The Effect of a Reduced Family Payment Taper Rate: Policy Simulations Using the Melbourne Institute Tax and Transfer Simulator *

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Abstract

This paper illustrates the use of the Melbourne Institute Tax and Transfer Simulator (a behavioural microsimulation model) in examining the impact of two hypothetical policy changes to Family Payments as they were in the March 1998 tax and transfer system. The effects of the policy changes on the choice of hours worked and the labour force participation rates among couples with dependent children are the focus of the analysis with the overall effect on net Government expenditure examined.

We find that reducing the withdrawal rate on the more-than-minimum rate of Family Payment is quite costly to the Government, with a small positive labour supply response reducing this cost slightly. The second policy change, which replaces the "sudden death" income test for the minimum rate of Family Payment with a gradual taper and increases the threshold level of income above which the minimum rate begins to be withdrawn, results in a smaller increase in government expenditure and has a negligible labour supply response.

1. Introduction

This paper examines the impact of a hypothetical policy change to Family Payments in the March 1998 tax and transfer system on total Government expenditure and on the choice of hours worked and the labour force participation rates among couples with dependent children[1]. To perform this task, we use the Melbourne Institute Tax and Transfer Simulator (MITTS)[2], which is a microsimulation model. The simulation is done for the subgroup of couples, including those without children. MITTS consists of two components called MITTS-A and MITTS-B. MITTS-A provides information about the expected revenue and expenditure before and after the policy reform based on the assumption that individuals do not change their hours worked. This assumption is relaxed in MITTS-B where individuals are allowed to react to a hypothetical policy reform through choosing an optimal level of hours worked. The behavioural changes are predicted through the use of labour supply models. One purpose of this paper is to illustrate the behavioural effects implied by the newly implemented wage and labour supply results in MITTS (Kalb and Scutella, 2002 and Kalb, 2002a respectively) for families with children. An additional purpose is to explore the effect of changing aspects of Family Payments on the labour supply behaviour of couples.

Two separate simulations referred to as Policy A and B are carried out with the details of the pre-reform system based on the March 1998 tax and transfer system. Policy A reduces the withdrawal (taper) rate for the maximum rate of Family Payments from 50 to 30 per cent for household income over $23,400 per annum. Policy B involves two changes to parameters in the social security system: i) replacing the "sudden death" income test with a 30 per cent withdrawal rate for the minimum rate of Family Payment and ii) increasing the income threshold where the minimum rate of Family Payment is withdrawn for families from $65,941 per annum to $73,000 per annum. Policy A and B are designed to provide a more generous support for families facing the costs of bringing up children. The difference between the two policies is that Policy A affects families on low-to-medium incomes whereas

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[1] In the behavioural simulations, men and women over 65 are assumed to remain at their current labour supply. Changes are only simulated for people of working age, who are not full-time students, on a disability payment or self employed. The latter three groups also remain at their current labour supply.

[2] See Creedy et al. (2001, 2002) for more information and a guide to the use of the MITTS model.

Policy B affects families on medium-to-high incomes. Low-income couples with children are not affected by the reforms since their incomes are below the minimum income threshold of $23,400 per annum where no Family Payments are withdrawn.

The database used as the basis for the simulations is the 1997/1998 Survey of Income and Housing Cost (SIHC) confidentialised unit record file released by the Australian Bureau of Statistics. Thus, weekly incomes are based on the financial year 1997-98. All tables use weighted results to represent the population, unless otherwise indicated, and simulated revenue and expenditure are expressed in 1998 dollars.

Expenditure and revenue in the before reform situation are calculated using MITTS, rather than being based on observed benefit payments in the SIHC. The following section discusses some assumptions that are made in the MITTS model, which result in the base case in the simulations having a higher level of expenditure than was observed in the actual pre-reform situation.

The plan of the paper is as follows. The next section briefly addresses the main qualifications and assumptions underlying the MITTS model. Section 3 discusses the results from MITTS-A and the findings from MITTS-B are presented in Section 4. Section 5 concludes the paper.

