

EVIDENCE ON INEQUALITY AND THE NEED FOR A MORE PROGRESSIVE TAX SYSTEM

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Patricia Apps
The University of Sydney Law School, ANU, UTS and IZA

ABSTRACT

This paper draws on Household Expenditure Survey data on incomes as the basis of an analysis which shows that inequality in Australia has been increasing over recent years, and that the appropriate policy response is an increase in the progressivity of the personal income tax with, in particular, significant increases in taxes on top incomes. Conflicting findings on inequality reported by the Productivity Commission are attributed to the methodological approach used to measure the real standard of living of Australian families. The paper goes on to provide a critique of changes in Australian income tax policy over the last few decades, which are shown to have reduced transparency and progressivity, and to have shifted the tax burden towards middle income earners and towards partnered mothers, with potentially high efficiency and productivity losses for the economy.

1 Introduction

Rising inequality in many OECD countries is now well documented.¹ The increasingly accepted policy response to these findings is a shift towards a more progressive tax system.² However, in contrast to the international literature on inequality, recent Australian reports, including the Productivity Commission (PC) report entitled “Rising inequality? A stocktake of the evidence”,³ question this trend for Australia.⁴ The PC presents an analysis of the distribution of household income, consumption and wealth over recent decades and concludes that there is little to no evidence of an increase in inequality since the financial crisis of 2007/8. The analysis is based on “...*equivalised household measures of income, consumption and wealth to take account of differences in household composition and “economies of scale” when sharing living costs*” (p.19).

However the PC findings depend on a number of assumptions that are questionable. First, and most importantly, any study based on household income, with or without an equivalence scale adjustment, can be expected to give misleading results for the degree of inequality at a given point in time, as well as for changes over time, when most adults live in couple households. The key problem is that household money income is a misleading indicator of the relative living standards of couples and two-parent families when the data indicate:

- a high degree of heterogeneity in second earner labour supply vs. home production (e.g., child care and related services) at a given primary income, second earner wage and demographic characteristics, and
- a rise in second earner labour supply over time.

A second concern is the changing allocation of time to work vs. household production and leisure over the life cycle. It can be argued that it is simply not possible to construct reliable measures of inequality across the entire population outside the framework of a well-developed model of the household life cycle. No such model is presented or cited.

¹ See, for example, Atkinson (2015), Atkinson et al. (2011), Atkinson and Leigh (2009), Piketty and Saez (2003).

² See Piketty et al. (2014), who argue also for a focus on tax avoidance, and Andrienko et al. (2016).

³ Productivity Commission (2018).

⁴ See also the Melbourne Institute study, Wilkins and Lass (2018), and OECD studies.

The PC's computation of equivalised household income is based on inflation adjusted disposable income net of income tax and government cash transfer payments (see p.28). However, to evaluate the distributional impact and efficiency cost of existing tax and public expenditure policies and to derive (second-best) optimal directions for reform, we also need to know the degree of inequality in the distribution of living standards before taxes and transfers.

To address these issues, I begin with an analysis of inequality drawing on ABS Household Expenditure Survey data for the private income of the primary earner of couples in the working age phase of the life cycle, the most significant income earning subsample of the population. The aim is to compare "like with like" by excluding the effects of heterogeneity in second earner labour supplies at a given primary and second wage. The results indicate a continuing rise in inequality in pre-tax primary incomes and a very significant shift in the overall burden of income taxation towards the "middle", an outcome due to reforms towards a less progressive "true" marginal tax rate scale. Evidence on labour supply elasticities is presented which, together with the rise in inequality, supports the argument for a more progressive tax system to achieve a fairer and more efficient/productive economy.

Finally, I illustrate the sensitivity of a household welfare ordering to the assumption, implicit in the PC's calculations, that the contribution to family wellbeing of a partner specialising in home production is zero, as well as to the way in which this assumption provides support for reforms that increase inequality both across households and between male and female income earners.

