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An Analysis of The Australian Labor Party's Tax and Family Benefits Package

Using the Melbourne Institute Tax and Transfer Simulator (MITTS)

by

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Report to the Australian Labor Party

7th September 2004

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Executive Summary

I. Introduction

The Melbourne Institute Tax and Transfer Simulator (MITTS) is used to analyse the Australian Labor Party's Tax and Family Benefits Package. MITTS is a behavioural "micro-simulation model" which predicts expected labour supply effects, resulting from policy changes in taxes or transfer payments, and then calculates the effect of these labour supply changes on the budgetary cost of a proposed policy.

II. Static "up-front" costing (before behavioural effects)

The package being analysed has four components¹. These are outlined in more detail in the Labor Party's policy document "Labor's Tax and Better Family Payment Plan Rewarding Hard Work" (2004). The following figures assume no changes in labour supply.

1. *Consolidation of Family Tax Benefit Part A and Part B (and some changes to rates and tapers)* – to be introduced in 2005-6.

MITTS calculates this to provide an estimated annual budget saving of **\$234 million** in 2005-6.

2. *Adding the Single Income Tax Offset (which provides a tax rebate for single-earner families) - to be introduced in 2005-6.*

When this is added to 1 above, MITTS estimates the annual cost of the resultant package to be **\$887 million** in 2005-6.

3. *Adding the Low and Middle Income Tax Offset (which provides a tax cut of up to \$8 per week to tax payers with an income between \$7382 and \$56,160 per*

¹ Except for the increase in the top tax threshold, the naming of the different components of the package differs from the ones used by the Australian Labor Party. The *Consolidation of Family Tax Benefit Part A and Part B* corresponds to the "Better Family Payment", the *Single Income Tax Offset* corresponds to the "Tax Free Guarantee for Families", and the *Low and Middle Income Tax Offset* corresponds to the "Working Tax Bonus".

annum (with those below \$8453 not paying any tax) and incorporates the existing Low Income Tax Offset - to be introduced in 2005-6

When this is added to 1 and 2 above, MITTS estimates the cost of the resultant package to be **\$3.338 billion** in 2005-6.

4. Increasing the top income tax threshold to \$85,000, to be implemented in 2006-7.

When this is added to 1, 2 and 3 above, MITTS estimates the cost of the resultant package (in 2005-6 prices) to be **\$3.513 billion**.

III. The Labour Supply Effects of the Package

MITTS estimates the labour supply effect of changes in taxes or transfers, at existing real wages. Later we will discuss the possibility that the labour market cannot fully accommodate this increased labour supply and to the extent that it can, the process could still take a number of years.

1. Consolidation of Family Tax Benefit Part A and Part B

MITTS estimates that the labour supply effect at existing real wages, of the family tax benefit consolidation, would be to increase the labour force participation rate from 63.5 per cent to just over 63.7 per cent, an increase of about 41,000 persons. The largest percentage increase is in the labour supply of lone parents but the largest absolute increase, of about 27,000 persons, is for partnered females. A major factor here is the increased incentive for couples to be dual earners with the removal of Family Tax Benefit Part B (designed for single-income families), with the saved spending being used to support dual-income families as well as single-income families on lower incomes.

2. Adding the Single Income Tax Offset

The addition of the single income tax offset, partially reverses the result from 1 above, because it provides an incentive to be a single-income family and offsets the reduction in income of Family Tax Benefit part B for lone parents. On its own the single-income tax offset is found to reduce labour supply by about 14,000 persons. The

overall increase in labour force participation combining the single income tax offset and the family tax benefit consolidation, however, is still to increase labour force participation from about 63.5 per cent to just under 63.7 per cent, an increase of about 27,000 persons.

3. Adding the Low and Middle Income Tax Offset

This tax cut for low and middle-income families is found to have a positive work incentive effect. When added to 1 and 2 above the estimated total increase in overall labour supply at existing real wages, is about 71,000 (an increase in labour force participation from about 63.5 per cent to over 63.9 per cent. Labour supply increases for males and females, singles and couples. Again lone parents have the largest percentage increase and partnered females the largest absolute increase.

4. Adding the increase in the Top Income Tax Threshold

This is found to have a small positive effect on labour supply, increasing labour force participation by just a few hundred persons.

IV. Employment Effects and Feedback Effects on the Budget.

When any increased labour supply is converted into additional employment, this reduces the cost of the policy to the government's budget, due to higher income taxes paid by tax payers and lower benefits paid out by government.

However, due to labour market frictions and displacement effects, it is probable that not all the labour supply effects estimated above will be converted into employment. On the other hand when the increase in labour supply is converted into employment, those entering or re-entering employment may experience increases in their wages over time, further increasing income taxes paid by these employees and lower government benefits received by them, thus increasing the budget savings above that estimated by the MITTS model, which does not account for such wage progression.

Evidence is presented that the employment effect can be expected to take about four years to be realised with the biggest incremental effect in year 2. Our central estimate of the time path of the employment effect is shown in the table below taking into

account labour market frictions and displacement effects, and the time-lags involved. This assumes that 85 per cent of the projected increase in labour supply is converted into increased employment.

Projected total additional employment from total package

Projected employment (in persons)	Year 1	Year 2	Year 3	Year 4
Central estimate	12,147	36,502	57,881	61,023

As a result, the budget savings would also be lower than the full potential budget savings estimated by MITTS. The projected budget savings resulting from this employment effect will also take four years to materialise fully. Our central estimate of these budget savings over the four-year period is presented in the table below.

Projected total annual behavioural savings from total package

Projected savings (\$million) In 2005-6 prices	Year 1	Year 2	Year 3	Year 4
Central estimate	154	469	754	806

Our central estimate of the total annual budget savings due to the employment effect is \$806 million, after four years, which is 23 per cent of the up-front annual cost of the package. We also provide “high” and “low” estimates, which we regard as “optimistic” and “pessimistic” scenarios.

1. Introduction

The Melbourne Institute has a unique capacity in Australia to undertake behavioural micro-simulation modelling of the effect of changes to taxes and transfers on the labour supply behaviour of Australians as well as the effect on the government's budget, using the Melbourne Institute Tax and Transfer Simulator (MITTS). A description of the MITTS model is provided in Appendix 1.²

We were commissioned to provide an analysis of the dynamic effects of the Australian Labor Party's Tax and Family Tax Benefits package, because the Labor Party expected the package to produce a positive effect on labour force participation and a feedback effect on the budget, or "participation dividend". Such a dividend can result from this type of policy change because of higher taxes paid to the government and lower benefits paid out by the government, following any boost to labour supply. Our task was to estimate the size of this "participation dividend" and advise on how it could be expected to accrue over time.

The MITTS model has two main inter-related components. First, MITTS A, provides the static analysis of the "day-after" effects of the changes to taxes and transfers. This includes an estimate of the cost to the government's budget of such changes, assuming no behavioural effects³. In section 2 of this report we provide our estimate

² The chief architect of the MITTS model was Professor Alan Duncan of The University of Nottingham and the Institute for Fiscal Studies in London, (as well as a Professorial Fellow of the Melbourne Institute) who along with Professor John Creedy and a team of researchers at the Melbourne Institute built the model according to international best practice, (see Creedy et al., 2002). Professor Duncan is one of the co-authors of this report along with Dr Guyonne Kalb, the head of the MITTS research team, Professor Peter Dawkins, the Director the Melbourne Institute, and Dr Hielke Buddelmeyer and Ms Rosanna Scutella, Research Fellows of the Melbourne Institute.

