



Report commissioned
by the Australian Fair
Pay Commission, 2006.

**Interactions between
wages and the
tax/transfer system**

A Harding, A Payne, Q Ngu Vu & R
Percival, Interactions between
wages and the tax/transfer system,
National Centre for Social and
Economic Modelling.

About NATSEM

The National Centre for Social and Economic Modelling was established on 1 January 1993, and supports its activities through research grants, commissioned research and longer term contracts for model maintenance and development with the federal departments of Family and Community Services, Employment and Workplace Relations, Treasury, and Education, Science and Training.

NATSEM aims to be a key contributor to social and economic policy debate and analysis by developing models of the highest quality, undertaking independent and impartial research, and supplying valued consultancy services.

Policy changes often have to be made without sufficient information about either the current environment or the consequences of change. NATSEM specialises in analysing data and producing models so that decision makers have the best possible quantitative information on which to base their decisions.

NATSEM has an international reputation as a centre of excellence for analysing microdata and constructing microsimulation models. Such data and models commence with the records of real (but unidentifiable) Australians. Analysis typically begins by looking at either the characteristics or the impact of a policy change on an individual household, building up to the bigger picture by looking at many individual cases through the use of large datasets.

It must be emphasised that NATSEM does not have views on policy. All opinions are the authors' own and are not necessarily shared by NATSEM.

Director: Ann Harding

© NATSEM, University of Canberra 2006

National Centre for Social and Economic Modelling
University of Canberra ACT 2601 Australia
170 Haydon Drive Bruce ACT 2617

Phone + 61 2 6201 2780 Fax + 61 2 6201 2751
Email natsem@natsem.canberra.edu.au

Website www.natsem.canberra.edu.au

Abstract

An important policy issue is the extent to which wage increases are retained by wage earners, rather than being 'clawed back' by government through increases in income tax or reductions in means-tested welfare payments. Effective Tax Rates measure how much of an increase in private income is 'lost' through higher tax payments and reduced government transfer payments. They are a useful way to quantify the disincentives to increase private income. Different groups in the Australian community face are more likely to face high effective tax rates than others. This report has three major parts. The first looks at the distribution of effective tax rates for all employees in Australia. The second part assesses the effective tax rates faced by a set of hypothetical families, as one parent or a sole parent increases their working hours from zero to full time. The third part examines the impact of a range of hypothetical wage increases upon the income of low wage workers.

Author note

Ann Harding is Professor of Applied Economics and Social Policy at the University of Canberra and the director of NATSEM. Quoc Ngu Vu is a Research Fellow, Alicia Payne a Research Officer and Richard Percival a Principal Research Fellow at NATSEM.

General caveat

NATSEM research findings are generally based on estimated characteristics of the population. Such estimates are usually derived from the application of microsimulation modelling techniques to microdata based on sample surveys.

These estimates may be different from the actual characteristics of the population because of sampling and nonsampling errors in the microdata and because of the assumptions underlying the modelling techniques.

The microdata do not contain any information that enables identification of the individuals or families to which they refer.

Contents

Abstract	v
Author note	v
General caveat	v
1 Introduction	1
2 ETRs of working age employees	2
2.1 Methodology	2
2.2 Results	4
3 ETRs as one partner increases earnings	10
3.1 Methodology	10
3.2 Results	11
4 ETRs of low wage earners	20
4.1 Methodology	20
4.2 Results	22
5 Conclusions	30
6 Appendix A: Detailed ‘hypothetical family’ results	33
References	36

1 Introduction

NATSEM at the University of Canberra has been commissioned by the Australian Fair Pay Commission to provide estimates of the effective tax rates faced by workers in Australia today. Australia has an extremely complicated range of means-tested income tax concessions and cash transfer programs. By definition, ‘means-tested’ programs require that assistance from government is reduced as the private resources of individuals and families increase. For example, the income test for Family Tax Benefit means that when a family’s income reaches a certain level, payments are reduced by a certain amount for each additional dollar of income earned - and eventually withdrawn completely. As a result, if an individual increases their wages or other private income, they and/or their family may lose some or all of the government cash assistance (transfer income) and tax offsets that they were once entitled to.

An effective tax rate (ETR) shows how much of any additional private income is kept by individuals and families, after the payment of income tax and the withdrawal of any means-tested cash payments from government (such as age pension, Family Tax Benefit and Newstart Allowance). For example, an ETR of 70 percent means that only 30 cents is retained “in the hand” after a \$1 increase in private income.¹ High effective tax rates can be created when the means-tests for different programs overlap, either with each other or with income tax liabilities. For example, for some types of families in particular income ranges, an increase in wages earned can lead to the payment of additional income tax, a reduction in a tax concession and a reduction in Family Tax Benefit – with all of these together resulting in a high ETR which means that the family is not much better off after the wage increase.

High ETRs are an important policy issue, because they may create disincentives to work and save. At the extreme, they may create ‘poverty traps’, where it is very difficult for a family to pull themselves out of poverty by increasing their work effort and earnings. Through their effect on incentives to work, high ETRs may reduce economic growth and thus affect future prosperity (Gruen, 2006).

To calculate the ETRs faced by different types of Australian workers, we have used NATSEM’s STINMOD microsimulation model of the Australian taxation and transfer systems. The model provides reliable estimates of the distributional, revenue and expenditure impacts of taxation and transfer policies on Australian individuals

¹ “Private income” means the income received from personal effort or from investments, including wages and salaries, interest, dividends and rental income. It specifically excludes cash payments from government, such as age pension or Family Tax Benefit. Put simply, private income is the income that individuals and families receive as a result of their own efforts.

and families and has been used in public policy formation in Australia for the past decade (see, for example, Harding et al 2000, Beer 2003 and Toohey and Beer, 2004). STINMOD is updated on a twice yearly basis, is available publicly in a user-friendly version, and is now the standard model used by Australian federal government departments for their analyses of many possible budget policy options. Version 06a, which creates estimates for the 2006-07 world, was used to produce the results in this report.² Results incorporate the impact of all the key income tax/social security/family payment provisions, Medicare and private health insurance tax liabilities, and Commonwealth rent assistance. However, it must be noted that there are some limitations to the programs we have been able to include within the simulation, as described in more detail below.

This report is divided into three key components. Section 2 below calculates the ETRs faced by working age Australians who are employees in 2006-07. Section 3 examines the ETRs faced by a range of hypothetical (that is, 'illustrative') families, as one parent within the family increases their work effort from zero hours of paid work to full-time paid work. Section 4 analyses the amount of a hypothetical hourly pay increase that will be retained by low wage workers, after the tax and transfer 'clawback'. Section 5 concludes.

2 ETRs of working age employees

2.1 Methodology

The section presents the distribution of ETRs across working-age Australians with some income from wages or salary, by simulating a \$1 increase in their private income. ETRs are compared across various characteristics including labour force status, family type, age of youngest child and income decile. The aim of this section is to give an overall picture of the distribution of ETRs in Australia for wage and salary earners aged 15 to 64 years.³

This section uses the distributional version of STINMOD/06A, which runs the current tax/transfer policy settings of this financial year. The base population, to

² For further information, and for a good description of the programs modelled, see Vu (2005)

³ For an analysis of the effective tax rates facing all Australians aged 15 to 64 years in 2006-07 (that is, including those who are unemployed and not in the labour force), see Harding et al (2006).

which these program rules are applied, was chosen to represent the whole Australian population at December 2006 (the mid point of the financial year). The parameters governing taxation, welfare payments and other rates are an average of the four indexation periods in this financial year.

Certain groups are excluded from this analysis. These are:

- People under the age of 15 years and aged 65 years and over;
- Full-time students aged between 16 and 24 years living in the parental STINMOD family income unit (who must be single, never married, and not workforce independent to be considered to be a dependent within STINMOD);
- People aged 15 to 64 years who do not meet the following conditions: that they have positive wage and salary income and their job type is either 'employee full-time' or 'employee part-time' (e.g. those not in the labour force, the unemployed and employers would be excluded by this);
- People whose ETRs are negative (for a very small number of people, estimated disposable income rises by more than a dollar when their private income is increased by a dollar, often as a result of shifting between Youth Allowance and other payments); and
- People living in families where the change in Medicare levy resulting from a \$1 increase in income is more than \$1 (e.g. due to the family reaching the threshold for the Medicare levy surcharge).

While most of the major means-tested income tax and cash transfer programs are included within the scope of our analysis, the results do not incorporate the impact of public housing rent rebate income tests, child care rebates and HECS (as the requisite information is not available within the ABS sample survey data which makes up the base population for STINMOD). It is also important to note that the ETRs do not take account of other costs associated with working, or increasing work hours. These include possible increases in childcare and transport costs, as well as other work related costs such as clothing. Another cost that is difficult to quantify and is not included here is the loss of non-cash concessions, such as concession and health care cards.

A final issue is that, in the real world, income tests are sometimes based on individual or family private income received during the preceding financial year. In modelling ETRs, we have to base the amount of assistance received on current private income, rather than the previous year's income. The same restriction applies in cases where assistance depends upon how often or for how long recipients have been in that situation. For example, another program that is not captured by STINMOD in 2006-07 is the Working Credit Scheme, introduced to allow recipients of benefits to keep more of their benefit income when they take up work. For each fortnight the person does not work, the allowable income that they could have

earned (i.e. \$62 for a Newstart recipient) accumulates, so that the recipient is allowed to earn a greater amount without their benefit being reduced.

The calculation of ETRs facing working age employees is undertaken by comparing the family disposable income of that individual before and after his/her private income is increased by \$1. The first step for generating the ETRs for individuals is to use STINMOD to calculate the family disposable income (that is, income after income tax has been deducted) of all the families in the STINMOD database, using their existing level of private income (which includes income from wages or salary and government pensions and allowances). 'Families' is used here as a colloquial term for 'income units', with the income unit in STINMOD being a single person, a couple without dependent children, a couple with dependent children or a sole parent with dependent children. A dependent child is defined in STINMOD as one aged less than 16 years plus dependent students aged 16 to 24 years.

The private income of the family reference person is then increased by one dollar and the family's ETR calculated (using the difference between their old and new disposable income). After this, the reference person's income is set back to its original level and the income of the spouse (if there is one) is increased by one dollar. Again, the family's ETR is calculated. Results are then produced showing the ETRs facing *each wage and salary earner of working age*.⁴

This methodology is required because it is possible for an individual to have a personal ETR of zero, yet for the disposable income of their family to be affected if there is a \$1 increase in their private income. For example, let us take a low income couple family with two children where only the father is in paid work and the mother is initially not working. If the mother finds a very small amount of low-paid part-time work, her income may still be below the relevant tax and social security thresholds, so that her personal ETR is zero. But if the family is already in the income zone where Family Tax Benefit Part A is being reduced as a result of the father's earnings, then the actual ETR faced by her family on her increase in earnings could be 20 per cent or more.

2.2 Results

Table 1 shows the distribution of ETRs for working age Australian employees. The great majority of employees (68 percent) fall into the 30-40 percent range, meaning that if they earned an additional dollar they would lose between 30 and 40 cents in income tax and reductions in government benefits. It is unsurprising that most fall

⁴ Excluding dependent full-time students still living in the parental home, as noted earlier.

into this range, as anyone with an income of \$25,000 to \$150,000 faces this rate of income tax.

A rate of 50 cents in the dollar can be considered 'high', as it exceeds the highest income tax rate of 45 cents in the dollar (plus 1.5 per cent standard Medicare levy). This financial year, around nine per cent of Australian employees, or 714, 500 people, will experience ETRs of more than 50 per cent.

Table 1 Overall distribution of ETRs among working age employees in 2006-07

Effective Tax Rate	All employees		Percentage by gender	
	Percentage	Number	Women	Men
t=0	2.5	198,500	3.4	1.7
0<t<=10	0.1	10,000	0.1	0.1
10<t<=20	9.1	722,500	12.2	6.4
20<t<=30	2.9	233,500	4.1	1.9
30<t<=40	68.1	5,437,500	65.3	70.5
40<t<=50	8.3	663,500	4.4	11.6
50<t<=60	4.6	366,500	5.0	4.3
60<t<=70	2.8	222,500	3.8	2.0
70<t<=80	0.9	67,500	1.3	0.5
80<t<=90	0.2	12,500	0.2	0.2
t>90	0.6	45,500	0.3	0.8
Total	100.0	7,980,500	100.0	100.0

Note: There are 3.66m female employees and 4.32 male employees considered within the scope of this analysis. It should be noted that throughout Section 2, the Effective Tax Rates relate to those faced on the *next dollar* of private income received (sometimes called Effective Marginal Tax Rates in the literature).

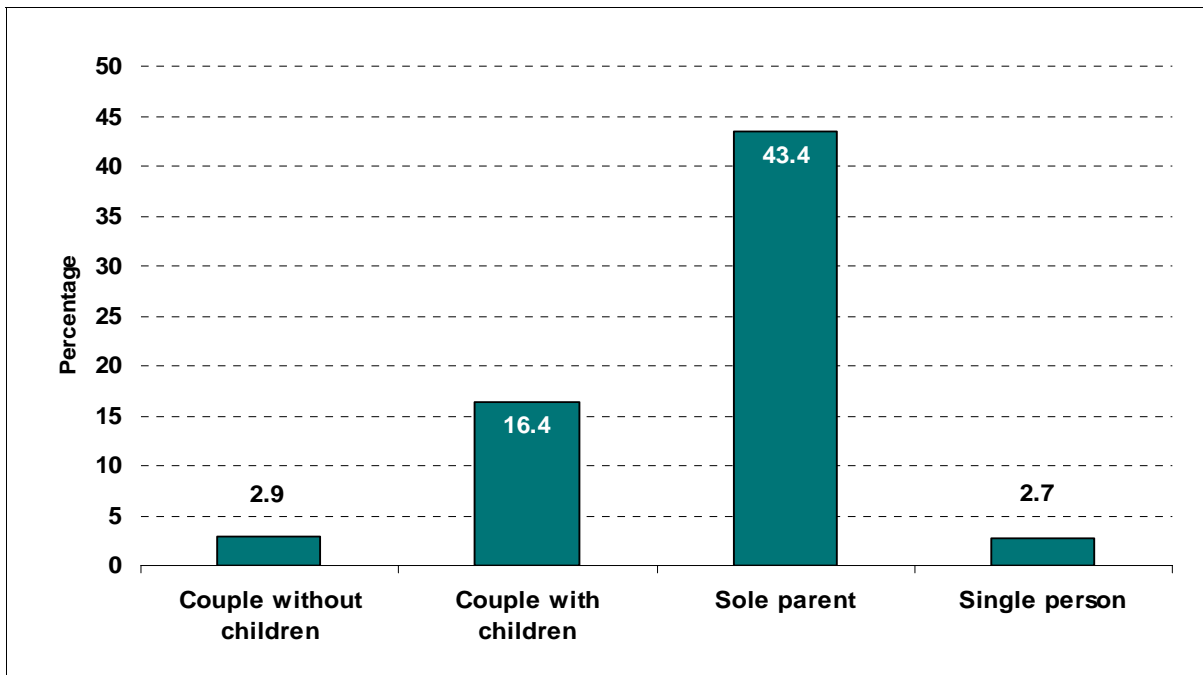
Females are slightly more likely to have high ETRs than males. Some 10.5 per cent of female employees faced ETRs of 50 cents or more in the dollar, compared with 7.7 per cent of their male counterparts (Table 1).