2 Evidence on inequality: primary incomes of "in-work" couples

Samples of couples are selected on matching criteria from three consecutive ABS Household Expenditure Surveys (HES): HES 2003-04, HES 2009-10 and HES 2015-16. Primary income is defined as that of the partner with the higher private income. For the purpose of ensuring valid comparisons across the financial years, the samples are selected

from each survey on the same criteria: the primary income partner is employed for at least 25 hours per week and aged from 20 to 60 years.⁵ Table 1 reports decile data means of nominal primary incomes in 2003-04, 2009-10 and 2015-16.

Table 1: Nominal primary incomes: 2003-04, 2009-10 and 2015-16

Decile	1	2	3	4	5	6	7	8	9	10
2003-04\$	24785	33546	38875	43639	48489	53518	59397	67813	81656	140490
2009-10\$	31865	42657	49633	57170	64326	72373	82298	95064	116990	213190
2015-16\$	37999	52988	62189	71488	81092	91356	104490	120830	151390	315220

Table 2 reports the percentage change in income in each decile. The first row shows the change from 2003-04 to 2009-10 and the second, from 2009-10 to 2015-16. Figures 1a and 1b present the result graphically.

Table 2: % Change: 2003-04 to 2009-10 and 2009-10 to 2015-16

Decile	1	2	3	4	5	6	7	8	9	10
03-04/09-10	28.57	27.16	27.67	31.00	32.66	35.23	38.56	40.18	43.27	52.17
09-10/15-16	19.25	24.22	25.30	25.04	26.06	26.23	26.97	27.10	29.40	47.86

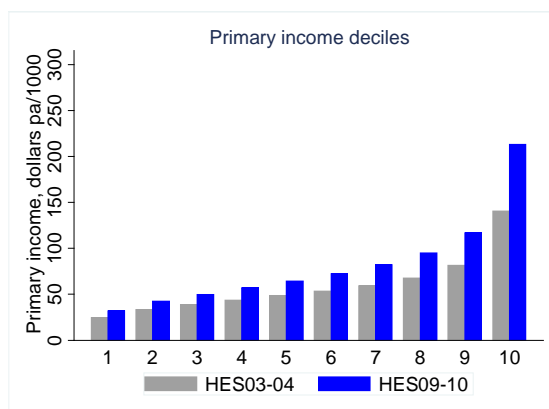


Figure 1a 2003-04 and 2009-10

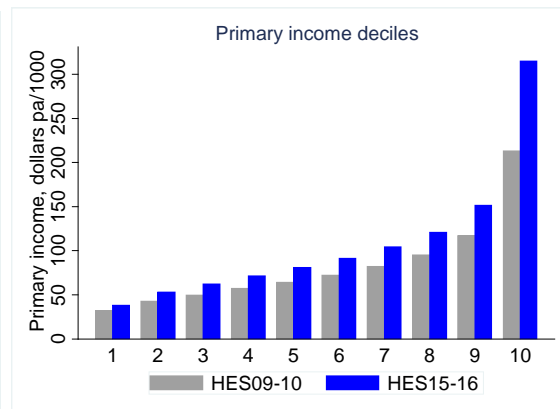


Figure 1b 2009-10 and 2015-16

We observe the following:

⁵ The samples are also limited to records in which neither partner reports a negative income. The HES 2003-04 sample contains 2447 couple income unit records, the HES 2009-10, 2408 records, and the HES 2015-16, 2999 records.

- (i) Primary incomes rise relatively slowly across each distribution until towards the top decile. The mean income in decile 10 approaches twice that of decile 9 due to the sharp rise in the top percentiles (see Figure 4a).
- (ii) Inequality rose significantly across each of the two six-year periods. While the percentage rise in the top decile is greater in the first period than in the second, at 52.17 per cent and 47.86 per cent, respectively, the percentage gains across deciles 1 to 9 in the second period are lower. Consequently inequality is rising over the 12 year period, as indicated by the successive Gini Coefficients: 0.2955, 0.3315 and 0.3659.