³ When speaking of behavioural effects we refer to the labour supply responses resulting from policy changes as predicted by the MITTS model. A simulation without these effects is the "day-after" estimate of the effect of a policy change. This assumes households do not change their behaviour as a result of the policy change. See Section 4.2 and Appendix 1 for a detailed discussion of behavioural effects, their implication for the cost of new policies, and a discussion on how the simulated labour supply responses may translate into changes in employment.

of this “static cost” of Labor’s tax package, using MITTS A. In preparing this estimate we have benchmarked our outcomes against the outcomes resulting from NATSEM’s static microsimulation model STINMOD, to help confirm the accuracy of the estimates. The two sets of estimates are found to be very similar⁴.

MITTS B then estimates the effect of the changes in taxes and transfers on the labour supply behaviour, based on econometric estimates of the preferences of Australians between paid work and other uses of time, conditional on the financial incentives they face, resulting from their wage levels, the tax and transfer system, and any other sources of income that they have. Section 3 of the report provides our estimates of the predicted effect of Labor’s package on labour force participation and preferred hours of work, obtained by using MITTS B.

In section 4 we go on to present our analysis of the feedback effect of these changes in labour supply on the government’s budget. First, MITTS estimates what the effect would be on the budget if all the simulated effects on labour supply were to be converted into corresponding changes in employment and hours of work. We provide our assessment of how much of this change in labour supply can be expected to be converted into changes in the employment rate and hours of work and suggest a reasonable time path for these changes based on earlier evidence. In turn we provide our estimate of the feedback effect of these behavioural changes on the government’s budget over a four-year period. In addition to our central estimates of this feedback effect, “high” and “low” estimates are provided.

⁴ Differences in costings from the models can arise due to a number of factors such as different weights attached to the sample population in the database used with the models, different methods of uprating for population changes, and a difference in uprating the levels of benefit payments for future years. All these differences between MITTS A and STINMOD are however very small.

2. The Package and its Cost to the Budget without Behavioural Effects⁵

2.1 Overview of Package

There are four elements of the tax and family payments package being analysed here. Details of the four components⁶ are outlined in the Labor Party's policy document "Labor's Tax and Better Family Payment Plan Rewarding Hard Work" (2004).

- First, Family Tax Benefit Part A and Family Tax Benefit Part B are to be consolidated, in this package, into one Family Tax Benefit Payment. The new family payment no longer has a separate extra payment for single income families and lone parents. Lone parent and couple families are now treated the same. In the process there are some changes to rates of payment and tapers as outlined in the Australian Labor Party's report (2004). For example, the "free area" for the consolidated payment, (before it is withdrawn according to a family income means test), is to be \$50,000. We will refer to this part of the package as *Family Tax Benefit Consolidation*. This component would be introduced in financial year 2005-6.
- Second, a single income family with one or more dependent children will be able to transfer the tax-free area of the partner to the income earner. This is a similar idea to the current Dependent Spouse Rebate, which applies to couples without children. We refer to this part of the package as the *Single Income Tax Offset*. The single income tax offset is also available to lone parents, paid out through the tax system for lone parent families with an income over \$50,000 or as an add-on to the new family payment for lone parent families with an income below \$50,000. This can be viewed as a form of compensation to single income families who no longer receive Family Tax Benefit Part B as the result of Family Tax Benefit Consolidation. This part of the package would also be introduced in financial year 2005-6.

⁵ See footnote 3 in section 1 for a definition of behavioural effects.

⁶ Except for the increase in the top tax threshold, the naming of the different components of the package differs from the ones used by the Australian Labor Party. The *Consolidation of Family Tax Benefit Part A and Part B* corresponds to the "Better Family Payment", the *Single Income Tax Offset* corresponds to the "Tax Free Guarantee for Families", and the *Low and Middle Income Tax Offset* corresponds to the "Working Tax Bonus".

- Third, individual tax-payers with an income under \$56,160⁷ per annum, are to receive a tax cut which does not go to tax payers with higher incomes than this. This is achieved by an extension of the current low-income tax offset, so that a tax payer with an income between \$7,382 and \$56,160 receives a tax cut of the value of up to \$8 per week. Tax payers with an annual income below \$8,453 (this increased from \$7,382) no longer pay tax. This part of the package is called the *Low and Middle Income Tax Offset*. It would also be introduced in financial year 2005-6.
- Fourth, the top (47%) income tax threshold is to be increased by \$5000 to \$85,000. This will be referred to as *an increase in the top income tax threshold*. This part of the package would also be introduced in financial year 2006-7.

The above policy changes are illustrated by examples of the change in net incomes for three typical households at the end of Appendix 2.

2.2 Costings before Behavioural Effects

Using the MITTS model, we estimate that on its own the consolidation of Family Tax Benefit Part A and Part B would represent a saving compared to the budget in 2005-6 of about \$234 million. Thus, bearing in mind that the combined value of Family Tax Benefit A and Family Tax Benefit B is over \$15 billion, this is very close to a revenue neutral change.

When the single income tax offset is added to the consolidation of Family Tax Benefits, the estimated cost in 2005-6, assuming no behavioural effects, will be about \$887 million. Thus the net effect on the budget, of the Single Income Tax offset by itself is estimated to be about \$1.1 billion.

⁷ Tax-payers on an income over \$52,000 will receive a reduced offset as they are still in the tapering out range.

When the low and middle income tax offset is added to the package this raises the estimated cost, without behavioural effects, to \$3.338 billion. The addition of the increase in the top income tax threshold in 2006-7 raises the costs (in 2005-6 prices) to an estimated \$3.513 billion.

Table 1. Estimated cost of policies before behavioural effects (negative numbers indicate a saving)

Policy	Estimate of Annual Cost of Policies <i>without behavioural response</i> (\$b.) in 2005-6 prices
Family Package:	
FTB Consolidation	-0.234
Tax Package:	
FTB Consolidation <i>plus single income tax offset</i>	+0.887
FTB Consolidation plus single income tax offset <i>plus low and middle income tax offset</i>	+3.338
FTB Consolidation plus single income tax offset plus low and middle income tax offset, <i>plus an increase in the top income tax threshold</i> (to be implemented in 2006-7)	+3.513

3. The Labour Supply Effects of the Package

3.1 How the components of the package might be expected to affect labour supply behaviour

3.1.1 Family Tax Benefit Consolidation

The main expected effect of Family Tax Benefit Consolidation would be to increase the labour supply of partnered women and lone parents. This is because the policy involves the removal of that part of Family Tax Benefits that is designed for single income families. A priori, we would expect the removal of Family Tax Benefit Part B, to reduce the incentive to be a single earner family and thus increase the incentive to be a dual earner family. This will mostly affect the labour supply of partnered women who currently do not participate in the labour market, and a small number of partnered men who do not participate but whose spouses do. This change will also affect lone parents as they no longer have access to the non-means tested Family Tax Benefit part B. However, changes to rates and tapers, which occur at the same time, are also expected to affect the incentive to work for some “primary earner” males and females.

3.1.2 Single Income Tax Offset

By contrast, the single income tax offset would increase the rewards to single earner couples relative to dual earner couples and to non-earner lone parents relative to lone parents in employment. A priori, therefore, we would expect the increase in partnered women’s labour supply from Family Tax Benefit Consolidation to be at least partially reversed by the Single Income Tax Offset.

