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Inequality in Australia, 1982 - 2007**

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MALE EARNINGS INEQUALITY, WOMEN'S EMPLOYMENT AND  
FAMILY INCOME INEQUALITY IN AUSTRALIA, 1982 - 2007

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**Abstract:** This preliminary paper uses cross-sectional data to examine the relationship between the growth in earnings inequality among men and women, and changes in family income inequality in Australia between 1982 and 2007-08. Although male earnings inequality increased substantially across this period, change in family income inequality was less significant. Our analysis shows that women's earnings played a role in moderating the effects of rising male earnings inequality on the inequality of family income. This effect increased between 1982 and 2007-08, reflecting a pattern of change in women's employment across households with low and high male earnings. The effects of this pattern of change are currently under-researched in the Australian context. Results presented in this paper have significance for understandings not only of the relationship between women's earnings and family income inequality, but also the relationship between the hours that women work and family income inequality.

**Please seek authors' advice before citing. Comments welcome**

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# MALE EARNINGS INEQUALITY, WOMEN'S EMPLOYMENT AND FAMILY INCOME INEQUALITY IN AUSTRALIA, 1982 - 2007

## *1. INTRODUCTION*

The recent history of economic inequality in Australia has some important and perplexing features. 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). However, growth in inequality in family income in Australia has been relatively modest despite the dominant role that male earnings play in the composition of family income (Saunders and Hill, 2008) and in contrast to trends in family income inequality apparent in other countries (see Gottschalk and Danziger, 2005, for US evidence).

The contrast in the trends in male wage and earnings and family income inequality in Australia raises questions about the nature of the links between these two important aspects of economic inequality. In this paper, we focus on the issue of women's employment and earnings, their relationship to male earnings, and their impact on family income inequality. Our main question is: How have the large changes in women's employment patterns across Australian families affected family income inequality?

As Gottschalk and Danziger (2005: 232) note, that there is a strong policy interest in family income inequality and its effects on the distribution of well-being. A considerable literature has developed around the reasons for the 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, or husbands' and wives' earnings, and family income inequality (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 the 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 a rise in women's work hours in the early 1980s.

This paper attempts to add to this research effort by exploring the relationship between trends in men's wages and earnings, women's wages and earnings, and family income inequality in Australia between 1982 and 2007-08 using cross-sectional data drawn from the Survey of Income and Housing (SIH). First we focus on the impact of women's employee earnings. 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 between 1982 and 1995-96, and between 1995-96 and 2007-08. 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. The question we address is: if hourly wage rates are held constant, what was the impact of changes in the hours that partnered women worked between 1982 and 1995-96, and between 1996-96 and 2007-07, controlling for the earnings of their partners?

Our main findings can be summarized as follows: increases in family income inequality were modest if attention is focused on the middle of the distribution, but quite high if attention is focused on the top of the distribution. However, the increase in family income inequality was smaller than the increase in inequality in men's earnings and wages. This leads us towards the analysis of women's earnings. According to a number of measures, women's earnings inequality also increased. Our analysis of the impact of women's earnings on family income inequality reveals some quite ambiguous results that demand more detailed investigation than has been possible in this preliminary paper. We are therefore tentative in our conclusions. While the effect of changes in women's earnings was likely to have increased family income inequality between 1982 and 1995-96, they had a neutral or negative effect 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 earnings of their partners. Between 1982 and 1995-96 the expansion of hours worked by partnered women was concentrated among those with high earning partners. After 1995-96, not only did women with low (or non-) earning partners start to catch up in terms of hours worked, but there was even a slackening off in terms of hours worked by women with high earning partners. These changing patterns of hours worked and earnings of women may have acted first as a propellant, and then as a brake on the trend over the past decades towards moderately higher income inequality in Australia.

## ***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 the 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. In total, we analysed 10 years of SIH data. We report on only three in this paper: 1982, 1995-96, and 2007-08. We report some summary statistics and inequality estimates for all ten years in the Appendix tables.