2. Methodology

The simulation of the effects on costings and labour supply, resulting from the introduction of the Australian New Tax System, is carried out through MITTS. MITTS calculates net incomes for each household in the 1997/1998 Survey of Income and Housing Cost based on the wage rates of individuals (either observed in the data or imputed using the estimated wage equations as described in Kalb and Scutella (2002)), hours worked, other income, and some individual and household characteristics. The net incomes can be calculated using different tax and transfer systems, allowing hypothetical and real policy changes to be analysed. In this paper we compare results using the March 1998 tax and transfer system with results obtained by applying two hypothetical changes to the March 1998 system. In these calculations several

issues need to be addressed. We discuss a few of the more important aspects of MITTS in this section[3].

These are, first the issue of eligibility and take up of benefits; second the need to combine information from different years; and third the use of labour supply modelling to estimate behavioural responses.

2.1. Eligibility

The information in the Survey of Income and Housing Cost (SIHC) is used to calculate eligibility for the different social security payments. Detailed information on the different sources of income are available that help in determining this eligibility. However, we cannot check all requirements for eligibility with the available data. For example, information on assets is not available and the amount of assets may also influence eligibility. Fortunately, the group of households that would not be eligible based on their level of assets (which excludes the home), but would be deemed eligible based on their level of income is relatively small. Particularly, because the SIHC records income from investments (like dividends or interest) and superannuation income, which are incorporated in the calculations, this is unlikely to be a major problem. Other requirements for eligibility, which we cannot check, are whether someone has been a resident for at least two years and is actively looking for work (one of the requirements for this may be that the unemployment benefit recipient is not working more than a certain number of hours[4]).

At the moment, MITTS does not allow for individuals who decide not to take up the benefits for which they are eligible. This is likely to cause overestimation of expenditure on the different payments. Although the current receipt of benefits as recorded in the SIHC could be used to get an amount closer to the actual amount, this cannot help us to decide whether after a reform someone will take up a benefit. To simulate changes, we would need to make

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[3] More information on MITTS can be found in Creedy et al. (2002).

[4] From discussion with FaCS, we learnt that the number of hours of work someone has, may preclude them from unemployment-related benefit receipt, if this level of labour supply precludes effective job search. However, there seems no particular hours level available that could be seen as the cut-off point above which no one would receive benefit payments.

assumptions or estimate a model that accounts for take up of benefits. Thus, we assume a 100 per cent take up and argue that when one is interested in the change in expenditure as a result of the reform, this approach is reasonably satisfactory. Both the amounts before and after the reform will be overestimated and because the changes in this paper are not expected to expand eligibility to a large extent, the predicted percentage changes are expected to be reasonably informative.

2.2. Combining different years of data

The simulation procedure involves data from several years of the Survey of Income and Housing Cost and information on the taxation and social security regimes of several years. A few transformation steps are needed to combine these years in the analysis.

First of all, the behavioural part of the simulation procedure is based on labour supply models. These models are estimated using the Survey of Income and Housing Cost from 1994/95, 1995/96, 1996/97 and 1997/98 with the corresponding taxation and social security rules. Combining several years of data actually helps to identify the model, since slightly different tax regimes were operational in the four years. This provides more variation in net incomes at different hours of labour supply than would otherwise be the case. To estimate one model combining the four years, the net incomes calculated over a range of different possible hours have to be made comparable over the four years. This can be achieved by expressing the calculated net incomes in each of the years in the dollar value of one year. That is, we have to account for the change in the real value of the dollar. We choose to express all net incomes in 1997/1998 dollars and use the Consumer Price Index to inflate the other years' net incomes to the corresponding 1997/1998 level, before using them in the labour supply model.

In the simulation, all income and wage information is expressed in March 1998 values to match the social security and tax system in the pre reform situation. The simulated policy changes in this paper are hypothetical, so we keep the system date at March 1998 and only change the required parameters. The costings in the tables are all expressed in March 1998 dollars.

2.3. The labour supply response

The estimation of the expected labour supply changes is based on the labour supply model estimated in Kalb (2002a). The model is neoclassical and based on one common utility function for the household. Although alternative models, incorporating more realistic assumptions on utility maximization in the household or allowing for home production to enter the model independently, are available, these models would introduce additional complications[5] and as a result keeping all the current detail of the tax and transfer system would be impossible. Given the aim of MITTS to simulate policy changes with regard to the tax and transfer system and to assess its effect on labour supply, priority is given to incorporating all possible detail on taxes and transfers.

