.53 | -139.58 | 514.18 |
| **1990** | 368.05 | 165.37 | 73.06 | 64.04 | 28.26 | -154.74 | 544.05 |
| **1994** | 390.44 | 187.43 | 68.65 | 44.5 | 43.72 | -162.47 | 572.27 |
| **1995** | 372.2 | 188.41 | 84.56 | 41.7 | 42.04 | -159.61 | 569.31 |
| **1996** | 386.26 | 191.1 | 74.87 | 48.29 | 43.95 | -160.69 | 583.78 |
| **2000** | 429.25 | 226.88 | 82.57 | 62.87 | 44.4 | -179.95 | 666.01 |
| **2002** | 450.54 | 239.67 | 82.29 | 54.51 | 41.84 | -191.37 | 677.48 |
| **2003** | 473.72 | 243.35 | 77.55 | 52.31 | 43.65 | -190.99 | 699.59 |
| **2005** | 520.85 | 267.51 | 90.82 | 73.58 | 49.43 | -206.8 | 795.4 |
| **2007** | 562.37 | 300.19 | 87.84 | 107.54 | 45.65 | -214.3 | 889.28 |

Note: total income = Men's employee earnings + Women's employee earnings + Self-employment earnings + Other private income + Transfers – Taxes. All income components are deflated to December 2007 and equivalised using the modified OECD scale.

**Appendix Table 3: Inequality measures, total family income, Income and Housing Surveys, 1982 to 2007-08**

| | p90/p50 | p50/p10 | p90/p10 | p95/p5 | Gini | CV | CV² | Atkins on (0.5) | Atkins on (1) | Atkins on (1.5) | Atkins on (2) | GE(-1) | GE(0) | GE(1) | GE(2) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALL | | | | | | | | | | | | | | | |
| 1982 | 1.831 | 2.348 | 4.298 | 6.384 | 0.296 | 0.552 | 0.304 | 0.078 | 0.174 | 0.324 | 0.573 | 0.672 | 0.191 | 0.147 | 0.152 |
| 1990 | 1.828 | 2.140 | 3.912 | 6.177 | 0.298 | 0.590 | 0.349 | 0.079 | 0.173 | 0.330 | 0.625 | 0.832 | 0.190 | 0.153 | 0.174 |
| 1994 | 1.880 | 2.143 | 4.029 | 6.371 | 0.311 | 0.631 | 0.398 | 0.084 | 0.179 | 0.333 | 0.644 | 0.905 | 0.197 | 0.167 | 0.199 |
| 1995 | 1.906 | 2.208 | 4.208 | 6.290 | 0.309 | 0.620 | 0.384 | 0.081 | 0.168 | 0.291 | 0.536 | 0.577 | 0.184 | 0.163 | 0.192 |
| 1996 | 1.867 | 2.135 | 3.985 | 5.866 | 0.302 | 0.596 | 0.355 | 0.078 | 0.166 | 0.309 | 0.611 | 0.785 | 0.182 | 0.155 | 0.177 |
| 2000 | 1.901 | 2.315 | 4.402 | 6.484 | 0.320 | 0.655 | 0.429 | 0.087 | 0.182 | 0.323 | 0.610 | 0.781 | 0.201 | 0.177 | 0.214 |
| 2002 | 1.926 | 2.306 | 4.442 | 6.557 | 0.316 | 0.644 | 0.415 | 0.085 | 0.176 | 0.310 | 0.600 | 0.750 | 0.193 | 0.172 | 0.207 |
| 2003 | 1.889 | 2.274 | 4.295 | 6.346 | 0.309 | 0.619 | 0.383 | 0.082 | 0.175 | 0.342 | 0.714 | 1.250 | 0.192 | 0.163 | 0.192 |
| 2005 | 1.912 | 2.359 | 4.511 | 6.926 | 0.317 | 0.654 | 0.428 | 0.087 | 0.187 | 0.384 | 0.780 | 1.775 | 0.207 | 0.175 | 0.214 |
| 2007 | 1.927 | 2.333 | 4.495 | 6.999 | 0.324 | 0.727 | 0.528 | 0.091 | 0.185 | 0.327 | 0.655 | 0.950 | 0.204 | 0.192 | 0.264 |
| COUPLE FAMILIES | | | | | | | | | | | | | | | |
| 1982 | 1.857 | 2.113 | 3.925 | 5.570 | 0.283 | 0.533 | 0.284 | 0.071 | 0.159 | 0.296 | 0.530 | 0.564 | 0.173 | 0.136 | 0.142 |
| 1990 | 1.866 | 1.992 | 3.717 | 5.375 | 0.289 | 0.569 | 0.323 | 0.073 | 0.157 | 0.284 | 0.517 | 0.535 | 0.171 | 0.143 | 0.162 |
| 1994 | 1.898 | 2.042 | 3.875 | 5.664 | 0.304 | 0.615 | 0.378 | 0.079 | 0.166 | 0.295 | 0.558 | 0.632 | 0.182 | 0.160 | 0.189 |
| 1995 | 1.894 | 2.062 | 3.905 | 6.024 | 0.302 | 0.604 | 0.365 | 0.077 | 0.157 | 0.253 | 0.388 | 0.317 | 0.171 | 0.155 | 0.182 |
| 1996 | 1.885 | 2.007 | 3.784 | 5.421 | 0.293 | 0.586 | 0.343 | 0.072 | 0.148 | 0.257 | 0.499 | 0.499 | 0.160 | 0.146 | 0.172 |
| 2000 | 1.890 | 2.237 | 4.227 | 6.091 | 0.312 | 0.648 | 0.421 | 0.083 | 0.168 | 0.282 | 0.510 | 0.520 | 0.184 | 0.170 | 0.210 |
| 2002 | 1.889 | 2.200 | 4.156 | 5.892 | 0.305 | 0.625 | 0.391 | 0.079 | 0.161 | 0.276 | 0.537 | 0.580 | 0.176 | 0.161 | 0.196 |
| 2003 | 1.832 | 2.188 | 4.008 | 5.673 | 0.296 | 0.588 | 0.345 | 0.074 | 0.156 | 0.291 | 0.630 | 0.851 | 0.169 | 0.149 | 0.173 |
| 2005 | 1.836 | 2.161 | 3.966 | 5.817 | 0.296 | 0.604 | 0.365 | 0.074 | 0.150 | 0.269 | 0.610 | 0.781 | 0.163 | 0.151 | 0.182 |
| 2007 | 1.855 | 2.140 | 3.970 | 6.077 | 0.309 | 0.684 | 0.468 | 0.082 | 0.162 | 0.271 | 0.569 | 0.660 | 0.177 | 0.174 | 0.234 |