Our primary sample includes all men and women aged 18-64, and the income units that they live in. An income unit is an administrative term for a nuclear family comprising only 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 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 are also adjusted to take account of 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 90<sup>th</sup> to the 10<sup>th</sup> 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 family) is somewhat more 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, types or 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.<sup>2</sup> 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), who examine 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: 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 all survey years 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) is based on the following decomposition equations for  $CV^2$  for family income  $f$ : First, inequality is decomposed by population group, families headed by a single person  $s$ , and families headed by a couple  $m$ :

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<sup>2</sup> 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.

$$CV_f^2 = \left( \frac{P_s(\mu_s / \mu)^2 CV_s^2 + P_m(\mu_m / \mu) CV_m^2}{+ [P_s(\mu_s / \mu)^2 + P_m(\mu_m / \mu)^2] / \mu^2} \right) \quad (1)$$

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

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

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, but here shortened to three for convenience – 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,  $hw$ ,  $ho$  and  $wo$ . In order to model this counterfactual,  $S_k$  is recalculated for each income source in year  $y$  by holding the mean of women's employee earnings at the level prevailing in year  $x$  (adjusting for price inflation); and by holding  $CV_k^2$  at year  $x$  levels in year  $y$ . Where just partnered women's earnings are decomposed, recalculated mean income and dispersion data are fed into the population decomposition equation (1) above, to recalculate total dispersion across families headed by single people and couples. In sum, this counterfactual 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?'

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. As the literature makes clear, changes in the relationship between women's and men's earnings, and between women's earnings and other components of family income, can have an important bearing on the overall role of women's earnings in modulating family income inequality. This counterfactual is particularly important for our analysis, given that we identify that the relationship between Australian couples' earnings changed significantly after 1982.

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 adapt a technique proposed by Reed and Cancian (2001, 2009) to simulate the sorting of an income component in year  $y$  to approximate how it was sorted in year  $x$ . Reed and Cancian divide the distribution of each income component in year  $x$  into 1000 milliciles, calculate the mean for that income component in each millicile, and apply this mean to each millicile in the distribution of the same income component in year  $y$ . Unlike Reed and Cancian, however, our focus is on partnered women's hours worked, controlling for the earnings of their partners. 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? We discuss the method in more detail in Section 6.

### ***3. TRENDS IN EARNINGS INEQUALITY IN AUSTRALIA***

Paralleling the experience of most other industrial countries, earnings inequality has risen substantially 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. The period 1982 to 1995-96 was characterized by rapid labour market reform that was accompanied by reduced male and increased female employment and increased male wage inequality (Burke and Redmond, 2002). The period 1995-96 to 2007-08 roughly coincides with the tenure of a conservative government that combined labour market deregulation with a policy preference for single earner (predominantly male) couple households, with concrete expression given to this policy preference through the tax and transfer system (Apps, 2006; Brennan, 2007).

Table 1 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 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. 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		
	Gini	$CV^2$	p90/ p10	Gini	$CV^2$	Gini	$CV^2$	p90/ 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 Australian women are somewhat different. Among all women, both Gini and  $CV^2$  decreased in both periods examined. Among all women with earnings, on the other hand, the p90/p10 ratio, the Gini and the  $CV^2$  all increased. Among all partnered women the Gini decreased in both periods, while  $CV^2$  fell during the 1980s, but increased during the 1990s. Among partnered women with earnings, the p90/p10 ratio fell, but  $CV^2$  rose. For both men and women with earnings, the increase in  $CV^2$  was significantly greater than the increase in the other two measures, suggesting particularly marked growth in earnings inequality at the top of the distribution.