Family type

Analysis of ETRs by family type shows that people with children are most likely to have high ETRs – and that most of the Australian employees facing high ETRs have children. As Figure 1 shows, a striking 43 per cent of sole parent employees stand to lose more than 50 per cent of their next dollar of earnings. Around 16 per cent of couples with children have ETRs of more than 50 per cent. Only a small proportion (around three per cent) of single people and couples without children face such high ETRs. Primary reasons behind these high rates include the shading out of family payments such as Family Tax Benefit A and B and Parenting Payment, as parents increase their incomes beyond certain levels. For example, for each dollar a family earns above \$40,000 a year, their FTBA is reduced by 20 cents. When a family's

income reaches \$88,622 yearly⁵, their FTBA begins to be reduced by 30 cents in each additional dollar (Centrelink, 2006:2-3). A single parent loses 40 cents in the dollar of Parenting Payment (Single) for each dollar they earn over \$128 in a fortnight. Section 3 of this report examines the drivers of high effective tax rates in further detail.

Figure 1 **Percentage of employees with ETRs greater than 50 per cent, by family type, 2006-07**

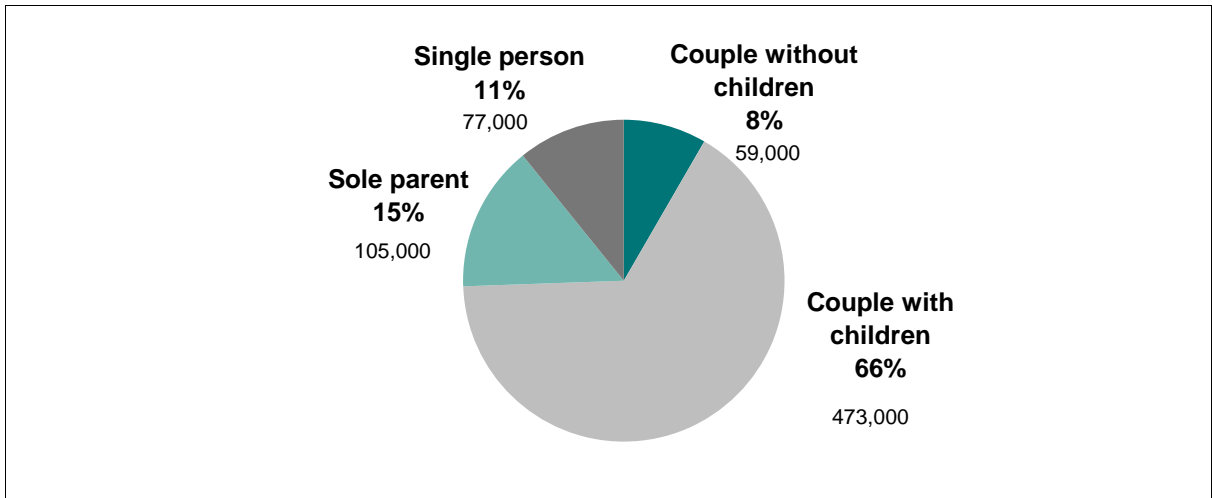


While Figure 1 shows us the risk of employees within particular types of families facing high ETRs, Figure 2 looks at the distribution of all Australian employees with high ETRs by family type. Thus, while Figure 1 showed us that sole parent employees faced a very high risk of having high ETRs, Figure 2 shows us that such sole parents nonetheless represent only 15 per cent of all those employees facing high ETRs. This is simply because sole parent families are a much rarer family type than couple with children families, so that their high risk still translates into relatively small numbers.

While only some 16 per cent of employees living in couple with children families face high ETRs, there are so many of these families that this still represents about two-thirds of all those working age employees facing high ETRs (Figure 2). Figure 2 also shows only about one in every 10 employees facing high ETRs are single people or part of a couple without children.

⁵ An additional \$3,504 annually is allowed for each FTB child after the first before the upper taper rate of 30 cents in the dollar is introduced.

Figure 2 **Distribution of employees with ETRs greater than 50 per cent, by family type, 2006-07**



Number of children

Figure 3 shows that the likelihood of having high ETRs increases steadily with the number of children someone has. Only three per cent of working age employees with no children face high ETRs, while 16 per cent of employees with one child and nearly 40 per cent of employees with more than three children face high ETRs. Considering absolute numbers, around 25,000 employees with high ETRs have more than three children. As Figure 4 illustrates, the greatest proportion has two children (around 240,000).

Figure 3 **Percentage of employees with ETRs greater than 50 per cent, by number of children, 2006-07**

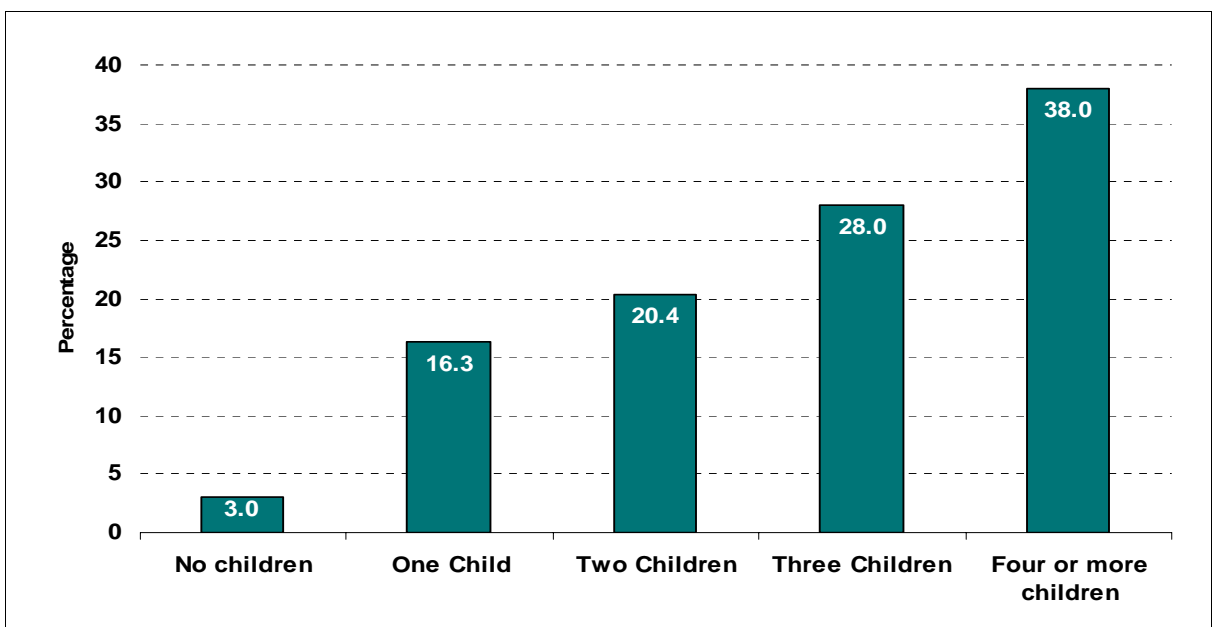
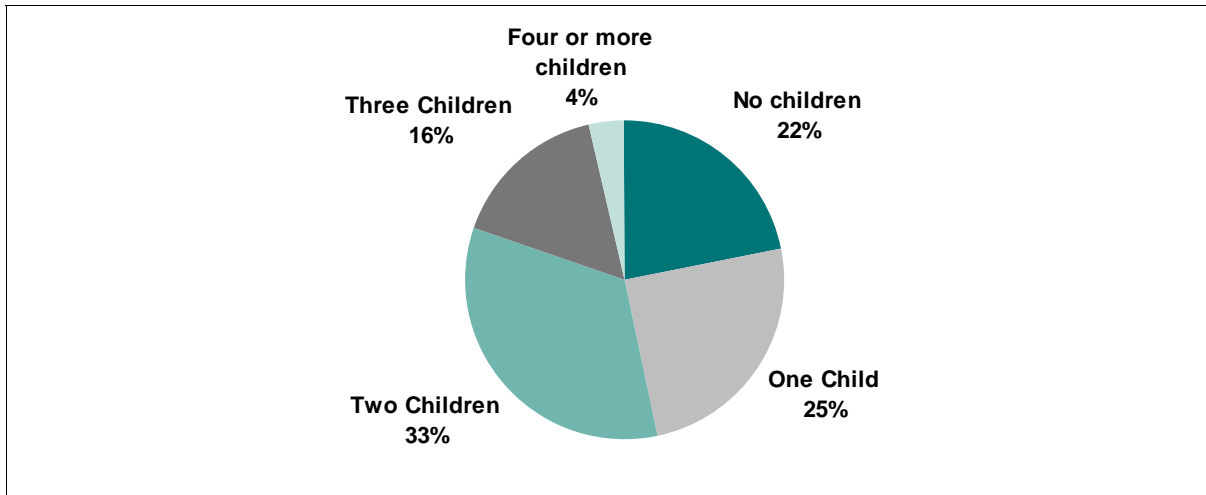


Figure 4 **Distribution of employees with ETRs greater than 50 per cent, by number of children, 2006-07**



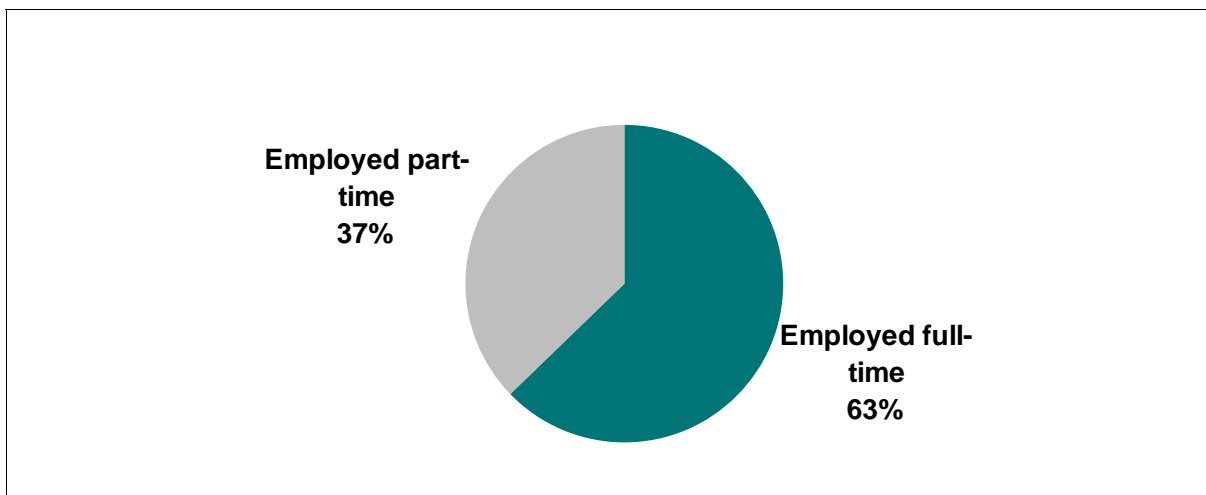
Note: There are 714,000 employees with ETRs greater than 50 per cent.

Full-time and part-time status

Figure 5 shows that more full-time than part-time employees face high ETRs. There are around 392,500 full-time employees losing more than 50 cents in their next dollar, and 234,000 part-time employees.

However, part-time employees are *more likely* to face high ETRs. Some 13.4 per cent of part-time employees have ETRs greater than 50 per cent, compared to 6.5 per cent of full-time employees.

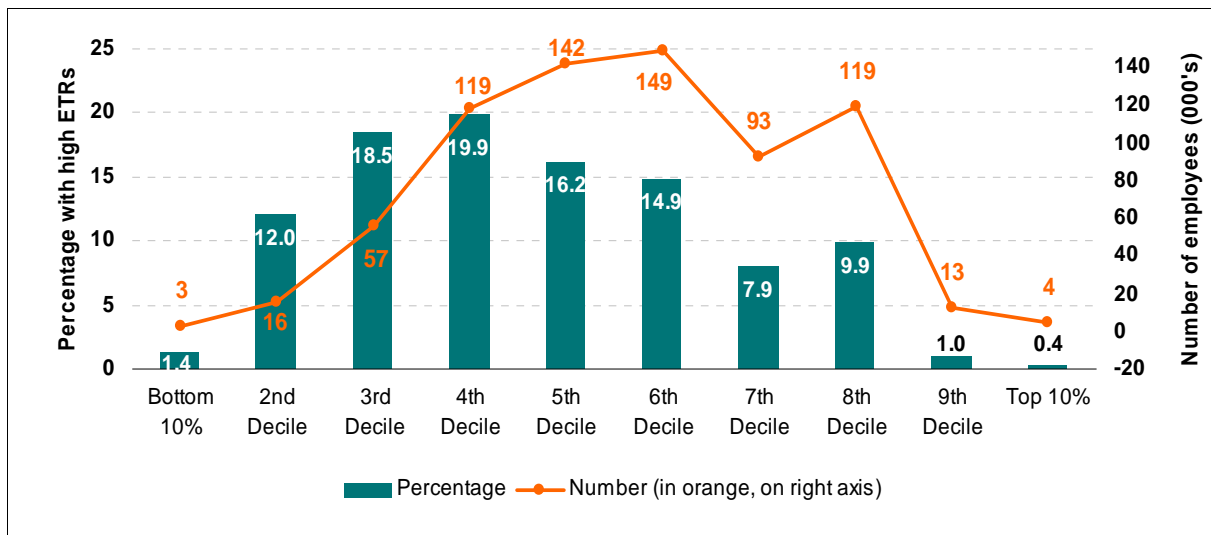
Figure 5 **Distribution of employees with ETRs greater than 50 per cent, by full or part-time status, 2006-07**



Income group

Figure 6 looks at the percentage of employees within each income decile facing high ETRs. These income deciles relate to the entire Australian population, not just employees (and they thus include both the old and the young within their scope). As a result, the bottom income decile group comprises the poorest 10 per cent of all Australians – and Figure 6 shows us what proportion of *employees within* each of these national income deciles faces high ETRs. The results indicate that employees living in families that place them around the lower middle part of the national income distribution experience the greatest chance of facing high ETRs. The lowest risks are faced by those employees in the lowest income decile – and then by those in the 9th and 10th deciles. This is probably because employees in the lowest decile do not have enough income to pay income tax, or to have benefits reduced on the basis of their private income. At the top end of the income scale, most employees are earning too much to receive government assistance, including family payments – and thus do not face the ‘stacking’ of multiple income tests with income tax liabilities that is experienced by employees in the middle deciles. Most employees in the 9th and 10th deciles are paying only income tax, for which the highest possible rate is 46.5 cents in the dollar (including standard Medicare levy). They thus do not appear in Figure 6, which only deals with employees facing ETRs *above* 50 per cent.

Figure 6 **Percentage and number of employees with ETRs greater than 50 per cent, by income decile, 2006-07**



Note: To create the income deciles, the equivalent disposable income of every STINMOD income unit (family or individual) has been calculated. Disposable income means after-income-tax income. The OECD equivalence scale has been used to put income units of differing size and composition on a more comparable basis. This equivalence scale gives a value of 1 for the first adult, 0.5 for the second adult, and 0.3 for any dependent children. The income unit income is divided by this equivalence scale to create the equivalent disposable income of the income unit. All individuals (including children) are then ranked by the equivalent disposable income of their income unit (including those not of working age, such as the retired). The top decile is thus the most affluent 10 per cent of Australians. This methodology means that the number of employees within each income decile varies from decile to decile (as 10 per cent of all individuals are in each decile, rather than 10 per cent of all employees).

