

The high taxation of working families

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ABSTRACT

This paper reports the findings of an empirical analysis of the tax treatment of families. The results show that, after two decades of reform, the Australian family tax system now closely approximates one based on the combined income of parents rather than on individual incomes. The study also shows how the effective rate scale that now applies is no longer progressive but tends to exhibit an inverted U-shape, with very high rates on below average incomes. An important distributional effect of switching to the new system has been to shift the tax burden disproportionately towards low and middle-wage families working longer hours by having a second earner. The paper presents empirical evidence on the negative effects of the new rate structure on female labour supply, household saving, and fertility. The results suggest that two decades of tax reform and government neglect of child care have contributed to population ageing and restricted the growth of the tax base needed to avoid an ageing crisis.

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Introduction

Two decades of reform have seen major changes in the tax treatment of Australian families. In the early 1980s individual incomes were taxed at more progressive marginal rates and all families received a universal allowance for each child. The overall rate structure of the system was fundamentally sound, but there was an urgent need for base broadening measures to reduce revenue losses from the excessive use of tax minimisation schemes. Unfortunately, changes of the kind and on the scale required have never been at the centre of the tax reform agenda. Instead, the focus has been on switching towards a less progressive income tax schedule¹ and a highly targeted family benefit system. The period also saw a shift towards regressive indirect taxation and user charges for public services.

This reform agenda has had two important distributional outcomes. First, and most obviously, it has shifted the tax burden from families in which there is at least one high income earner to those on average earnings. Second, there has been a shift in the burden towards the second earner in families at the lower end and across the middle of the wage distribution. This effect is due primarily to the withdrawal of benefits based on family income and on the income of the second earner. A regime that bases eligibility for cash or in-kind benefits on these income measures raises *effective* tax rates on the incomes of second earners above the rates they would face as single individuals with the same incomes. A ‘tax-wedge’ of this kind is a defining feature of joint taxation (where taxes are levied on couples’ combined income) or, equivalently, of income splitting. Most Australian families can now be said to be taxed jointly even though, nominally, the country has a personal tax system based on individual incomes. In fact, according to a recent OECD (Organisation for Economic Cooperation and Development) study, Australia has the highest tax-wedge of comparable member countries (Jaumotte 2003).

These two effects together have produced a major shift in the tax burden towards families on low to middle wages working longer hours. In effect, these families have contributed disproportionately to financing gains at the top and the growth in benefits at the bottom needed to support a rising proportion of ‘working poor’ families (an outcome of ongoing labour market reforms). The evidence on behavioural responses to taxation indicates that this distributional result cannot be justified in terms of increasing incentives to work. Empirical research shows that high tax rates on second earners can have significant disincentive effects on female labour supply and household

¹ While the top rate is now 47 cents in the dollar, there continues to be strong support among politicians and the business lobby for a reduction to 30 cents in the dollar (in line with the company rate) without any matching emphasis on base broadening at the upper end of the distribution.

saving.² There is also evidence that high tax rates on partnered mothers, together with limited access to high-quality, affordable child care, reduces birth rates: raising the costs of having children creates a strong incentive to postpone childbearing.

The aim of this paper is to estimate the distributional impact of the family tax–benefit system now in place, together with changes contained in the 2004–05 Budget, and to investigate the effects of the rate structure on incentives to work. I will present effective tax rates faced by single and two-earner families as the hours of work of the second earner vary, taking account of personal income taxes, the Medicare Levy and Family Tax Benefit (FTB) (A) and FTB (B).

The paper is organised as follows. The next section explains in detail how the Medicare Levy and FTB (A) and FTB (B) change fundamentally the structure of effective tax rates on personal income faced by single and two-earner families, based on representative examples. The third section estimates the overall impact of the family tax system in the 2003–04 financial year using data for a sample of ‘in-work’ families drawn from the Australian Bureau of Statistics (ABS) 2000 Income Distribution Survey (see ABS 2003). The fourth section shows how tax rates will change with the introduction of the 2004–05 Budget measures on 1 July 2005. The fifth section evaluates the 2003–04 rate structure, together with the Budget changes, against conventional fairness and efficiency criteria. The sixth section considers longer term effects on female labour supply in a life cycle context and in an ageing population. I conclude by outlining alternative directions for reform.

Effective tax rates: examples

To illustrate the fundamental change in effective income tax rates introduced by the Medicare Levy and FTB (A) and FTB (B), this section computes the rates faced by two-parent families with one child aged 0–4 and a second aged 5–12. First, I show how the rates for these families change with income for those that are single-income. I then compute tax rates for two-income families. Since the effective tax rate faced by a second earner depends on the income of the primary earner, I take the case of families in which the primary earner has an income of \$31,755, the threshold at which FTB (A) begins to be withdrawn. All incomes are assumed to be earned.

² Empirical studies generally find that female labour supply is much more responsive to a fall in the net wage than male labour supply; for a survey, see Heckman (1993). The data also show that, other things being equal, household saving and female labour supply are strongly positively associated (Apps & Rees 2003).

Table 1. EMTRs: Income taxes and the Medicare Levy

Taxable income (annual)	MTR	Taxable income (annual)	EMTR
1	2	3	4
\$0 – \$6,000	0.00	\$0 – \$6,000	0.00
\$6,001 – \$21,600	0.17	\$6,001 – \$21,600	0.17
		\$21,601 – \$30,085	0.30
\$21,601 – \$52,000	0.30	\$30,086 – \$32,524	0.50
		\$32,525 – \$52,000	0.30
\$52,001 – \$62,500	0.42	\$52,001 – \$62,500	0.435
\$62,500 +	0.47	\$62,501 – \$85,337	0.485

Table 1 lists the income bands and marginal tax rates (MTRs) under the 2003–04 personal income tax schedule in columns 1 and 2 respectively. Columns 3 and 4 list the new set of income bands and effective marginal tax rates (EMTRs) after the introduction of the Medicare Levy. The normal Medicare Levy is 1.5 per cent. However, for a family with two children, there is an exemption up to a family income of \$30,085, beyond which the rate is 20 cents in the dollar until family income reaches \$32,524. At this point, the rate falls to 1.5 per cent.³

Table 2. EMTRs after adding in FTB (A)

Taxable Income (annual)	EMTR
1	2
\$0 – \$6,000	0.00
\$6,001 – \$21,600	0.17
\$21,601 – \$30,085	0.30
\$30,086 – \$31,755	0.50
\$31,756 – \$32,524	0.80
\$32,525 – \$47,134	0.615
\$47,134 – \$52,000	0.315
\$52,001 – \$62,500	0.435
\$62,501 – \$85,337	0.485
\$85,338 – \$92,637	0.785
\$92,638 +	0.485

³ There is also a surcharge for individuals and families on higher incomes who do not have private patient hospital cover, calculated at an additional 1 per cent of taxable income.

