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## Gender equity in the tax-transfer system for fiscal sustainability

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### Abstract

In the 1980s the Australian Personal Income Tax was highly progressive and family payments were universal. The system ranked well in terms of gender equity and female labour supply incentives. During the Howard years the progressivity of the rate scale declined dramatically despite rising inequality in wages, income and wealth, and the individual as the unit of taxation for families was replaced by a system of “quasi-joint” taxation. As a result many partnered mothers as second earners now face effective marginal tax rates that are well above the top rate on personal income. At the same time, many face high child care costs in a largely privatised system. In addition, women, typically on lower pay, cannot gain equally from tax advantaged superannuation. This paper presents an analysis that highlights the counterproductive effects of the gender discrimination in these policies on female labour supply, household saving and the tax base, and argues for policies that promote gender equity for fiscal sustainability in an economy undergoing the far-reaching effects of demographic change.

**JEL Codes:** D31, H21, H24, H31, J16, J22

**Keywords:** Taxation, inequality, gender, household labour supply, child care

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## 1 Introduction

Australian Bureau of Statistics data for recent years show the persistence of a gender pay gap of around 17 to 18 percent.<sup>1</sup> A range of explanations have been offered. Among those frequently cited are gender differences in labour supply and career choices driven by a work environment that is insensitive to the needs of women with dependent children. The under-representation of women in leadership roles due to workplace practices is also a major concern. Less attention has been given to the contribution the Australian tax system makes towards widening the gender pay gap by widening the net-of-tax gender wage gap, with negative effects on the labour supply of the vast majority of low and average wage women.

One of the most extraordinary aspects of the ongoing and longstanding tax reform debate is the close to complete absence of any reference to the impact on women. Instead the focus of much of the discussion has been on lowering tax rates for top income earners, mostly males known to have labour supplies that are far less responsive to tax rate changes. Many women, together with low and average wage workers generally, now face higher marginal and average tax rates under an income tax system that has become much less progressive. Many partnered mothers as second earners face effective marginal rates that are well above the top personal income tax rate due to the withdrawal of family payments for dependent children on the basis of joint income. In this paper we argue that the tax system now in place after three decades of incremental reforms is a major determinant of the persistent gender pay gap and that these reforms are ultimately unsustainable due to their impact on female labour supply, productivity and the tax base.

Section 2 begins with an outline of the changes to the Personal Income Tax (PIT) rate scale and Low Income Tax Offset (LITO) and the resulting shift in the tax burden towards those in the middle of the distribution of income. The LITO is characterised as a tax policy instrument that serves the sole purpose of reducing the transparency of the distributional impact of the reforms in

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<sup>1</sup>The gap in 2014 was 18.8 percent and in 2015, 17.3 percent. See Workplace Gender Equity Agency (2016) and Australian Bureau of Statistics (2016).

an economy with rising inequality. Treasury's view of bracket creep<sup>2</sup> is discussed as an illustration of the underlying long term agenda of shifting the tax burden toward the "middle".

In section 3 we turn to the taxation of the family. The section first identifies the gradual replacement of universal family allowances by joint income tested payments as a non-transparent strategy for raising tax rates on working partnered mothers. This was done during a period in which the Government was simultaneously cutting taxes on top incomes. The section goes on to present data indicating a strong negative effect of this on female labour supply and household saving.

The final section discusses the challenges presented by demographic change arising from the fall in the Total Fertility Rate from around 3.5 in the early 1960s to 1.8 today, and argues that the current tax, child care and retirement incomes policy settings are unsustainable. The analysis illustrates the misleading views on tax reform generated by the prevailing Treasury approach of modelling the economy as if we lived in a world in which women do not exist.<sup>3</sup>

## **2 Taxation of individual incomes**

### **2.1 Income tax reform**

The progressive rate scale of the Personal Income Tax (PIT) applies to individual incomes and therefore has the advantage that women on lower pay face lower marginal tax rates (MTRs) and, in turn, lower average tax rates (ATRs), than men on higher pay. The system reduces simultaneously the net-of-tax gender pay gap and the overall degree of inequality. In addition, a progressive individual based system achieves efficiency gains by applying lower taxes on female labour supply known to be more responsive to changes in the net wage than male labour supply.

These advantages of a progressive, individual income based tax are well recognised. Yet recent decades have seen the transformation of the Australian income tax towards a far less progressive

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<sup>2</sup> See Treasury (2015) and Commonwealth of Australia (2015).

<sup>3</sup> See, for example, the computable general equilibrium modelling in the Treasury White Paper, Cao et al. (2015), and KPMG (2010).

system, and with a rate scale that is no longer *strictly* progressive. In 1985-86 the top rate was 60 cents in the dollar. By 1990-91 it had fallen to 47 cents, funded largely by accumulated revenue from bracket creep. The further accumulation of revenue from bracket creep over the next decade<sup>4</sup> subsequently funded major changes that gave the greatest gains to those in the upper percentiles of individual income. From 2004-05 to 2008-09 the top bracket limit rose from \$70,000 to \$180,000 and the top marginal rate fell a further two percentage points. At the same time, individuals on very low incomes gained from a rising zero-rated threshold with the gradual expansion of the LITO from \$243 in 2004-05 to \$1500 in 2010-11 and 2011-12. The withdrawal of the LITO raised MTRs across a relatively low band of income to deny the majority of taxpayers the lump sum gain from a higher threshold. The key role of the LITO was to make the higher MTRs and, in particular, the loss of strict progressivity, non-transparent.

Table 2.1 illustrates the change in the MTRs when the LITO is combined with the PIT rate scale in the 2015-16 financial year.<sup>5</sup> The LHS panel lists taxable income brackets and MTRs that apply to each under the PIT scale. The RHS shows the *true* rate scale when the LITO of \$445 is included. The LITO increases the zero rated threshold from \$18,200 to \$20,542 and its withdrawal at 1.5 cents in the dollar from \$37,000 raises MTRs by this amount until it is fully withdrawn at \$66,666, thereby denying taxpayers above this threshold the lump sum gain of \$445 from the higher zero rated threshold.