From 2003-04 to 2015-16 the overall rise in nominal primary incomes is 53.31 per cent in decile 1 and 124.37 per cent in decile 10, as shown in Table 3. Figure 2 compares graphically the profiles for the first and last years of the period to highlight the disproportionate overall increase in the top decile.

Table 3: % Change: 2003-04 to 2015-16

Decile	1	2	3	4	5	6	7	8	9	10
%	53.31	57.96	59.97	63.82	67.24	70.70	75.92	78.18	85.40	124.37

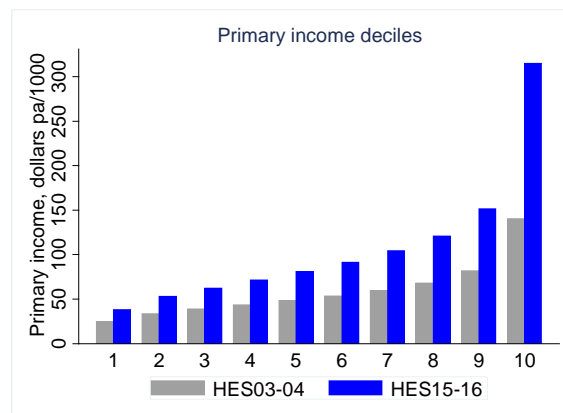


Figure 2 2003-04 and 2015-16

3 MTR scale set by the PIT, LITO and ML: 2003-04 to 2015-16

To assess the extent to which changes in the “true” rate scale of the Australian income tax, calculated as the rate scale set by the Personal Income Tax (PIT) rates, the Low Income Tax Offset (LITO) and Medicare Levy (ML), contributed toward offsetting, or increasing, the rise in inequality over the 12 year period, we first calculate the amount of

tax that would be payable in each decile under the 2003-04 true rate scale fully indexed for “bracket creep”.⁶ We then subtract the amount of the tax payable in each decile under the 2015-16 true rate scale. The results are reported in Table 4. The absolute dollar gain in each decile in 2015-16 is recorded in row 3 of the table and shown graphically in Figure 3. In decile 1 there is a gain of \$1449. The gain falls to a minimum of \$201 in decile 5 and rises to \$368 in decile 6, the second lowest average gain. Thereafter gains rise steeply, with the average gain in decile 9 reaching \$5066 and in decile 10, \$12,342.⁷

Table 4: Tax payable in 2003-04 and 2015-16, in 2015-16 dollars

Decile	1	2	3	4	5	6	7	8	9	10
2003-04\$	5354	9474	12460	14896	17840	21319	26570	33684	46737	123882
2015-16\$	3905	8279	11540	14434	17639	20951	25535	31245	42571	111540
Tax cut	1449	1195	820	462	201	368	1035	2439	4166	12342

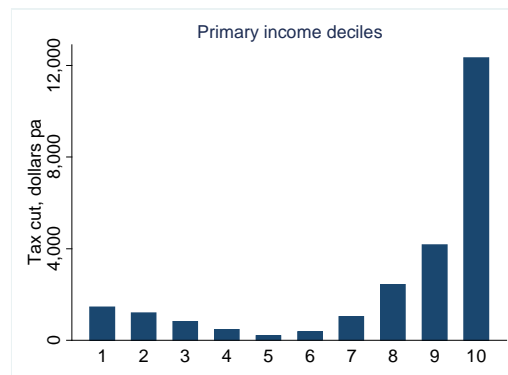


Figure 3 Absolute gains from 2003-04 to 2015-16

This outcome can be attributed primarily to variations in the PIT scale and LITO over the period. From 2004-05 to 2008-09 the top bracket limit of the PIT scale rose from \$70,000 to \$180,000 and the top marginal rate fell by two percentage points, funded largely by accumulated revenue from bracket creep in the preceding decade. At the same time, individuals on low incomes gained from a rising zero rated threshold with successive increments in the LITO up to 2010-11. For example, by 2010-11 the LITO reached \$1500