While the personal income tax has a simple structure, with just five income bands and a progressive schedule of marginal rates, with the introduction of the Medicare Levy the system is no longer simple. The key point to note is that the Medicare Levy not only has the effect of increasing the number of bands, it also changes the marginal rate schedule, from one that is progressive to one that has an inverted U-shape. The highest marginal rate no longer applies to the top income band, but to a middle band. There is also a shift in the tax base from individual to family income, because the exemption level is based on family income. As we will now see, FTB (A) has similar effects.

Table 2 lists the more complicated set of income bands (column 1) and the EMTRs that apply with the introduction of FTB (A) (column 2). The maximum rate of FTB (B) for a family with a child aged 0–5 is \$2,920. Single-income families receive the maximum rate, so the benefit affects their average tax rates (ATRs) but not their EMTRs.

The maximum rate of FTB (A) is \$3,401.80 for a child aged 0–12, and the base rate is \$1,095 for each child (aged 0–18). Benefits up to the base rate are withdrawn at a rate of 30 cents in the dollar on every dollar above the lower family threshold of \$31,755. For the family with two children aged 0–4 and 5–12, the income limit at which the benefit, excluding the base rate, is completely phased out is \$47,134.00. As the table shows, EMTRs up to the \$31,755 threshold are unchanged. But from this point on up to \$47,134, families face EMTRs of 80 and 61.5 cents in the dollar, due to the withdrawal of FTB (A) above the base rate. Like the Medicare Levy, FTB (A) undermines marginal rate progressivity by raising effective rates across middle income bands. A revenue neutral reform with this new EMTR schedule increases the tax burden, at least in relative terms, across the middle of the income distribution among single-earner families.

Note that for the two-child family, there is a drop in the EMTR, from 61.5 per cent to 31.5 per cent, at \$47,134. This will disappear for larger families, for whom the withdrawal of the FTB (A) continues to the threshold at which the base rate is withdrawn. In these cases, the EMTR schedule will exhibit an entirely inverted U-shape.⁴

Table 3 shows the effective tax rates faced by parents in a two-income family where the income of the primary earner is \$31,755 for full-time work and the income of the second earner is \$25,000 for full-time work. Columns 1 and 2 list the income bands and the respective EMTRs that the primary earner would face under the 2003–04 system, if the family remained single income. The rates are the same as those in Table 2 for a family with an income of up to \$31,755. FTB (A) and FTB (B) come to \$9,723.60 and income taxes and Medicare Levy come to \$6,032.30, so the primary earner receives a transfer of \$3,691.30, reported as a negative ‘net tax’ in the table.

⁴ An earned income tax credit (EITC) program of the kind usually proposed achieves the same effect for all families. For a critique, see Apps (2002).

Table 3. EMTRs for primary and second earners

Taxable income (annual)	EMTR: Primary earner	EMTR: Second earner
1	2	3
\$0 – \$769	0.00	0.50
\$770 – \$1,824	0.00	0.315
\$1,825 – \$6,000	0.00	0.615
\$6,001 – \$11,558	0.17	0.785
\$11,559 – \$15,379	0.17	0.485
\$15,380 – \$21,600	0.17	0.185
\$21,601 – \$25,000	0.30	0.315
\$25,001 – \$30,085	0.30	–
\$30,086 – \$31,755	0.50	–
Net tax	–\$3,691.30	\$11,723.13
ATR %	–11.62	46.89

Column 3 shows the EMTRs faced by the second earner, typically the mother, on going out to work. With an additional income of \$15,379 she loses FTB (A) above the base rate, which amounts to \$4,613.60. She also loses all of FTB (B). The maximum rate of \$2,920.00 is reduced by 30 cents in each dollar of the secondary earner's income above \$1,824.00, which means it is entirely phased out at an income level of \$11,558. In addition, the second earner pays the remainder of the claw-back of the Medicare Levy exemption on her husband's income, which is \$142.53, as well as her own Medicare Levy and income taxes. Her total loss of benefits and taxes amounts to \$9,501.25, so her net income is only \$5,877.75. Her ATR is 61.78 cents in the dollar.

If the second earner increases her hours of work to earn \$25,000, she pays \$4,047 in income taxes and Medicare Levy on her own income. With the withdrawal of FTB (A) and FTB (B) and the Medicare Levy claw-back on her husband's income, her effective net tax is \$11,723.13. Her ATR is 46.89 cents in the dollar.

Effective taxes at these levels leave the mother working full-time with relatively little net income to pay for child care using government approved care. If she finds care in the informal sector she gets no benefits—almost two thirds of working mothers are in this situation. If she claims Part Rate of Child Care Benefit, this will cover less than the tax she pays on the additional income earned to pay for child care. If she stays home, she can provide full care herself, untaxed.

The structure of effective tax rates illustrated by these examples for single and two-earner families drives many of the results in the following sections. The comparison between the single and two-earner families with the same primary income also serves

to highlight the fact that with children present, home production is an alternative to market work. Market child care and related services are costly, and their implicit price may be lower when produced at home. As the data below will show, families make diverse choices in this respect. As a consequence, household income does not provide a reliable measure of family living standards, because it omits the contribution of home production. Studies presenting results for the distributional effects of a policy change with respect to household income can therefore be expected to give entirely misleading results.⁵ Primary income, which is used below, is likely to be a more reliable measure of family living standards.

The 2003–04 family tax system

The analysis of the 2003–04 family tax system in this section is based on data for a sample of 1098 ‘in-work’ two-parent families selected from the ABS 2000 Income Distribution Survey (IDS) on the following criteria: earnings are principally from wages and salaries; incomes are non-negative; and the primary earner is in full-time work.⁶ All incomes are indexed to the 2003–04 financial year.