**Table 2.1 PIT + LITO (445) 2015-16**

PIT		PIT + LITO (445)	
Taxable income bracket	MTR%	Taxable income bracket	MTR%
\$0 - \$18,200	0.00	0 - 20,542	0.00
\$18,201 - \$37,000	0.19	\$20,543 - \$37,000	0.19
\$37,001 - \$80,000	0.325	\$37,001 - \$66,666	0.34
\$80,001 - \$180,000	0.37	\$66,667 - \$80,000	0.325
\$180,000 +	0.45	\$80,001 - \$180,000	0.37
		\$180,000 +	0.45

A LITO of \$445 is all that is required in the 2015-16 financial year to conceal to fact that the true rate scale is not strictly progressive. As noted above, in the 2010-11 and 2011-12 financial years the LITO was \$1,500. In those years the zero rate threshold was not the \$6,000 reported under

<sup>4</sup> Together with revenue from changes to Fringe Benefit Tax.

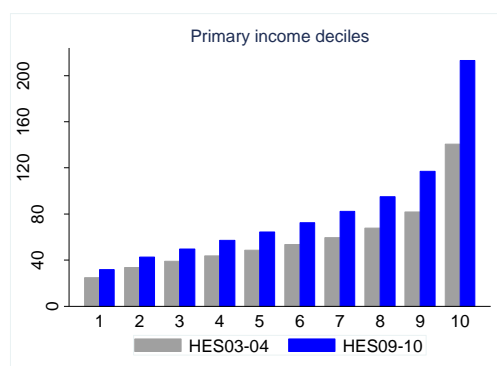
<sup>5</sup> The temporary Budget Deficit Levy is excluded.

the PIT scale, but \$16,000. It is clear that the changes in the LITO since 2004-05 have been carefully crafted to conceal the rise in MTRs on incomes towards average annual full time earnings when, at the same time, the Government was cutting taxes at higher income levels by lowering top rates and raising the thresholds at which they applied. The changes can be shown to have resulted in a significant shift in the tax burden from the “top” towards the “middle” during a period of increasing inequality.

## 2.2 Rising inequality

There is now an extensive literature on the rise in inequality of income and wealth in developed economies.<sup>6</sup> Apps and Rees (2013) present an analysis of changes in the distribution of income in Australia drawing on data for matching samples of couples selected from the two most recent Australian Bureau of Statistics (ABS) Household Expenditure Survey (HES), HES 2003-04 and HES 2009-10. The samples are selected on the criteria that both partners are aged from 20 to 60 years and the primary income partner is employed for at least 25 hours per week.<sup>7</sup> The results are summarized below.

The study finds a significant increase in inequality based on the change in the distribution of nominal primary private incomes over the six year period. Figure 2.1 shows graphically the decile distribution of nominal primary private incomes in each of the two survey years.<sup>8</sup> In



**Figure 2.1 Rising inequality**

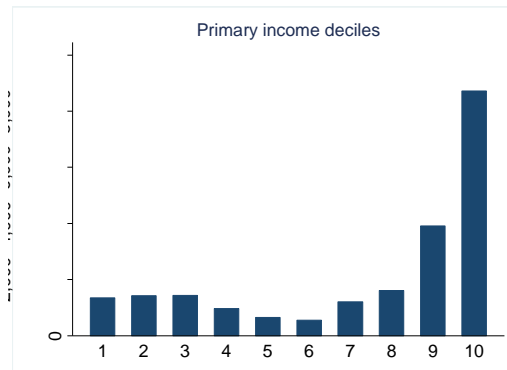
<sup>6</sup> See, for example, Atkinson (2015), Picketty et al. (2014) and Picketty and Saez (2003).

<sup>7</sup> The HES 2003-04 sample contains 2447 couple income unit records and the HES 2009-10 sample, 2408 records.

<sup>8</sup> The figure expands the quintile distributions in Table 2 of Apps and Rees (2013) into decile distributions.

decile 1 there is a 28.6 percent increase. This is followed by small increments up to decile 5, in which the rise is 32.7 percent. The percentage gains are slightly larger in the next three deciles. Thereafter the gains rise more steeply and quite dramatically towards the top decile. In decile 9 the nominal increase is 43.27 percent and in decile 10, 52.17 percent. The nominal rise in the top percentile is 71.02 percent.

Figure 2.2 plots the decile distribution of nominal tax cuts over the period. The profile reflects the concentration of billions of dollars of tax cuts in the top percentiles and the shift in the tax burden towards the “middle”. The lowest gain appears in decile 6, at less than \$600. In decile 10 the gain is around \$9,000 (40% of total) and in the top percentile, close to \$50,000.



**Figure 2.2** Shift in tax burden towards the “middle”

### 2.3 Bracket creep

The recent Treasury reports, **Re:think**<sup>9</sup> and the **2015 Intergenerational Report**<sup>10</sup>, argue for lower income taxes to protect low and middle income earners from the adverse effects of bracket creep. Both documents claim to show that: “...*bracket creep affects lower and middle income earners proportionally more than higher income earners*” by comparing average tax rates on three incomes in 2013-14 with the rates that will apply in 2023-24 if the incomes rise to expected levels and the PIT rate scale, LITO and Medicare Levy (ML) remain unchanged. The three

<sup>9</sup> See Treasury (2015).

<sup>10</sup> See Commonwealth of Australia (2015).

incomes are \$37,500, \$75,000 and \$150,000. The income of \$75,000 is selected as representative of average ordinary full time earnings in 2013-14, and so the lower and upper income figures represent half and twice average ordinary full time earnings.

By 2023-24 the three incomes are projected to rise to \$52,000, \$104,000 and \$208,000, respectively, as shown in Table 2.2a. The ATR is calculated to rise by 7.5, 4.7 and 3.8 percentage points from the lowest to the highest income. While the decline in the increments in the ATR as income rises does in fact demonstrate that lower and middle income earners are disadvantaged *proportionally* more than higher income earners, in terms of absolute burdens (not reported in either document) the reverse is the case. As shown in the last row of Table 2.2a, the additional tax burden on the income of \$208,000 is \$7904, which is over twice that of \$3900 on the income of \$52,000 and over 60 percent higher than the additional tax on the middle income.