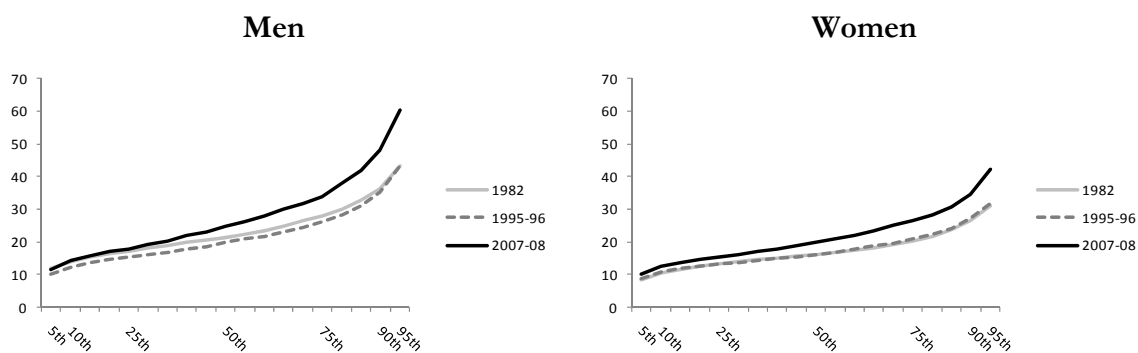
The trends in earnings inequality will be affected both by trends in hours of work and hourly wage rates. The fall in the inequality of earnings across all women that is shown in Table 1 is likely to reflect, first, women's growing participation in paid work over the period (reductions in the proportion of women with zero incomes will exert a strong downwards pull on inequality measures, even where inequality in hourly wage rates is growing). Furthermore, the smaller increases in earnings inequality among employed women in comparison with employed men could indicate either less rapid growth in hourly wages among women, or a rebalancing of working hours across the earnings distribution, especially after 1995-96, when the growth in employment among women moderated considerably, or both (Austen and Redmond, 2008).

The increase in Australian male earnings inequality between 1982 and 2007-08, on the other hand, is likely to reflect in part the decline that occurred in the male employment rate. 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 again to 71 per cent, but unlike in the 1980s, this now included a substantial proportion of men engaged in part-time work. Furthermore, the study period featured increased inequality in male employee wage rates. Following a pattern similar to the one described by Gottschalk and Danziger (2005: 237) for the US between 1975 and 2002, Figure 1 shows that real hourly wages for employed Australian men at the 5<sup>th</sup> percentile of the male earnings distribution *fell* by 3 per cent between 1982 and 2007-08; rose by only 1 per cent at the 10<sup>th</sup> percentile; but increased by 33 per cent at the 90<sup>th</sup> percentile and by 40



per cent at the 95<sup>th</sup> percentile. These changes were pronounced in the 1982 to 1995-96 period where, for example, real hourly wages at the 5<sup>th</sup> percentile fell by 17 per cent while, at the 95<sup>th</sup> 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 95<sup>th</sup> percentile as compared to 16 per cent at the 5<sup>th</sup> percentile). The increase in male earnings inequality between 1982 and 1995-96 can therefore be attributed both to the fall in male employment and increased inequality in hourly wages. Since 1995-96, male earnings inequality has been subject to two contrasting influences. On the one hand, rising wage inequality has pushed male earnings inequality upwards, while rising employment rates have pushed the inequality of male earnings lower.

**Figure 1: Percentiles of men’s and women’s hourly earnings, 1982 to 2007-08 (\$, December 2007 prices).**



Note: Hourly wages are for all employees with positive hours and earnings. Wages are deflated to December 2007 prices using Consumer Price Index data for all Australian capital cities.

In contrast to the changes in male wage inequality, Figure 1 also shows that change in the real hourly wage rates of Australian women employees between 1982 and 2007-08 was somewhat less unequal. At the 5<sup>th</sup> percentile of the female earnings distribution, the real hourly wage rose by 23 per cent; it increased by 21 per cent at the 10<sup>th</sup> percentile; 30 per cent at the 90<sup>th</sup> percentile and 36 per cent at the 95<sup>th</sup> 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. In sum, the fall in earnings inequality among women recorded between 1982 and 1995-96 was the product of a rising female employment rate and a moderate increase in inequality in wage rates, apart from at the very top of the earnings distribution (but note that overall earnings inequality among women with earnings still increased). In the latter part of the study period the more moderate rise in female earnings inequality was primarily driven by changes in the employment rate and by changes in the hours worked by employed women.

#### **4. TRENDS IN FAMILY INCOME INEQUALITY IN AUSTRALIA**

The trend in family income inequality in Australia since 1982 is not very similar to those in either male or female earnings, as summarized in Table 1. Table 2 shows that in each of the two time periods examined, the measured trend in family income inequality is moderately upwards for the most part. 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.<sup>3</sup>