While the *risk* that an employee within an income decile faces a high ETR is one important indicator, Figure 6 also shows us that the 6th income decile contains the *greatest number* of employees facing high ETRs – just under 150,000 such employees. Overall, 410,000 of the 714,000 employees facing high ETRs live in families whose incomes place them in deciles 4, 5 and 6. Almost another 120,000 live in 8th decile families and, as our earlier research has showed, these are primarily families facing the ‘top end’ withdrawal of Family Tax Benefit (Harding et al, 2006).

3 ETRs as one partner increases earnings

3.1 Methodology

Section 3 examines how the incomes of ten hypothetical (or ‘illustrative’) families are affected when one parent increases their working hours and earnings. This section uses the hypothetical module of STINMOD/06A to estimate how incremental increases in one parent’s private (‘earned’) income impact on their family’s tax liability and income from transfers – and thus on their family’s disposable income. The average change in income from each source is estimated, as well as the overall average change in the family’s total disposable income.

The family’s Effective Tax Rate (ETR) is also calculated, although the methodology is slightly different to that used in Section 2 (where the ETR measured the effective tax rate faced on the *next dollar* of private income received). Here, the ETR refers to the effective rate of tax over a certain increase in earnings (instead of just the next dollar).⁶ The ETR is calculated as one minus the change in the family’s disposable income divided by the change in the family’s private income (as earnings increase in ‘blocks’ of time). That is:

$$\text{ETR} = 1 - \frac{\text{Change in family disposable income}}{\text{Change in earnings}}$$

Five different families are studied – first with the assumption that they have one child aged four in long day care and, second, that they have two such children aged two and four. Thus, in total, ten hypothetical families are studied. Each family is assumed to be paying \$200 weekly rent to a private landlord, potentially entitling all households to Commonwealth Rent Assistance. The scenarios to be studied were

⁶ In the literature, this is often termed an Effective Average Tax Rate (in comparison with the Effective Marginal Tax Rate approach used in Section 2).

specified by the Australian Fair Pay Commission. The families' earning situations are as follows:

Family 1: Primary earner earns \$484.40 per week; secondary earner earns \$12.75 per hour

Family 2: Primary earner earns \$578.20 per week; secondary earner earns \$15.22 per hour

Family 3: Primary earner earns \$906.00 per week; secondary earner earns \$23.84 per hour

Family 4: Single parent who earns \$12.75 per hour

Family 5: Single parent who earns \$23.84 per hour

For the first three families, the private income of the primary earner is fixed, while the secondary earner increases their working hours by half and full day increments, defined as eight scenarios and specified below. The cost of childcare is assumed to be fixed at \$4 per hour, and the number of hours of childcare required is assumed to increase as with the secondary earner's hours. For the sole parent families, working hours increase in the same half and full day increments, and childcare also increases in the same way as for the couples. The assumptions of the eight scenarios are as follows:

Scenario Number	Paid Working Hours	Childcare Hours
1. (Half a day)	3.75	5
2. (One day or two half days)	7.5	10
3. (One and a half days work)	11.25	15
4. (Two days work)	15	20
5. (Two and a half days)	18.75	25
6. (Three days)	22.5	30
7. (Four days)	30	40
8. (Full-time)	38	50

3.2 Results

Overall summary

Table 2 summarises the effective tax rate outcomes for all families in all earnings scenarios. A number of general conclusions emerge. First, the highest ETRs are generally faced by minimum wage secondary earners whose partner is also a

minimum wage worker. For example, the highest ETR among all of the family types shown in Table 2 is 98 per cent, experienced by a minimum wage secondary earner with two children who increases their paid work from three to four days a week and whose partner is a minimum wage full-time worker. (This is Family 1 with two children and Scenario 7 in Table 2.) In essence, this result suggests that there is almost no financial reward for this family in the secondary earner increasing their work hours from three to four days a week (as Figure 11 below later shows).

A second general conclusion that can be drawn from Table 2 is that ETRs increase as the number of children increases. This is due to Family Tax Benefit, as well as to the assumptions made about increased paid childcare requirements.

A third conclusion is that, in these scenarios, sole parents often do not appear to face higher ETRs than their partnered counterparts. Given the earlier evidence presented in Section 2 about sole parents on average facing a greater risk of experiencing high ETRs than those living in couple families this suggests that, in the real world, many couple families face much lower ETRs than shown in these 'worst case' hypothetical scenarios. For example, it is possible that a minimum wage secondary earner with young children married to a minimum wage primary earner, and confronting the ETRs shown in Table 2, might decide to defer getting a paid job until the children are both at school. In other words, the results presented earlier in Section 2 incorporate the actual labour supply decisions of millions of Australian employees, with those decisions being based in part upon the effective tax rates facing them.

Table 2 Effective tax rates for each family under each scenario, 2006-07

Family type	Scenario Number							
	1	2	3	4	5	6	7	8
<i>Low income couple (minimum wage primary earner, minimum wage secondary earner)</i>								
Family 1 with 1 child	44	70	75	82	82	47	82	61
Family 1 with 2 children	43	69	76	86	92	59	98	71
<i>Middle income couple (lower middle primary earner, low wage secondary earner)</i>								
Family 2 with 1 child	41	67	50	51	65	70	72	69
Family 2 with 2 children	41	72	61	58	71	77	86	79
<i>Higher income couple (average primary earner, average wage secondary earner)</i>								
Family 3 with 1 child	28	47	62	69	53	42	53	67
Family 3 with 2 children	31	51	66	75	70	69	79	74
<i>Lower income sole parent (with minimum wage rate)</i>								
Family 4 with 1 child	8	24	48	48	48	59	78	75
Family 4 with 2 children	12	18	52	52	52	58	91	80
<i>Higher income sole parent (with higher wage rate)</i>								
Family 5 with 1 child	10	44	50	64	71	72	78	62
Family 5 with 2 children	7	47	52	67	73	73	84	72

A fourth conclusion is that in scenarios 7 and 8, where the secondary earner works 30 and 38 hours respectively, all of these hypothetical families face ETRs greater than 50 per cent. This means that they keep less than half of the additional income earned by taking on hours additional to those in the previous scenario. The result indicates that many secondary earners with young children, usually mothers, face substantial disincentives to undertake full time work.

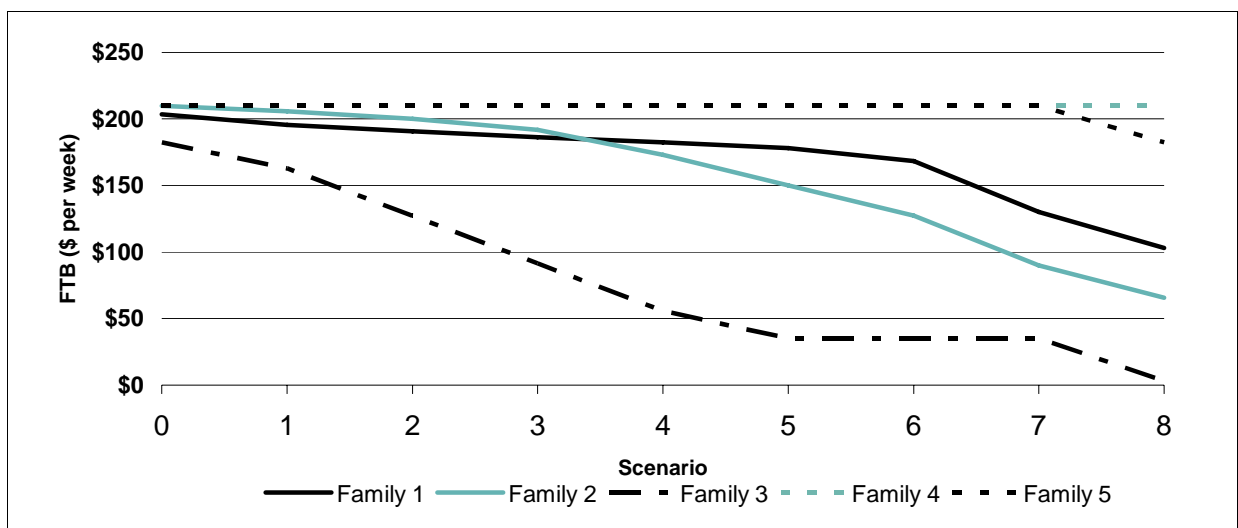
For all families, ETRs are lowest in Scenario 1, the transition between the secondary earner not working to working half a day. However, for some families, and especially couple families, the transition from half to a full day's work represents substantially higher ETRs. For most of the hypothetical families studied, the secondary earner taking on a full day's work week would mean that the family's FTB would begin to be reduced.

While this provides an overview of the ETRs faced by the 10 hypothetical families, these results are explored in more detail below by looking, first, at some of the key drivers and, second, at the more detailed outcomes by family type.

Key Drivers of ETRs

The income based shade-out of FTB is one of the key drivers of ETRs for parents increasing their private incomes. Figure 7 compares the changes in FTB for each family with one child over the eight scenarios.

Figure 7 **FTB received by scenario for each family with one child**



Scenario '0' is where the secondary earner (or the sole parent) is not working at all. At this stage all the families except for Family 3 (the higher income couple with one child) receive about the same amount of FTB. Family 3's FTB is reduced more rapidly (and to a smaller amount) than the other families, due to the family's higher income. When the secondary earner is working full-time (Scenario 8), Family 3 receives only \$2.90 of FTB weekly.

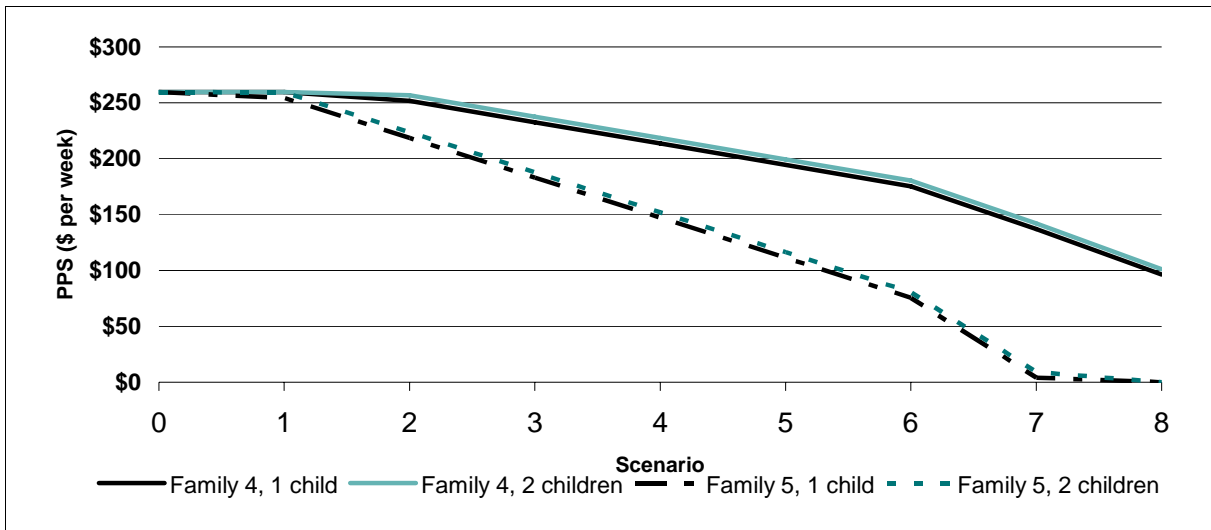
For the lower and middle income couple families (Families 1 and 2), FTB shades out more gradually – and, even when the secondary earner works full-time, remains higher than for the higher income family. With the assumption of one child, when the secondary earner is working full-time, Family 1 keeps \$103.20 of FTB and Family 2 \$64.60 per week.

FTB for the sole parent families, Families 4 and 5, remains more constant across the scenarios. For Family 4, where the sole parent works for \$12.75 per hour, FTB is not reduced even when he / she works full-time. For Family 5, where the parent works for \$23.84 per hour, FTB is only reduced when he / she works full-time and even then remains at a high level. This is of course due to the lower family income in a family supported by a sole earner, but also because sole parents are not income tested for FTB(B) (Centrelink, 2006:2-4).

However, the sole parents still experience very high ETRs in the longer hours scenarios. As shown in Section One of this report, and to be emphasised again later in Section Four, sole parents are highly likely to experience high ETRs. This is largely driven by the income test on Parenting Payment (Single). Single parents today lose 40 cents in each dollar they earn over \$128 in a fortnight (Centrelink, 2006:20).

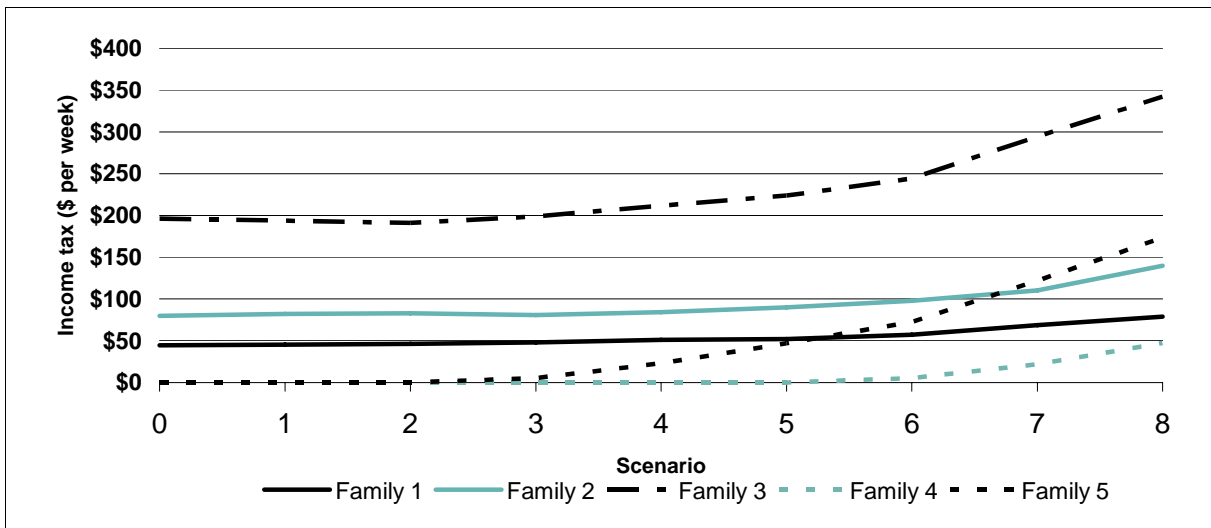
Figure 8 charts the sole parent families' receipt of Parenting Payment across scenarios. There is little difference when the family has one or two children. The low income sole parent (Family 4) retains more of the benefit, for longer, than the Family 5 parent on \$23.84 an hour. The higher income sole parent begins to lose pension income in Scenario 1 – that is, when working a half day. When the Family 5 parent with two children works full-time, they receive only \$9 Parenting Payment. By taking on full-time work, the low income sole parent with two children (Family 4) gains \$485 of private income, but loses \$158 in pension income.

Figure 8 Parenting Payment (Single) received by scenario



Income tax rises more steeply for the sole parent families also, as shown in Figure 9. Income tax increases most sharply for the higher income sole parent (Family 5), who begins with no tax and by Scenario 8 is paying \$173 weekly. The rise in income tax is almost as great for the secondary earner of the higher income couple (Family 3), whose paid tax rises from \$196 to \$342. The low and middle income couple families experience the smallest increases in income tax over the course of increasing the secondary earners' hours from zero to full-time.