The sample is split into three groups:

- one-earner;
- two-earner, second earner part-time (PT); and
- two-earner, second earner full-time (FT).

The split is defined according to hours worked by the second earner, the parent with the lower earned income.⁷ The one-earner group contains all records in which the second earner reports zero hours or an earned income of less than \$2,000. The two-earner PT group includes families with a second earner working less than 30 hours per week, and the two-earner FT group includes those families in which the second earner works for 30 hours or more per week.⁸

⁵ The studies are particularly misleading because, as the data show, primary earnings are strongly concentrated around the median, so a single-income family with earnings in, say, the second quintile, can be reranked to the fourth quintile if the second parent switches from home to market work. In effect, a household income ranking confuses low-wage two-earner families working long hours in the marketplace with much higher wage single-income families working fewer market hours and longer hours at home. For a detailed analysis, see Apps (2002).

⁶ Records for which the annual income of the primary is less than \$5,000 are excluded.

⁷ The male partner is the primary earner in 91 per cent of families in the sample. As we would expect, the percentage of families with a female primary earner falls as primary income rises.

⁸ The three groups are of almost equal size.

Table 4. 2003-04: Families in work

Quintile	1	2	3	4	5	All
Full sample						
1 Primary income \$pa	29,865	43,591	56,028	70,084	137 413	67,515
2 Primary hours pa	2,261	2,233	2,342	2,372	2,451	2,334
One-earner						
3 Tax \$pa	-2,611	4,287	9,577	15,942	48,907	15,732
4 ATR %	-8.74	9.83	17.09	22.75	35.49	23.10
Two-earner PT						
1 Second income PT \$pa	14,644	18,423	20,670	20,424	21,288	19,173
2 Second hours PT	546	689	849	832	757	737
3 Tax \$pa	6,415	5,941	6,172	6,407	7,071	6 423
4 ATR PT %	43.81	32.25	29.86	31.37	33.30	33.50
Two-earner FT						
1 Second income FT \$pa	25,106	30,868	40,038	38,203	50,554	37,801
2 Second hours FT pa	2,031	2,098	2,074	2,096	2,109	2,085
3 Tax \$pa	8,714	9,196	12,441	12,763	17,632	12,411
4 ATR FT %	34.71	29.79	31.07	33.41	34.88	32.83

Table 4 presents the income and tax profiles of families across a quintile ranking by primary income, defined as the private income that the family would have if the second earner withdrew from work.⁹ Taxes are calculated as the sum of income taxes and the Medicare Levy, net of FTB (A) and FTB (B).¹⁰

For ease of presentation, the first two rows of the table report quintile data means for primary income and hours worked by the primary earner for the full sample.¹¹ The

⁹ The three groups are distributed relatively evenly across a quintile ranking defined on this income variable because they have similar wage rates and demographic characteristics. The only exception is that one-earner families tend to be over-represented in quintile 1, where there is also a higher percentage of families with a female primary earner, as we would expect.

¹⁰ The analysis does not incorporate the (means-tested) Child Care Benefit. Its availability has been strictly limited by capping of places in formal care, and it is used extensively by one-earner families. It is therefore unclear how this benefit is distributed. HES data for 1998 do not appear to reconcile with current expenditure.

¹¹ The private incomes and hours worked by primary earners do not differ significantly across the three groups in each of the quintiles.

third row shows the amount of income tax (including the Medicare Levy), net of family tax benefits, that families would pay if all had only one earner (that is, if all second earners withdrew from work). The next row reports the amount as an ATR of primary income. The quintile profile of ATRs suggests that the tax system is strongly progressive, rising from a negative rate of 8.74 per cent in the bottom quintile to a positive rate of 35.39 per cent in the top, with respect to primary income.¹²

The next section of the table presents results for the two-earner PT group of families and the final section, for the two-earner FT group. Within each section, row 1 gives the data means for the second earner's income and row 2, for hours worked by the second earner. Row 3 reports the additional tax paid on the second earnings and row 4 presents the amount as an ATR on the second earner's income from work. The profiles of ATRs for both groups are in stark contrast to the profile for primary income. The highest ATR of 43.81 per cent appears in the bottom quintile for the PT group, and ATRs for second earners average over 33 per cent.

The higher ATRs on the incomes of second earners in the lower quintiles are due to the withdrawal of FTB (B) on the income of the second earner. The rates are then sustained at around 30 per cent across the middle of the distribution by the withdrawal of FTB (A) on combined family income, as illustrated in the preceding section. Large increases in these benefits, which were part of 'A New Tax System' (ANTS), together with tax cuts for families with at least one high-income earner, were introduced in the package of tax changes in 2000. The changes contributed significantly to increasing ATRs on the second income, with two important effects.

First, the package increased the tax-wedge between second earners and single individuals, apart from the very few with high incomes, and therefore moved Australia further towards a family tax system based on joint income. Most families now face a tax-wedge that is much larger than the estimate reported in the OECD study by Jaumotte (2003). For example, a second earner with an income of \$20,000 would, as a single individual, face a tax bill of \$2,680 pa, or an ATR of 13.40 per cent. Instead, with an average income of \$19,173, second earners in part-time work face an effective ATR of 33.50 per cent. This yields an estimate of around 2.5 for the 'second earner/single individual' tax rate ratio, which is considerably higher than the estimate of 1.4 obtained by Jaumotte for a two-child family.

Second, by increasing the effective tax burden on second earners, the package reinforced the role of the earnings of married mothers as an important source of revenue and/or cost saving for government. We can see this from the final column of Table 4. If all second earners withdrew from work, tax revenue from the families

¹² Note that extending the taper is costly. Since primary earners only can gain, the additional cost is financed disproportionately by second earners facing higher ATRs.

represented by the sample would fall by over a third, due to the loss of revenue of \$6,423 per family collected from the two-earner PT group and \$12,411 per family collected from two-earner FT group.