**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%

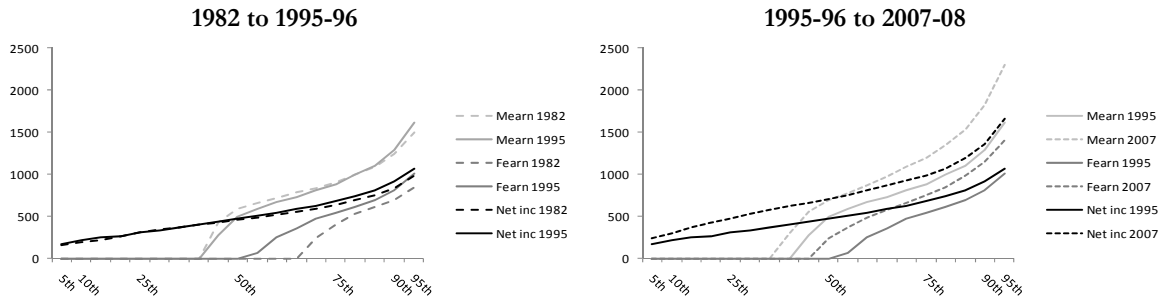
Comparison of trends on Tables 1 and 2 shows that the Gini and  $CV^2$  for family income for all families did not increase as rapidly as they did for all men's earnings between 1982 and 1995-96. On the P90/P10 measure, for example, family income inequality fell by 2 per cent between 1982 and 1996 whilst male earnings inequality increased by 20 per cent. However, between 1995-96 and 2007-08, the  $CV^2$  measure shows an increase in family income inequality at least as large as the increase in male earnings inequality. Trends in income inequality among couple families again contrast with trends in earnings inequality among partnered men and women in both periods. Earnings inequality among all partnered men increased dramatically in the first period and then stabilized. Earnings inequality among all partnered women decreased in the earlier period, and showed ambiguous trends in the latter period. However, family income inequality among couple families on the P90/P10 measure fell in the first period and increased by 2 percent in the second. On the CV measure family income inequality among couple families increased at a similar rate to the change in earnings inequality.

Figure 3 shows these trends graphically for all families. The crossing distributions for male earnings 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

<sup>3</sup> It is interesting to 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 p90/p10 ratio for couple families was 3.97; the Gini was 0.296; and the  $CV^2$  was 0.365. See Appendix Table 3.

the top of the women's earnings distribution. The shift in the distribution of net family incomes 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 upwards fairly uniformly, but the proportions of men and women with earnings also increases, so that inequality measures fall. Family income inequality on the other hand increases in this period, with gains at the top of the distribution outstripping gains at the bottom.

**Figure 2: 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 due to the dominant role of these earnings in families' incomes. Table 3 shows that male employee earnings also comprise the large majority of Australian family income.<sup>4</sup> Although their importance declined in the study period, they still accounted for over six in every ten dollars (before deduction of taxes) of disposable family income in 2007-08.

Nonetheless, the table also shows that the decline in the importance of male employee earnings over the study period was substantial, with this change matched by an increase in the importance of women's employee earnings. This is particularly notable in the case of partnered women, whose employee earnings made up 23 per cent of disposable family income in 1982, but 35 per cent of the total in 2007-08. Note, however, the lack of change in the importance of women's earnings in the total between 1995-96 and 2007-08 (among women overall, and among partnered women). 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 the table). 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 incomes 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

<sup>4</sup> 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.

in total income remained fairly constant throughout the period, only falling in the most recent years (after 2005-06).<sup>5</sup>

**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's 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 the trend 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 have a strong impact on 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 are important for the analysis conducted in the next section.

### ***5. PARTNERED 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,

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

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). Data on mean incomes, shares, dispersions and correlations between components used in this analysis are presented in the Appendix.

Table 4 presents results from this exercise. A marginal reduction in women's employee earnings would reduce inequality in 1982 and 1995-96, but increase it in 2007-08, among all families and among couple families. In other words, increasing the share of women's earnings in total family income has a disequalising effect among all families in the first study period (1982-1995-96), but an equalizing effect in the later period (1995-96 to 2007-08), *ceteris paribus*.