Figure 9 Income tax paid by families with one child by scenario



ETRs for couples

Having looked at the key drivers of ETRs, this section compares the increases in private and disposable income and thus ETRs for each family across all scenarios. The charts show the increases in income and ETRs for each scenario's incremental

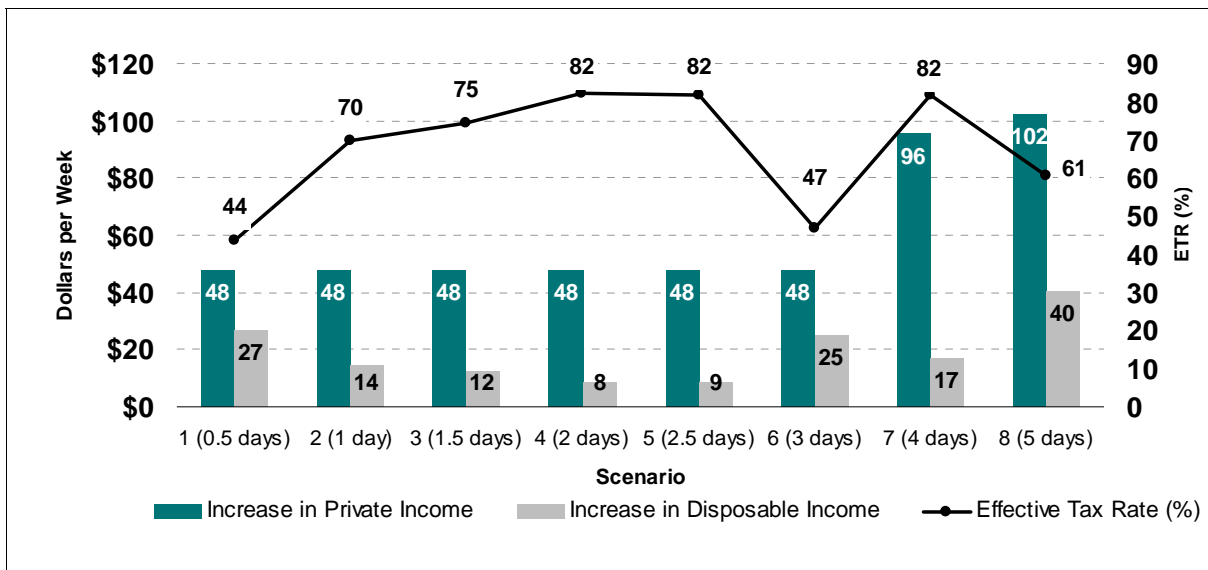
increase in private income. That is, for Scenario 1 in each of the charts, the increase in private and disposable income shown is the increase from 'Scenario 0', where the secondary earner had no private income, to that received for 'Scenario 1', where the secondary earner is working for one half day. Similarly, for Scenario 2, the graph shows the marginal increase in income between Scenario 1 and 2. ETRs are calculated for these increases and shown in the black line in the figures.

Family 1 with one child experiences high ETRs for almost every scenario, with the exception only of Scenarios 1 and 6 (Figure 10). In Scenario 1 the family faces an ETR of 44 per cent, just below that of the highest income tax bracket. When the secondary earner takes on half a day's work the family loses about \$8 of FTB and \$8 of income due to the reduction in Parenting Payment Partnered allowance. Family 1's income tax paid increases by about \$1 under Scenario 1.

In the increase of hours to Scenario 2, Family 1 keeps only \$14 of the \$48 increase in their private income and their ETR increases to 70 per cent. The greatest part of this loss is in the reduction of Parenting Payment Partnered allowance (see Table A1 in the Appendix for full details of all these scenarios).

At Scenario 6, Family 1's ETR drops significantly from 82 to 47 per cent. This is partly because, by the time the secondary earner's wages reach this level, Parenting Payment Partnered has been income-tested away, thus removing one source of higher effective tax rates. In addition, most of the additional \$48 a week earned by the secondary earner as hours increase from 2 ½ to 3 days a week still does not tip the family over the crucial \$40,000 threshold for maximum FTB(A) – so that this potential source of higher effective tax rates also does not apply for most of the pay increase.

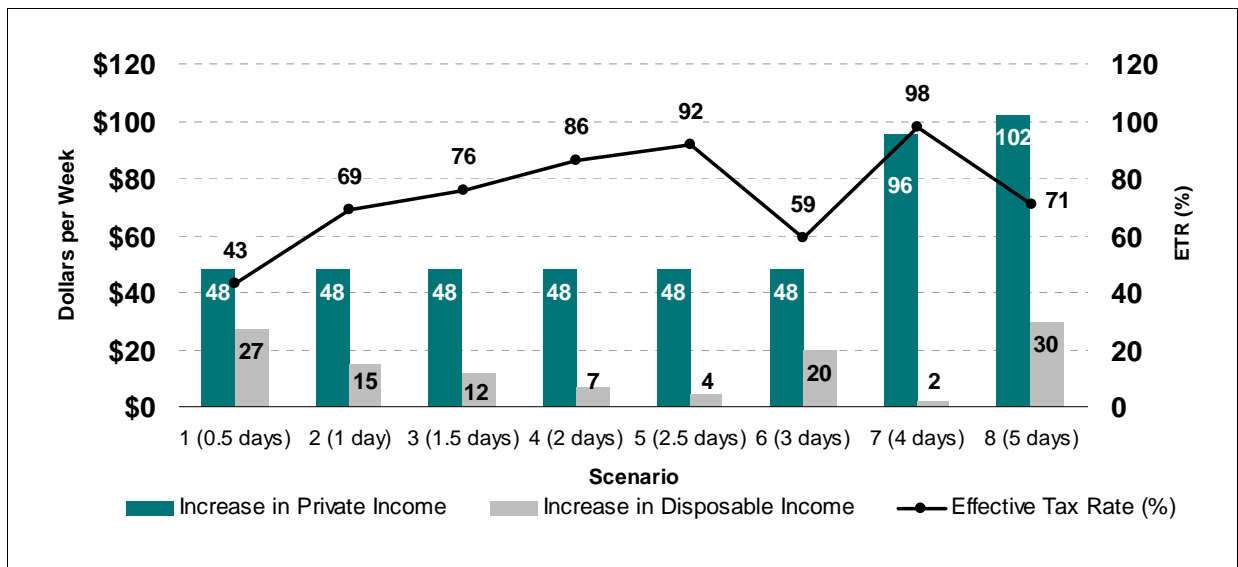
Figure 10 Family 1 with one child (the 'low income' couple)



The experience of Family 1, this time with the assumption of two children rather than one, is little different to that with one child – except that in the longer hours scenarios the ETRs are even higher (Figure 11). In Scenario 7 they experience a striking ETR of 98 percent, keeping only 2 cents out of each dollar earned. In the step from three to four days work, the family loses \$38 of FTB, and increases their income tax paid to \$57.

Examination of the remaining families showed that the assumption of one or two children made little difference to the *pattern* of ETRs across scenarios, except that generally for two children ETRs were slightly higher. Therefore, the rest of this section focuses on the families with two children only.

Figure 11 **Family 1 with two children (the ‘low income’ couple)**



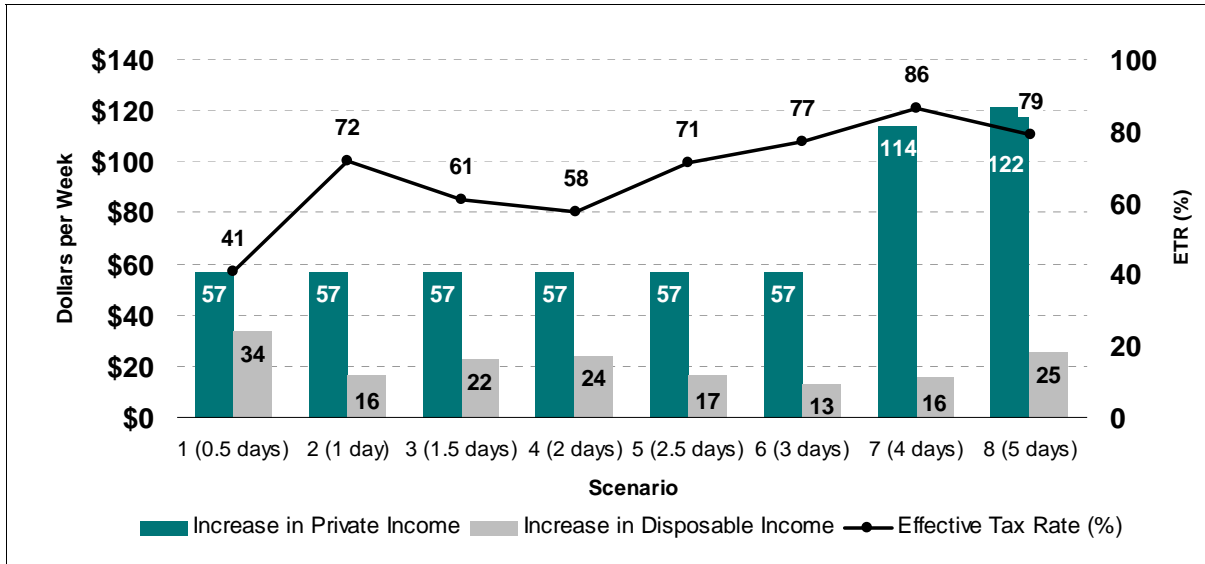
Family 2, the ‘middle income couple’, generally faces lower ETRs than Family 1 – although, after Scenario 1 they remain high throughout (Figure 12). Family 2’s ETRs increase sharply when the secondary earner increases their hours to a full day (Scenario 2). When the secondary earner increases their weekly private income to \$114, the family loses \$28.60 of Parenting Payment Partnered and \$5.70 of FTB. They keep only \$16 of the \$57 increase.

ETRs fall after this as the secondary earner increases hours to two days in Scenario 4. In Scenario 3 the family loses the remaining \$15.60 of Parenting Payment Partnered income, and thus after that does not face the relevant income test.

ETRs increase again to 71 cents in the dollar when the secondary earner increases work to two and a half days (Scenario 5). Through this transition the family loses \$22.80 of FTB and pays an additional \$4.60 income tax, keeping only \$17 of the \$57 increase.

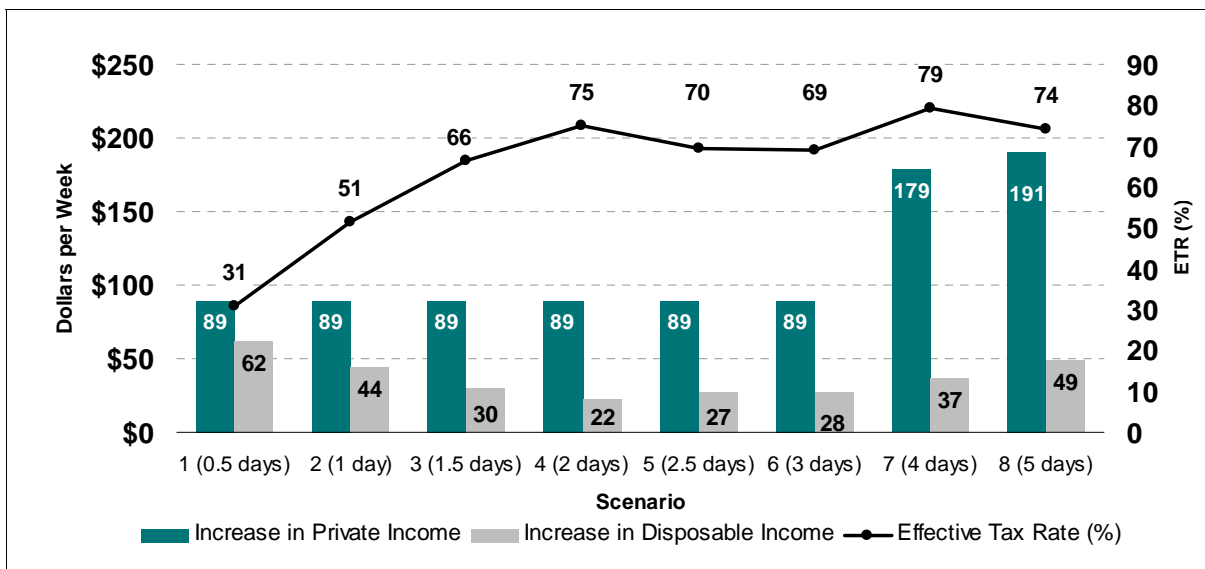
ETRs are especially high in Scenario 7 (four days of paid work), reaching 79 per cent, where the family loses \$37.30 of FTB and pays more in income tax and Medicare levy.

Figure 12 Family 2 with two children (the ‘middle income’ couple)



As Figure 13 illustrates, Family 3 also experiences high ETRs in each scenario after the first. Across most of the earnings scenarios, the rising earnings of the secondary earner trigger reduced FTB and higher income tax and Medicare levy liabilities. In addition, as with all the above family types modelled, higher hours of paid work are assumed to translate into higher childcare costs. Notwithstanding Child Care Benefit and the Child Care Rebate, the additional childcare costs incurred help to increase the ETRs facing the secondary income earner.

Figure 13 Family 3 with two children (the ‘high income’ couple)

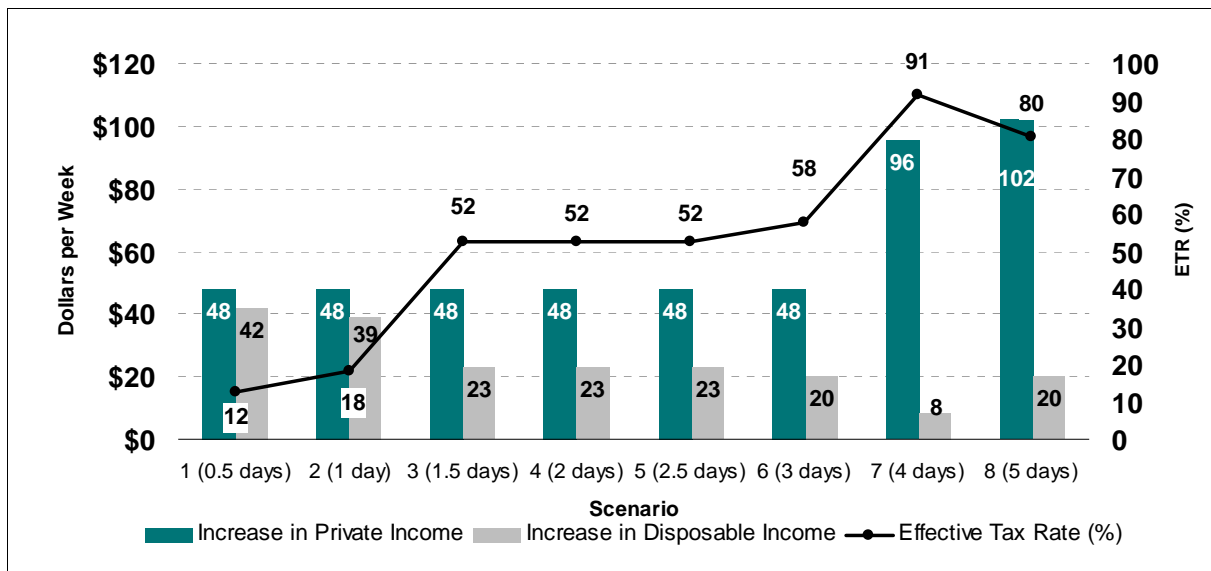


ETRs for sole parents

Family 4's earner is a sole parent on the minimum hourly wage rate. Very high ETRs take longer to arise for this family than for the others. However, they are facing ETRs of 52 cents in the dollar by the time they increase their hours to one and a half days of paid work per week (Figure 14). FTB remains constant even up to full-time work and income tax is not paid until the sole parent works three days a week. The sole parent's high ETRs are driven by reductions in Parenting Payment Single (which begin when he / she works more than a full day) plus rising net child care costs.