A discrete model specification is chosen to enable us to deal with the full detail of the tax and transfer system, both for single person households and for couples. A relatively large number of labour supply points is chosen. Households are assumed to choose from 0, 5, 10, 15,…., 50 hours of labour supply. However, fewer points are allowed for married men given the low number of married men working part-time hours (which can be caused by factors on both the supply and the demand side). They are assumed to choose from 0, 10, 20, 30, 40 or 50 hours. However, given the probability approach of simulating changes, small changes in labour supply can still be captured even in a ten-hour interval labour supply specification. A small change in labour supply means they may have a small probability of moving from 30 to 40 hours, for example.

Given the choice for this particular type of labour supply model, simple simulations of a change in all taper rates to 30 per cent show that the model seems quite robust to alternative specifications (Kalb, 2002b). The alternative specifications assessed in that paper included a reduction in the number of labour supply points, an alternative specification of the utility

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[5] To estimate a model where each household member has their own utility function, information is needed on the private consumption of individuals or on the amount of income allocated to them. No data set combines information on consumption or home production, income sources, and labour supply, so strong assumptions are often needed on how income is shared to allow estimation of collective utility models or on the value and amount of home produced goods to estimate models that explicitly allow for home production, instead of implicitly as in the unitary utility models.

function and an alternative specification of the cost of working. Notwithstanding the reassuring result with regard to alternative specifications, when analysing the results one needs to keep in mind that the behavioural responses are based on a statistical model with the uncertainty that is always associated with modelling complex behaviour. A model is a simplified representation of reality, however, it is based on observed patterns of behaviour and it helps us to think about the possible effects of changes in a structured framework. Further work is planned on improving the model by incorporating welfare participation, an alternative approach to the imputation of wages for non-workers and including childcare costs.

To reduce the impact of prediction errors in the labour supply model on the simulation results, the starting point of the behavioural simulations carried out by the MITTS model is based on the actual working hours in the data[6]. That is, labour supply before the reform is fixed on observed labour supply. This prevents prediction errors in the model from impacting on the distribution of working hours in the base situation. The labour supply model includes an error term to account for optimisation errors and this error term is used to calibrate the model in such a way that observed labour supply is the starting point. Basically the procedure is that we draw from the possible values for the error term and only use those draws in calculating the expected labour supply that places the individual at the observed labour supply in the pre-reform situation. This approach uses the unobserved characteristics (that is the value of the error term) as well as the observed characteristics, on which the calculation of expected utility levels derived from each labour supply level is based. The two components jointly determine which labour supply point an individual prefers.

In 517 cases could the labour supply model not generate 100 draws at the observed labour supply within a total of 5000 draws. This indicates that for these cases the model does not do so well and the predicted level of labour supply is far from the observed level of labour supply. For these households, labour supply after the reform is kept at the same level as before the reform, thus possibly underestimating the total number of changes as a result of the reform.

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[6] A possible future improvement to MITTS would be to look into providing confidence intervals with predicted changes. This is however not straightforward like in a simple regression model, but would require a simulated approach.

The approach taken ensures that the results before the reform from MITTS-A (the part of MITTS without behavioural changes) and from MITTS-B (with behavioural changes) are quite similar. The difference between the two is the rounding to quintuples in MITTS-B and the dropping of a few observations, which have wages under $4.00 or over $100 per hour (only 69 observations out of about 5900 observations drop out because of this selection).

Labour supply is kept constant for some groups who are expected to be different in their responses compared to the average working-age individuals. These groups are the self-employed (644 cases), those on disability payments (235 cases), full-time students (67 cases) and people over 65 years of age (715 cases). This leaves us with 3618 households for whom we simulate the effect of the policy reform on labour supply. This is the group for which we allow a behavioural change to occur.

When simulating the effect of a reform, the error terms that are accepted in the base case are used to predict the changed labour supply. This provides us with the probabilities of changing from the observed labour supply point to any of the other labour supply points and the probability of remaining at the same labour supply level. These probabilities can then be used to calculate an expected value of labour supply or percentages of individuals moving from one category to another.