**Table 2.2a Bracket creep 2013-14 to 2023-24**

Income in 2013-14	\$37,500	\$75,000	\$150,000
Income in 2023-24	\$52,000	\$104,000	\$208,000
ATR in 2013-14	10.3	22.7	30.5
ATR in 2023-24	17.8	27.4	34.3
ATR increment	<b>7.5</b>	<b>4.7</b>	<b>3.8</b>
Tax increment	<b>3900</b>	<b>4888</b>	<b>7904</b>

**Table 2.2b Bracket creep 2003-04 to 2013-14**

Income in 2003-04	\$24,500	\$49,000	\$98,000
ATR in 2003-04	15.4	23.7	35.1
ATR increment	<b>-5.1</b>	<b>-1.0</b>	<b>-4.6</b>
Tax increment	<b>-1913</b>	<b>-750</b>	<b>-6900</b>

In the light of Treasury’s new concern for the “middle”, it is of interest to compare the results with changes in the previous decade. Table 2.2b repeats the calculation for 2003-04 to 2013-14. In 2003-04, average annual earnings were around \$49,000, and so the matching incomes are \$24,500, \$49,000 and \$98,000. ATR increments over the decade are negative, with the lowest proportional gain for the middle income. In terms of absolute burdens, the gain for the middle income is \$750, a small fraction of the \$6,900 tax cut for the top income, which is in turn three times the gain for the lowest income. The ATR and tax increment profiles reflects a decade of rate changes that shifted the tax burden from top incomes toward the middle as indicated in



Figure 2.2. If we combine the two decades and repeat the calculation, we find that positive gains are limited to the top income.

Given this reform record, the rate scale changes announced in 2016-17 Budget can be viewed as consistent with a long term policy agenda of lowering taxes across the top percentiles of the distribution of income by shifting the absolute tax burden towards the middle. Raising the current upper bracket limit of \$80,000 to \$87,000 for the 32.5 cent rate of the PIT will provide a lump sum of \$315 for individual taxpayers above \$87,000 but no gain for taxpayers below the \$80,000 threshold. Removing the Budget Deficit Levy of 2 cents in the dollar will provide a rising absolute gain for those above \$180,000, the threshold for the Levy. Very few employed women will gain from the rate changes, and less than 50 percent of employed men have incomes of over \$80,000.

It is of interest to note that a lump sum gain of \$315 could have been extended to all taxpayers with an income above \$45,667 simply by limiting the withdrawal of the LITO to \$130.

Alternatively, leaving the Budget Deficit Levy in place, or possibly raising it, could have provided funding for increasing the zero rated threshold of the PIT scale openly and transparently to \$20,542 and eliminating the LITO altogether. This would have given a gain of \$445 to all those above the threshold, and returned strict progressivity to the rate scale.

## **2.5 Labour supply incentives**

It is frequently claimed that lower tax rates on top incomes under a less progressive rate scale will achieve efficiency gains from reduced labour supply disincentive effects. However it is difficult to support this view because neither cross-section nor panel data show a sufficiently large increase in top earners' labour supply with rising top wage rates.<sup>11</sup> Some studies circumvent this evidence by directing attention towards the relationship between earnings, rather than labour supply, and tax rates. However, as Piketty et al. (2014) argue, a fall in earnings or taxable income in response to a higher tax rate is largely a reflection of an increase in tax

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<sup>11</sup> See, for example, the profiles of earnings and hours of work based on the ABS HES data samples of couples in Apps and Rees (2013, Table 2.6). Studies for other countries report similar findings. See for example, Moffitt and Wilhelm (2000).

avoidance and evasion as income is underreported or diverted to forms which are subject to lower tax rates, or to weakened bargaining power and consequently a lower share of rents, for example of senior executives in diverting rents from company shareholders to themselves. The authors recommend that tax avoidance and evasion, which essentially are a symptom of inadequate tax system design, should be dealt with directly and not through the tax rate scale. Based on low estimates of labour supply elasticities at the top, they propose a higher top tax rate in response to rising wage and income inequality.

This recommendation is consistent with the results for the structure of optimal tax rates reported in Andrienko et al. (2016).<sup>12</sup> Drawing on survey data for Australia, the UK and US, the study constructs percentile distributions of primary wage rates and computes the profiles of labour supply elasticities across each wage distribution. Labour supply elasticities are found to be relatively high across the lower wage percentiles, to flatten across the middle and then to approach zero towards the top. As a consequence the optimal structure of MTRs becomes more progressive as inequality rises in each of the three countries.

The Andrienko et al. analysis highlights the importance of analysing the efficiency effects of a tax on individual earnings by drawing on a modelling approach that neither restricts the (compensated) labour supply elasticity to a constant, nor specifies a linear tax as the only available policy instrument, as in the Treasury White Paper, Cao et al (2015), and KPMG (2010, 2011). Using these assumptions in computable general equilibrium (CGE) models, the studies claim to show that a consumption tax is more efficient than an earnings tax, and assert that a progressive income tax rate scale is less efficient than both. The authors fail to acknowledge that when labour elasticities fall sharply with the wage and approach zero towards the top percentiles, as in the case of primary earners, a strictly progressive or *convex piecewise linear* income tax can be expected to dominate a linear income tax, and will also dominate a consumption tax because, in an economy in which most adults live in couple households, a consumption tax is constrained to a flat rate tax on joint consumption.

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<sup>12</sup> See also Apps et al. (2014).

### 3 Taxation of family incomes

#### 3.1 Family tax reform

The tax design problem for the two-parent family is more complicated than that for the single individual because of the need to consider the choice of tax unit in addition to the rate scale: should couples be taxed on the basis of their individual incomes or on their joint income? The two systems have very different outcomes for the distribution of the tax burden by gender, the net-of-tax gender pay gap and the overall distribution of the tax burden.

In choosing the optimal tax unit we need first to recognise that the economics of the two-parent family differs fundamentally from that of the single-person household. The presence of a dependent child, and especially a preschool-aged child, creates an additional work choice. One partner can work at home providing child care and domestic services as an alternative to working in the market and buying in care and related services. In effect, the family is a small economy engaged to varying degrees in untaxed household production and exchange, where the latter creates an implicit wage within the household.<sup>13</sup> Consequently we can expect the labour supply decision of the partner with the option of working at home to be more responsive to MTRs, and to the hourly cost of child care as an additional tax on her wage, than that of her partner.