In effect, by raising taxes on working married mothers, the government has been able to collect additional revenue for the purpose of funding tax cuts at the top and larger family payments. This approach to tax reform, with its emphasis on shifting towards a more highly targeted family support and welfare system and a less progressive income tax, began in the 1980s despite extensive criticism by economists, and has been pursued ever since. The approach has allowed successive governments to avoid reforms that would correct the core problem with the Australian tax system: the excessive use of tax minimisation schemes.

The 2004–05 Budget changes

The 2004–05 Budget contains changes to the withdrawal rates of FTB (A) and FTB (B) and to income tax thresholds that can be expected to alter the results in the preceding section. I now estimate the tax and ATRs profiles that ‘in-work’ families will face after 1 July 2005, due to the following:

- FTB (A) and FTB (B) changes: The 2004–05 Budget specifies a reduction in the withdrawal rate between the maximum and base rates of FTB (A) and in the withdrawal rate of FTB (B), from 30 per cent to 20 per cent. There is also an increase in the income threshold for FTB (B) to \$4,000. These changes take effect from 1 July 2004.
- Income tax threshold changes: The Budget provides for an increase in the income threshold for the 42 per cent tax rate to \$58,001 in 2004–05 and \$63,001 in 2005–06, and an increase in the income threshold for the 47 per cent tax rate to \$70,012 in 2004–05 and \$80,001 in 2005–06.

Table 5 presents the tax and ATR profiles that families will face after 1 July 2005,¹³ incorporating these changes. Results are reported for the three family groups. Row 1 presents the average tax liabilities by quintiles of primary income for one-earner households. The change in tax is shown in row 2. The largest average gains go to quintiles 4 and 5. Nevertheless, the changes make the tax–benefit system more progressive in terms of proportional rates with respect to primary income.

¹³ As in Australian Government (2004a), the FTB calculations do not include indexation increases that apply from July 2004.

Table 5. 2005–06: Families in work

Quintile	1	2	3	4	5	All
One earner						
1 Tax	-3,908	2,370	7,399	13,079	46,070	13,505
2 Tax change	-1,297	-1,917	-2,178	-2,863	-2,837	-2,227
3 ATR %	-13.08	5.44	13.21	18.66	33.53	19.85
Two earner PT						
1 Tax	5,693	6,102	6,467	6,489	7,364	6,468
2 Tax change	-722	161	295	82	293	55
3 ATR PT %	38.88	33.12	31.29	31.77	34.59	33.74
Two earner FT						
1 Tax	8,613	9,709	13,234	13,278	17,569	12,776
2 Tax change	-101	513	793	515	-63	365
3 ATR FT %	34.30	31.45	33.05	34.76	34.75	33.80

The results for two-earner families show the amount of tax effectively paid by the second earner. All pay more tax, and therefore face higher ATRs, except for those in quintile 1 and the FT group in quintile 5. According to the Budget papers, the aim of reducing the withdrawal rate of FTB (A) above the base rate, and of FTB (B), from 30 to 20 cents in the dollar is to lower EMTRs on the second earner in part-time work. However, the results for the PT families across quintiles 2 to 5 show that the measures have not achieved this outcome. The explanation for the higher rates is that the lower withdrawal rate of FTB (A) extends the taper across a wider band of second incomes. Under a rate of 30 cents in the dollar, FTB (A) increases the effective marginal tax rate of fewer part-time second earners. The results for full-time second earners are as we would expect. The changes shift the tax burden from the primary to the second income earner within households across the middle of the distribution of primary income.

The \$37 billion spending on tax cuts, family assistance and superannuation measures in the 2004–05 Federal Budget is described by the Treasurer as ‘a further major instalment in the ongoing reform of the Australian family assistance and tax system to help families raise their children, help them to balance their work and family responsibilities and improve rewards from work’ (Australian Government 2004a, p. 2). The results in Table 5 show that the additional family assistance and tax cuts are certainly consistent with the Government’s ongoing tax reform agenda—they are essentially more of the same. The major share of spending goes to families in which one parent withdraws from the workforce or opts for a minimal workforce attachment, and the largest gains go to those in the upper two quintiles, due the

income tax cuts that apply above \$52,000 annually. This dual shift in the tax burden has, as I noted earlier, been a priority of the Howard Government since it gained office, and was a central aim of the family tax changes in the 2000 ANTS package.

Assistance for low and middle-wage families facing the greatest difficulties in trying to balance work and family responsibilities—those in which both parents have a significant workforce attachment—receive relatively little to no additional assistance. The 2004–05 Budget changes are designed to ensure that gains for two-parent families decline as the income of the primary earner approaches the middle of the wage distribution and as the labour supply of the second earner becomes significant. If, for example, a family has one child under 5 and each parent earns \$45,000 annually, their gains are zero. A family that can earn the same joint income with only one parent in work gains a \$2,195 tax cut. A further striking feature of the Budget is the minimal spending on additional child care places.

Other household groups with zero gains include singles who earn less than \$52,000 and couples without children in which both partners earn less than \$52,000 annually. These groups, together with two-earner families across the middle of the wage distribution, in effect fund family assistance for one-earner families and the tax cuts at the top. It is important to see the distributional outcome from this perspective, because the \$37 billion of spending on ‘more help for families’ comes from the pockets of all Australians. Although according to the Budget papers no one loses, those who gain relatively little, or nothing at all, effectively suffer losses.

Is the system fair and efficient?

The answer to this question is an unequivocal ‘No’. A central assumption of public economics is that redistribution matters and, therefore, that achieving a fairer distribution of living standards is a fundamental consideration in tax design.¹⁴ For efficiency, tax rates need to be structured to minimise changes in family decisions about labour market participation and hours of work, in response to changes in net-of-tax wage rates or prices, in achieving a given redistributive outcome.

A tax–benefit system with the rate structure described in the preceding sections meets neither of these criteria. Not only is the system open to strong criticism on distributional grounds, but its effective rate structure can be expected to have significant and large negative effects on female labour supply, due to high effective rates on the second income and limited access to affordable child care.

¹⁴ If distribution did not matter, governments could simply impose poll taxes, which, by definition, are non-distortionary. Governments that have attempted to do this have usually lost office. For a formal, but accessible, exposition of these issues, see Stiglitz (2000).