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

	ACTUAL			COUNTERFACTUAL			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Actual	Reduce earnings	% Difference (2)/(1)	Hold mean earnings & dispersion constant	% Difference (4)/(1)	Hold mean earnings, dispersion & correlations constant	% Difference (6)/(1)
All							
1982	0.304	0.302	-0.7				
1995-96	0.384	0.381	-0.7	0.436	+13.5	0.368	-4.2
2007-08	0.528	0.531	+0.6	0.643	+21.8	0.643	+21.8
Couples							
1982	0.284	0.280	-1.5				
1995-96	0.365	0.360	-1.3	0.409	+12.1	0.391	+7.2
2007-08	0.468	0.469	+0.1	0.551	+18.2	0.554	+18.2

Holding constant the mean and dispersion of women's employee earnings at earlier year levels (Column 4 in Table 4) would increase inequality significantly among all families and couple families in 1995-96 and in 2007-08. That is, if the mean and dispersion of women's incomes had not changed between 1982 and 1995-96,  $CV^2$  for family incomes among all families would be 0.436 in 1995-96 (compared with the actual level of 0.384). A similar picture is evident in couple families, where holding constant the mean and dispersion of the woman's earnings would result in a 12 per cent increase in  $CV^2$ , from 0.365 to 0.409.

Holding mean, correlation and dispersions constant at 1982 levels (Column 6 of Table 4) would have the opposite effect, and marginally reduce inequality among all families by 4 per cent in 1995-96, but increase it by a fifth in 2007-08. A different picture is evident in the earlier period for couples, however, where holding the mean, dispersion and correlations associated with women's earnings constant at 1982 values would cause inequality to increase in 1995-96. In the later period, trends for all families and couples are similar.

Why does the impact of women's employee earnings differ between all families and couple families in the earlier period? First, it is important to note that this changing impact occurred during a period of increasing advantage for families headed by a couple. Between 1982 and 1995-96, the share of people living in families headed by a couple in the bottom half of the distribution of family incomes fell from 68 per cent in 1982 to 62 per cent in 1995-96, and 57 per cent in 2007-08 (as Table 2 shows, their share in the total population declined by only 3 percentage points over the entire period). In other words, while inequality overall and among couple families increased, inequality between single and couple families also increased.

One driver of this increasing advantage for couples in the earlier period was the increasing correlation between partnered men's and women's earnings, which rose from 0.22 to 0.28 between 1982 and 1995-96 – this alone explains almost half of the total increase in inequality among couple families.

As Cancian and Reed (1999) show, Equation (2) from section 3, in combination with Equation (1), can also be used to identify the role of partnered women's earnings in influencing changes in overall levels of inequality. In effect, the three counterfactuals discussed above and in Table 4 can be estimated for couple families using Equation (2) and then data on simulated means and dispersions can be fed into Equation (1) to give an estimate of the impact of changes in partnered women's earnings on overall income inequality.

The results of this simulation exercise are shown in Table 5. The effect on total inequality of reducing just partnered women's earnings by a marginal amount (Column 3, Tables 4 and 5) is greater than the effect of reducing all women's earnings by a marginal amount. This is probably because partnered women's earnings are more concentrated towards the top of the distribution. The change in sign for 2007-08 (+0.6 when all women's employee earnings are taken in to account, -0.3 when just partnered women's earnings are counted) is consistent with the gradual decline in the relative family income of single headed families between 1982 and 2007-08. Among all families, a fall in single and partnered women's earnings in 2007-08 would cause average incomes to fall most in the bottom half of the distribution – hence the increase in  $CV^2$  (Table 4, Column 3). But since partnered women are more concentrated than all women in the top half of the distribution, a fall in their earnings would cause inequality among all families to decline, even while inequality among couple families increased.

**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)
	Actual	Reduce earnings	% Difference (2)/(1)	Hold mean earnings & dispersion constant	% Difference (4)/(1)	Hold mean earnings, dispersion & correlations constant	% Difference (6)/(1)
1982	0.304	0.301	-1.2				
1995-96	0.384	0.379	-1.4	0.407	+6.1	0.394	+2.6
2007-08	0.528	0.526	-0.3	0.579	+10.4	0.584	+10.4

Results for the other two counterfactuals suggest that the role of partnered women's employee earnings in influencing inequality is mostly consistent with the role of women's earnings overall. This is the case if the mean and dispersion of partnered women's earnings are held constant in either year, and if the mean, dispersion and correlations associated with partnered women's earnings are held constant in 1995-96. However, where the means, dispersions and correlations associated with all women's and partnered women's earnings are held constant at 1982 levels, the result is somewhat ambiguous, with a fall in inequality of 4.2 per cent in the case of all women's earnings being held steady (Table 4, column 7), compared with a rise of 2.6 per cent in the case of just partnered women's earnings being held steady (Table 5, column 7). This suggests that the growing participation in paid work of partnered women in the period 1982 to 1995-96 may have had a downwards influence on family income inequality. However, this appears to have been counterbalanced by growing inequality between families headed by a single person and families headed by a couple.<sup>6</sup> We now turn to examining in more detail the relationship between changes in partnered women's participation and changes in family income inequality.