⁶ Bracket points are indexed by Average Ordinary Full Time Adult Earnings. (<http://www.abs.gov.au>)

⁷ The three year Budget Deficit Levy of 2 per cent on incomes above \$180,000, which was removed in 2016-17, is not included. Including it raises the average tax burden in decile 10 by \$2330.

and was withdrawn at a rate of 4 cents in the dollar. The PIT scale listed the bracket point of the zero rated threshold as \$6000 when it was in fact \$16,000. The withdrawal of the LITO on income from \$30,001 to \$67,500 raised the marginal tax rate on this band of income by 4 cents to deny the “middle” the intra-marginal lump sum of \$1500 from an increment of \$10,000 in the zero rated threshold.⁸

The PC’s Report (p. 2) states:

“Another clear message from the data is that Australia’s progressive tax system and highly targeted transfer system substantially reduce income inequality”.

The Report does not discuss the potential efficiency cost of raising MTRs on relatively low to average incomes by “targeting” cash transfers and intra-marginal lump sum gains from a higher zero rated tax threshold.⁹ The question that needs to be answered is the following: Is a rate scale which places higher MTRs across relatively low and average earnings less costly, in the true economic sense, than one that raises MTRs on top incomes? The answer depends on empirical estimates of compensated labour supply elasticities. We now discuss this issue in the context of the above results on rising inequality across primary incomes over the 12 year period, using the same data sets.

4 Efficiency cost: Labour supply incentives

When the primary cause of rising inequality is a rise in top incomes we might expect an increase in top tax rates. Instead we find persistent support for lower tax rates on top incomes¹⁰ based on the claim that there are efficiency gains from reducing labour supply disincentive effects. We investigate this claim by first computing percentile distributions of primary wage rates and hours of work drawing on the data for primary earners in the 2003-04 and 2015-16 samples. The profiles are plotted in Figure 4a. We see that the percentile wage profiles rise relatively slowly and are virtually linear up to the 80th percentile and then turn sharply upwards, reflecting the rise in top incomes over the period. In contrast, hours of work are relatively flat beyond the 10th percentile.

⁸ For further examples and critique of targeting, see Apps (2017, 2015) and Apps and Rees (2013).

⁹ For a formal exposition of the implications of “targeting” cash transfer, see Apps and Rees (2010).

¹⁰ As illustrated by arguments for the proposed reforms to the financial year 2024-25.

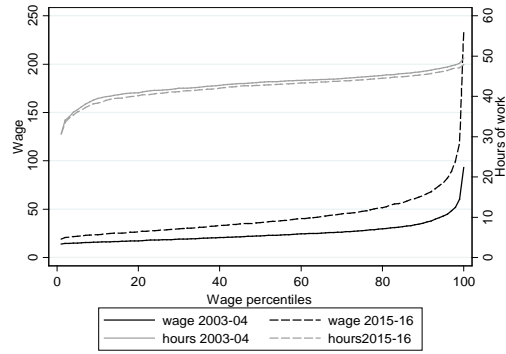


Figure 4a Hours and primary wage percentiles

Next we compute compensated labour supply elasticities across the primary wage distribution.¹¹ Given that wage rates rise steeply in the top percentiles while hours show almost no change, it is not surprising to find that the elasticity profiles tend towards zero in the top percentiles, as illustrated in Figure 4b. Given this result it cannot be argued that higher tax rates on top incomes are too “costly”. Moreover, the far higher elasticities across relatively low and middle wage percentiles suggest that high MTRs across this range of incomes may be far more costly in terms of labour supply disincentive effects.