Finally, it should be noted that the behavioural changes do not account for the demand side of the labour market. The model only reflects the supply side of the labour market. If individuals prefer to work more hours after a reform then they can only do so if there is a demand for their labour. In MITTS, it is assumed that all additional labour supply is met by a sufficient demand for labour.

3. The Non-behavioural Simulation Results (MITTS-A)

This section presents the ‘morning-after’ effects of making a series of reforms to withdrawal rates and thresholds associated with Family Payment, a child related payment available to families satisfying various eligibility criteria. To generate these results the non-behavioural version of MITTS (MITTS-A) is used. It is important to note that the pre-reform system in MITTS relies on the information provided by the SIHC in terms of population characteristics and all non-benefit income, however, receipt of benefits in the base system is imputed based

on observable characteristics rather than relying on the reported information on benefit income in the data[7]. Thus it is assumed that any individual in the labour force (either employed or unemployed) is eligible for unemployment related benefits subject only to the means test (see the previous section for more discussion). For these reasons, expenditure on payments, particularly on unemployment benefits, is likely to be overestimated in the model.

Eligibility for Family Payment is based on the income unit's total income and the presence of dependent children. Income unit income is subject to two income limits (or thresholds), one for the minimum payment rate and another for the maximum payment rate. Families with a level of income below the minimum income limit receive the maximum rate of Family Payment. For each dollar of income above the minimum income limit, the payment is withdrawn at 50 per cent until a minimum rate of Family Payment is reached. This minimum rate of Family Payment is received until the family's income reaches the maximum threshold after which the payment is completely stopped.

Policy A, which reduces the taper rate on the maximum rate of Family Payment for each dollar of income above the minimum income limit, does not affect the number of couples eligible for Family Payment overall, but it does affect the payment rate paid to a section of the population currently relying on Family Payment as it increases the number of couples receiving more than the minimum amount of Family Payment. Hence, a reduction in the taper rate has the effect of reducing the number of couples receiving the minimum rate of Family Payment.

Policy B, which increases the maximum income limit from $65,941 to $73,000 per annum in combination with replacing the "sudden death" income test with a 30-cent reduction of the payment for every dollar of family income above $73,000 per annum, has the effect of increasing the Family Payment cut-out point from $65,941 to $75,037 per annum. A higher cut-out income draws a larger number of formerly ineligible couples into Family Payment recipience.

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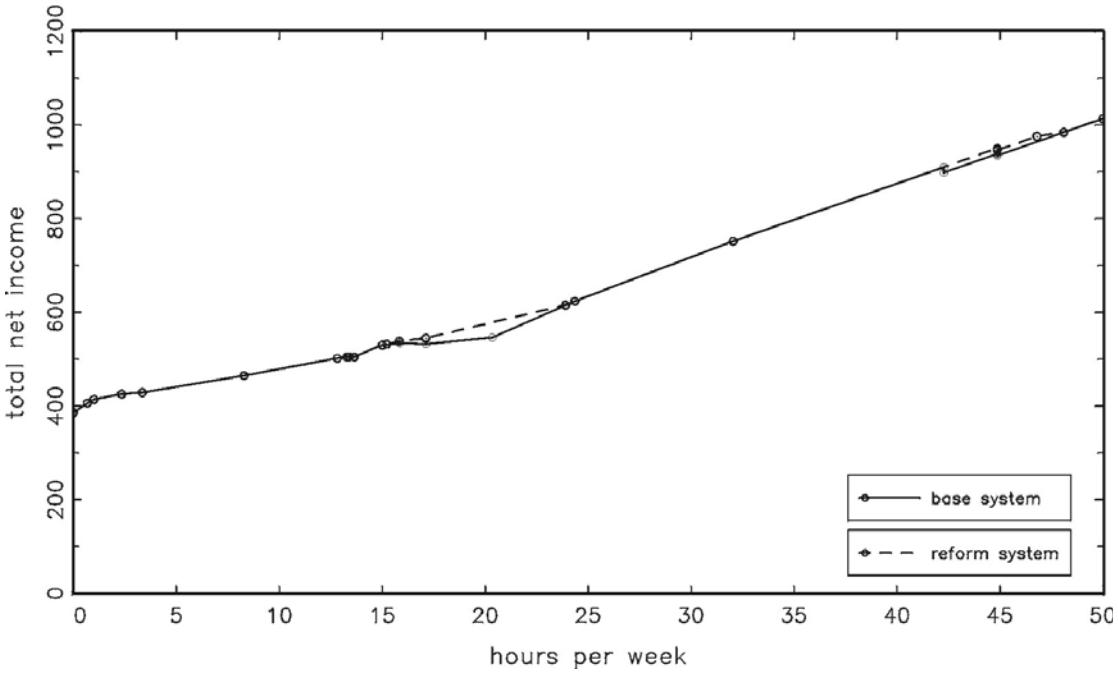
[7] Certain payments such as Disability Support Pension, Sickness Allowance, Carer Payment, and the Department of Veterans Affairs pensions do rely on observed receipt in the base data, as no other information is available to help us identify eligible recipients.