## ***6. PARTNERED WOMEN'S EMPLOYMENT AND FAMILY INCOME INEQUALITY IN AUSTRALIA***

There is now quite a literature on the role of partnered women's earnings in influencing changes in inequality. However, as Amin and DaVanzo (2004) note in their review of such studies, there is no clear consensus as to whether wives' earnings are equalizing or disequalising, although the majority of studies that they cite appear to find in favour of an equalizing effect. 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

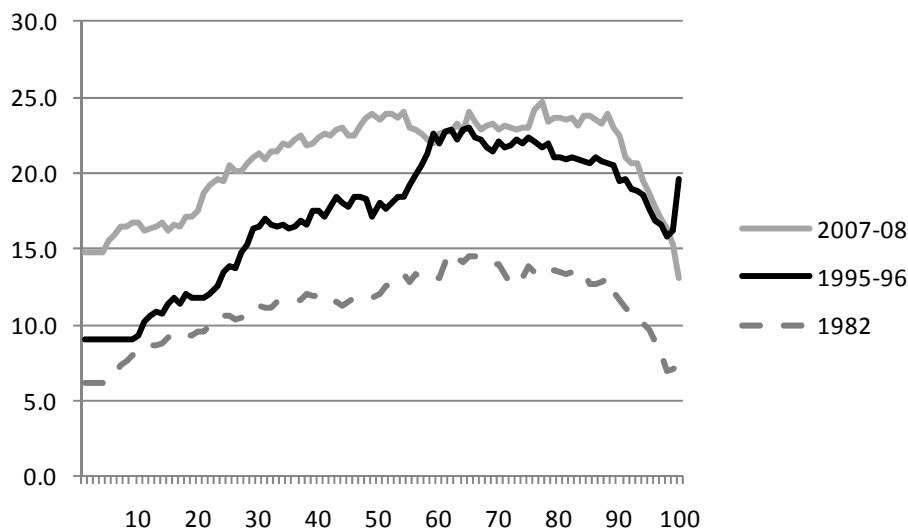
<sup>6</sup> It is interesting to note that changes in men's earnings (from employment and self-employment) were big drivers of increased income inequality between 1982 and 1995-96, with women's earnings playing a restraining role overall, as Tables 5 and 6 suggest. Between 1995-96 and 2007-08 however, women's earnings were the largest factor restraining even higher levels of inequality.

spouses earnings, particularly at the top of the distribution, has contributed to significant growth in family income inequality in the US. Our analysis in the Section above suggests that Australian women's earnings generally had an equalising effect on inequality between 1982 and 2007-08, but that this was heavily influenced by the extent to which partners' earnings were correlated. In this Section we explore changes in the correlation between partnered men's and women's earnings further, focusing in particular on the hours worked by women.

Figure 3 shows average hours worked by partnered women, by centiles of their partners' earnings in 1982, 1995-96 and 2007-08. This shows that while hours worked by partnered women increased across the board, increases in the first period (1982 to 1995-96) were more concentrated towards the upper half of the male earnings distribution, while increases in the second period were more concentrated on 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. These changes in partnered women's hours are well understood in the Australian context. Growth in women's employment in the earlier period 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). Growth in the second period may initially have been partly associated with welfare reform that sought to individualise means tested payments (and associated obligations) for each member of a couple, but was most likely the result of a long period of economic growth that also saw male employment increasing rapidly, making up most of the losses experienced in the 1980s. It might also be argued that the increase in partnered women's employment occurred in the context of national tax-benefit policies implemented in the late 1990s that 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 mothers to remain in the home (Apps, 2007; Brennan, 2004).



**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.

It is an open question whether the muted growth in hours of employment among women with high earning partners, in a time of economic expansion, is the result of tax-benefit policies, or associated with other factors. However, the distribution of hours worked by women is 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?