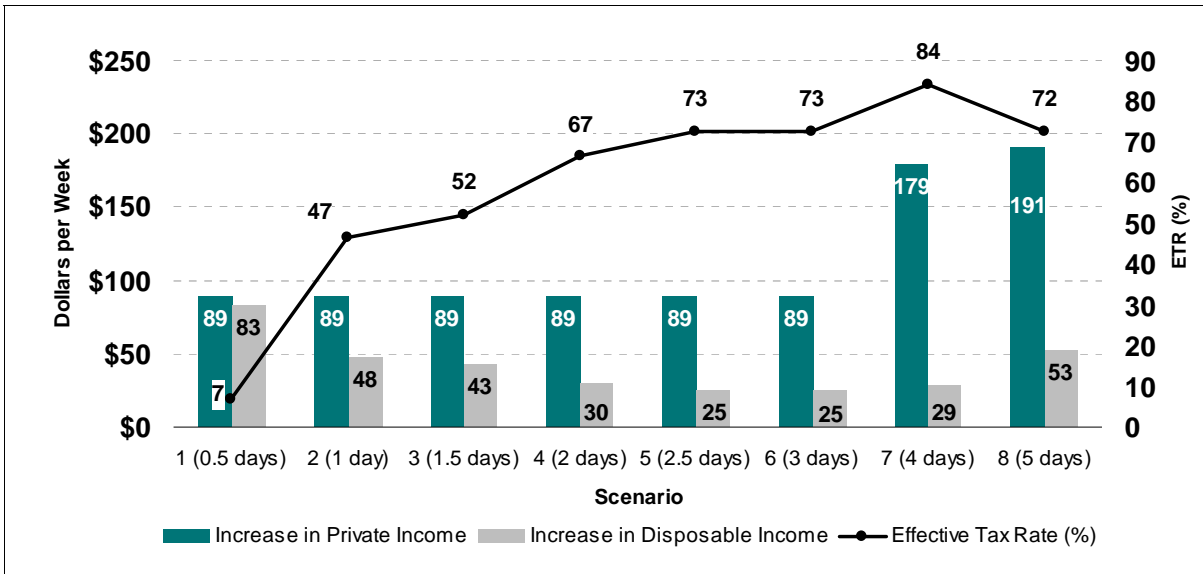
As he / she increases hours from three to four days of paid work, with a total private income of \$382, about \$38 of FTB is lost and income tax increases by almost \$13. Only about \$8 of a \$96 increase in earnings is retained.

Figure 14 **Family 4 with two children (the 'low income' sole parent)**



For Family 5, a sole parent on a higher hourly pay rate, ETRs rise more quickly and are usually higher than for the lower hourly wage rate sole parent – although they do not peak at quite such a high level (an ETR of 84 per cent when increasing from three or four days of paid work, versus the comparable estimate of 91 per cent for the lower wage rate sole parent). The parent in Family 5 also begins to lose pension income by the time he / she works a full day, but it is reduced more quickly than for the lower income parent. By the time the parent's private income has reached \$268.20 for working 1 ½ days, he / she has lost \$107.60 in Parenting Payment Single reductions (Figure 15). In addition, by 1 ½ days work the parent begins to pay income tax – and by the stage of full-time work he/ she pays around \$158 per week. FTB remains virtually constant for the higher income sole parent across most of the working hour scenarios, but is reduced slightly in Scenario 8.

Figure 15 Family 5 with two children (the ‘high income’ sole parent)



4 ETRs of low wage earners

4.1 Methodology

This final part of our study assesses the impact of six possible wage rise scenarios on low wage earners. The analysis uses the distributional version of STINMOD/06A to assess the impact of the wage rise scenarios. The population sub-groups excluded from the scope of this analysis are the same as those excluded from Section 2 of this study (as described on page 3 of this report) with the exception that, in this case, we have been able to include within this section of our analysis low wage earners who are dependent students still living at home with their parents.

In addition to the earlier exclusions described in Section 2, we have additionally excluded from the analysis all those employees whose estimated hourly wage rate is greater than or equal to \$15.50 an hour. The calculation of the hourly wage rate is not exact because, in the original ABS sample survey data which makes up the base file for STINMOD, the ABS only record hours worked each week within ranges.

Generally, the ‘number of hours usually worked’ is recorded in two hour blocks (e.g. 18-19 hours per week). In these cases, to derive the estimated hourly wage rate, we have divided the total earnings of employees by the mid-point of the hours range (that is, by 18.5 hours in the above example). For the top hours range of ‘50 or more hours worked’, we have divided total earnings by 50 to calculate the imputed hourly

wage rate. As a result, the estimate of the hourly wage rate is not exact, but provides a reasonable approximation.

Next the impact of six hourly wage rise scenarios specified by the Australian Fair Pay Commission on the family disposable income of low wage earners is analysed. The six scenarios are:

- **Scenario 1:** raise of 39 cents per hour
- **Scenario 2:** raise of 53 cents per hour
- **Scenario 3:** raise of 58 cents per hour
- **Scenario 4:** raise of 65 cents per hour
- **Scenario 5:** raise of 79 cents per hour
- **Scenario 6:** raise of 92 cents per hour

Each low wage individual is given an hourly pay increase of the given amount for each scenario. Each individual's new earnings are calculated as their new hourly wage rate multiplied by their existing number of working hours. Next, all STINMOD income units containing one or more low wage earners (with their increased private incomes) are run through the STINMOD/06A modules again, to calculate the new disposable income of their income unit. This is repeated for each scenario, giving results that represent how low wage earners would fare under each wage rise scenario.

For example, in a STINMOD income unit containing three low wage earners – a low wage father, a low wage mother and a low wage dependent student still living at home – each of the three would be separately awarded the desired hourly pay increases, their new wage incomes would be combined where relevant for the purposes of calculating entitlement to means-tested family and other payments, and then the effective tax rate of their entire income unit would be calculated by examining the net change in their income unit's disposable income before and after all three received the scheduled hourly wage increase. The following output is, however, analysed from the perspective of the individual low wage earner. Suppose, for example, that in the above income unit containing three low wage earners, the earned income of the entire family due to the pay increase rose by \$50 a week and the disposable income of the entire family rose by \$25 a week. The resulting effective tax rate of 50 per cent would be attributed to *each* of the three low wage earners, when calculating the results shown below. This methodology means that we can more closely capture what is likely to happen in the real world to nuclear families containing more than one low wage earner.

As noted in Section 2, the STINMOD income unit is a single person, a couple without dependent children, a couple with dependent children or a sole parent with

dependent children. Three young low wage single people sharing a group household would thus be considered as three separate income units within our simulation.

It should be noted that the estimate of the effective tax rate facing each low wage earner measures the immediate or 'morning after' impact of the change, before individuals or firms change their behaviour in response to the pay increase. In the longer term, for example, it is possible that some individuals will decide to work longer hours or enter the labour force now that the pay rate has increased – while some employers might decide to reduce their labour force in response to the increased pay costs faced. These types of demand and supply effects are not taken account of in the following analysis.

4.2 Results

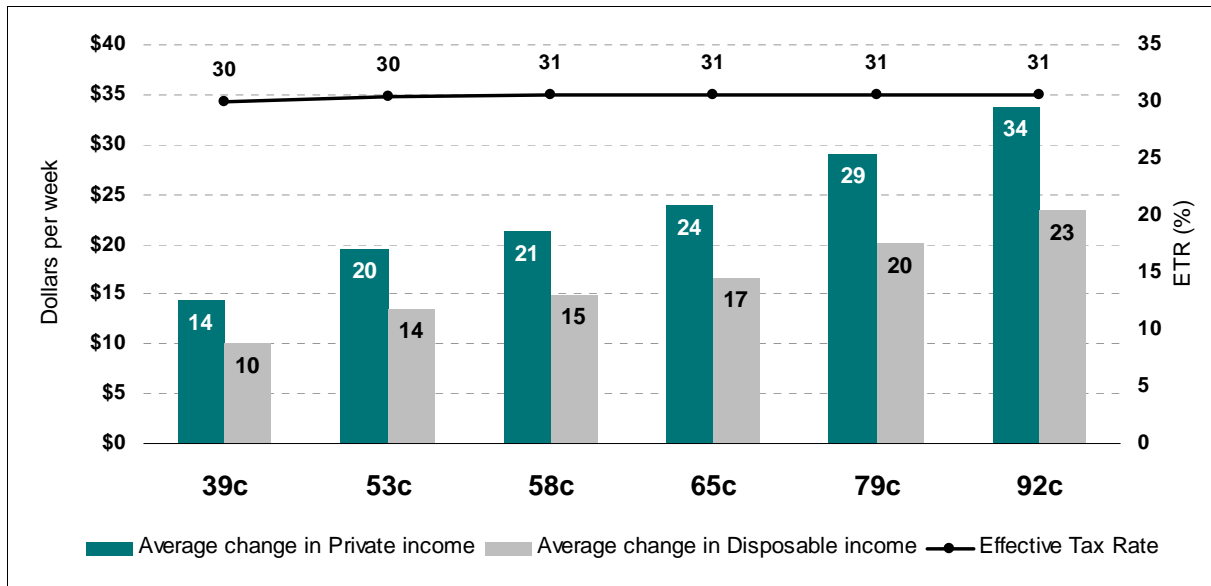
Average ETRs

We first examined whether the average effective tax rates of all low wage workers varied between the six different pay rise scenarios. Figure 16 shows that average ETRs remained fairly constant – at about 30 per cent across all scenarios. Thus, while the average weekly increases in earnings (and thus in the average disposable incomes of the income units) rose as the magnitude of the simulated pay increases rose, in each of the six cases just over two-thirds of the pay increase was on average retained by the low wage workers and their families. This suggested that the pattern of ETRs experienced by low wage workers did not differ greatly between the six pay rise scenarios – and this was confirmed by inspection of the detailed results for the six scenarios. Accordingly, the following results provide more detail for just one of the scenarios – namely Scenario 1, which consists of the 39 cents per hour wage increase.

Table 3 shows the estimated distribution of ETRs for all low wage workers if they were given a raise of 39 cents an hour. As the overall average implies, the single largest group (33 per cent) fall into the 30-40 per cent ETR range. This also reflects the results for the all employees in Section Two of this report.

However the remaining two-thirds of low wage earners experience different ETRs to the average. A substantial proportion has ETRs of less than 30 per cent, perhaps because they have not reached relevant tax thresholds or income tests or are currently in the first tax bracket.

Figure 16 Comparing ETRs between pay rise scenarios



Perhaps of greater policy concern, another substantial group – 10.4 per cent, representing 200,000 workers – have ETRs of more than 50 per cent. Relatively few low wage earners face extremely high ETRs of 70 per cent or more. Only about 2.5 per cent of all low wage earners – or just under 50,000 workers – face such high ETRs. Most low wage earners who face ETRs of more than 50 per cent fall into the 50 to 60 per cent (4.3 per cent of all low wage earners) or 60 to 70 per cent (3.6 per cent of low wage earners) brackets. However, the risk of a low wage earner facing high ETRs is only marginally higher than the risk for working age employees generally: while 10.4 per cent of low wage earners face ETRs of greater than 50 per cent (Table 3), some 9.1 per cent of all working age employees do so (Table 1).

Table 3 Estimated distribution of ETRs among low wage workers resulting from a 39c an hour wage rise, 2006-07

Effective Tax Rate	Low wage workers		Percentage by gender	
	Percentage	Number	Women	Men
t=0	17.2	331,500	20.8	13.5
0<t<=10	0.9	17,000	0.9	0.8
10<t<=20	21.3	411,000	20.8	21.9
20<t<=30	12.7	245,500	14.0	11.5
30<t<=40	32.7	629,000	29.1	36.3
40<t<=50	4.8	92,000	4.1	5.4
50<t<=60	4.3	82,000	4.0	4.6
60<t<=70	3.6	69,500	4.4	2.8
70<t<=80	1.4	26,000	1.6	1.1
80<t<=90	0.2	4,500	0.1	0.3
t>90	1.0	19,000	0.1	1.9
Total	100.0	1,927,000	100.0	100.0

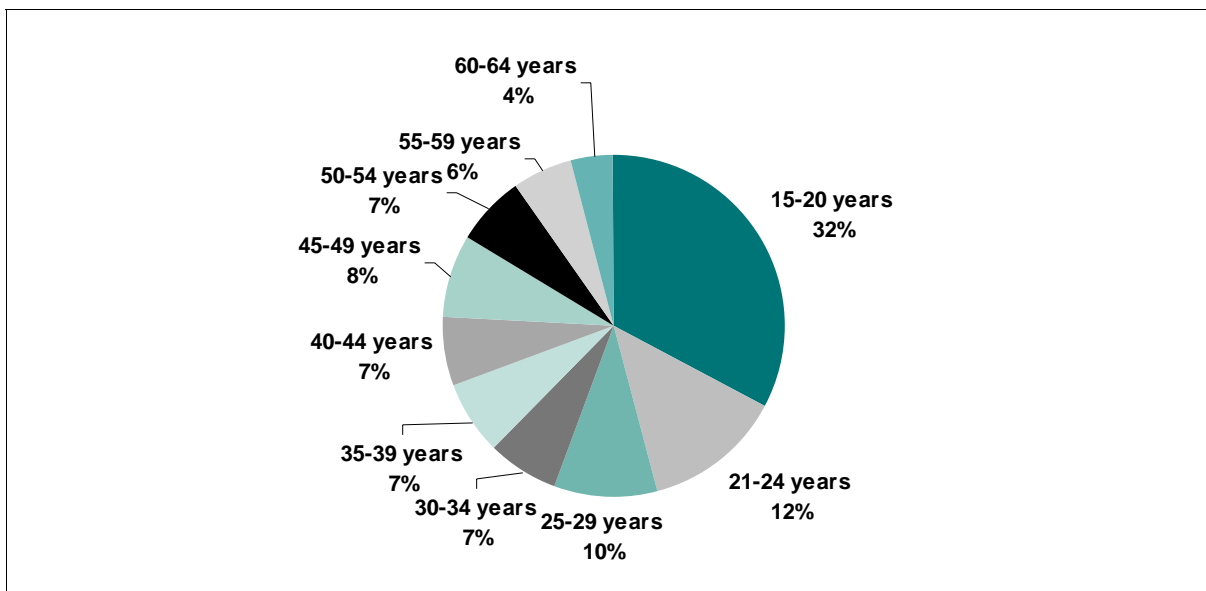
Note: There are an estimated 951,000 male and 976,000 female low wage workers in 2006-07. Cells containing less than about 2 per cent of the population are subject to sampling error and should be treated with caution.

The results show that gender makes little difference to the ETRs of low wage earners. Interestingly, our analysis suggested that there were relatively similar numbers of low wage earners categorised by gender, with an estimated 951,000 male and 976,000 female low wage earners in 2006-07. Thus, while it is often perceived that low wage workers are more likely to be female, these results indicate that low wage work is almost evenly shared between the sexes, with 49 per cent of low wage workers being men and 50 per cent women. There was also relatively little difference in the risk of facing high ETRs by gender, with some 10.7 per cent of low wage males and 10.2 per cent of low wage females having ETRs of more than 50 per cent, close to the overall average of 10.4 per cent.