An important property of a system based on the individual as the tax unit is that the marginal rates faced by each partner are independent. As noted in the preceding section, under a progressive rate scale a lower marginal tax rate applies to the income of the partner with the lower earnings and typically the more responsive labour supply. In contrast, under joint taxation the marginal tax rates faced by partners are interdependent: for example if the male partner as primary earner is fully employed, the question of whether the female partner will take a job depends on the change in the household's total tax bill that results, including any effect on the male partner's marginal tax rate of her increase in income, that is, it depends on the incremental

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<sup>13</sup> It is a mistake to label home child care and domestic work in the two-parent family as "unpaid". For a model of the household as a small economy with intra-household production and exchange/trade, see Apps (1982). There may also be lump sum transfers as in any small or large economy in which there is centralised decision making and a concern for equity (see Apps and Rees, 1988).

tax burden with respect to her work decision. The *effective* or *true* tax rate she faces can be well above that of her partner's rate.

The high efficiency cost of joint taxation due to the higher marginal rates on the second earner has been long recognised in the literature.<sup>14</sup> Nevertheless, over recent decades Australia has shifted from the individual as the tax unit for the family to a system of “quasi-joint” taxation. In the early 1980s families received universal child payments and paid tax on the basis of individual incomes under the PIT scale. During the Howard Government years, universal child allowances were completely replaced with payments withdrawn on joint income with the effect of raising MTRs on the second income to well above the top rate of the PIT scale.<sup>15</sup>

An argument in support of this direction of reform draws on the view that horizontal equity, defined in the Mirrlees Review<sup>16</sup> as taxing “*all families with the same joint income equally*”, requires joint taxation. An implication of this “principle” is that couples with the same total income are equally well off regardless of how much is earned by each partner - a high wage single-earner household is as well-off as one containing two low wage earners working twice the hours for the same total income. The view implies that home production (e.g., parental child care) does not contribute to family welfare. While widely rejected,<sup>17</sup> many (mostly male) economists continue to see non-market time as unproductive “leisure”. The Mirrlees Review recommends retaining the individual as the tax unit for the formal income tax system but basing the withdrawal of family payments on joint income, in other words, implementing a quasi-joint family tax system as in Australia.

A second argument in support of the same policy appears in the Henry Review.<sup>18</sup> The Review states:

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<sup>14</sup> The seminal paper is Boskin and Sheshinski (1983). For an overview of the literature, see Apps and Rees (2009).

<sup>15</sup> The first step towards joint income tested child payments was the introduction of the “Family Income Supplement” during the Hawke and Keating years. Family cash benefits under this reform were initially paid together with universal family allowances which had not been indexed for a number of years. In 2000 the Howard Government combined the two payments in Family Tax Benefit Part A and in subsequent Budgets completely eliminated universality.

<sup>16</sup> See Mirrlees et al. (2011).

<sup>17</sup> See, for example, Feldstein and Feenberg (1996).

<sup>18</sup> See *Australia's Future Tax System Review Panel* (2009).

*“The personal income tax structure should be the sole means of delivering progressivity in the tax system, supporting the more direct re-distributional role of the transfer system.”*<sup>19</sup>

and goes on to argue for income tested family payments:<sup>20</sup>

*“... because family payments in Australia are paid at relatively high rates to achieve adequate levels of support for low-income families, it would be extremely costly to provide universal payments. Phasing out payments using a low withdrawal rate can provide some level of assistance to most families without the full cost of a universal payment.”*<sup>21</sup>

The argument fails to recognise that it is the labour supply disincentive effects of the structure of marginal tax rates that determine the real *economic cost* of a tax system. Given the evidence on the second earner/female labour supply elasticities, a tax system that imposes effective rates on the incomes of second earners that are well above the top rate of the PIT scale applying to primary incomes cannot be less costly, in terms of the real economic cost, than a strictly progressive rate scale.<sup>22</sup>

If, for a given universal payment funded by the optimal marginal rate scale, the Government viewed the system as too costly, achieving a lower cost would require a reduction in the universal payment. However, as noted previously, the analysis would need to include the cost of child care as an additional tax on the second wage.

### **3.2 Marginal and average tax rates: 2015-16**

The change in the structure of marginal tax rates with the withdrawal of family payments on joint income is illustrated in Tables 3.1 and 3.2 for a family with two dependent children in the 2015-16 financial year. Table 3.1 reports the profile of MTRs and ATRs that apply under the PIT scale, LITO and Family Tax Benefit Part A (FTB-A) if the family is single income. Table 3.2 goes on to show the rates that apply to the second income in a family in which the primary income is \$60,000. While the tax system also includes the ML with exemptions and reductions based on joint income and Family Tax Benefit Part B (FTB-B) withdrawn on the second

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<sup>19</sup> Part 1, Overview, p 29.

<sup>20</sup> For a detailed analysis of the recommendations of the Henry Review, see Apps (2010).

<sup>21</sup> Part 2, pp 556-7.

<sup>22</sup> Similarly, the rhetoric of “middle class welfare” also reflects a misunderstanding of “cost” in economics.

income,<sup>23</sup> these elements are omitted in order to focus on the impact of income testing payments made in respect of each dependent child under FTB-A. The example assumes one child is under 13 years and the second is aged from 13 to 18 years.

The total FTB-A payment is \$12,238 based on the following 2015-16 rates:

**Maximum Rate per dependent child per year:**

Child under 13 years \$5,412.95

Child aged 13-19 years \$6,825.50

- withdrawn at 20 cents in the dollar on a family income above \$51,027 up to Base Rate.

**Base Rate per child** \$2,230.15

- withdrawn at 30 cents in the dollar on a family income above \$94,316.

**Table 3.1 Tax rates 2015-16: Single income 2-child family**

Taxable income bracket	MTR	TAX* \$	ATR*
\$0 - \$20,542	0.00	-12,238	-0.60
\$20,543 - \$37,000	0.19	-9,111	-0.25
\$37,001 - \$51,027	0.34	-4,342	-0.09
\$51,028 - \$66,666	0.54	4,103	0.06
\$66,667 - \$80,000	0.525	11,103	0.14
\$80,001 - \$89,918	0.57	16,757	0.19
\$89,919 - \$94,316	0.37	18,383	0.19
\$94,317 - \$109,183	0.67	28,344	0.26
\$109,184 - \$180,000	0.37	54,547	0.30
\$180,001 +	0.45	-	-

\*At upper income threshold

Up to the threshold income of \$51,027 for the Maximum Rate, MTRs are set by the PIT scale and LITO (see Table 2.1). Thereafter, with the withdrawal of the Maximum Rate at 20 cents in the dollar above this threshold the MTR rises to 54 cents in the dollar. At \$66,666 the LITO is fully withdrawn and so the MTR falls to 52.5 cents in the dollar. At the threshold income for the Base Rate of FTB-A the MTR rises to 67 cents in the dollar, the sum of the 37 cents PIT rate and 30 cents withdrawal rate of the Base Rate.