Efficiency effects

Empirical studies find that the labour supply of married women tends to be much more responsive to a change in the net wage than the labour supply of prime aged men. This is easy to understand. As noted previously, when there are young children present, the output of household production (or domestic work) becomes a close substitute for market output. The most important example of this is child care, which can be provided at home or bought on the market. If the second earner, typically the mother on a lower wage, faces a high effective tax rate and quality child care is not available at an affordable price, she is likely to switch from market to domestic work. This substitution contracts measured GDP (Gross Domestic Product) and expands the domestic sector. Jobs go from the marketplace to the home. Employment and the tax base of the economy contract.

For efficiency, as already noted, tax rates need to be designed to minimise this sort of behavioural response. In other words, consistent with the well-established result known as the Ramsey rule, for efficiency, tax rates should vary inversely with (compensated) price elasticities. High tax rates on second incomes under a joint tax system are inconsistent with the Ramsey rule. In contrast, the rate structure of a progressive individual income tax complies with the rule, by placing lower rates on the incomes of second earners known to have more responsive labour supplies: individual taxation has been shown to be superior to joint taxation on efficiency grounds.¹⁵

Distributional effects

A longstanding argument in support of joint taxation, and therefore of higher tax rates on the income of second earners, is based on the idea that horizontal equity requires the equal taxation of households with the same combined income. The idea is fundamentally flawed, because a parent who switches from working in the marketplace to working at home on the arrival of children is switching to the home production of close substitutes for market output. If she works in the marketplace she is taxed on her income, and she is also taxed on the market goods she buys with her income. By switching to home production she avoids income taxes and the GST. Thus if the single-earner household pays the same amount of tax as the two-earner household with the same joint income, there can be a severe problem of inequity.

Note that this is also a limitation of a flat rate tax, but to a lesser degree. To see this, consider the case of two families with the same wage rates, non-labour incomes and demographic characteristics. If one family chooses to have one full-time earner and the other two, the latter contributes twice as much to tax revenue. If the revenue is

¹⁵ That individual taxation is more efficient than joint taxation (on Ramsey principles) was first established by Boskin and Sheshinski (1983).

used to finance a universal family payment (that is, we have a simple negative income tax), the two-earner family effectively subsidises the transfer to the one-earner family. Switching to a joint tax or family payment system increases the size of this subsidy by raising effective tax rates on the second earner. In contrast, a progressive individual income tax reduces the size of the subsidy, by lowering effective tax rates on the typically lower-income second earner. It is precisely because a two-earner family pays less tax than a one-earner family with the same joint income under a progressive individual income tax that it can be a fairer system.¹⁶

There is a further point to note. It is usual to define a joint tax (or income-splitting) system as one under which incomes are taxed at progressive marginal rates. When joint taxation is introduced via a system of family benefits that are withdrawn on combined income, as in Australia, it produces an inverted U-shaped schedule of EMTRs. The highest EMTRs apply in the middle of the distribution of combined income, not at the top, as illustrated in the second section above.¹⁷

A clear result of the tax cuts and additional family assistance in the 2004–05 Budget is to move the family tax–benefit system closer to one of joint taxation. Two strategies are used to close the gap between the amounts of tax paid by one and two-earner families with the same joint income. The first is to limit the tax cuts to individual incomes above \$52,000. This reduces the progressivity of the personal income tax, shifting the overall burden to lower wage workers—and, therefore, to most working women. Second, the FTB changes are structured to redistribute the tax burden towards two-earner families that have a more equal intra-family income split. The effects of both these strategies are evident in the cases of two-earner families with a 50–50 income split where the individual incomes are too low to gain from the tax cuts but the joint incomes are too high to qualify for additional family tax benefits.

Even at joint incomes below the withdrawal thresholds for the base rate of FTB (A) there is a shift in the tax burden towards two-earner families. For example, in 2003–04, the net tax paid by a single-income family on \$60,000 with one child under 5 was \$12,017. A family with the same joint income and in which each parent earns \$30,000 from full-time work pays \$10,149 in tax. The effective tax on the second earner's income is \$10,849, and her ATR is 36.16 per cent. From 1 July 2005, the single income family's tax will fall by \$1,560, while that of the dual income family will fall by only \$600. With a net income of less than \$20,000, the second earner will not be eligible for the full amount of Child Care Benefit (due to its withdrawal on joint

¹⁶ For a detailed technical analysis of these issues, see Apps and Rees (1999).

¹⁷ As noted previously, the same type of inverted U-shape EMTR schedule can be achieved by an EITC program (see Apps 2002).

income). From this example it is easy to see that it can be far more cost effective, at least in the short run, to switch to work at home.

Under this kind of tax reform, two-earner families across the middle of the distribution of primary earnings are again effectively funding tax cuts at the top, as well as compensating for revenue losses due to tax minimisation schemes at the upper end of the distribution of earnings and wealth. Obvious positive distributional outcomes of the 2004 Budget are the gains for families in quintile 1 and for families in the middle of the wage distribution who have a less significant workforce attachment. But before we applaud these outcomes, it is important to keep in mind how they are being funded.

Female labour supply and fertility

An insight into the potential negative impact of family tax policy on female labour supply can be gained by comparing the decline in the fertility rate in recent decades with the growth in the female labour supply over the same decades. A priori, we would expect to see the decline in fertility to be associated with a matching increase in female labour supply, due to the fall in demand for domestic work and child care with declining fertility. This has not happened in Australia, a fact that is often obscured by reference to the overall female participation rate, which has increased quite dramatically.

That this reference is misleading is evident from the fertility, participation, and employment rates for 1970 to 2000, shown in Table 6. Over this period the decline in the fertility rate was around 40 per cent. While the overall female participation rate trended upwards by over 40 per cent, unemployment and part-time employment rates also trended upwards. The rise in full-time employment was only around 20 per cent, and in part-time employment, around 33 per cent.

Table 6. Fertility, participation and employment, 1970–97

Year	1970	1980	1990	1997	2000
Fertility rate	2.86	1.90	1.91	1.78	1.75
Female labour supply (%)					
Female participation rate*	46.5	52.7	62.1	63.7	66.1
Female employment rate*	45.4	45.2	55.0	55.6	60.2
Female full-time employment rate*	**	29.4	33.8	32.8	35.7

* Per cent of the population aged 15–64 years ** Data not available

Even these figures are misleading, because they obscure the dramatic decline in female labour supply that still occurs after the arrival of the first child. Despite the significant fall in average family size, married mothers' hours of paid work remain surprisingly low, due to the substitution of domestic for market work. This is evident in the time use data I present below. Much of the growth in full-time female labour supply comes from the postponement of the first birth and, therefore, from the expansion of the life cycle phase in which women typically work full-time.