ETRs by age group

Unsurprisingly, most low wage earners are young, in the lower-paid and unstable early years of workforce participation. Just under two-thirds – or 1.2 million – low wage workers are aged under 34 years (Figure 17). A striking one-third of low wage earners are aged 15 to 20 years. However, most age groups are represented, with around seven per cent in each age group between 35 and 59 years. Interestingly, only 4 per cent of low wage workers are aged 60-64.

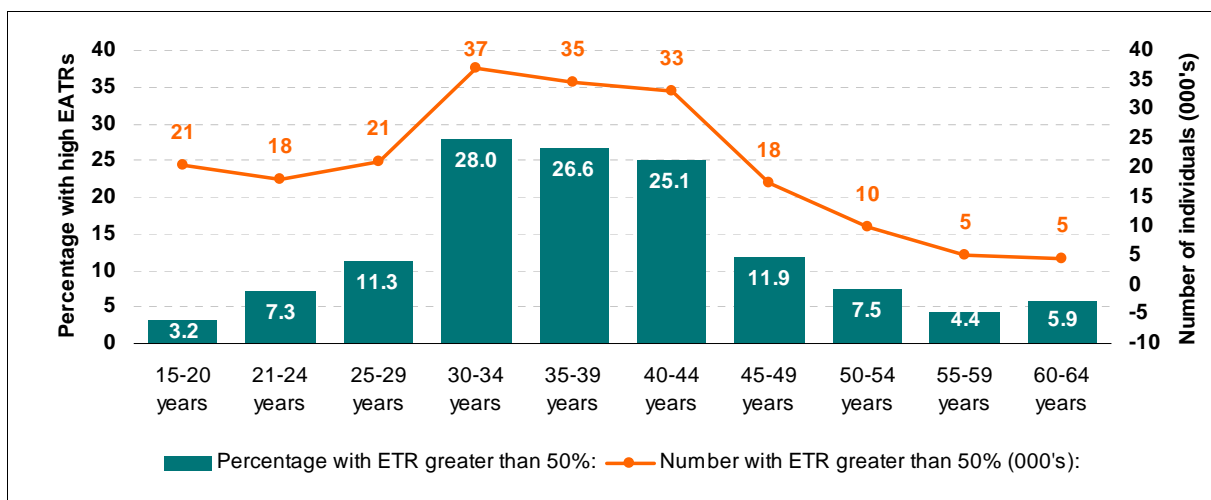
Figure 17 **Low wage employees by age group, 2006-07**



Looking at the likelihood of having high ETRs by age, Figure 18 shows that low wage workers aged 30-44 years are most likely to have ETRs greater than 50 per cent. The highest risk of facing ETRs greater than 50 per cent is experienced by low wage workers aged 30 to 34 years, with 28 per cent of this group being in this situation. This again is likely to be related to the reduction of family payments, as people in this age range are more likely to have children. While 15 to 20 year olds make up the

single largest age group among low wage earners, Figure 18 shows that the risk of facing high ETRs is relatively low for this group, with only about three per cent of all 15-20 year olds facing ETRs above 50 per cent. However, because there are so many younger low wage earners, they still make up a sizeable proportion of all those low wage workers facing high ETRs, with 21,000 estimated to be likely to lose more than half of any pay increase (the orange line in Figure 18). Of the 200,000 low wage employees facing high ETRs, 105,000 of them are aged 30 to 44 years, as shown in Figure 18. At the other end of the age spectrum, only 10,000 low wage workers aged 55 to 64 years face high ETRs.

Figure 18 **Percentage and number of low wage employees with ETRs greater than 50 per cent, by age group, 2006-07^a**



^a Scenario 1 is a 39c an hour increase in the low wage

ETRs by family type

What types of families do low wage earners live in? Figure 19 looks at all low wage earners by family type and shows that the greatest proportion (43 per cent) are single people. Only five per cent are sole parents, while around a third live in couple with children families and a fifth are part of a couple without children.

When overall ETRs for Scenario 1 are categorised by family type, it is clear that not everyone experiences the average rate of 30 per cent. On average, as shown in Figure 20, low wage earning sole parents face an average ETR of 46 cents in the dollar. Low wage employees without children and singles face rates slightly below the average, while couples with children face a slightly higher than average risk.

Figure 19 Low wage employees by family type, 2006-07

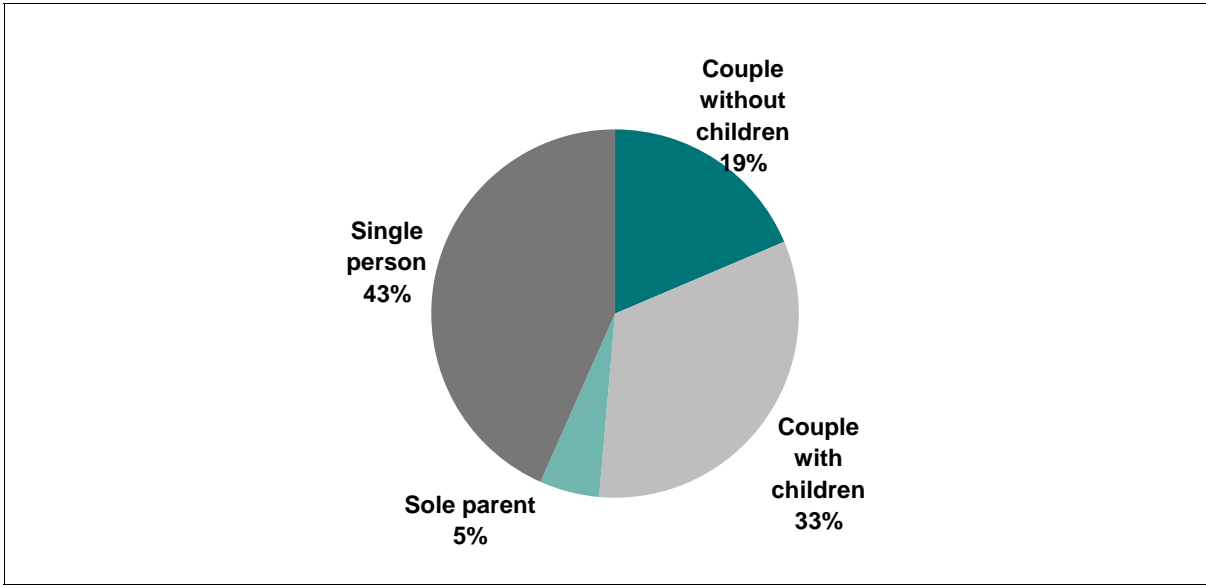
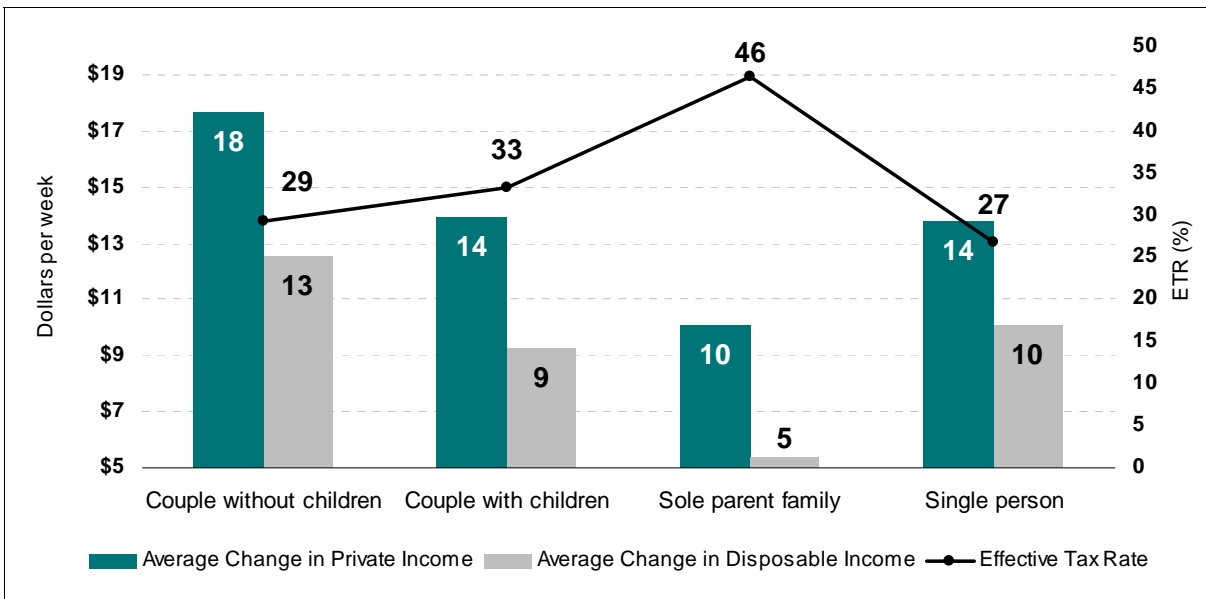


Figure 20 ETRs of low wage employees by family type, 2006-07^a

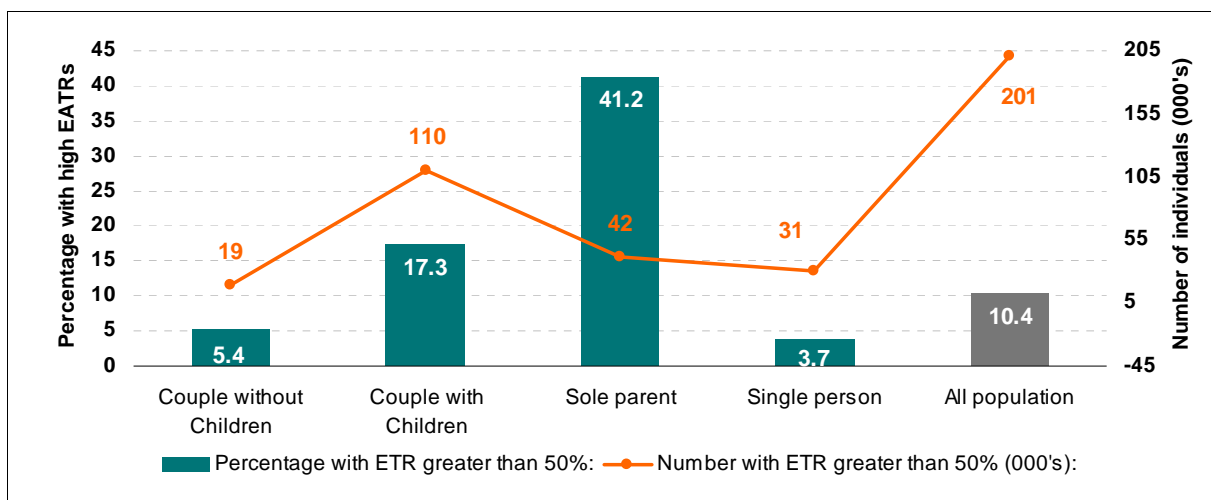


^a Scenario 1 is a 39c an hour increase in the low wage

Figure 21 compares the percentage of low wage earners in each family type that face ETRs of more than 50 per cent. Again low wage sole parents are shown to be most severely affected by effective tax rates, with 41 per cent standing to lose more than half of their simulated pay increase. A significant proportion (17.3 per cent) of couples with children also faces high ETRs and will lose more than half of the simulated pay increase to increased taxes and reduced welfare and family payments. Couples without children and single people earning low wages face a very low risk of losing more than half of the simulated pay increases.

While a high proportion of low wage sole parents are likely to lose a substantial proportion of any pay increase, sole parents are a relatively less common type of family. As a result, only 42,000 of the 200,000 low wage employees likely to lose more than half of the simulated pay increase live in sole parent families (Figure 21). Conversely, while the risk of low wage employees living in couple with children families facing high ETRs is lower, at 17.3 per cent, a third of all low wage employees live in this type of family. As a result, more than half of all those low wage employees facing ETRs of more than 50 per cent of their simulated pay increase live in couple with children families – namely 110,000 people (Figure 21).

Figure 21 **Percentage and number of low wage employees with ETRs greater than 50 per cent, by family type, 2006-07^a**



^a Scenario 1 is a 39c an hour increase in the low wage

ETRs by income decile

We have analysed the distribution of low wage workers by where they sit within the national income spectrum. The entire Australian population (including both the young and the old) have been ranked by the needs-adjusted income of their STINMOD income unit and then divided into ten equally sized groups, termed deciles.⁷ As a result, this shows where low wage employees are located within the national income distribution, which includes both those who are retired and those of working age but not in the labour force. If the family incomes of low wage earners were compared with only those of other wage earners, clearly a somewhat different impression would result. Our analysis shows how low wage employees compare with all other Australians, rather than just a subset of working Australians.

⁷ See the note under Figure 6 for more technical details. Exactly the same income deciles have been used in this Section as in Section 2.

Figure 22 shows what proportion of low wage employees are contained within each of the national income deciles. Interestingly, most low wage employees live within income units that are in the middle of the national income distribution. Thus, 56 per cent of all low wage employees are contained within income deciles 4 to 7 (which contain 40 per cent of all Australians). While almost one in every 10 low wage employees has a family income low enough to place them at the bottom of the income spectrum, in decile 1, one in every 20 lives in a family whose incomes put them at the top of the income spectrum in decile 10. This represents about 95,000 low wage employees living in top income decile families. These figures clearly suggest that in many cases a low wage employee is the second or subsequent income earner within the income unit, with many living with partners who earn a higher wage or salary.