The key point to note is that the *true marginal tax rate* across each bracket in the second column of the table is the sum of the PIT rate and the withdrawal rates of the LITO and FTB-A. The third column reports the family's tax at the upper income threshold calculated as the sum of tax

<sup>23</sup> The Howard Government introduced FTB-B as a replacement for the Dependent Spouse Rebate (DSR) and set the payment at a significantly higher level than that under the DSR, with the effect of raising further the "selective" taxation of the income of the second earner.

payable under the MTR scale in the second column, net of \$12,238 as a *universal payment*.

Income testing the FTB-A payment does not remove its universality, it simply changes MTRs and lump sums. The lump sum for each taxpayer is calculated as the difference between:

- (a) the amount of tax that would be payable if the MTR on the last dollar earned applied to the taxpayer's total income and
- (b) the amount that is actually paid under the true rate scale plus FTB-A as a *universal payment*.

The importance of recognising that each individual faces two tax parameters, a lump sum and a MTR, lies in the fact that the former has income effects only, and therefore has no efficiency cost, whereas the latter can give rise to an efficiency loss due to the incentive effect of the distortion it creates in the relative price of home vs. market time. Thus the true economic cost of the tax system depends only on the latter.

While leaving the universality of FTB-A in place, targeting on joint income has, in addition to a high efficiency cost, serious distributional consequences, as illustrated in Table 3.2. The table lists the true MTR scale and ATRs faced by the second partner contemplating going out to work in a household with a primary income of \$60,000. She is denied a tax free threshold, and instead pays 20 cents in the dollar up to the limit of the true zero rated threshold of \$20,542. She then pays 39 cents instead of 19 cents across the next bracket. At \$34,317 her marginal rate goes to 49 cents in the dollar due to the withdrawal of the Base Rate of FTB-A at 30 cents in the dollar. At the \$37,000 bracket point her MTR goes to 64 cents.

**Table 3.2 Primary income = \$60,000pa: Tax rates on 2<sup>nd</sup> income**

<b>Taxable income, \$pa</b>	<b>MTR</b>	<b>ATR*</b>
\$0 – \$20,542	0.20	0.20
\$20,543 - \$29,918	0.39	0.26
\$29,919 - \$34,316	0.19	0.25
\$34,317 - \$37,000	0.49	0.27
\$37,001 - \$49,183	0.64	0.36
\$49,184 - \$60,000	0.34	0.36

\*ATR at upper income threshold

The ATR profile in the third column of the table gives an indication of the extent to which withdrawing family payments on joint income, by shifting the tax burden towards two-earner

households, shifts the burden towards partnered mothers as second earners. At \$50,000 the effective tax on the second income is \$17,991, which gives an ATR of 36 per cent, as shown in the table. If we include the ML and the 2015-16 FTB-B payment of \$3,139 for a family with 2 dependent children aged 5 to 18 years,<sup>24</sup> the tax on the second income rises to \$22,130 and her ATR, to 42.26 per cent.<sup>25</sup>

Even under an individual based income tax, with both partners facing the same rate scale and receiving the same non-means tested family payment, a two-earner family is disadvantaged relative to a single-earner family at any given primary income and wage pair because the former contributes more to the tax revenue that funds the family payment. For example, the contribution to tax revenue by a single income family with a primary income of \$60,000 under the PIT scale, LITO and ML is \$12,147. If the second partner switches from untaxed work at home to working in the market for an income of \$50,000, she contributes an additional \$8,547, which raises the two-earner family's total contribution to \$20,694.

To gain an insight into the potential losses in terms of both fairness and tax revenues under the current family tax and child care subsidy system, we draw on data for a sample of “in-work” two-parent families selected from the ABS Survey of Income and Housing (SIH) 2013-14 on the criteria that the primary income partner is employed for at least 25 hours per week, both partners are aged from 20 to 60 years and a dependent child is present.<sup>26</sup> The sample contains 2,436 records. The data on second hours indicate a very high degree of heterogeneity, with around a third of the sample (798 records) containing a second earner in full time work, more than a third (931 records) with a second earner in part time work, and the remainder (707) with only one partner in work. Relatively little of this heterogeneity can be explained by demographics or by the second wage. The average numbers of dependent children is 1.77 for the full time group, 1.94 for the part time group, and 1.95 for the non-participation group, while predicted gross wage rates tend to be marginally higher for the part time group than for non-participants or for those employed full time.

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<sup>24</sup> Note that when FTB-B is included, the universal transfer for a primary earner on \$60,000 rises by the FTB-B rate.

<sup>25</sup> The withdrawal of FTB-B at 20 cents in the dollar raises the MTR on the second income by that amount from \$5,402 to \$21,097.

<sup>26</sup> The sample is also limited to records with a primary income of at least \$10,000 pa.



To indicate the potential revenue losses from labour supply disincentive effects, we compare taxes on the second income for low and high second hours at a given primary income. We first rank all households by quintiles of primary income and then split each quintile into two subsamples defined with respect to median second hours of work.<sup>27</sup> Households with second hours below the median are labelled “H1” and those with second hours at or above the median, “H2”.<sup>28</sup> Table 3.3a reports the data means of second annual hours and earnings and the annual income tax on the second income, labeled “2<sup>nd</sup> Tax”, for each household group across the distribution of primary income. The gap between the H1 and H2 “2<sup>nd</sup> Tax” data means indicates the very significant losses to tax revenue associated with persistent zero or low second hours.