3.1.3 Low and Middle Income Tax Offset

The low and middle income tax offset would have the effect of increasing the reward to work for those individuals who receive the tax rebate involved. This can be expected to have income and substitution effects. The substitution effect would cause people to be more inclined to participate in the labour market and to work more hours (due to the relative increase in the price of non-working time versus the price of other consumption goods). The income effect causes some people to take advantage of the higher income that they can now obtain at a lower level of labour supply by reducing their labour supply. Empirical evidence suggests that especially for those with relatively low earnings, which is the group targeted by the offset, the substitution

effect tends to outweigh the income effect. Thus we would expect to see an increase in labour supply.

3.1.4 Increasing the Top Tax Threshold

This would increase the reward to work for high-income earners. Again this could be expected to have both income and substitution effects, which could raise or lower labour force participation and hours of work. Our previous analysis of the expected effect of the last federal budget raising the top two top income tax thresholds, suggests that the positive substitution effect on labour supply will dominate (Buddelmeyer et al, 2004). Given the usually lower wage elasticity of high income earners we expect the labour supply responses to the increase in the top tax threshold to be relatively modest.

3.2 MITTS B Estimates of the expected effects of the package on labour supply

In Table 2 we present our estimates from the labour supply analysis in MITTS B of the expected effects of the package on labour supply behaviour, at existing real wages. We will see later that the labour market may not be fully accommodating to this increased labour supply and to the extent that it is, the process would take a number of years.

As expected the labour supply effect of the Family Tax Benefit Consolidation is primarily to increase the labour supply of partnered females in the order of 27,000 additional participants. A substantial positive effect is also found for lone parents (about a 12,000 increase in their labour force participation which increases their participation rate from about 61.6 per cent to about 63.5 per cent) and a smaller effect for partnered males. The overall estimated effect on labour force participation of the Family Tax Benefit consolidation is an increase of about 41,000 raising the participation rate of all those aged 15 and over from 63.5 per cent to just over 63.7 per cent.

Table 2. Estimated⁸ Effect of Policies on Labour Force Participation and Hours of Work⁹ (at existing real wages)

Estimated Effect of Policy on Labour Force Participation in persons (percentage point changes in parentheses)								Change in average desired hours of work (in hours) ^b
	Partnered Males	Partnered Females	Single Males	Single females	Lone Parents	Total Participation effect	Potential change in the number of Jobless Families/Income Units ^a	
Participation rate for everyone over 15 before Labor's policy changes(%) ^c	72.83	56.61	69.17	53.56	61.56	63.48	Total number of jobless families 1,671,948 (20.82)	Total average hours: 28.8
Policy								
Family Benefits Package:								
<i>FTB consolidation (A)</i>	+2,523 (+0.05)	+26,822 (+0.56)	0	0	+12,035 (+1.95)	+41,380 (+0.26)	-17,903 (-0.22)	+0.16
Adding the Tax Package:								
<i>A plus Single Income Tax Offset (B)</i>	+5,520 (+0.12)	+14,318 (+0.30)	0	0	+7,621 (+1.23)	+27,460 (+0.17)	-17,444 (-0.22)	+0.10
<i>B plus Low and Middle Income Tax Offset (C)</i>	+14,198 (+0.30)	+26,656 (+0.56)	+8,453 (+0.27)	+5,108 (+0.18)	+17,039 (+2.76)	+71,455 (+0.44)	-48,395 (-0.60)	+0.29
<i>C plus an increase in the top income tax threshold</i>	+14,538 (+0.30)	+26,581 (+0.55)	+8,544 (+0.27)	+5,108 (+0.18)	+17,039 (+2.76)	+71,810 (+0.44)	-48,996 (-0.61)	+0.30

Note: In the first version on the web, footnotes a) and b) were accidentally switched around. This has now been corrected.

a) The number of jobless income units is calculated for the working age population alone excluding full-time students.

b) Average hours are calculated only for those who are allowed to change their labour supply in MITTS (this excludes the self-employed for whom no hours of work are recorded in the data, full-time students, disabled individuals and people over 65).

c) It is assumed unemployment and employment rates remain as they were in 2001, when the data was observed, before adding the predicted changes in labour supply.

⁸ The labour supply responses as predicted by the MITTS model are reported. There is not a one-to-one relationship between the simulated labour supply response and *realised* employment. For a discussion on this matter, see section 4.2.

⁹ These simulations are of the effect of the package assuming the full implementation of the 2004 Federal Budget measures as the base. The effect of the 2004 Budget compared to the pre-Budget situation is presented in Appendix 4. The numbers are an update of our earlier analysis of the Budget (Buddelmeyer et al., 2004). The assumptions in our previous simulations were slightly different from the current assumptions, but the current outcomes are still very similar to our earlier results.

Also as expected, the Single Income Tax Offset is found to partially reverse the positive effect of the Family Tax Benefit Consolidation on the labour supply of partnered women, while having a small positive effect on partnered males' labour supply. There is also a small negative effect on lone parents' labour supply. On its own the single-income tax offset is found to reduce labour supply by about 14,000 persons. However, this negative effect is not as large as the negative effect that Family Tax Benefit part B had on labour supply. As a result, the overall increase in labour force participation, combining the single income tax offset and the family tax benefit consolidation, is still to increase labour force participation from about 63.5 per cent to just under 63.7 per cent, an increase of about 27,000 persons.

Consistent with our expectations, adding the low and middle income tax offset is found to have a positive labour supply effect for every category. The largest percentage changes are for lone parents, but small positive effects are also found for the other groups. Thus the overall estimated effect on labour force participation, (at existing real wages) of the year 1 of the package is to raise it from about 63.5 per cent to about to just over 63.9 per cent, an increase of about 71,000 persons.

Finally, the increase in the top income tax threshold is found to have a very small positive labour supply effect for single males increasing the estimated total labour force participation effect by a few hundred persons.

The last two columns of Table 2 show, respectively, the potential change in the number of jobless families if all the increased labour supply was converted into employment and the estimated effect of the package on average desired hours of work.

On jobless families, we find that if all the labour supply increase was converted into employment, the number of jobless families would be reduced by about 49,000, a little over half a percentage point decrease in the incidence of jobless families. The term family here is used broadly to include singles or couples with or without children. This derives mainly from the increased incentive to move from welfare to work resulting from the low and middle income tax offset, which is found to particularly boost lone parents' labour supply. In addition to lone parents, a significant

number of jobless singles and partnered males and females in jobless families are also expected to want to move into work.

Finally, the desired average hours of work increase from 28.8 to 29.1 (also included in the calculation are those who desire zero hours of work).

4. The Feedback of the Behavioural Effects on the Budget

4.1 The potential “full effect” of the modelled labour supply changes

Table 3 presents estimates from MITTS B of the potential impact on the annual cost of the policy changes caused by these behavioural changes, if all the estimated increase in labour supply was converted into employment. We will provide further discussion on this assumption in section 4.2. indicating that there are reasons to believe that the conversion of this labour supply into employment could take a number of years to occur and may not be fully converted into employment. Meanwhile, however, the question is what would be the potential budget savings due to increased taxes paid and benefits received by those who now have better incentives to become employed or increase their hours of work?