In order to address this issue, we roughly follow the approach taken by Reed and Cancian (2001; 2009). In the earlier paper, the authors propose a simulation method for measuring the impact of changes in the distribution of incomes between two points in time by asking the question: 'what if the distribution of a given source of income had not changed?' In the later paper, they take the question a step further by simulating the distribution of men's and women's incomes together, assigning the incomes to men and women in year  $t+x$  according to their ranking in year  $t$ . They then use the simulated distribution for year  $t+x$  to examine how changes in the income sorting of men and women influenced changes in the distribution of family income.

In this paper, we sort all couple families according to male earnings (employee and self-employed). We 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 (Reed and Cancian use milliciles, but their samples are considerably larger). However, instead of simulating the year  $t$  distribution of male (or female) earnings in year  $t+1$ , we simulate the distribution of hours worked by women. 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.

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 wives 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 slightly adjust income taxes paid by the family according to the proportional change in total family market income after adjusting wives' earnings, and recalculate family income. Results are presented for all families (headed by a single person and a couple) 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. 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. A qualified conclusion might be (as Figure 2 implies) that the increase in women's working hours between 1982 and 1995-96 was disequalising, but that the further increase between 1995-96 and 2007-08 had an general, but not universal, equalizing effect.

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

	P90/P10			Gini			$CV^2$		Difference (%)
	Actual	Adjusted	Difference (%)	Actual	Adjusted 82	Difference (%)	Actual	Adjusted 82	
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

Comparison of the results in Table 6 with those in Table 5 suggests that, on a 'majority vote' basis, across the different simulations and counterfactuals, the increase in family income inequality between 1995-96 and 2007-08 was moderated because of changes in the mean or dispersion of partnered women's employee earnings, or because of changes in the correlation between their earnings and other sources of income (especially their partners' earnings), or because women with low earning partners decided to work more (and perhaps even because some women with high earning partners decided to work less), or most likely because of a combination of all these. It is more difficult to derive a majority vote with respect to changes between 1982 and 1995-96. Table 5 (Columns 5 and 7) suggests that changes in the mean, dispersion and associated correlations of partnered women's income had an equalising effect on family incomes. This finding may be associated with increased participation in paid work among partnered women. However, Table 6 suggests that the increase in hours worked by partnered women, controlling for the earnings of their partners,

was dis-equalising. This issue clearly needs more work. Here we propose as an interim possibility that while the increase in the total hours worked by partnered women, and the associated increase in their total earnings, exerted downwards pressure on family income inequality, closer analysis may reveal that the increase in the correlation between partnered men's and women's earnings between 1982 and 1995-96 (and indeed decreases between 1995-96 and 2007-08) may require a more nuanced analysis than has been attempted in the Australian context.

## ***7. DISCUSSION***

The recent economic history of Australia has featured a number of significant changes. One of these has been the large increase in women's employment (see Austen, 2008, for Australian data and Goldin, 2006, for an international perspective). Another has been the substantial rise in male earnings inequality. These two trends are likely to be intertwined, with consequences for the evolution of family income inequality and family well-being.

This paper has contributed Australian data on the links between inequality in men's and women's earnings and family income inequality to a growing literature on this topic. We have identified different trends in wage and income equality across our study period, 1982 to 2007-08. In the years between 1982 and 1995-96 there was an increase in male earnings inequality, produced in part by increases in male wage inequality and in part by a fall in the male employment rate. During this period women's earnings inequality fell due largely to increases in the female employment rate. Family income inequality increased during these years but by a smaller amount than the rise in male earnings inequality. The second part of the study period, 1995-96 to 2007-08 had a number of different characteristics. Growth in men's earnings inequality stabilized, despite rising wage inequality, due to the influence of rising employment rates. Female earnings inequality continued to fall due to further increases in the female employment rate and changes in the hours worked by employed women. The growth in family income inequality moderated somewhat.

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 results also show that the relationship between the growth in male earnings inequality, women's employment and family income inequality is complex. Women's earnings tend to reduce family income inequality. However, the impact of women's earnings on family income is not always so clear-cut. The increase in employment and hours worked by partnered women between 1982 and 1995-96 is shown by some measures to have reduced inequality in family incomes, but by other measures to have increased it. A more nuanced analysis is needed. The 'inequality-reducing' impact of women's earnings may be largely due to the small role they play in determining family incomes in households with high male earnings and the larger role they play in determining family incomes in households with low male earnings. That is, women's earnings may perhaps push up family income

substantially in households with low male earnings but have a relatively small impact on the incomes of households with high male earnings.