<b>Primary income quintiles</b>	<b>38601</b>	<b>61726</b>	<b>81663</b>	<b>109065</b>	<b>222523</b>
<b>H1: 2<sup>nd</sup> hours pa</b>	57	329	473	449	307
2 <sup>nd</sup> income \$pa	3297	6867	16357	17499	21902
<b>2<sup>nd</sup> Tax \$pa</b>	<b>114</b>	<b>699</b>	<b>1360</b>	<b>1642</b>	<b>3544</b>
<b>H2: 2<sup>nd</sup> hours pa</b>	1619	1936	2009	1971	1980
2 <sup>nd</sup> income \$pa	26527	40891	52208	62141	80170
<b>2<sup>nd</sup> Tax \$pa</b>	<b>2101</b>	<b>5283</b>	<b>8579</b>	<b>11487</b>	<b>17654</b>

<b>H1: FTB-A</b>	<b>10358</b>	<b>5618</b>	<b>2689</b>	<b>1308</b>	<b>136</b>
<b>H2: FTB-A</b>	<b>4505</b>	<b>1836</b>	<b>385</b>	<b>24</b>	<b>30</b>

Table 3.3b shows the impact of withdrawing FTB-A on joint income, holding demographics constant. The table reports the data means of family tax benefits for a subsample of families selected on the further criterion that there are two, and only two, dependent children aged 5 to 18 years present. The additional burden for the second earner in each quintile is given by the gap between the FTB-A payments for H1 and H2. Those who lose the most are H2 households in the lower half of the distribution – in other words, low and average wage working mothers. This outcome is concealed by studies that report results for the distribution of family tax benefits by household income, a practice that reflects the assumption that the non-participating partner in the H1 household does not contribute to family welfare.

<sup>27</sup> The median hours pa are 546, 1170, 1274, 1170 and 1066 across quintiles 1 to 5, respectively.

<sup>28</sup> This allows us to control for variation in the gross wage across employment status. Both groups are found to have close to the same predicted second wage within each quintile until towards the top percentiles. We can therefore conclude that the high degree of heterogeneity at a given primary income cannot be driven by the second wage alone. See Apps and Rees (2016) for an analysis of the sensitivity of second hours to the price of child care as an additional tax on the second wage.

The Child Care Benefit (CCB) and Child Care Rebate (CCR) need to be included in the calculation of the tax on the second income. For the demographic group represented in Table 3.3b the data means for both are relatively small, at \$51 and \$49 for the H1 household and \$115 and \$423 for the H2 household, for the CCB and CCR respectively. As we would expect, the CCB begins at a maximum in quintile 1 and falls to zero in quintile 5, while CCR has the reverse profile.

In contrast, the data means for CCB and CCR for “in-work” for families with a child of aged 0 to 4 are much larger for both household groups, at \$1166 and \$1177 pa for the H1 household and \$1611 and \$2852 for the H2 household, respectively. The gap between data means across quintiles indicate that, on average, the higher claims for CCB and CCR by the H2 household contribute relatively little to reducing the far higher income tax burden on the second earner in two-earner households. Again, there is wide variation in the distribution of both CCB and CCR within each quintile. Given that the price of child care can exceed \$100 per day this is not surprising. It is now widely recognised that the earnings of many partnered mothers, net of taxes *and* child care costs, can be negative. Thus, unless the family has access to informal care, such as grandparent or relatives, working full time using formal care may not be financially viable. These conditions can be expected to contribute significantly to the high degree of heterogeneity in second earner labour supply at a given primary income and second wage.

The preceding analysis highlights not only the loss of tax revenue due to labour supply outcomes under the current system of quasi-joint family taxation, but when viewed in the context of the income tax reforms outlined in Section 2, successive governments can be seen to have drawn heavily on the earnings of low to average wage second earners for funding tax cuts across the top percentiles of income.

### **3.3 Participation rates and life cycle labour supply**

While female participation rates have risen since the 1970s, Australian rates have been lower than those of many comparable OECD countries. As reported by Treasury in **Re:think**:

*“... the participation rate of women between the ages of 15 to 64 in Australia has increased from 65.3 percent in 2000 to 70.5 per cent in 2013, Australia is ranked 13<sup>th</sup> of the 34 OECD countries for female participation.”* (p. 44)

However, of greater concern is the far wider gap in labour supply. While the vast majority of males work full time, the majority of females in employment choose part time work, a decision which can allow a larger share of FTB-A payments to be retained and high child care costs to be reduced. In the sample used to construct Table 3.3a, the participation rate of the second partner is 71.0 per cent and, on the basis of gender, 73.6 per cent. The gap in hours is close to 50 per cent in both cases, and tends to persist in later years of the life cycle.

To assess more broadly the effects of high tax rates on partnered mothers as second earners, together with the high cost of child care in a largely privatised system, we need to organise the data according to a life cycle defined, not in terms of the age of “head of household” as in the economics literature, but across phases that take account of the age and presence of dependent children. Using data for the sample of “in-work” couples selected from the HES 2009-10 described in Section 2.2, Table 3.4 presents average male and female hours of market work for four life cycle phases as listed in the table. In the pre-child phase, which is represented by a relatively small subset of households in the sample, average female hours are over 85 percent of average male hours. In the preschool phase, female hours fall to around a third of male hours, and then rise to 55 percent in phase 3. In phase 4, when there are no longer dependent children present, female hours rise to just below 60 percent of male hours, an outcome that is typically interpreted in the literature as evidence of persistence throughout the life cycle of decisions made in the earlier child rearing phases.<sup>29</sup>

**Table 3.4 Life cycle labour supply by gender**

<b>Phase</b>	<b>Male hours</b>	<b>Female hours</b>
<b>1: Pre-children</b>	2213	1882
<b>2: At least one child of pre-school age</b>	2127	764
<b>3: Dependent child above pre-school age</b>	2103	1158
<b>4: Pre-retirement - no dependent children</b>	1803	1078

<sup>29</sup> The literature attributes this persistence to a loss of human capital. See, for example, Shaw (1994).

Time use data show that while the market hours of partnered mothers are at their lowest average in phase 2, their average total working hours are at a maximum when calculated as the sum of market hours and time allocated to child care and domestic work. Male total hours of work, while below female total hours, are also at a maximum in phase 2. In Apps and Rees (2010) the resulting life cycle profiles of time use are taken as evidence that parents are not using the capital market to smooth consumption but instead cut back on leisure, a decision that is consistent with an imperfect capital market in which the borrowing rate is well above the lending rate.

Household expenditure data indicate that the gap is negatively correlated with the ability of the family to offer collateral.