Table 3. Estimates of Full Potential Feedback Effects on the Budget

Policy	Estimate of Annual Cost of Policies <i>without behavioural response</i> (\$b.) in 2005-6 prices	Estimate of Annual Cost of Policies <i>if full labour supply response was converted in employment and hours of work</i> (\$b.) in 2005-6 prices	Potential saving from behavioural response
Family Benefits Package:			
FTB Consolidation	-0.234	-0.740	+0.506
Adding the Tax Package:			
FTB Consolidation <i>plus single income tax offset</i>	+0.887	+0.588	+0.299
FTB Consolidation plus single income tax offset <i>plus low and middle income tax offset</i>	+3.338	+2.433	+0.905
FTB consolidation plus single Income tax Offset plus Low and Middle Income Tax Offset, <i>plus an increase in the top tax threshold</i>	+3.513	+2.562	+0.951

It can be seen that the budget savings due to the Family Tax Benefit Consolidation, have the potential to be increased by an estimated additional \$506 million due to the behavioural response. When we add the Single Income Tax Offset however, we find

that the total cost of these two parts of the package would be reduced from about \$887 million to about \$588 million if all the modelled labour supply effects were converted into employment, thus reducing the overall behavioural savings to an estimated \$299 million.

Adding the low and middle income tax offset produces an estimated package of about \$3.338 billion (without behavioural effects), but a net cost of about \$2.433 billion if all the labour supply effects were converted into employment and hours of work. The addition of raising the top income tax threshold adds slightly to the estimated potential behavioural savings, adding up to an amount of \$951 million in total potential behavioural savings. Overall, if the full behavioural response is translated into an increase in employment and hours of work, the gross cost of the total package could be reduced by about 27.1 per cent.

The behavioural savings can be partly attributed to the increased revenue from income taxes. As labour supply increases, households' gross incomes increase, resulting in more tax being paid. In addition there is a slight increase in the Medicare Levy being paid as households' incomes increase through higher labour supply. The estimated potential increase in the total revenue from the behavioural effects is about \$280 million dollars.

On the expenditure side, there is a slight increase in the amount of rebate paid resulting from the Single Income Tax Offset for couples, where with an increase in the primary earner's income more may be received in rebates. After the behavioural responses the government's expenditure on allowances and pensions is expected to decrease, making the overall expenditure, potentially, just over \$670 million dollars lower than before these responses are taken into account. Combined with the higher revenue of just over \$280 million dollars, a total potential cost saving of \$951 million dollars is projected.

4.2 The time path of adjustment

4.2.1 Introduction

As outlined in section 1 we evaluate the effects of possible reforms to the Australian tax and benefit system using MITTS, a policy microsimulation model developed at the Melbourne Institute.¹⁰ The MITTS model is a *partial equilibrium* microsimulation model that is capable of simulating the effects of detailed tax policy reform on income, on government costs, on well-being, and on household employment. The ability to model the labour supply response to policy reform is of particular importance when modelling tax or welfare policy structures that are designed specifically to promote employment.¹¹ Indeed, only by doing so can the extent to which the government might save on the initial policy cost through potential behavioural responses be captured.

Microsimulation models of the sort used in this report are designed specifically to estimate the *long run labour supply response* to policy reform, taking full account of the detail of the tax and welfare system. However, MITTS can only generate a comparative static prediction of the supply-side response to policy reform. MITTS is not configured to predict the time-path of adjustment to the new counterfactual equilibrium. Of course, the adjustment path is an important component in judging the distribution of government costs and benefits over a budget cycle.

4.2.2 Evidence on time path of adjustment to welfare policy reform

To give an indication of the likely adjustment path following the specific policy reforms explored in this report, we discuss evidence from two sources. First, we look at how the budget savings from behavioural responses reported in the *Australians Working Together* package of reforms were allocated over the four years of the program. Second, we cite evidence on the patterns of adjustment that have actually been observed following a substantial policy reform in another country which was designed to increase work incentives. We look specifically at the apparent adjustment

¹⁰ See Creedy et al. (2002) for a detailed description of MITTS.

¹¹ Examples of these are earned income tax credits and other employment-contingent benefits, tax offsets, transferable allowances.

path in the United Kingdom following the introduction of the Working Families' Tax Credit in October 1999.

Turning first to the budget measures announced in the 2001-2 *Australians Working Together* package, we see from the supporting budget papers (*Statement I: Fiscal Strategy and Budget Priorities, Table 3*) that a total of \$923.6 million of savings on the gross budget cost of \$1.695 billion are claimed over a four year period from 2001-2 to 2004-5 (equivalent to a saving of 54 per cent on the initial gross cost). These savings are further broken down into \$587 million from behavioural responses to the policy measures over four years (which equates to 35 per cent of gross costs, or 63 per cent of total savings), and \$304 million in savings from identification of incorrect payments (equivalent to 18 per cent of gross costs, or 33 per cent of total savings).

From answers to Parliamentary questions on the breakdown of total budget savings from the *Australians Working Together* package (Question No 53a, b, c & d, Hansard page CA314), the savings of \$449.8 million accruing from reform to Parenting Payment are claimed to be:

“largely attributable to increased activity as a result of the Parents Measure (approximately \$270 million) and an increase in reported earnings as a result of the Working Credit (approximately \$180 million)”.

Answer to Question 53(d), Hansard CA314.

These savings are reported to be distributed over a four year budget period as in the following table¹²:

Table 5. Annual behavioural savings from 2001-2 Parenting Payment reform

Budget period	2001-2	2002-3	2003-4	2004-5	Total
annual behavioural savings	0.0	55.5	183.0	211.3	449.8
<i>as a percentage of total savings:</i>	0%	12%	41%	47%	

¹² These changes were only implemented in July 2002, so presumably this was already taken into account when these numbers were released, which is why there are no savings in 2001-2.

The supporting budget documentation provides little in the way of explanation of the methods used to calculate these behavioural savings, or the estimates of their breakdown over the four year budget period.

To add some context to our own results, we look in addition at the *observed* pattern of response to a substantial policy change in the United Kingdom which like Labor's package being analysed in this report, was partly aimed at raising labour supply. In particular, we look at the administrative data that tracked the changes in costs and caseload following the introduction in October 1999 of the Working Families' Tax Credit (WFTC) in the UK, in replacement of the pre-existing system of Family Credit. Figures 1 and 2 below show how costs and caseloads for WFTC have increased over the three years since its introduction in 1999. Costs of WFTC have increased as a substantial number of individuals have entered employment. Of course, simultaneous with the increase in WFTC cost there were behavioural savings in other programs (such as, reductions in Income Support and unemployment payments, increases in income tax and National Insurance receipts).

Figure 1. Total cost of Family Credit/Working Families Tax Credit (July 2001 prices)

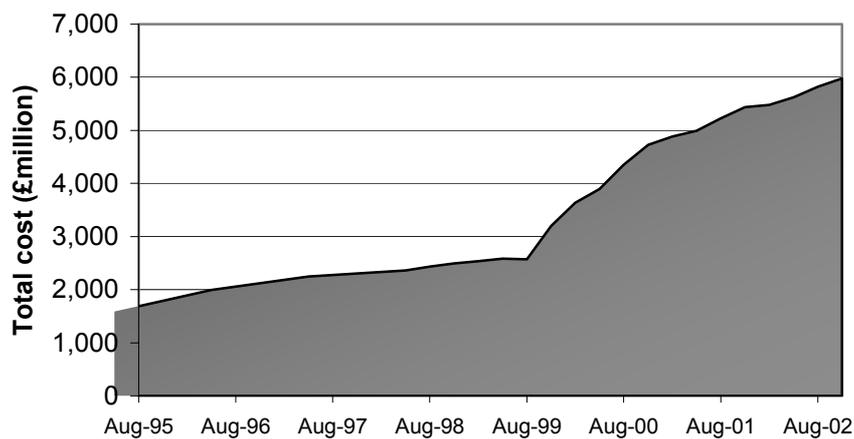
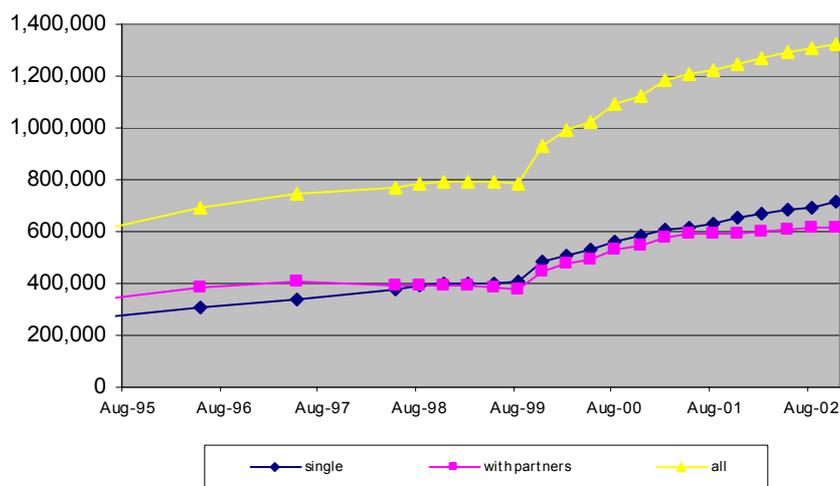