Life cycle female labour supply

To identify the effects of the tax–benefit system on female labour supply before and after the arrival of children, the analysis to follow presents life cycle profiles of family labour supplies based on data for a sample of 1,938 couples drawn from the ABS 1997 Time Use Survey (TUS).¹⁸ The sample is split into six phases, defined as:¹⁹

Phase 1: the couple does not yet have children

Phase 2: there are children of preschool age present

Phase 3: the children are of primary school age

Phase 4: the children are of high school age or have left school

Phase 5: at least one partner is of working age but children have left home

Phase 6: the partners are retired.

Table 7 presents data means for the allocation of time to market and domestic work, and for total hours of work, across these phases. Columns 1 and 2 list the means for the male partner and columns 3 and 4, the means for the female partner. Figure 1 plots the labour supply means, producing profiles that show graphically the very dramatic decline in female hours with the arrival of children (phase 2). Female hours fall from around 80 per cent of male hours in phase 1 to less than 25 per cent in phase 2, and barely rise to more than 50 per cent of male hours at any later phase of the life cycle, even after the children have left home.

¹⁸ The time use data are collected for ten activity episode classifications of labour market activities and nine major categories of non-market activities (see ABS 1998). Here, market hours are calculated as the sum of time allocations to all subcategories of labour market activities, excluding travel to work and job search. Domestic work is computed as the sum of time allocations to the categories 'domestic activities' and 'purchasing goods and services'. Domestic child care is the category 'child care/minding'. For further details, see Apps and Rees (2003).

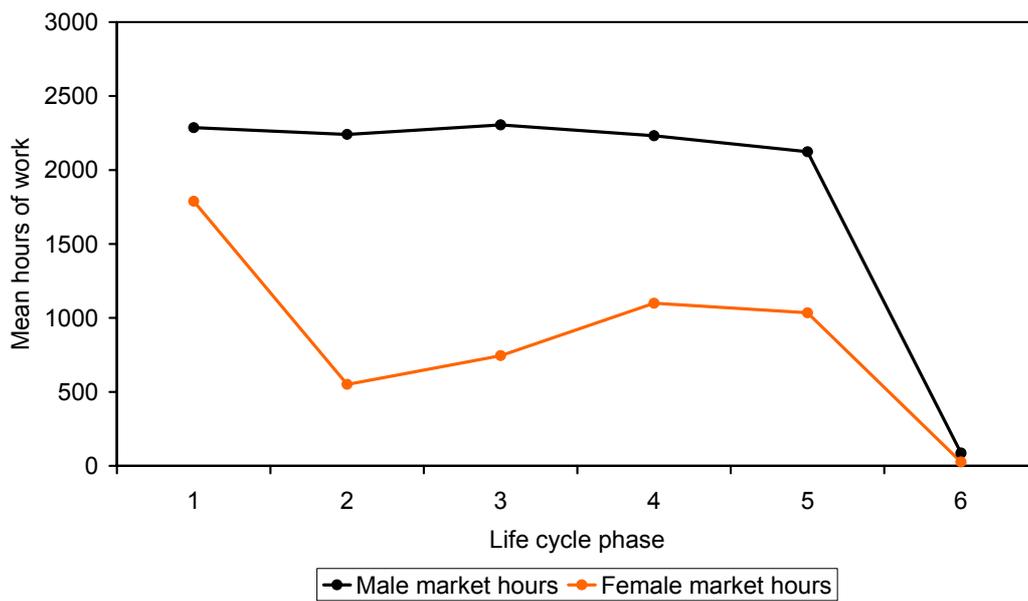
¹⁹ The sample includes all couple income units except those without children and in which the female partner is aged 40 to 45, on the assumption that these couples are likely to represent those who are unable to have children, or have chosen not to. The number of records in the phases are 211, 336, 302, 342, 344 and 403, respectively.

Table 7. Annual hours of market and domestic work*

Life cycle phase	Male hours		Female hours		No. of children
	Market	Domestic	Market	Domestic	
	1	2	3	4	
1	2,286	614	1,789	1,012	–
2	2,241	1,532	551	3,590	2.01
3	2,305	1,421	745	2,913	2.16
4	2,232	989	1,099	1,927	1.62
5	2,123	848	1,035	1,675	–
6	87	1,415	27	1,782	–
All	1,784	1,167	811	2,169	

* Weighted 1997 TUS data means

Figure 1. Annual hours of market work



From these profiles we can see that postponing the birth of the first child can be a major factor in the growth of full-time female employment, because it extends the phase in which both partners usually work full-time. In later phases, female labour supply (and leisure time) falls, due to the substitution of work at home for market work. Time use data reveal that almost all the additional domestic time involves child care, indicating a strong substitution from market work, as well as from leisure, to domestic child care by the female partner.²⁰ The male partner also spends a considerable amount of time on child care but reduces leisure to do this, rather than switching from market work.²¹

The preceding life cycle time use profiles conceal the high degree of heterogeneity in the labour supply of the female partner, which was evident in the analysis of one and two-earner households in the preceding sections. To illustrate this, I select a sample of in-work households from the TUS and partition the sample into two groups of equal size across phases 2 to 5 according to the female partner's usual hours of work. Households with zero to marginal female hours are labelled 'type 1', and the remainder, with more significant to full-time hours, 'type 2'.²²

Table 8 presents data means for market and domestic hours with separate results for type 1 and type 2 households across phases 2 to 5. The labour supply profiles are plotted in Figure 2. They reveal the strong tendency of households to split into the two types. Note that the average number of children per household (final column) is much the same. The two types are also found to have similar wage rates and non-labour incomes. These factors therefore cannot explain the diversity in female labour supply and domestic work choices. An explanation can, however, be found in the tax–benefit system, in combination with limited access to high-quality affordable child care.