Figure 22 Low wage employees by income decile, 2006-07

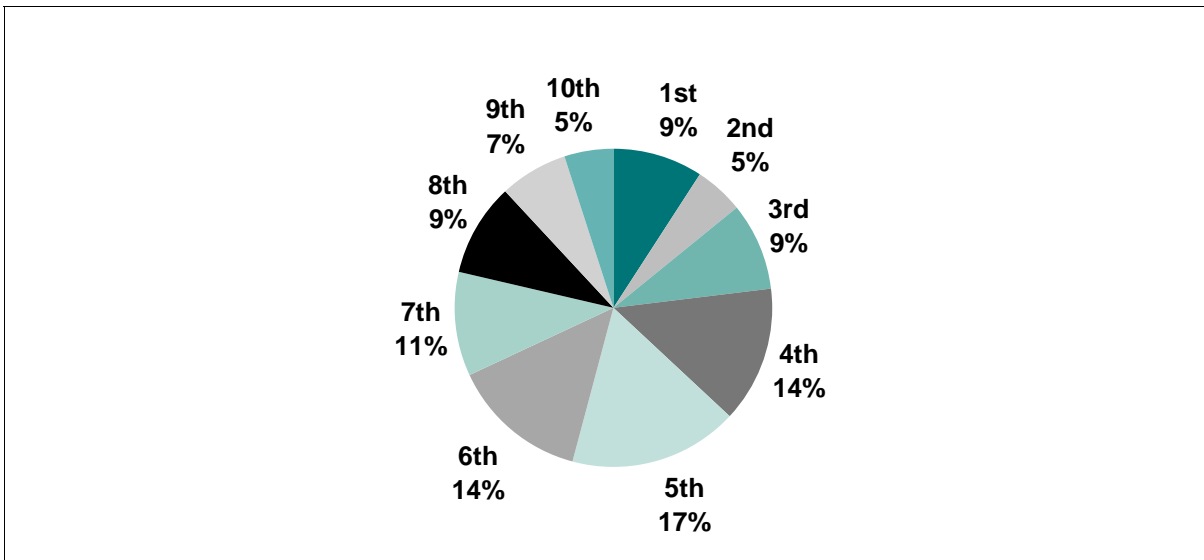
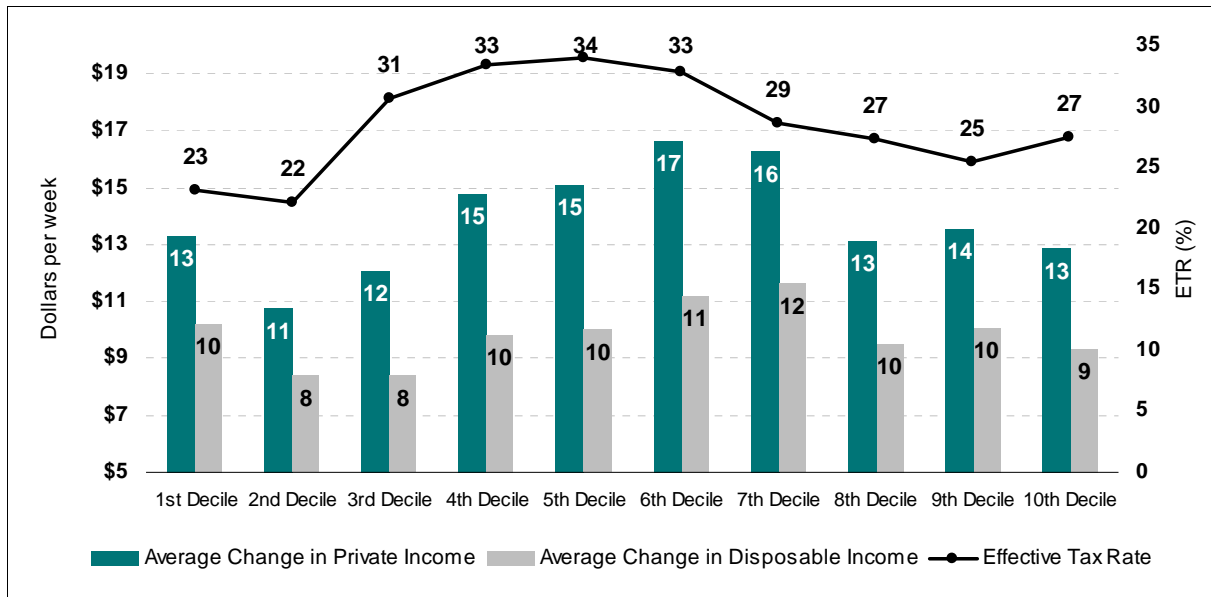


Figure 23 shows how the average increases in disposable income and ETRs from the simulated pay increase vary by the income decile in which the low wage employee is located. The ETRs faced by low wage employees in the bottom two deciles are lower than the 30 per cent average for the entire low wage population, at 23 and 22 per cent. Across the middle of the income distribution, as Family Tax Benefit is being income-tested away, average ETRs move slightly above 30 per cent, declining again for the top three deciles.

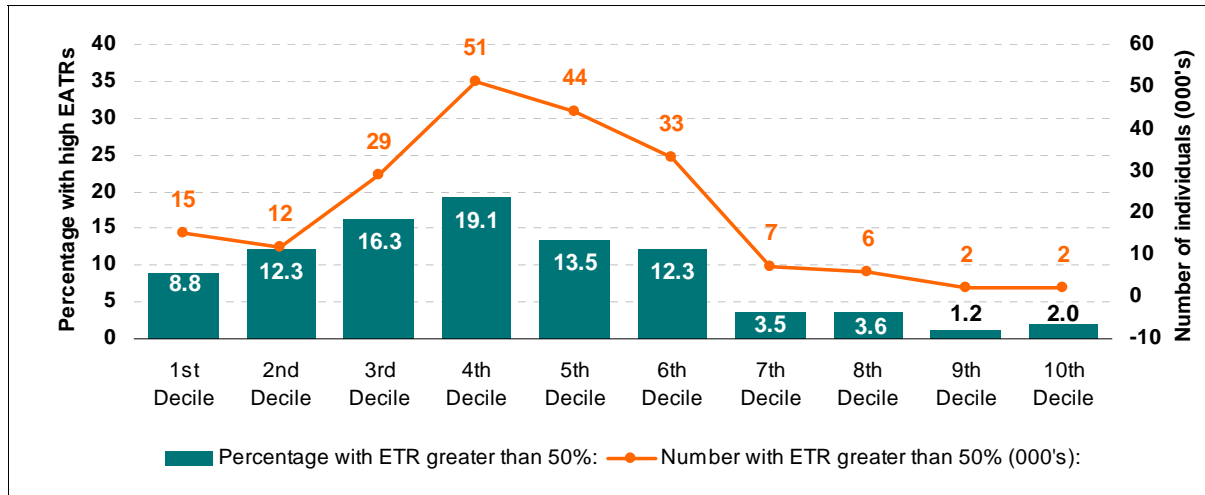
Figure 23 ETRs of low wage employees by income decile, 2006-07^a

^a Scenario 1 is a 39c an hour increase in the low wage

How many of these low wage employees are likely to lose more than half of the simulated pay increase? The proportion within each income decile facing ETRs above 50 per cent is shown in Figure 24. This indicates that those living in 3rd and 4th decile families face the greatest risks, with about 16 to 19 per cent facing ETRs of greater than 50 per cent. The risk of facing an ETR above 50 per cent is much lower for those low wage employees living in decile 7 to 10 families – suggesting that in these income zones most low wage employees are only paying income tax rather than also simultaneously having Family Tax Benefit or other income-tested payments withdrawn.

When the risk of facing high ETRs is combined with where low wage employees are actually located within the national income distribution, then the orange line in Figure 24 also indicates that about half of all low wage employees who are likely to keep less than half of the simulated wage increase live in deciles 4 and 5. These two deciles contain 95,000 of the 201,000 low wage employees who are facing ETRs of more than 50 per cent. There are also considerable numbers in the deciles on either side of these two so that, overall, almost eight in every 10 low wage employees likely to lose more than half of the simulated pay increase live in deciles 3 to 6.

Figure 24 **Percentage and number of low wage employees with ETRs greater than 50 per cent, by income decile, 2006-07^a**



5 Conclusions

Among other issues, one public policy concern is the extent to which national wage increases will result in an improvement in the living standards of employees, rather than being clawed back by government through increased income tax liabilities or reductions in welfare and family payments. A related concern is the impact of such clawbacks on labour supply, economic growth and the incentives to work facing those without jobs.

An effective tax rate (ETR) shows how much of any additional private income is kept by individuals and families, after the payment of income tax and the withdrawal of any means-tested cash payments from government (such as age pension, Family Tax Benefit and Newstart Allowance). For example, an ETR of 70 per cent means that only 30 cents is retained “in the hand” after a \$1 increase in private income.

Section 2 of this report examined the ETRs faced by employees aged 15 to 64 years. The analysis showed that almost seven in every 10 working age employees faced ETRs ranging from 30 to 40 per cent on their next dollar of private income received.

A common definition of a ‘high’ ETR is one above 50 per cent (given that the top marginal income tax rate plus standard Medicare levy is now 46.5 per cent). On this basis, about nine per cent of working age employees faced high ETRs – some 715,000 employee. Two-thirds of all those facing such high ETRs lived in couple with children families, while another 15 per cent were sole parents, 11 per cent were single and eight per cent were part of a couple without children. Two in every five employees facing high ETRs – some 290,000 employees – lived in families right at

the centre of the Australian income spectrum (that is, their needs-adjusted family incomes placed them in income deciles 5 to 6, spanning the 40th to 60th percentiles of the national income distribution for all Australians).

Section 3 of this report examined the effective tax rates facing 10 'hypothetical' or illustrative families, as earnings increased. These families provided some indication of how high effective tax rates could go for those in particular defined situations. Six illustrative couple families were examined, where the wages of the primary earner were fixed and the secondary earner increased their hours of work in half and full day 'blocks', starting from zero hours of paid work and increasing to full-time paid work. The couples all had one or two children below school age and, as the secondary earner's paid work increased, assumptions were also made about the usage and cost of child care.

The results suggested that ETRs were relatively high for most of the paid work scenarios considered, being greatest for a couple consisting of a minimum wage primary earner and a minimum wage secondary earner. For such a couple with two children, ETRs reached as high as 98 per cent as the secondary earner moved from two to three days paid work, suggesting that there was almost no financial return from such increased hours of work. Even for an average wage secondary earner whose partner was also an average earner, ETRs reached 79 per cent for the same shift from two to three days paid work. Overall, the results suggested that the ETRs facing secondary income earners with young children who require paid child care are well above 50 per cent across most feasible working hour options.

Four of the illustrative families were sole parent families, again with one or two pre-school age children (with their parent thus being entitled to Parenting Payment Single). For those with two children, ETRs were higher than 50 per cent – and reached as high as 91 per cent – for all scenarios involving more than one day's paid work.

Finally, Section 4 examined how much of an illustrative hourly pay increase would be retained by low wage employees, with 'low wage' employees being defined as those employees earning less than \$15.50 per hour in 2006-07. On this basis, there were an estimated 1.93 million low wage employees, representing about one-quarter of all employees. The simulation showed that, on average, such employees faced an ETR of about 30 per cent – and would therefore retain about 70 per cent of any national pay increase.

Averages, however, can disguise the extremes underlying them. Some 10.4 per cent of low wage workers – representing 201,000 workers – had high ETRs of more than 50 per cent. Relatively few low wage employees faced extremely high ETRs of 70 per cent or more, with only about 2.5 per cent of all low wage earners – or just under 50,000 workers – facing such extremely high ETRs. Most low wage earners

who faced ETRs of more than 50 per cent fell into the 50 to 60 per cent (4.3 per cent of low wage earners) or 60 to 70 per cent (3.6 per cent of low wage earners) brackets. The risk of a low wage earner facing high ETRs was only marginally higher than the risk for working age employees generally: while 10.4 per cent of low wage earners faced ETRs of greater than 50 per cent, some 9.1 per cent of all working age employees did so.

Particular types of low wage employees were more likely to retain less than half of the simulated pay increase. Of the 201,000 in this situation, about half were aged 30 to 44 years; just over half lived in couple with children families; and 64 per cent lived in middle income families (that is, in national income deciles 4, 5 and 6). Overall, the simulation suggested that nine in every 10 low wage employees would keep at least half of any national pay increase.

6 Appendix A: Detailed ‘hypothetical family’ results

STINMOD/06A was used to estimate the tax/income variables for each of the ten hypothetical families, for each of the eight income scenarios. The following variables were extracted at income unit level and refer to weekly amounts:

- **Total family private income:** sum of the private (including earned) income of the reference person and spouse (if any)
- **Total family allowance income:** sum of income from allowances received by the reference person and / or spouse (if any)
- **Total family pension income:** sum of income from pension received by reference person and/or spouse (if any)
- **Total family tax benefits:** sum of Family Tax Benefits Part A and B of the reference person and spouse
- **Total family taxable income:** sum of taxable income of reference person and spouse (if any)
- **Total family Medicare levy:** sum of Medicare levy of reference person and spouse (if any)
- **Total family tax paid:** the amount of tax paid by reference and spouse (if any) after tax offsets and including the Medicare levy.
- **Total family disposable income:** total disposable (after tax) income of reference and spouse (if any) (is net of childcare costs)

The ETRs in the final right hand columns of the following tables refer to the ETRs applying between the previous scenario and the current scenario.

It should be noted that income tax paid sometimes appears to increase relatively slowly as the wages of the secondary earner increase. This is because we have made the assumptions requested by the Australian Fair Pay Commission about assumed increases in child care costs as hours of paid work increase. As we have modelled the Childcare Tax Rebate as if it was received immediately by the family, there can be substantial increases in tax rebates as the family moves between one scenario and the next.