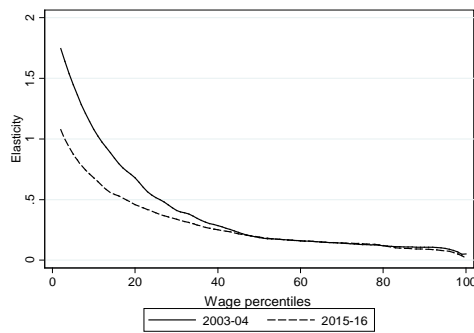


Figure 4b Labour supply elasticities

These results suggest that the optimal response to the significant increase in income inequality over the last 12 years, driven largely by the growth in the income share of the top few percentiles, is a shift towards a more progressive income tax system by raising top marginal tax rates, increasing the degree of differentiation and marginal rate progressivity in the upper half of the income distribution and lowering marginal tax rates

¹¹ For the formal model and empirical methodology on which the calculation of compensated elasticities is based, see Andrienko et al. (2016).

in the lower half of the distribution. Given the characteristics of the empirical wage and income distributions and labour supply elasticities, the actual changes over recent decades, with reductions in the tax burden on top incomes and considerable shifting of this burden on to the middle deciles of income, cannot be rationalised in a model that takes account of the empirical evidence on inequality and labour supply elasticities.

6 Heterogeneity in second earner labour supply and home production

It is evident from time use data that second earners working fewer hours in the market typically spend more hours in home production providing services for which there are close market substitutes, a clear example being child care.¹² As noted previously, an analysis of inequality based on household income implicitly sets the value of home production to zero and can therefore be expected to give seriously misleading results.

To illustrate, we select a subsample of couples with two dependent children, aged 14 years and under, from the 2015-16 HES sample. We first rank households by primary income and split the records for second earners in each quintile of primary income into two subsamples defined according to median second market hours. Second earners with hours below the median are labelled “H1” and those with hours above the median, “H2”. There are therefore 50 percent of H1 and H2 records in each quintile of primary income.

Table 5 reports the data means for primary and second incomes and for the hours of work per week of the H1 and H2 subsamples across the primary income quintile. Average hours for the H1 subsample rise from 6.58 to 10.94 per week, with an overall mean of 8.08 hours. In contrast, average hours for the H2 subsample range from 34.76 to 39.30 per week. The overall means are 8.08 and 36.63, respectively. The average number of children aged 5 years and under in the H1 subsample is 0.99 and in the H2 subsample, 0.83, and so the wide variation in hours cannot be plausibly attributed to demographic characteristics. Nor can it be attributed to variation in the second wage. Both groups are

¹² See Apps and Rees (2009, Ch 5).

found to have close to the same predicted second wage within each quintile.¹³

Table 5: Households ranked by primary income

Quintile	1	2	3	4	5	All
Primary income \$pa	48556	72670	93236	120795	243922	154494
Second income \$pa	21538	28917	33806	42619	67310	38809
H1 second hrs/wk	6.58	7.60	5.68	9.52	10.94	8.08
H2 second hrs/wk	34.76	36.95	36.31	35.73	39.30	36.63

Next we rank households by the PC's measure of equivalised household income¹⁴ and compare the resulting quintile distribution of the H1 and H2 subsamples with their equal ranking across primary incomes. The results are reported in Table 6. The reordering of the households according to a measure of inequality based on household income is illustrated graphically in Figure 5.

Table 6: Households ranked by PC's equivalised income

Quintile	1	2	3	4	5	All
Equiv. income \$pa	30207	45575	60200	79177	151492	73566
H1: quintile split %	73	57	54	40	31	50
H2: quintile split %	27	42	46	60	69	50

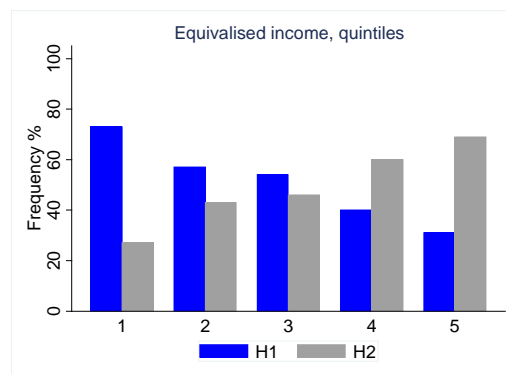


Figure 5 Reranking by equivalised household income

¹³ See Apps and Rees (2018) for a detailed analysis. The paper presents an optimal tax model which shows that the heterogeneity can be driven by small variation in the price of child care due to a high degree of substitutability between parental and market child care. Such variation is found to have little effect on a household's level of welfare but a high efficiency cost due to disincentive effects on second earner labour supply.