**Appendix Table 4a: Elements for inequality decomposition, all families**

| | Men's employee earnings | Women's employee earnings | Self-employ-ment earnings | Other private income | Transfers | Taxes |
|---|---|---|---|---|---|---|
| **1982** | | | | | | |
| Mean | 330.130 | 134.464 | 92.392 | 33.811 | 33.954 | -130.084 |
| CVsq | 1.146 | 3.006 | 10.010 | 11.765 | 3.927 | 1.503 |
| Share | 0.667 | 0.272 | 0.187 | 0.068 | 0.069 | -0.263 |
| *Correlation with:* | | | | | | |
| Men's employee earnings | 1.000 | | | | | |
| Women's employee earnings | -0.070 | 1.000 | | | | |
| Self-employment earnings | -0.257 | -0.104 | 1.000 | | | |
| Other private income | -0.084 | -0.039 | 0.208 | 1.000 | | |
| Transfers | -0.371 | -0.231 | -0.110 | -0.054 | 1.000 | |
| Taxes | -0.483 | -0.270 | -0.528 | -0.346 | 0.311 | 1.000 |
| | | | | | | |
| **1995-96** | | | | | | |
| Mean | 335.854 | 184.113 | 65.073 | 36.442 | 50.477 | -140.905 |
| CVsq | 1.520 | 2.197 | 18.908 | 9.498 | 2.929 | 1.945 |
| Share | 0.632 | 0.347 | 0.123 | 0.069 | 0.095 | -0.265 |
| *Correlation with:* | 1.000 | | | | | |
| Men's employee earnings | 0.031 | 1.000 | | | | |
| Women's employee earnings | -0.139 | -0.017 | 1.000 | | | |
| Self-employment earnings | -0.008 | -0.019 | 0.019 | 1.000 | | |
| Other private income | -0.380 | -0.327 | -0.097 | -0.093 | 1.000 | |
| Transfers | -0.673 | -0.409 | -0.451 | -0.146 | 0.342 | 1.000 |
| Taxes | | | | | | |
| | | | | | | |
| **2007-08** | | | | | | |
| Mean | 494.938 | 284.279 | 70.993 | 96.113 | 52.225 | -186.843 |
| CVsq | 1.541 | 2.021 | 20.697 | 20.736 | 3.248 | 2.486 |
| Share | 0.610 | 0.350 | 0.087 | 0.118 | 0.064 | -0.230 |
| *Correlation with:* | | | | | | |
| Men's employee earnings | 1.000 | | | | | |
| Women's employee earnings | 0.025 | 1.000 | | | | |
| Self-employment earnings | -0.139 | -0.052 | 1.000 | | | |
| Other private income | 0.050 | -0.011 | 0.014 | 1.000 | | |
| Transfers | -0.312 | -0.286 | -0.074 | -0.078 | 1.000 | |
| Taxes | -0.631 | -0.366 | -0.285 | -0.511 | 0.271 | 1.000 |