Figure 2. Caseload for Family Credit/Working Families Tax Credit



What is more interesting from these administrative figures is the time profile of adjustment to the changes in WFTC costs, and more interestingly, in caseload (Figure 2). One can clearly see the caseload for WFTC increasing by around 450,000 over three years, with around one half of the total caseload increase occurring by the end of year 1, one third in the second year, and one sixth in the third year. Much of this caseload increase comes from currently employed families becoming entitled to in-work support under the more generous rules of entitlement to WFTC.¹³ However, estimates from evaluation studies of the WFTC reform suggest that as many as 100,000 new recipients are labour market entrants, encouraged into work by the generosity of the WFTC reform. These will be distributed more evenly over the three years following the introduction of the new tax credit, given lags in labour market adjustment. Since the behavioural savings will inevitably lag behind the employment change, a realistic estimate is for around 20 per cent of total behavioural savings to have been secured by the end of year 1, an additional 40 per cent by end of year 2, an extra 35 per cent by end year 3, and the remaining additional 5 per cent still to be achieved.

4.2.3 Projected savings from policy reform

Microsimulation models of the type used in this report are not configured to account for the wider labour market effects of tax or welfare policy reform. For a variety of

¹³ These increases will be front-loaded into the first half of the three-year period captured by the administrative data.

reasons, the behavioural (labour supply) responses predicted by MITTS will not translate directly into changes in employment. Displacement effects and labour market inertia, fixed and search costs of employment, and difficulties in job matching might *reduce* the eventual employment effects of policy reform. On the positive side, wage progression for those attracted into employment, and further shifts in demand for labour following an increase in labour supply, might *increase* employment effects. For these reasons, we add both *high-end* and *low-end* estimates to our *central projection* of the budget savings from estimated behavioural responses to the reform proposals analysed in this report.

Evidence that estimates of labour supply responses estimated in behavioural micro-simulation model of this kind, to changes in taxes and transfers, may be realised in full, over a four year period, can be found in a study of the effect of the Working Family Tax Credit in the UK, where the ex ante micro-simulated labour supply effects of the policy turned out to be a good estimate of the actual employment effect from an econometric post-policy evaluation.¹⁴

Nonetheless, we consider it is wise to be conservative and allow for labour market frictions that could prevent the full labour supply effect being converted into employment growth. Thus our central estimates allow for 85 per cent of the behavioural savings predicted by MITTS to be translated into actual budget savings.

Using the two sources of evidence cited earlier in this section, we project these behavioural savings to occur over a four year period in the following proportions: 20 per cent by the end of the first year following the policy intervention, an additional 40 per cent in the second year; an extra 35 per cent in the third year; and the remaining additional 5 per cent in the fourth year. The high end estimates allow for 95 per cent of the behavioural savings in MITTS to translate into actual savings, and further allows for wage progression in years 3 and 4 to inflate the savings by an additional 10 per cent. The low-end estimates factor labour market inertia and displacement effects into the behavioural projections from MITTS, by suggesting a 65 per cent conversion of behavioural responses into actual savings.

¹⁴ See Blundell et al. (2004).

We can break down the simulated potential saving of \$951 million predicted by MITTS from the introduction of the total Labor package into realised behavioural savings over a four year period¹⁵. Of the potential \$951 million annual savings, our central estimate is that 85 per cent, or \$806 million, will be saved after four years.¹⁶ Table 6 shows these savings and the changes in employment on an incremental basis. In Table 7, we provide the total projected savings and additional employment on an annual basis. Thus our central estimate of the total annual savings to the budget due to the labour supply effect is \$806 million, after four years, which is 23 per cent of the up-front annual cost of the package.

Table 6. Projected incremental behavioural savings and additional employment from total package

Projected savings (\$million)					
Projected employment change (in persons)	Year 1 ^a	Year 2	Year 3	Year 4	Total
High-end: savings	172	353	404 ^b	63 ^b	992
employment	13,576	27,220	23,894	3,512	68,203
Central: savings	154	316	285	52	806
employment	12,147	24,355	21,379	3,142	61,023
Low-end: savings	118	241	218	40	617
employment	9,289	18,624	16,348	2,403	46,665

Note: a) The first year only includes savings from the first three components of the policy. The increase in the top tax threshold is only included from the second year onwards.

b) In the high-end projection of the behavioural savings we allow for a 10 per cent increase in savings due to wage progression in the third and fourth year of the projection.

¹⁵ The Labor Party requested an alternative projection in which 75 per cent of the changes are translated into actual budget savings. This projection is exactly halfway between the low-end and central estimates and comes down to a total saving of \$136 million in the first year, \$414 million in the second year, \$666 million in the third year and \$712 million in the fourth year and a total saving of \$712 million dollar.

¹⁶ The reason why our high-end estimate of the total savings after 4 years is higher than \$951 million is that, in addition to the assumption that 95 per cent of the increased labour supply converts into employment, in this scenario, we also allow for some wage progression in the third and fourth years, which raises the projected income tax paid and reduces the amount of government benefits to be paid.

Table 7. Projected total behavioural savings from total package and additional employment from total package

Projected savings (\$million)				
Projected employment change (in persons)	Year 1 ^a	Year 2	Year 3	Year 4
High-end: savings	172	525	929 ^b	992 ^b
employment	13,576	40,797	64,690	68,203
Central: savings	154	469	754	806
employment	12,147	36,502	57,881	61,023
Low-end: savings	118	359	577	617
employment	9,289	27,914	44,262	46,665

Note: a) The first year only includes savings from the first three components of the policy. The increase in the top tax threshold is only included from the second year onwards.

b) In the high-end projection of the behavioural savings we allow for a 10 per cent increase in savings due to wage progression in the third and fourth year of the projection.

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6. Appendices

Appendix 1. The MITTS model: a description

The analysis described in this report is obtained using the Melbourne Institute Tax and Transfer Simulator (MITTS). This is a behavioural tax microsimulation model allowing detailed examination of the potential effects on government direct tax revenue and expenditure of policy reforms to the tax and transfer system.¹⁷

The static component of MITTS

MITTS calculates net incomes for individual households for which we have detailed wage, labour supply, other income and household composition information. The results for individuals can be weighted and aggregated to represent population level results on government revenue and expenditure.