Life cycle taxes and benefits

Table 9 presents life cycle profiles of taxes and government indirect benefits by household type, using data for a matching sample of families drawn from the ABS 1998 Household Expenditure Survey (HES). The table also lists, in columns 1 to 3, data means for household private income, female earnings, and household saving. From the difference between the means across types it is clear that the additional private income of the type 2 household is derived almost entirely from the higher labour supply of the female partner. Moreover, this additional income is associated

²⁰ Of the average 3,590, 2,913 and 1,927 female hours of work at home in phases 2, 3 and 4, 2,253, 1,447 and 336, respectively, are spent on child care.

²¹ Of the average 1,532, 1,421 and 989 male hours of work at home in phases 2, 3 and 4, 876, 689 and 198, respectively, are spent on child care.

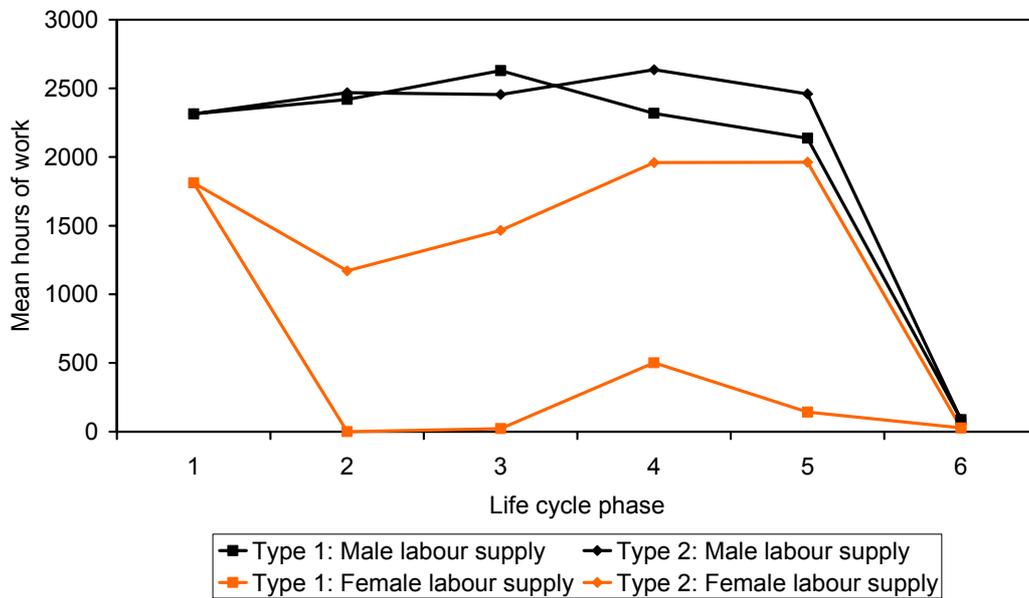
²² The sample is selected on the criterion that the male partner's usual hours of work exceed 25 per week, and contains 204, 308, 276, 307 and 318 records in phases 1 to 5, respectively.

Table 8. Annual hours of market and domestic work, by household type*

Household type	Life cycle phase	Male hours		Female hours		No. of children
		Market	Domestic	Market	Domestic	
		1	2	3	4	
1&2	1	2,314	554	1,811	1014	–
	2	2,419	1,420	0	4,023	2.07
	3	2,629	1,246	22	3,340	2.21
	4	2,318	1,002	501	2,255	1.63
	5	2,137	771	143	2,043	–
2	2	2,468	1,551	1,171	3,140	1.82
	3	2,455	1,460	1,466	2,543	2.15
	4	2,636	889	1,959	1,937	1.62
	5	2,459	871	1,962	1,356	–
1&2	6	87	1,415	27	1,782	–

* Weighted 1997 TUS data means

Figure 2. Annual hours of market work



with a much higher level of saving—in other words there is a high propensity to save out of the second income. Column 4 lists the means for direct taxes net of direct benefits, and column 5, for government indirect benefits.²³ The final column lists net tax, computed as the sum of all taxes net of all benefits.

The profile of direct taxes net of direct benefits (column 4) shows the gap between the amount of tax paid by the two household types across the working phases of the life cycle after the arrival of children. When preschoolers are present (phase 2), for example, type 1 households, in which only the male partner works in the marketplace, pay an average of \$7,176 in tax annually. Type 2 households pay an average of \$13,262 annually—almost twice as much as type 1 families—even though they have additional income of only \$20,813 and work much longer hours. The higher level of taxation is due to income tax on the second earnings and loss of family benefits. The gap between the *net taxes* of the two types is even greater, because type 2 households pay more in indirect taxes and receive a slightly lower level of indirect benefits. Again for example, in phase 2 the type 1 household receives, on average, a transfer of \$922 annually, whereas the type 2 household pays \$7,188 annually in tax. The tax differential is over \$8,000 annually. Similar results are found for subsequent working phases.

Table 9. Taxes and benefits by household type* (dollars per year)

Household type	Life cycle phase	Household private income	Female earnings	Savings	Direct taxes minus direct benefits	Indirect benefits	Net tax**
		1	2	3	4	5	6
1&2	1	\$68,978	\$28,279	\$8,079	\$16,520	\$3,908	\$17,505
	2	\$45,372	\$489	-\$2,972	\$7,176	\$12,800	-\$922
1	3	\$53,502	\$5,123	\$1,070	\$8,896	\$17,059	-\$3,054
	4	\$64,949	\$9,710	-\$2,754	\$13,283	\$17,425	\$1,765
	5	\$59,242	\$5,814	\$3,134	\$12,501	\$5,361	\$12,566
	2	\$66,185	\$22,300	\$3,628	\$13,262	\$11,412	\$7,188
2	3	\$67,893	\$25,953	\$3,487	\$14,208	\$16,866	\$3,166
	4	\$86,277	\$30,418	\$5,221	\$19,760	\$16,440	\$10,061
	5	\$76,568	\$27,740	\$8,842	\$17,365	\$4,932	\$18,513

*Weighted 1998 HES data means

**Includes indirect taxes

²³ The HES estimates of indirect government benefits cover non-cash benefits and services for education, health, housing and social security and welfare. For details of the calculation of these benefits, see ABS (2001).