These observations are also relevant to a further finding of our analysis – that the ‘inequality-reducing’ impact of women’s earnings increased over the study period. Our findings on this point are less ambiguous. Changes in women’s earnings, and partnered women’s earnings, were associated with downwards pressure on family income inequality between 1995-96 and 2007-08. In the earlier part of our study period, growth in women’s employment and earnings was greatest in households with relatively high male earnings. In the latter part of our study period, the growth in women’s employment was concentrated in households with the lowest male earnings and this helped to stabilize family income inequality.

The changes that occurred in women’s employment in the latter part of the study period were the most substantial. It is reasonable to assume that they were, in part at least, a response to the growth in male earnings and family income inequality in the earlier period. Social comparison is important in people’s evaluation of their own economic circumstances, and we have a propensity to want to emulate the living standards of others. Brown (1985, 184) asserts that change in a woman’s employment status will be motivated by change in her assessment of the adequacy of her family’s consumption of market and non-market goods in relation to perceived social norms. Reflecting ideas on the importance of relative income and emulation advanced early by Veblen (1973) and Duesenberry (1952), in Brown’s analysis, family income/expenditure is assessed with reference to “one’s neighbours” and efforts are made by the family to match its expenditures to those of other families in its reference group. Brown linked the growth in US women’s employment to economic growth, which first lifted the expenditures on market goods by high income families and then raised the target level of expenditure of families on lower incomes, necessitating increased hours of work by women. Neumark and Postlewaite (1998) also found evidence of reference group effects on women’s work decisions. Their empirical analysis, based on 1979 US Labour Force data, identified a positive relationship between the probability of employment by a married woman and the employment status of her sisters in law. It also identified a positive relationship between employment probability and the relativity between the income of the woman’s brothers-in-law and her own partner’s income.

The results presented in this paper are *consistent* with a causal link between rising male earnings inequality and women’s employment. However, given that we have only used cross-sectional data our study is limited in its ability to assert that such a link applies to the increase in Australian women’s employment. Additional research on this possibility is warranted (most probably using longitudinal data). First, studies of the links between rising male earnings inequality and women’s employment growth have the potential to add new knowledge on the determinants of women’s involvement in paid work. Second, research on these links will contribute important information on the determinants of family income inequality. Third, the relationships are important to evaluations of well-being and inequality based on family income data.

The paper ends with a brief elaboration on this latter point. The data and arguments presented here indicate that one of the reasons why family income inequality didn’t rise in proportion to rising male earnings inequality in Australia was at least partly growth in the paid work hours of women, especially after 1995-96. The changes in these hours were most substantial for women living in households with relatively low male earnings. This evidence

could support an argument that the employment opportunities that became available for women especially during the period of economic recovery since 1995-96 have been particularly beneficial for low income families; enabling them to move towards restoring their relative economic position. However, it is also the case that this re-balancing of family incomes following the rapid rise in male earnings inequality has come at a cost for some (especially low income) women via an increase in their total hours of work. The question therefore remains as to whether inequality in family wellbeing has really remained as stable in Australia in recent decades as inequality data on family incomes suggest, given that some families have needed to increase their total (paid and unpaid) working hours to remain in touch with others. This suggests the need for further research on the links between employment, inequality and wellbeing.

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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 FAMILIES							
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 equalised 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	CV <sup>2</sup>	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
<i>Correlation with:</i>						
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
<i>Correlation with:</i>						
Men's employee earnings	1.000					
Women's employee earnings	0.031	1.000				
Self-employment earnings	-0.139	-0.017	1.000			
Other private income	-0.008	-0.019	0.019	1.000		
Transfers	-0.380	-0.327	-0.097	-0.093	1.000	
Taxes	-0.673	-0.409	-0.451	-0.146	0.342	1.000
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
<i>Correlation with:</i>						
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
<i>Correlation with:</i>						
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
<i>Correlation with:</i>						
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
<i>Correlation with:</i>						
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