The most recent available sample of households represents the Australian population in 2000/2001. The same sample is used to represent populations from later years, where employment and size and composition of the population are uprated to the relevant level. This uprating procedure is described in Appendix 3. A further difference between the different years is that wage rates are updated with the average wage index and other incomes are updated with the consumer price index (CPI). For the earlier years (from 2000/2001 up to 2003/2004), quarterly indices published by the Australian Bureau of Statistics are used. For 2004/2005 and later years, the Treasury's projections from the budget papers are used (Treasury, 2003).

The actual social security and tax system of 2003/2004 including the latest budget changes is used as the basis to construct our alternative systems¹⁸. To project systems

¹⁷ For further details of the MITTS model see Creedy et al. (2002, 2004).

¹⁸ See publications from the Commonwealth Department of Family and Community Services, and the Department of Education, Science and Training (2004) for details on the social security system. For DVA payments see publications by the Department of Veterans' Affairs (2004).

to future years, pensions are indexed by the projected male total average weekly earnings increase and allowances (for sickness and unemployment) are indexed by the predicted CPI.

Detailed descriptions of alternative taxation and social security systems are used to calculate net incomes in a particular year. The outcomes under the different systems can be compared. The different taxation and social security regimes as prescribed by the client are described in Section 2 and in fuller detail by the Australian Labor Party's report (2004).

Behavioural simulations

Net incomes can be calculated at all possible hours of labour supply, assuming the gross wage per hour does not change (for example there is no overtime pay in the model). For workers the observed gross wage (earnings divided by the observed hours of work) is used and for non-workers a gross wage is predicted from a wage model based on the individual's characteristics (such as education level and age).¹⁹

Marginal effective tax rates and a budget constraint (showing net incomes across the possible range of labour supply) can identify potential disincentive effects on labour supply of the tax and social security system. Disincentive effects can occur whenever an additional hour of work is not rewarded by a corresponding increase in net income. MITTS can evaluate incentive effects of alternative policies by predicting whether individuals are expected to change their hours of work as a result. Only *financial* incentives can be studied within MITTS. Individuals who are self-employed, over 65, a full-time student or disabled are left at their observed labour supply. This group is expected to behave differently from the other individuals of working age and to be less responsive to financial incentives.

MITTS calibrates the predicted hours in the base case (the situation in 2000/2001, the year in which our sample was collected) to the observed hours, to use as a starting point for the reform. Estimated parameters from a labour supply model, which

¹⁹ See Kalb and Scutella (2002) for a description of the wage models.

indicate a person's preference for time spent in employment in the labour market versus the preference for income, are used to evaluate the different levels of net income at the different levels of labour supply in the alternative tax systems. Several alternative systems can be compared in this way. The labour supply parameters are based on observed behaviour in the past. These parameters have been estimated using the best available econometric techniques, using the same data base that underpins the MITTS model.²⁰

An effort is made to account for differences in preferences between individuals, an obvious example is the age of the youngest child for mothers²¹, but of course not all individual differences can be captured by a statistical model. This means there is uncertainty associated with the predicted outcomes. Using the model, we can calculate the probability of particular labour supply and net income combinations being the optimal combination an individual can attain given their wage, other income and the tax and social security system. Based on these probabilities, expected labour supply and expected changes in labour supply can be calculated. Based on the expected labour supply changes, potential savings or additional costs (compared to the static situation without behavioural responses to policy changes) can be calculated.

An important assumption in these calculations is that individuals can change their labour supply according to their preferences. In MITTS it is assumed that all additional labour supply is met by a sufficient demand for labour. Section 4 discusses this assumption in more detail.

Implicit Labour Supply Elasticities

The discrete labour supply model, which is used in the simulation of behavioural responses to policy changes, does not provide straightforward wage elasticities with regard to labour supply.²² However, elasticities can be calculated by comparing the

²⁰ The labour supply models on which the current behavioural responses in MITTS are based are described in Kalb (2002). Creedy and Kalb (2003) describe in detail how these parameters are estimated and how they are used to calculate labour supply responses in behavioural simulations. They also give a few simplified numerical examples to illustrate the procedures.

²¹ Having a preschool child decreases the predicted preference for employment in the labour market for mothers.

²² This wage elasticity is defined as follows:
$$\frac{\text{percentage change in labour supply}}{\text{percentage change in wage rate}}$$

expected labour supply for an individual after a one-percent wage increase with the expected labour supply under the original wage. The percentage change in labour supply is an approximation of the elasticity. By doing this for each individual in the sample, the average elasticity across the sample (or population when making use of the weights) can be computed.

Table A.1 presents these uncompensated wage elasticities for those in the population that are allowed to change labour supply in MITTS. For self employed, full-time students, disabled individuals and people over 65 it is assumed this elasticity is zero. In addition to using predicted labour supply alone, we can use calibration and calculate the elasticity starting from the observed labour supply for those already in work. For non-workers, the elasticity cannot be computed because a percentage change starting from zero hours is not defined. The two final columns in Table A.1 present the predicted participation rate changes resulting from a one-percent wage increase.

Table A.1 Implied average uncompensated wage elasticities across the population for which labour supply is simulated²³

	Elasticity derived from expected labour supply	Elasticity using calibrated labour supply (for positive hours only)	Change in participation derived from expected labour supply (in percentage points)	Change in participation derived from calibrated labour supply (in percentage points)
Married men	0.25	0.02	0.14	0.30
Married women	0.54	0.68	0.19	0.25
Single men	0.28	0.03	0.18	0.45
Single women	0.34	0.11	0.18	0.48
Lone parents	1.58	1.38	0.42	0.47

These implicit labour supply elasticities are similar to what is generally found within the international literature on such elasticities. The results for married and single men and women are well within the range of results usually found. The range of elasticities

²³ This excludes the people over 65, disabled individuals, full-time students and the self employed.

published in the literature is fairly wide, with large differences between studies using different data and/or approaches.²⁴

The effect for lone parents is often found to be larger than for other groups and this is what we find in MITTS. The elasticity implicit in MITTS is on the higher end of this range internationally, although we will see evidence below that a high labour supply responsiveness for lone parents in Australia has been found before by Murray (1996), Duncan and Harris (2002), and Doiron (2004). Relatively few labour supply studies have been done for Australia, but two relatively recent exceptions for lone parents are two of the above mentioned papers: Murray (1996) and Duncan and Harris (2002).

Murray (1996) found values between 0.13 and 1.64, depending on the exact specification, for part-time working lone mothers. The elasticities she finds, for full-time workers and lone parents out of the labour force, are much smaller (at most 0.30). Murray used 1986 data, where only 13 per cent of all lone mothers worked part time and about 23 per cent worked full time. In the 2001 data used here, around 50 per cent of lone parents work, and about half of the workers work in between 1 and 35 hours per week.

Duncan and Harris (2002) analysed the effect of four hypothetical reforms, using a previous version of the labour supply models underlying the behavioural responses in MITTS. Two of these reforms are close to being a 10 per cent increase and 10 per cent decrease in lone parents' wage rates. The first one is to decrease the withdrawal rate for lone parents by 10 per cent which increases their marginal wage rate while they are on lower levels of income. Duncan and Harris report that this is expected to increase labour force participation by 2.5 percentage points and increase average hours by 0.55 hour. The second reform increases the lowest income tax rate from 20 to 30 per cent. This is expected to decrease participation by 2.8 percentage points and decrease average hours by 1.2 hours. Comparing this to the effect of a 10 per cent wage increase using our latest labour supply parameters, effects of a similar magnitude are found. That is, participation is expected to increase by 3.0 percentage points and the average hours are expected to increase by 1.3 hours.