¹⁴ Obtained by applying the scale: 1 point for first adult; 0.5 points for each additional person aged 15 years or older; and 0.3 points for each child under 15 years. Equivalised household income = household income/2.1.

Table 7 compares the data means of H1 and H2 primary incomes across the distribution of equivalised household income (= household income/2.1). The gap between the means indicates the potential for a full time, low wage single earner family in quintile 1 to be ranked towards the upper half of the distribution when the non-participating partner also enters full time work for around the same income. A low wage family working 80 hours/week can be misrepresented as being as well-off as a single-earner family working 40 hours/week for the same household income.

Table 7: H1 and H2 primary incomes by household equivalised income

Quintile	1	2	3	4	5	All
Household inc. \$pa	63436	95708	126420	166270	318120	154490
H1 prim. income \$pa	57295	83237	110270	140102	277687	114987
H2 prim. Income \$pa	45594	62450	81042	103267	213830	116390

This type of ranking error underpins support for joint taxation¹⁵ or, in the case of Australia, a system of quasi-joint taxation introduced by replacing universal family allowances with joint income targeted payments, Family Tax Benefit Part A, by the Howard Government. Under the Australian system of quasi-joint taxation, second earners can face MTRs that are well above the top rate. As a result, a second earner in a family with a low to average primary income who goes out to work for a similar income can face an average tax rate (ATR) of around 50 per cent due to the withdrawal of FTB A and B, the LITO, ML and PIT scale.¹⁶ The well-established negative effect on second earner labour supply undermines the tax base for funding investment in education and child care, health and aged care and the infrastructure required for productivity gains, and is particularly counterproductive in the context of demographic change.

¹⁵ Joint taxation has long been recognised to be highly costly due to labour supply disincentive effects. See the seminal paper by Boskin and Sheshinski (1983).

¹⁶ See Apps (2017). Data means reported for the two main child care subsidies that applied prior to 2018-19, Child Care Benefit (CCB) and Child Care Rebate (CCR), indicate they made only a limited contribution towards offsetting high tax burdens on second earners (see p. 89).

7 Concluding comment

This paper has presented evidence indicating that inequality in Australia continues to rise and argues for a more progressive, individual based, income tax system in response. The PC's finding that inequality in Australia has not shown a significant increase in recent years is attributed to the underlying assumption of its methodology, that observed household market income, deflated by an equivalence scale, is a reliable indicator of a household's living standard. The assumption implies that in households where the income is earned by one partner, the second partner makes no contribution to the household's standard of wellbeing. This view is untenable when time use data show that a partner supplying little or no time to the market can nevertheless be heavily engaged in producing goods and services for household consumption that have close market substitutes.

Given the difficulty in obtaining a measure of the value of domestic output, together with the evidence on assortative matching, it is argued that the income of the primary earner, which is readily available, is a more reliable indicator a household's true productive ability, and therefore of its standard of living, than joint market income. The data on the distribution of primary earnings show that there has been a substantial increase in inequality, most markedly towards the top percentiles.

Results from an analysis of changes in the Australian income tax system indicate that reforms pursued by successive Australian governments over recent decades have exacerbated the rise in inequality by shifting the overall burden from the top to the middle of the wage distribution and towards employed partnered mothers. This outcome is attributed to successive increments in marginal tax rates at low to middle income levels and on second incomes, together with lower top taxes. Given the evidence on labour supply elasticities, these rate changes can be expected to have adverse effects on work incentives that cannot be offset by the supposed stimulative effects of lower tax rates at the top. A return to a simplified, more transparent and more progressive individual based income tax system is long overdue.

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