These capital market conditions call for a program of public investment in child care to reduce the negative effects on female labour supply and to provide all children equal access to early learning opportunities. A privatised system supported by price/cost subsidies is not a solution in this type of imperfect capital market, and in a market in which child care prices are driven by rising property values and rent seeking. Under the current policy approach, many parents will continue to have insufficient collateral to borrow at an affordable interest rate during the preschool years.

### 3.4 Household saving effects

When we turn to the data on household incomes and earnings we find, as we would expect, that median household income tracks median female earnings over the four life cycle phases. We also find that median household saving, calculated as the difference between disposable income and consumption expenditure, tracks female earnings, as indicated in Table 3.5. The profiles provide strong evidence that tax policies with a negative effect on female labour supply have a flow on negative effect on household saving.

**Table 3.5 Life cycle median household income, earnings and saving**

<b>Phase</b>	<b>H'hold income</b>	<b>Female earnings</b>	<b>Saving</b>
<b>1: Pre-children</b>	116141	47502	19760
<b>2: At least one child of pre-school age</b>	83824	6240	5824
<b>3: Dependent child above pre-school age</b>	110244	30212	9776
<b>4: Pre-retirement - no dependent children</b>	94744	26208	14040

The strong positive relationship between household saving and second earnings holds across the entire distribution of primary income. In Table 3.6 households are ranked by primary income quintiles and the subsample within each quintile is split into subsamples, again labelled H1 and H2, according to median second earnings. The table reports the data means of second earnings and regression estimates of household saving that control for the number and age of children, within each quintile.

**Table 3.6 2<sup>nd</sup> earnings and saving by primary income (2009-10 HES)**

<b>Primary income quintiles</b>	<b>34265</b>	<b>54701</b>	<b>71982</b>	<b>96648</b>	<b>201855</b>
<b>H1:</b> 2 <sup>nd</sup> earnings \$pa	330	9745	9494	16794	12835
Saving \$pa	-8227	331	4095	14268	54642
<b>H2:</b> 2 <sup>nd</sup> earnings \$pa	24425	37410	43001	60451	67281
Saving \$pa	297	9075	16167	30634	76973

The results reflect a second earner saving rate that is significantly higher than that of the primary earner. The aggregate level of saving across quintiles 2 to 4 by H2 households exceeds that of the top quintile of H1 households. Reforms that raise effective tax rates on partnered mothers as second earners in order to fund lower top tax rates or a revenue shortfall from lower taxes on saving or capital income can therefore be expected to have the perverse effect of reducing the overall level of saving as households switch from the H2 to H1 subsample.

The analysis serves to highlight the importance of recognising the role of women in the economy, and the irrelevance of Treasury’s CGE modelling approach that evaluates the economic cost of direct and indirect taxes on the basis of a model of the household as a single person with a single labour supply elasticity, and a single saving rate in a perfectly competitive capital market.

## **4 Demographic change and superannuation**

### **4.1 Demographic change**

Successive Intergenerational Reports (IGR) have focused almost exclusively on the potential for budget deficits resulting from a rising Aged Dependency Ratio (ADR), the ratio of people aged

65 and over to those aged 15-64. Dramatising the projected rise in the ADR in the coming decades is, however, misleading when a decline in the Total Fertility Rate (TFR) is a major cause of population ageing. The focus of attention needs to be directed towards the Total Dependency Ratio (TDR), the ratio of the *total* non-working to working age population, and this includes the Child Dependency Ratio (CDR), the ratio of those aged 0-14 to those aged 15-64. With the fall in TFR from 3.5 in the early 1960's to 1.8 today, the CDR is falling while the ADR is rising, due both to the fall in the TFR and increasing longevity. The historical graph of the overall TDR profile for Australia is U-shaped, with the rate in the early 1960s close to IGR projections for the middle of this century.

To assess the true effects of demographic change, the CDR and ADR need to be weighted by cost. It is straightforward to calculate that the resources required by a child are far greater than those required, on average, by a retiree. Every child requires at least a decade of parental and public investment in her/his education. Most importantly, every preschool child requires full time care. Time use data reveal that a child is extremely costly in terms of parental time. The decline in the CDR since the 1960s therefore creates the potential for a significant "social dividend".<sup>30</sup> Demographic change presents a **resource reallocation** problem, not a **saving** problem.

The key challenge is to put in place a set of reforms that allow the reallocation of parental time, primarily female labour, from the home to the market. Under the required reforms we would expect to see an expansion of the tax base that would provide additional revenue for productivity-improving investments in child care, education, health care and the economy's infrastructure.

The preceding analysis of life cycle profiles of female labour supply and the high degree of heterogeneity after the first child, indicate the limited extent to which this outcome has been achieved. With the rise in female participation and the growth in the tax base since the 1960s, one of the major and most obvious policy mistakes has been the failure to invest incrementally in a publicly owned, early learning child care system. Instead, from 2004 to 2008 we saw much of

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<sup>30</sup> There is also a social dividend from the increase in longevity. The gains from parental and public investments in child care and education are of longer duration.

the growth in tax revenues directed towards reducing the progressivity of the income tax, and over the last two decades we seen the gradual introduction of a system of quasi-joint taxation of families that shifts the tax burden from top incomes towards partnered mothers as second earners. This direction of reform, together with costly and limited access to child care, offers an explanation for Australia's poor performance in terms of female participation rates relative to comparable OECD countries and the persistent gender pay gap.

#### **4.2 Superannuation vs. the age pension**

We now turn to retirement incomes policy. Successive governments have focused on saving as the solution to the challenges presented by demographic change, and to this end have supported the expansion of Australia's tax advantaged defined contribution superannuation system. The aim of the system is said to be that of replacing the public, pay-as-you-go (PAYG), non-contributory Age Pension with a mandatory fully funded private system over time. It is argued that because of the rising ADR the Age Pension will become unaffordable. This argument is fundamentally flawed at several levels.