Figures 1 and 2 show the respective effects of the combined policy reforms on the net income and effective marginal tax rate schedules for a hypothetical couple with 1 child aged between 5 and 12 years. The couple is paying $130 a week in private rental accommodation and is thus in principle entitled to Rent Assistance. To illustrate the impact of both reforms, it is assumed that the reference person in this family earns a relatively high wage of $30 per hour. Figure 1 and 2 are created conditional on the partner not working.

Figure 1: Net income schedule of a hypothetical couple unit with one dependent child, the reference person is on a hourly wage rate of $30 and the spouse is not working

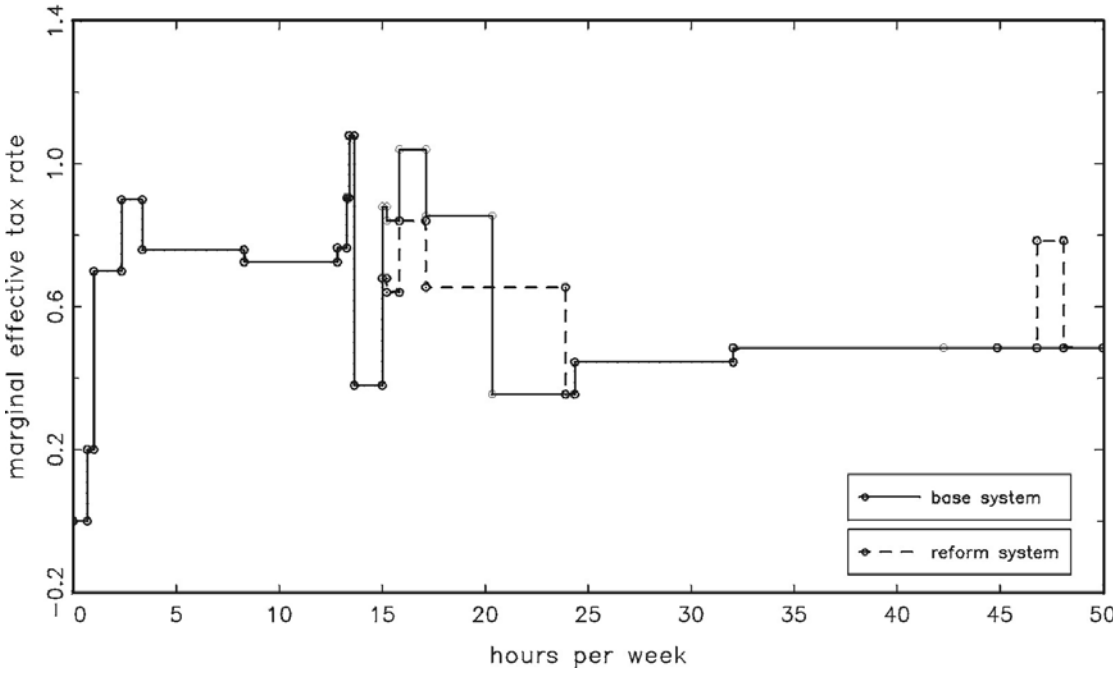


The reduction in the withdrawal rate for the maximum rate of Family Payment flattens the budget constraint and reduces effective marginal tax rates (METRs) at low to middle ranges of income[8]. In this example, METRs are reduced between about 15 and 20 hours of work and increased between about 20 to 25 hours of work, when the original maximum family payment would have been completely tapered out. The replacement of the "sudden death" income test