There is a further anomaly in the system. From column 5 of the table we can see that across the phases in which children are present, indirect benefits are at their lowest in phase 2. This is due to a much lower level of government spending on child care and education for children of preschool age. Families with children at school or in tertiary education receive by far the most support—in the order of \$8,000 per family annually. This contrasts with average government spending of only \$1,093 per family on child care and education in the preschool phase.²⁴

Thus type 2 households pay much higher taxes while receiving relatively little assistance for the cost of child care when their children are very young. In addition, in the retirement phase, with higher levels of saving, they are less likely to be eligible for the income-tested age pension. In effect, families with high female labour supply save for their own retirement and pay higher taxes to finance transfers and pensions for those families in which the female partner specialises in domestic work.²⁵

It is important to see this highly unequal distribution of the tax burden between the two household types as an outcome of a policy agenda directed towards funding lower taxes at the top and higher benefits at the bottom from the middle of the wage distribution. Under an alternative reform agenda that focused, for example, on base broadening, tax rates on low and middle-wage two-earner families could be reduced without increasing rates on single-earner families. In other words, there is no necessary conflict of interest between the two groups, as is often implied. Rather, the conflict of interest is between families on low and average earnings and those at the top of the distribution (who also typically have access to tax minimisation schemes).

Neither household type can be expected to gain under the current type of regime. Married mothers who withdraw from the market in the early phases of childrearing can expect to earn lower wages in later phases, due to depreciation of their skills. This can explain the observed ‘persistence’ of female labour supply behaviour (see Shaw 1994): that is, women who work in the early phases of the life cycle tend to continue doing so throughout the working age years of the cycle. And those who do

²⁴ The data means for indirect government benefits include medical costs. In phase 2 these cover the costs related to the birth of a child. Indirect benefits in phase 2 also include \$4,052 pa spending on education for school-aged children who are also present in the household. Thus when we subtract spending on health and school-aged benefits, it becomes evident that the assistance for families with very young children in no way matches the resources allocated to those with older children.

²⁵ Quite extraordinarily, a recent report of the Australian Government (2004b) on demographic change describes the family tax system as ‘neutral’ in its treatment of dual and single-income families. The report states: ‘The Government has already introduced extensive changes to taxes and benefits to assist families. Analysis has shown that the tax and social security system is neutral in its treatment of dual verses [sic] single income families. That is, the balance is about right.’ The source of the ‘analysis’ is not cited.

not return to work after the children have left home are very likely to be among those who did not work during the early phases of childrearing.

The time use profiles in Table 7 show that parents (particularly mothers) work longer hours in total in the early phases of childrearing. They also cut back on consumption.²⁶ This suggests that parents tend to avoid using the capital market to smooth consumption and leisure over the life cycle, as predicted by the standard life cycle model. An explanation for this behaviour can be found in the data on borrowing in the HES. These data indicate that in the early phases of childrearing, many families have to borrow short-term, at interest rates well above the lending rate, to finance long-term contractual saving—in the form of home ownership²⁷ and superannuation. Many are therefore likely to find that further borrowing for their children is too costly, so they reduce their own consumption and leisure instead.

In this type of imperfect capital market, limited access to quality child care at an affordable price can have a particularly strong negative effect on female labour supply.²⁸ Faced with high effective taxes and a relatively low female wage in phase 2, many families would need to borrow to finance the high cost of privatised market child care, or cut back further on their leisure and consumption, if the mother goes out to work. In an imperfect capital market, they face the possibility of running up a debt that exceeds the discounted value of the female partner's future wage income unless her wage rises sufficiently over the life cycle. But this is uncertain. Under these conditions it is not surprising to observe the postponement of the birth of the first child, and a decline in average family size. The conditions may also explain the dramatic decline in female labour supply after the arrival of children and the high degree of heterogeneity in female hours across seemingly identical families who are making different assessments of the risks involved.

²⁶ Consumption here refers to *full consumption*, computed as the sum of market consumption spending and implicit expenditure on domestic production. An estimate of adult full consumption can be obtained by subtracting the costs of children, including home child care, from household full consumption. For details, see Apps and Rees (2003).

²⁷ Families have an overwhelming incentive to invest in owner-occupied housing if, ultimately, they are to buy housing during their lifetime at an affordable (and potentially negative) user cost.

²⁸ To appreciate the inefficiencies and consequent high cost of market child care, one need only consider the impact that government financial support, central planning and regulation have had on primary school care and education, and what would have happened to female labour supply and school attendance if that sector had been treated in the same way as child care.

Conclusion

This paper has shown that after two decades of tax reform, the Australian system of family taxation now closely approximates one of joint taxation. The distributional effect of this has been a disproportionate shift in the overall tax burden towards low and middle wage families working longer hours by having a second earner. The result is that in terms of real tax burdens, a low to middle-wage family with both parents employed full-time now effectively works many more hours for the government than a higher wage single-earner family with the same family income.

Following the distributional analysis of family taxes and benefits, I have presented empirical evidence of the negative effects of the system on female labour supply and household saving and fertility rates, and of the distortionary impact of limited access to affordable child care. The results suggest that two decades of family tax reform and government neglect in the area of child care have contributed to population ageing and contracted the growth of the tax base needed to avert an 'ageing crisis'.

The analysis highlights the need for a change in direction, for a policy agenda that focuses on:

- Placing measures to cut revenue losses from the use of tax minimisation schemes at the centre of the tax reform agenda.
- Developing a high-quality, efficient public sector child care system. This measure can be justified as a second-best solution to the distortionary effects of an imperfect capital market, together with wage uncertainty.
- Reversing the trend towards joint taxation and an inverted U-shaped effective tax rate scale. The simulation model in Apps (1991), which uses wage elasticities estimated on Australian data, shows that reforms supporting individual taxation at progressive rates would result in an increase in female labour supply and in the tax base required for funding pensions.
- Eliminating FTB (B). This would help achieve a more 'neutral' treatment of single and two-earner families, and a more progressive tax system with respect to two-parent family living standards.

Consistent with the findings of theoretical and empirical studies for OECD countries, reforms of these kinds can be expected to increase female labour supply, GDP and fertility (Apps & Rees 2004), and to improve the fairness of the tax–benefit system.

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