²⁴ See for example, overviews given by Killingsworth (1983), Killingsworth and Heckman (1986), Pencavel (1986) or more recently by Blundell and MaCurdy (1999) or Hotz and Scholz (2003).

Finally, Doiron (2004) evaluates a policy reform, which affected lone parents in the late 1980s, to find large labour supply effects that are likely to be due to this reform. In her conclusion, she compares the effect she finds through her natural experiment approach with predicted effects of policy changes from the MITTS model (as can be found in Duncan and Harris (2002) or Creedy et al.(2003)). Based on the results from her evaluation, she argues that observed shifts in labour supply of lone parents can equal or even surpass the predictions based on behavioural microsimulation.

The above suggests that lone parents' labour supply elasticities may be substantial. This is not so surprising, given the low participation rate of lone parents and the tendency to work low part-time hours, an increase in labour supply by one hour is going to be a larger increase, percentage wise, than the same increase for a married man. For the other demographic groups, elasticities amongst those working few hours are generally higher than for those (in the same group) working more hours as well.

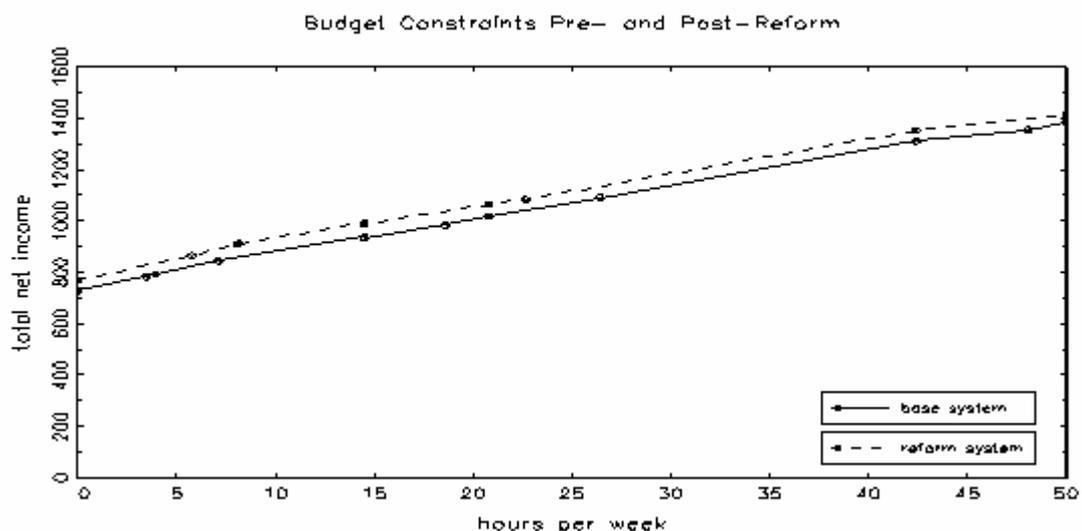
It should also be borne in mind that the lone parent group is the smallest demographic group in our population. Thus, a change in their labour supply responsiveness would have a relatively small effect on the overall result.

Appendix 2. Illustrations of the Policy Package

The Effect of the above Policy Changes for Selected Families

The effects of the above changes are discussed here for three typical households across a range of incomes. Figure 1 shows the before and after range of net incomes when the secondary earner is working between 0 and 50 hours per week. The primary earner works 40 hours at a gross wage of \$20 per hour, the secondary earner also has a wage of \$20 per hour. The couple has one child under 5 years of age. At zero hours of the secondary earner, the couple's gross annual income is \$41,600, and at 50 hours of the secondary earner, the couple's gross annual income is \$93,600.

Figure 1 A dual-earner family with one child under 5 and hourly wages of \$20

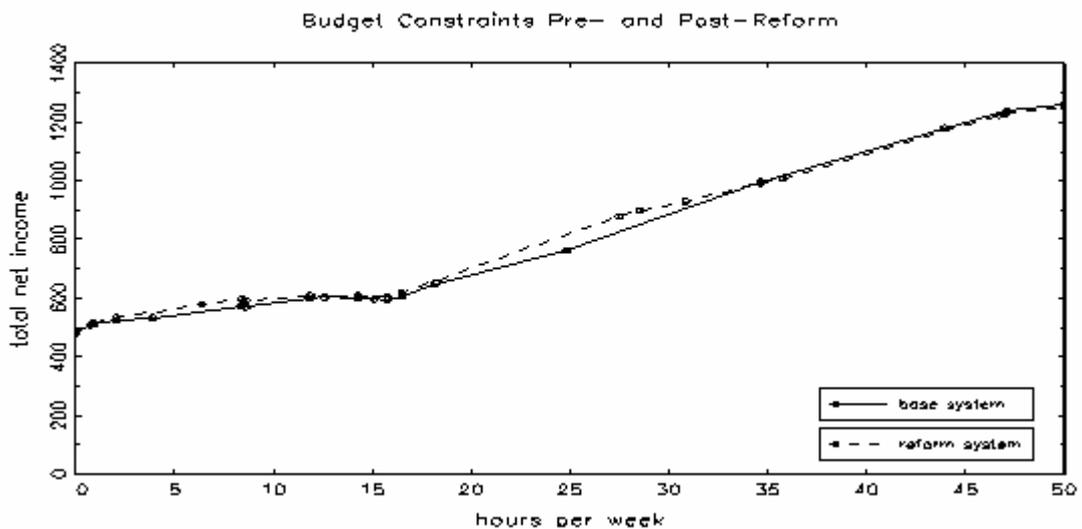


From Figure 1 it is clear that dual-income earners will be better off under the Labor Party's package across a wide range of incomes. This is caused by an increase in family payments and the introduction of a Low and Middle Income Tax Offset. At the high end of the range, the difference between the net income earned under the Budget and the net income under the Labor Party's package decreases somewhat as payments are tapered out but is still positive.

The budget and Labor Party's package situation for a single-income earner couple also with 1 child under 5 years of age, where the single earner has a wage of \$35 per

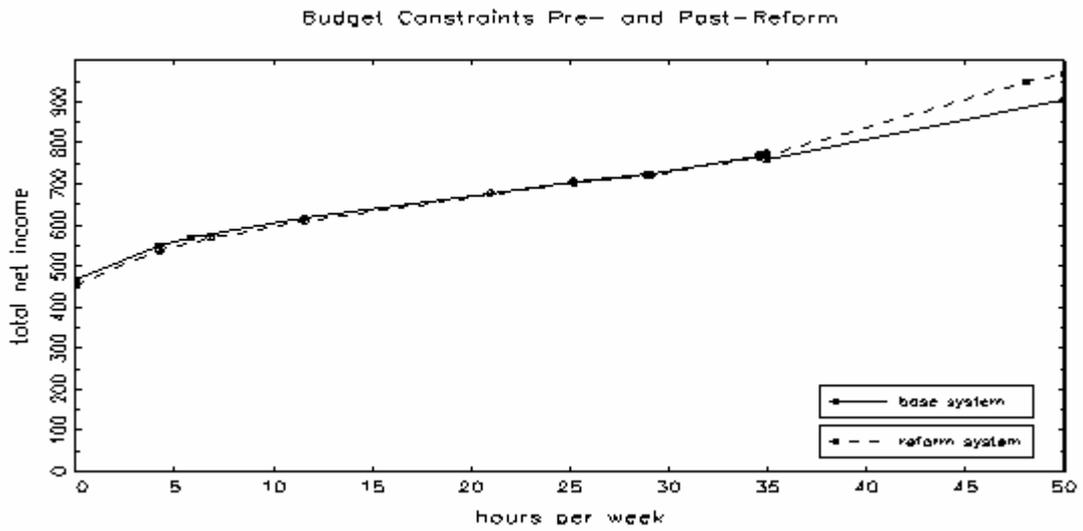
hour, is compared in Figure 2. Here the gains are somewhat smaller and in some income regions net incomes under the Budget and net incomes under the Labor Party package are the same. From about 17 hours of work (just over \$30,000 of annual income), this family would have their family tax benefit part A reduced in the system before introducing the Labor Party package, whereas under the package this withdrawal of benefits only starts at an annual income over \$50,000 (which in this case is around 27 hours of work). High-income single-earner families at 35 hours or more in this example (over \$63,700 annual income) have a slightly lower net income under the Labor Party package.