[8] The high wage rate in this example means that the relevant policy change affects this household at a relatively low number of hours of work. Families on lower wages would see a similar flattening of their budget constraint at higher, possibly full-time, hours of work and the effect may be over a wider range of hours. The introduction of a taper rate for the minimum rate may not affect low-wage families at all, in any reasonable hours range.

with a more gradual withdrawal of the minimum rate of Family Payment removes the discontinuity in the budget constraint at a high level of income (here at about 42 hours), increasing the METR while the payment is withdrawn over a short range of income until the minimum payment is completely tapered out again. The increased income threshold means that withdrawal in the reform case only starts at just over 45 hours of labour supply. The minimum rate of family payment is withdrawn in about two hours.

Figure 2: Effective marginal tax rate schedule of a hypothetical couple unit with a dependent child, the reference person is on a hourly wage rate of $30, and the spouse is not working



Subsection 3.1 presents the expected extra cost to the Government if Policy A and B were to be implemented. Subsection 3.2 categorises the changes in income-unit income in terms of individuals' characteristics. The distribution of marginal effective tax rates is reported in Subsection 3.3.

3.1. Effects on Government Revenue and Expenditure

For the tables throughout the paper, the letters "a" and "b" are used to refer to the results from Policy A and B respectively. Tables 1a and 1b present the amount of various components of Government revenue and expenditure before and after the reform under the assumption that individuals do not vary their number of hours worked.

Table 1a: Main Revenue and Expenditure

Tax or Transfer	Cost ($m)		Numbers (thousands)	
	Before reform	Net change	Before reform	Net change
Government Revenue				
Income Tax	50177.4	80.1	7014	0
Medicare Levy	3087.4	0.0	4482	0
Total	53264.8	80.1		
Government Expenditure				
Tax Rebates	2497.4	0.0	4397	0
Family Payment	4065.6	229.4	1380	0
FTP/FTB	398.4	80.1	591	121
Allowances	6823.6	0.0	1531	0
Pensions	10881.8	0.0	1617	0
Pharm Allow	117.8	0.0	1678	0
Rent Allowance	531.2	56.4	407	30
Total	25315.9	365.9		
Net Expenditure	-27949.0	285.8		

Table 1b: Main Revenue and Expenditure

Tax or Transfer	Cost ($m)		Numbers (thousands)	
	Before reform	Net change	Before reform	Net change
Government Revenue				
Income Tax	50177.4	0.0	7014	0
Medicare Levy	3087.4	0.0	4482	0
Total	53264.8	0.0		
Government Expenditure				
Tax Rebates	2497.4	0.0	4397	0
Family Payment	4065.6	119.4	1380	98
FTP/FTB	398.4	0.0	591	0
Allowances	6823.6	0.0	1531	0
Pensions	10881.8	0.0	1617	0
Pharm Allow	117.8	0.0	1678	0
Rent Allowance	531.2	0.0	407	0
Total	25315.9	119.4		
Net Expenditure	-27949.0	119.4		

The first column under the heading “before reform” in Tables 1a and 1b shows the amount of Government revenue and expenditure based on the March 1998 tax system. The second column provides an estimate of the net change in revenue and expenditure resulting from the

policy reform. The third column shows the number of persons in Australia who pay taxes and receive various Government payments. The last column presents the estimated net change in the number of persons receiving Government payments as a result of the policy reform. These values are weighted to reflect the Australian population in 1998. As noted earlier, the majority of benefits and taxes are calculated based on entitlements and not on actual receipt[9]. It therefore presumes that everyone who is entitled to a particular form of benefits will receive these payments. In addition, these entitlements are calculated based on income tests only and assets are not taken into account.