**Appendix Table 4b: Elements for inequality decomposition, couple families**

| | Men's employee earnings | Women's employee earnings | Self-employ-ment earnings | Other private income | Transfers | Taxes |
|---|---|---|---|---|---|---|
| **1982** | | | | | | |
| Mean | 355.952 | 118.136 | 116.386 | 36.755 | 26.529 | -139.583 |
| CVsq | 0.801 | 2.558 | 7.420 | 10.636 | 4.648 | 1.389 |
| Share | 0.692 | 0.230 | 0.226 | 0.071 | 0.052 | -0.271 |
| *Correlation with:* | | | | | | |
| Men's employee earnings | 1.000 | | | | | |
| Women's employee earnings | 0.225 | 1.000 | | | | |
| Self-employment earnings | -0.359 | -0.105 | 1.000 | | | |
| Other private income | -0.111 | -0.029 | 0.225 | 1.000 | | |
| Transfers | -0.341 | -0.204 | -0.099 | -0.046 | 1.000 | |
| Taxes | -0.452 | -0.354 | -0.539 | -0.371 | 0.253 | 1.000 |
| | | | | | | |
| **1995-96** | | | | | | |
| Mean | 372.20 | 188.41 | 84.56 | 41.70 | 42.04 | -159.61 |
| CVsq | 1.163 | 1.711 | 12.022 | 8.121 | 3.324 | 1.672 |
| Share | 0.654 | 0.331 | 0.149 | 0.073 | 0.074 | -0.280 |
| *Correlation with:* | | | | | | |
| Men's employee earnings | 1.000 | | | | | |
| Women's employee earnings | 0.277 | 1.000 | | | | |
| Self-employment earnings | -0.203 | -0.003 | 1.000 | | | |
| Other private income | 0.003 | -0.010 | 0.014 | 1.000 | | |
| Transfers | -0.361 | -0.340 | -0.107 | -0.097 | 1.000 | |
| Taxes | -0.721 | -0.517 | -0.399 | -0.158 | 0.324 | 1.000 |
| | | | | | | |
| **2007-08** | | | | | | |
| Mean | 562.37 | 300.19 | 87.84 | 107.54 | 45.65 | -214.30 |
| CVsq | 1.218 | 1.608 | 15.599 | 12.789 | 3.217 | 1.959 |
| Share | 0.632 | 0.338 | 0.099 | 0.121 | 0.051 | -0.241 |
| *Correlation with:* | | | | | | |
| Men's employee earnings | 1.000 | | | | | |
| Women's employee earnings | 0.212 | 1.000 | | | | |
| Self-employment earnings | -0.184 | -0.053 | 1.000 | | | |
| Other private income | 0.071 | -0.006 | 0.011 | 1.000 | | |
| Transfers | -0.288 | -0.315 | -0.070 | -0.104 | 1.000 | |
| Taxes | -0.709 | -0.458 | -0.282 | -0.408 | 0.277 | 1.000 |