Figure 2 A single-earner family with one child under 5 and hourly wage of \$35



The final typical household of a lone parent with 1 child under 5 years and 1 child between 5-12 years, on a wage of \$20 per hour is shown in Figure 3. This sole parent is very slightly worse off when working less than 20 hours per week, because the Single Income Tax Offset does not completely compensate for consolidating Family Tax Benefit Part A and Part B. However, at 35 hours or more they will start to be better off under the Labor Party's package, receiving the Low and Middle Income Tax Offset and not having Family Tax Benefit part A withdrawn at an annual income in the low \$30,000s but only from \$50,000 onwards.

Figure 3 A lone parent with 1 child under 5 and 1 child between 5 and 12 on a hourly wage rate of \$20



Appendix 3. Details on the Population Uprating

The individual person weights used in MITTS are uprated to reflect the total population in 2005/06. This is achieved by multiplying the person weights in the underlying data from the 2000/01 IDS with a growth rate that is gender and age specific. The resulting weights should reflect the population in 2005/06. The growth rates are based on the population projections provided by the ABS (2003) by gender and age. We group particular age ranges for consistency with the MITTS model. The population totals by age and gender for the specific groups are reported for June 2001 and June 2006 in Table A.2.

Table A.2: Population growth rates by age and gender from June 2001 to June 2006.

Age (groups)	MALES			FEMALES		
	Population June 2001	Population June 2006	Growth	Population June 2001	Population June 2006	Growth
15	138,542	145,885	1.0530	132,027	138,613	1.0499
16	138,515	144,919	1.0462	133,096	137,351	1.0320
17	137,382	142,757	1.0391	131,433	136,607	1.0394
18	138,811	141,692	1.0208	133,123	135,674	1.0192
19	137,418	142,534	1.0372	132,398	136,187	1.0286
20	136,198	144,299	1.0595	131,377	138,811	1.0566
21	132,894	145,170	1.0924	127,985	141,605	1.1064
22	130,284	145,433	1.1163	126,901	141,633	1.1161
23	130,536	147,775	1.1321	127,134	144,463	1.1363
24	130,864	146,794	1.1217	128,239	144,385	1.1259
25-29	700,910	704,345	1.0049	706,171	699,309	0.9903
30-34	726,919	738,606	1.0161	739,696	750,898	1.0151
35-39	741,434	757,788	1.0221	750,770	768,860	1.0241
40-44	734,436	762,037	1.0376	744,821	768,341	1.0316
45-49	675,055	741,614	1.0986	683,539	752,080	1.1003
50-54	652,540	674,809	1.0341	648,237	684,879	1.0565
55	112,979	130,867	1.1583	109,460	133,170	1.2166
56	108,596	128,989	1.1878	105,163	130,516	1.2411
57	103,654	127,049	1.2257	100,598	127,203	1.2645
58	94,205	128,210	1.3610	91,112	126,665	1.3902
59	93,454	130,464	1.3960	89,578	129,154	1.4418
60	88,467	111,018	1.2549	86,322	108,980	1.2625
61	85,549	106,511	1.2450	83,488	104,661	1.2536
62	83,251	101,286	1.2166	82,077	100,002	1.2184
63	79,376	91,843	1.1571	79,204	90,501	1.1426
64	77,339	90,743	1.1733	76,951	88,756	1.1534
65-69	335,590	395,074	1.1773	346,923	399,772	1.1523
70-74	303,554	304,424	1.0029	334,826	329,436	0.9839
75 and over	437,528	531,959	1.2158	677,113	772,251	1.1405
Total	7,586,280	8,204,894	1.0815	7,839,762	8,460,763	1.0792

Source: ABS (2003) Publication 3201.0 Population by Age and Sex, Australian States and Territories. TABLE 9. Estimated Resident Population by Single Year of Age, Australia (a)
ABS (2003) Publication 3222.0 Population Projections, Australia. TABLE A9. Projections of Population by Age - Australia - Series A(a)

The growth by specific household type (partnered males/females, single males/females, and lone parents) is assumed to grow according to the age and gender specific growth rate of the head of household²⁵. The result of this growth is displayed in Table A.3 below, which shows the number of the different household types in June 2001 and June 2006.

Table A.3: Number of different household types in June 2001 and June 2006

Number of:	June 2001	June 2006
Couples	4,399,184	4,789,844
Single Males	2,918,899	3,111,368
Single Females	2,622,434	2,829,407
Lone Parents	589,287	617,172

²⁵ Since the population projections are by age and gender and not family type we will invariably end up with a different number of partnered males from partnered females in June 2006. To overcome this problem we let the number of couples grow by the age and gender specific growth rate of the male partner.

Appendix 4 Update of the Estimates regarding the Federal Budget

Table 2, as well as the other numbers in this report, are expressed as differences with respect to the 2005/06 budget. Table A.3 below isolates the effect of the 2005/06 budget within the current framework, expressed in differences to the situation just before the budget was introduced.

This analysis is very closely related to the Melbourne Institute's earlier work on the budget as published in the Quarterly Bulletin 2.04 (Buddelmeyer et al., 2004). The reason for updating these simulations is to allow a direct comparison between the effect of the budget and the effect of the changes proposed here. Some of the assumptions we made in the earlier work are slightly different from the ones used in this report. The differences are that the new simulations account for increases in the population and all calculations are now based on the year 2005-6 and are in January 2006 dollars.

The estimated effect is similar to the earlier results. The changes have affected lone parents the most. The effect was very small in the earlier version, and still has not increased to a substantial size.

Table A.4: Estimated Effect of the 05/06 Budget on Labour Force Participation in persons (percentage point changes in parentheses)

	Partnered Males	Partnered Females	Single Males without children	Single females without children	Lone Parents	Total Participation	Effect on average hours of work ^a
Participation rate for everyone over 15, pre-budget (%) ^b	72.93	56.69	68.92	53.52	61.13	63.46	28.8
Budget 05/06, FTB changes only	-13,289 (-0.28)	-10,747 (-0.22)	0	0	1,859 (0.30)	-22,177 (-0.14)	-0.19
Full Budget 05/06	-4,936 (-0.10)	-3,683 (-0.08)	7,854 (0.25)	1,032 (0.04)	2,658 (0.43)	2,925 (0.02)	0.03

Notes: a) Average hours are calculated only for those who are allowed to change their labour supply in MITTS (this excludes the self-employed for whom no hours of work are recorded in the data, full-time students, disabled individuals and people over 65).

b) It is assumed unemployment and employment rates remain as they were in 2001, when the data was observed, before adding the predicted changes in labour supply.