Table A1: Detailed 'hypothetical family results

Scenario Number	Spouse's Private Income	Total Family Private Income	Total Allowance Income	Total Pension Income	Family Tax Benefit	Family Taxable Income	Tax Paid	Medicare Levy	Disposable Income (After Net Childcare Costs)	Increase in Spouse Income from Previous Scenario	Increase in Disposable Income from Previous Scenario	Effective Tax Rate Over Range (%)
Low income couple (minimum wage primary earner, minimum wage secondary earner)												
Family 1 with 1 child												
0	\$0.0	\$484.4	\$113.5	\$0.0	\$203.4	\$597.9	\$44.5	\$0.0	\$756.7	\$0.0	\$0.0	0
1	\$47.8	\$532.2	\$105.1	\$0.0	\$195.5	\$637.3	\$45.4	\$2.0	\$783.7	\$47.8	\$26.9	44
2	\$95.6	\$580.0	\$81.2	\$0.0	\$190.7	\$661.2	\$46.3	\$4.0	\$798.1	\$47.8	\$14.5	70
3	\$143.4	\$627.8	\$55.4	\$0.0	\$186.3	\$683.3	\$48.1	\$5.9	\$810.3	\$47.8	\$12.2	75
4	\$191.3	\$675.7	\$26.7	\$0.0	\$182.5	\$702.4	\$51.2	\$7.3	\$818.8	\$47.8	\$8.5	82
5	\$239.1	\$723.5	\$0.0	\$0.0	\$178.2	\$723.5	\$52.2	\$7.3	\$827.5	\$47.8	\$8.6	82
6	\$286.9	\$771.3	\$0.0	\$0.0	\$168.3	\$771.3	\$57.1	\$7.3	\$852.8	\$47.8	\$25.4	47
7	\$382.5	\$866.9	\$0.0	\$0.0	\$130.0	\$866.9	\$68.6	\$13.0	\$870.2	\$95.6	\$17.4	82
8	\$484.5	\$968.9	\$0.0	\$0.0	\$103.2	\$968.9	\$78.7	\$14.5	\$910.4	\$102.0	\$40.3	61
Family 1 with 2 children												
0	\$0.0	\$484.4	\$113.5	\$0.0	\$286.4	\$597.9	\$44.5	\$0.0	\$839.8	\$0.0	\$0.0	0
1	\$47.8	\$532.2	\$105.1	\$0.0	\$278.5	\$637.3	\$42.7	\$0.0	\$867.1	\$47.8	\$27.3	43
2	\$95.6	\$580.0	\$81.2	\$0.0	\$273.7	\$661.2	\$40.9	\$0.0	\$882.1	\$47.8	\$14.9	69
3	\$143.4	\$627.8	\$55.4	\$0.0	\$269.3	\$683.3	\$41.0	\$0.9	\$893.6	\$47.8	\$11.6	76
4	\$191.3	\$675.7	\$26.7	\$0.0	\$265.5	\$702.4	\$43.7	\$2.5	\$900.3	\$47.8	\$6.6	86
5	\$239.1	\$723.5	\$0.0	\$0.0	\$261.3	\$723.5	\$45.3	\$4.3	\$904.3	\$47.8	\$4.0	92
6	\$286.9	\$771.3	\$0.0	\$0.0	\$251.3	\$771.3	\$51.9	\$7.3	\$923.8	\$47.8	\$19.5	59
7	\$382.5	\$866.9	\$0.0	\$0.0	\$213.1	\$866.9	\$56.8	\$13.0	\$925.8	\$95.6	\$1.9	98
8	\$484.5	\$968.9	\$0.0	\$0.0	\$186.2	\$968.9	\$62.5	\$14.5	\$955.6	\$102.0	\$29.8	71
Middle income couple (lower middle primary earner, low wage secondary earner)												
Family 2 with 1 child												
0	\$0.0	\$578.2	\$57.2	\$0.0	\$209.8	\$635.4	\$79.7	\$3.3	\$765.5	\$0.0	\$0.0	0
1	\$57.1	\$635.3	\$44.2	\$0.0	\$205.8	\$679.4	\$82.3	\$7.0	\$799.3	\$57.1	\$33.7	41
2	\$114.2	\$692.4	\$15.6	\$0.0	\$200.1	\$708.0	\$82.8	\$8.7	\$817.8	\$57.1	\$18.6	67
3	\$171.2	\$749.4	\$0.0	\$0.0	\$191.8	\$749.4	\$80.8	\$8.7	\$846.3	\$57.1	\$28.5	50
4	\$228.3	\$806.5	\$0.0	\$0.0	\$172.9	\$806.5	\$84.1	\$8.7	\$874.0	\$57.1	\$27.8	51
5	\$285.4	\$863.6	\$0.0	\$0.0	\$150.1	\$863.6	\$90.1	\$8.7	\$893.8	\$57.1	\$19.8	65
6	\$342.5	\$920.7	\$0.0	\$0.0	\$127.3	\$920.7	\$97.7	\$10.7	\$910.7	\$57.1	\$16.9	70
7	\$456.6	\$1,034.8	\$0.0	\$0.0	\$90.0	\$1,034.8	\$110.1	\$15.5	\$943.1	\$114.2	\$32.4	72
8	\$578.4	\$1,156.6	\$0.0	\$0.0	\$65.6	\$1,156.6	\$139.7	\$17.3	\$980.8	\$121.8	\$37.7	69
Family 2 with 2 children												
0	\$0.0	\$578.2	\$57.2	\$0.0	\$292.8	\$635.4	\$76.4	\$0.0	\$851.8	\$0.0	\$0.0	0
1	\$57.1	\$635.3	\$44.2	\$0.0	\$288.8	\$679.4	\$76.6	\$2.0	\$885.7	\$57.1	\$33.9	41
2	\$114.2	\$692.4	\$15.6	\$0.0	\$283.1	\$708.0	\$77.2	\$4.4	\$901.9	\$57.1	\$16.2	72
3	\$171.2	\$749.4	\$0.0	\$0.0	\$274.9	\$749.4	\$77.6	\$8.0	\$924.3	\$57.1	\$22.3	61
4	\$228.3	\$806.5	\$0.0	\$0.0	\$256.0	\$806.5	\$80.4	\$8.7	\$948.5	\$57.1	\$24.2	58
5	\$285.4	\$863.6	\$0.0	\$0.0	\$233.2	\$863.6	\$85.0	\$8.7	\$965.0	\$57.1	\$16.5	71
6	\$342.5	\$920.7	\$0.0	\$0.0	\$210.3	\$920.7	\$91.1	\$10.7	\$978.2	\$57.1	\$13.2	77
7	\$456.6	\$1,034.8	\$0.0	\$0.0	\$173.0	\$1,034.8	\$96.3	\$15.5	\$994.0	\$114.2	\$15.8	86
8	\$578.4	\$1,156.6	\$0.0	\$0.0	\$148.7	\$1,156.6	\$120.6	\$17.3	\$1,019.4	\$121.8	\$25.4	79
Higher income couple (average primary earner, average wage secondary earner)												
Family 3 with 1 child												
0	\$0.0	\$906.0	\$0.0	\$0.0	\$182.4	\$906.0	\$196.0	\$13.6	\$892.5	\$0.0	\$0.0	0
1	\$89.4	\$995.4	\$0.0	\$0.0	\$162.9	\$995.4	\$193.7	\$13.6	\$957.2	\$89.4	\$64.7	28
2	\$178.8	\$1,084.8	\$0.0	\$0.0	\$127.2	\$1,084.8	\$190.9	\$13.6	\$1,004.3	\$89.4	\$47.1	47
3	\$268.2	\$1,174.2	\$0.0	\$0.0	\$91.4	\$1,174.2	\$198.9	\$13.6	\$1,038.6	\$89.4	\$34.3	62
4	\$357.6	\$1,263.6	\$0.0	\$0.0	\$55.7	\$1,263.6	\$211.8	\$17.1	\$1,066.0	\$89.4	\$27.4	69
5	\$447.0	\$1,353.0	\$0.0	\$0.0	\$35.2	\$1,353.0	\$223.9	\$20.3	\$1,107.6	\$89.4	\$41.6	53
6	\$536.4	\$1,442.4	\$0.0	\$0.0	\$35.2	\$1,442.4	\$244.0	\$21.6	\$1,159.6	\$89.4	\$52.0	42
7	\$715.2	\$1,621.2	\$0.0	\$0.0	\$35.2	\$1,621.2	\$294.1	\$24.3	\$1,243.7	\$178.8	\$84.1	53
8	\$905.9	\$1,811.9	\$0.0	\$0.0	\$2.9	\$1,811.9	\$341.7	\$27.2	\$1,305.8	\$190.7	\$62.1	67
Family 3 with 2 children												
0	\$0.0	\$906.0	\$0.0	\$0.0	\$265.5	\$906.0	\$196.0	\$13.6	\$975.5	\$0.0	\$0.0	0
1	\$89.4	\$995.4	\$0.0	\$0.0	\$246.0	\$995.4	\$192.5	\$13.6	\$1,037.4	\$89.4	\$61.9	31
2	\$178.8	\$1,084.8	\$0.0	\$0.0	\$210.2	\$1,084.8	\$188.2	\$13.6	\$1,080.9	\$89.4	\$43.5	51
3	\$268.2	\$1,174.2	\$0.0	\$0.0	\$174.5	\$1,174.2	\$194.3	\$13.6	\$1,110.9	\$89.4	\$30.1	66
4	\$357.6	\$1,263.6	\$0.0	\$0.0	\$138.7	\$1,263.6	\$205.1	\$17.1	\$1,133.4	\$89.4	\$22.5	75
5	\$447.0	\$1,353.0	\$0.0	\$0.0	\$109.4	\$1,353.0	\$214.8	\$20.3	\$1,160.6	\$89.4	\$27.1	70
6	\$536.4	\$1,442.4	\$0.0	\$0.0	\$91.5	\$1,442.4	\$232.2	\$21.6	\$1,188.4	\$89.4	\$27.8	69
7	\$715.2	\$1,621.2	\$0.0	\$0.0	\$70.3	\$1,621.2	\$271.4	\$24.3	\$1,225.8	\$178.8	\$37.4	79
8	\$905.9	\$1,811.9	\$0.0	\$0.0	\$58.3	\$1,811.9	\$304.7	\$27.2	\$1,274.8	\$190.7	\$49.0	74

Table A1: con't

Scenario Number	Spouse's Private Income	Total Family Private Income	Total Allowance Income	Total Pension Income	Family Tax Benefit	Family Taxable Income	Tax Paid	Medicare Levy	Disposable Income (After Net Childcare Costs)	Increase in Spouse Income from Previous Scenario	Increase in Disposable Income from Previous Scenario	Effective Tax Rate Over Range (%)
Lower income sole parent (with minimum wage rate)												
Family 4 with 1 child												
0	\$0.0	\$0.0	\$0.0	\$259.6	\$209.8	\$256.7	\$0.0	\$0.0	\$469.4	\$0.0	\$0.0	0
1	\$47.8	\$47.8	\$0.0	\$259.6	\$209.8	\$304.5	\$0.0	\$0.0	\$513.5	\$47.8	\$44.1	8
2	\$95.6	\$95.6	\$0.0	\$251.9	\$209.8	\$344.6	\$0.0	\$0.0	\$549.8	\$47.8	\$36.4	24
3	\$143.4	\$143.4	\$0.0	\$232.8	\$209.8	\$373.3	\$0.0	\$0.0	\$574.8	\$47.8	\$25.0	48
4	\$191.3	\$191.3	\$0.0	\$213.6	\$209.8	\$402.0	\$0.0	\$0.0	\$599.8	\$47.8	\$25.0	48
5	\$239.1	\$239.1	\$0.0	\$194.5	\$209.8	\$430.7	\$0.0	\$0.0	\$624.7	\$47.8	\$25.0	48
6	\$286.9	\$286.9	\$0.0	\$175.4	\$209.8	\$459.4	\$5.3	\$0.0	\$644.4	\$47.8	\$19.7	59
7	\$382.5	\$382.5	\$0.0	\$137.1	\$209.8	\$516.7	\$22.1	\$0.0	\$665.7	\$95.6	\$21.3	78
8	\$484.5	\$484.5	\$0.0	\$96.3	\$209.8	\$577.9	\$47.4	\$0.0	\$691.2	\$102.0	\$25.5	75
Family 4 with 2 children												
0	\$0.0	\$0.0	\$0.0	\$259.6	\$292.8	\$256.7	\$0.0	\$0.0	\$552.4	\$0.0	\$0.0	0
1	\$47.8	\$47.8	\$0.0	\$259.6	\$292.8	\$304.5	\$0.0	\$0.0	\$594.3	\$47.8	\$41.8	12
2	\$95.6	\$95.6	\$0.0	\$256.8	\$292.8	\$349.5	\$0.0	\$0.0	\$633.3	\$47.8	\$39.0	18
3	\$143.4	\$143.4	\$0.0	\$237.7	\$292.8	\$378.2	\$0.0	\$0.0	\$656.0	\$47.8	\$22.7	52
4	\$191.3	\$191.3	\$0.0	\$218.5	\$292.8	\$406.9	\$0.0	\$0.0	\$678.7	\$47.8	\$22.7	52
5	\$239.1	\$239.1	\$0.0	\$199.4	\$292.8	\$435.6	\$0.0	\$0.0	\$701.4	\$47.8	\$22.7	52
6	\$286.9	\$286.9	\$0.0	\$180.3	\$292.8	\$464.3	\$2.6	\$0.0	\$721.6	\$47.8	\$20.2	58
7	\$382.5	\$382.5	\$0.0	\$142.0	\$292.8	\$521.6	\$15.1	\$0.0	\$729.7	\$95.6	\$8.1	91
8	\$484.5	\$484.5	\$0.0	\$101.2	\$292.8	\$582.8	\$38.1	\$0.0	\$749.8	\$102.0	\$20.1	80
Higher income sole parent (with higher wage rate)												
Family 5 with 1 child												
0	\$0.0	\$0.0	\$0.0	\$259.6	\$209.8	\$256.7	\$0.0	\$0.0	\$469.4	\$0.0	\$0.0	0
1	\$89.4	\$89.4	\$0.0	\$254.4	\$209.8	\$340.9	\$0.0	\$0.0	\$549.8	\$89.4	\$80.4	10
2	\$178.8	\$178.8	\$0.0	\$218.6	\$209.8	\$394.5	\$0.0	\$0.0	\$599.7	\$89.4	\$49.9	44
3	\$268.2	\$268.2	\$0.0	\$182.8	\$209.8	\$448.1	\$5.5	\$0.0	\$644.1	\$89.4	\$44.4	50
4	\$357.6	\$357.6	\$0.0	\$147.1	\$209.8	\$501.8	\$23.2	\$0.0	\$676.4	\$89.4	\$32.3	64
5	\$447.0	\$447.0	\$0.0	\$111.3	\$209.8	\$555.4	\$47.0	\$0.0	\$702.5	\$89.4	\$26.1	71
6	\$536.4	\$536.4	\$0.0	\$75.6	\$209.8	\$609.1	\$72.3	\$1.5	\$727.1	\$89.4	\$24.6	72
7	\$715.2	\$715.2	\$0.0	\$4.0	\$209.8	\$716.3	\$121.6	\$10.7	\$765.8	\$178.8	\$38.7	78
8	\$905.9	\$905.9	\$0.0	\$0.0	\$182.4	\$905.9	\$173.0	\$13.6	\$838.8	\$190.7	\$73.0	62
Family 5 with 2 children												
0	\$0.0	\$0.0	\$0.0	\$259.6	\$292.8	\$256.7	\$0.0	\$0.0	\$552.4	\$0.0	\$0.0	0
1	\$89.4	\$89.4	\$0.0	\$259.3	\$292.8	\$345.8	\$0.0	\$0.0	\$635.5	\$89.4	\$83.1	7
2	\$178.8	\$178.8	\$0.0	\$223.5	\$292.8	\$399.4	\$0.0	\$0.0	\$683.2	\$89.4	\$47.7	47
3	\$268.2	\$268.2	\$0.0	\$187.8	\$292.8	\$453.1	\$4.9	\$0.0	\$726.0	\$89.4	\$42.8	52
4	\$357.6	\$357.6	\$0.0	\$152.0	\$292.8	\$506.7	\$22.7	\$0.0	\$755.8	\$89.4	\$29.8	67
5	\$447.0	\$447.0	\$0.0	\$116.2	\$292.8	\$560.3	\$45.9	\$0.0	\$780.3	\$89.4	\$24.5	73
6	\$536.4	\$536.4	\$0.0	\$80.5	\$292.8	\$614.0	\$69.0	\$0.0	\$804.8	\$89.4	\$24.5	73
7	\$715.2	\$715.2	\$0.0	\$9.0	\$292.8	\$721.3	\$111.0	\$7.7	\$833.5	\$178.8	\$28.6	84
8	\$905.9	\$905.9	\$0.0	\$0.0	\$265.5	\$905.9	\$157.7	\$13.6	\$886.2	\$190.7	\$52.7	72

References

- ATO (Australian Taxation Office) website, 2006, tax rates at <http://www.ato.gov.au/individuals/content.asp?doc=/content/12333.htm>
- Beer, G., 2003, "Work Incentives under A New Tax System: The Distribution of Effective Marginal Tax Rates in 2002", *The Economic Record*, Special Issue, Vol. 79, pages 14-25.
- Centrelink, 2006, *A guide to Australian Government Payments*, 1 July-19 September 2006 Edition, Australian Government.
- Gruen, N., 2006, *Tax Cuts for Growth: the Impact of Marginal Tax Rates on Australia's Labour Supply*, Committee for Economic Development of Australia (CEDA) Information Paper 84.
- Harding, A., Warren, N., Robinson, M. and Lambert, S., 2000, 'The Distributional Impact of the Year 2000 Tax Reforms in Australia', *Agenda*, Volume 7, No 1, pages 17-31
- Harding, A., Vu, Q.N., Payne, A., and Percival, R., 2006, ' Trends in Effective Marginal Tax Rates, 1996-97 to 2006-07', *AMP-NATSEM Income and Wealth Report*, Issue No 14, September (available from www.amp.com.au/ampnatsemreports)
- Toohey, M. and Beer, G., 2004, "Financial Incentives to Work for Married Mothers under A New Tax System", *Australian Journal of Labour Economics*, Vol. 7, No.1, pages 53-69.
- Vu, Q.N., 2005, *STINMOD/05b User Guide*, National Centre for Social and Economic Modelling, University of Canberra (available from <http://www.natsem.canberra.edu.au/products/STINMOD/stinmod%2005b%20user%20guide.pdf>)

© Commonwealth of Australia 2006

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from the Commonwealth. Requests and inquiries concerning reproduction and rights should be addressed to the Commonwealth Copyright Administration, Attorney General's Department, Robert Garran Offices, National Circuit, Barton ACT 2600 or posted at <http://www.ag.gov.au/cca>.

The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the Australian Fair Pay Commission.

ISBN 0 9802919 1 7