First, the argument fails to recognise that switching from a PAYG to a funded pension system cannot, *per se*, lead to an efficiency gain, as demonstrated by the famous Samuelson (1958) theorem for overlapping generation economies.<sup>31</sup> There is now a large body of research that draws on the Samuelson model to show that the switch to a fully funded scheme cannot be a solution to the problems raised by declining fertility and increasing ADRs.<sup>32</sup> If it were true that the ratio of the dependent population to working age population, weighted by cost, was necessarily rising, outcomes under a PAYG pension system and a fully funded system in a perfect capital market are identical. As shown by the Samuelson model, a negative interest rate in the latter case will achieve exactly the same outcome as the optimal changes to taxes and pension payments in the PAYG system. Moreover, a shift from PAYG to fully funding can make some members of the present working generation pay twice – they are forced to save for their own retirement while continuing to pay taxes that finance the pensions of the currently

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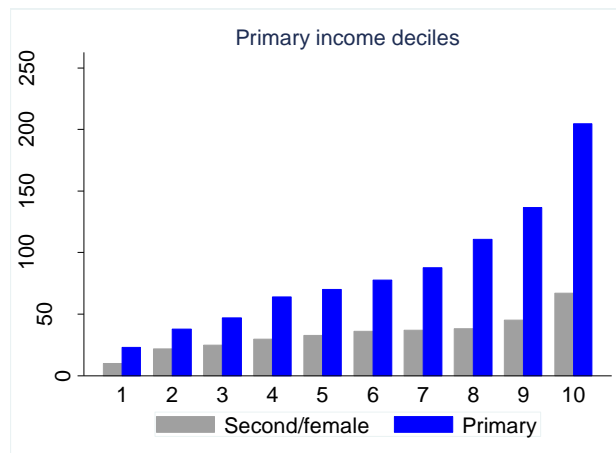
<sup>31</sup> Note that the theorem assumes a defined benefit system, that is, a true retirement income system.

<sup>32</sup> The studies include Breyer (1989) and Orszag and Stiglitz (1999).

retired. Under Australia’s tax advantaged defined contribution superannuation system, women on relatively low pay face a high probability of this outcome. Their taxes support current pension payments while their relatively low super savings on retirement may exclude them from an approximately equivalent payment under the Age Pension.

Second, and more fundamentally, Australia’s defined contribution superannuation system is not a retirement incomes policy. According to modern public economic theory, the key objective of a retirement incomes policy is the provision of insurance against longevity and aggregate (or social) risk in response to the inherent market failures and high transaction costs associated with the private provision of contracts to cover these risks. To deal with the issue of risk, we require a defined benefit system.

Australia’s defined contribution superannuation system, with employer contributions and entity earnings taxed at 15%, fails to provide insurance against longevity and aggregate risk. It is essentially a tax advantaged saving scheme that provides the greatest gains for those with the most income to save. The benefits of the tax concessions go predominantly to primary earners, as shown in Figure 4.1, which is based on the HES 2009-10 sample of “in-work” couples. The figure plots the distribution of primary and second earner superannuation balances by primary income.



**Figure 4.1 Primary/second earner superannuation balances by primary income**

Given the gender gap in both pay and labour supply, women as a group cannot gain from tax advantaged superannuation. The overall impact of the system is to widen the net-of-tax gender



pay gap due to the preferential tax treatment of those on higher pay. It is therefore something of a puzzle that the Report of the Senate Economics Reference Committee inquiry into the “Economic Security for Women in Retirement” supports an increase in the Superannuation Guarantee (SG) to 12 percent, and recommends that the planned gradual increase in the SG be implemented earlier than under the current timetable.

In addition to the limitations of the system with respect to equity, a significant loss is associated with privatisation due to high administrative costs (fees, commissions, advertising, excessive executive pay, etc.). It is recognised in the literature that administrative costs for public sector schemes are far lower. There is a clear trade-off: it is administratively less expensive to provide a uniform retirement program for all individuals than to have a large number of competing programs available, among which individuals can choose. It is generally accepted that the optimal policy is a universal public pension. The implementation of a universal pension is, however, likely to be strongly opposed by those who fail to understand the concept of *economic cost*, as discussed in the context of universal family payments in the preceding section.

As the limitations of the superannuation system become increasingly recognised, a frequent response is to shift the argument used to support much of its preferential tax treatment. Recent Budget estimates of the tax expenditure on superannuation concessions have exceeded \$30 billion based on the comprehensive income tax benchmark. This figure is rejected by those who argue that the calculation should take account of opportunities for tax avoidance, for example through the use of trusts and negative gearing, to give a more reliable lower estimate.

It has also been argued that much of the tax expenditure can be justified in terms of reducing the double taxation of saving. Under a comprehensive income tax saving is said to be taxed twice and that the ideal tax system would exempt capital income.<sup>33</sup> The proposition that the optimal tax rate on capital is zero contradicts the central tenet of modern tax theory, that the optimal tax rate on a given source of income, whether labour or capital, can only be determined on the basis of empirical evidence on distributional outcomes and behavioral effects because we are in a

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<sup>33</sup> See, for example, the *Retirement Income Consultation Paper* for the Henry Review (Commonwealth of Australia, 2008)

“second best” setting. Even if capital were highly mobile, which is very much open to question in a number of important contexts, this does not imply an optimal rate of zero.

If we attempt to move towards a low capital income tax regime, for example, by increasing mandatory contributions to superannuation, raising the GST, or cutting the company income tax rate, taxes elsewhere will have to rise. If the ongoing policy agenda persists, we can expect further shifts in the burden of taxation towards three groups, the “middle”, working married mothers, and the next generation, with negative effects on the tax base, productivity and growth.

## **5 Concluding comment**

This paper has drawn on survey data to show that reforms to the Australian tax/transfer system in recent decades have been directed towards shifting in the tax burden from the top percentiles of income towards those on average earnings, in an economic environment of growing inequality in wages, incomes and wealth. In addition, the simultaneous introduction of joint income tested family payments has shifted the tax burden toward working partner mothers, providing a further source of revenue for cutting top tax rates. Important consequences include a widening of the net-of-tax gender pay gap and a failure to promote the kinds of resource reallocations required for achieving fiscal sustainability in the face of demographic change.

Many of the policy views in recent Treasury reports indicate there is little to no improvement in sight. All too frequently recommended reforms, such as lower top tax rates, lower capital taxes and a tax-mix change, draw on economic models that are inconsistent with the evidence on behavioural effects, and which proceed as if we lived in a world in which women do not exist. Better economic models are readily available that would support a change in direction in the key policy areas considered in this paper: the restoration of a truly progressive, individual income based tax system with effective constraints on evasion and avoidance; investment in the development of a high quality, early learning public child care system; and recognition of the superiority of a publicly funded age pension system over a privatised and inequitably tax advantage defined contribution superannuation system.

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