As expected with an increased generosity in benefit payments, the overall net expenditure of the Government increases for both policies. Family Payments are expected to increase by $229.4 million after the implementation of Policy A. As mentioned earlier, more couples are expected to receive Family Payment at a rate exceeding the minimum Family Payment rate after the reform. The increase in the number of couples receiving more-than-minimum Family Payment means that some recipients who formerly received the Family Tax Assistance, will now receive payments through Family Tax Payment (FTP). This is a result of the rule that dictates that households who receive more than the minimum Family Payment are entitled to receive assistance through the social security system in the form of Family Tax Payment rather than receiving a similar payment through the tax system in the form of Family Tax Assistance. So after the reform, more couples are entitled to receive assistance through the social security system, rather than through the tax system thus increasing the amount of FTP paid out but at the same time increasing the level of income tax paid, to give a neutral effect overall in terms of net income. Table 1a shows that both FTP and income tax increase by 80.1 million dollars. From Table 1a, it can be seen that an additional 121,000 couples are expected to receive the Family Tax Payment [10].

Table 1b shows that the estimated number of couples receiving Family Payment is 1,380,000, which after the implementation of Policy B increases by 98,000. The increasing number of

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[9]Apart from benefits such as Disability Support Pension and Sickness Allowance for which there is insufficient observable information to determine entitlement using the information in the data.

[10] To be eligible for Family Tax Payment, families with dependent children must be receiving more than the minimum Family Payment rate.

couples eligible for Family Payment is the logical consequence of the higher income cut out in Policy B.

3.2. Changes in the Individual's Income-Unit Income

Tables 2a and 3a present the distribution of changes in weekly net income-unit income experienced by individuals resulting from Policy A while Tables 2b and 3b present the results for Policy B. First, individuals are categorised in terms of income deciles (see Tables 2a and 2b), then by the age of their youngest child, their number of children and their own age (see Tables 3a and 3b). The income measure is net weekly non-equivalised income-unit income[11]. For example in Table 2a, 4.8 per cent out of the 840 individuals in Decile 4 experience an increase in their income-unit income of, in between $1 and $5 per week after the reform.

Tables 2a and 2b represent the number of individuals in the SIHC 1997/98 sample whereas the individuals in Tables 3a and 3b are weighted to reflect the Australian population in 1997/98.

Table 2a: Income Gainers/Losers by Household Income deciles (unweighted results)

Individual level per capita non equivalised income-unit income									
	Decrease in $				Increase in $				
	<10	5-10	1-5	none	1-5	5-10	>10	Average	Count
Decile01	-	-	-	100.0	-	-	-	0.0	844
Decile02	-	-	-	100.0	-	-	-	0.0	838
Decile03	-	-	-	99.3	0.2	0.2	0.2	0.1	842
Decile04	-	-	-	79.8	4.8	3.6	11.9	2.5	840
Decile05	-	-	-	69.8	3.8	3.8	22.6	6.1	840
Decile06	-	-	-	84.3	2.1	2.4	11.2	3.7	842
Decile07	-	-	-	96.4	0.2	0.7	2.6	1.0	840
Decile08	-	-	-	99.5	-	-	0.5	0.1	842
Decile09	-	-	-	100.0	-	-	-	0.0	840
Decile10	-	-	-	100.0	-	-	-	0.0	840
Total	-	-	-	92.9	1.1	1.1	4.9	1.3	8408

[11] This means that each person in the couple is assigned the total income of the income unit to which they belong, without taking into account the number of adults and children in the income unit who have to share this income.

Table 2b: Income Gainers/Losers by Household Income deciles (unweighted results)

Individual level per capita non equivalised income-unit income									
	Decrease in $				Increase in $				
	<10	5-10	1-5	none	1-5	5-10	>10	Average	Count
Decile01	-	-	-	100.0	-	-	-	0.0	844.0
Decile02	-	-	-	100.0	-	-	-	0.0	838.0
Decile03	-	-	-	100.0	-	-	-	0.0	842.0
Decile04	-	-	-	100.0	-	-	-	0.0	840.0
Decile05	-	-	-	100.0	-	-	-	0.0	840.0
Decile06	-	-	-	100.0	-	-	-	0.0	842.0
Decile07	-	-	-	100.0	-	-	-	0.0	840.0
Decile08	-	-	-	90.0	-	-	10.0	2.0	842.0
Decile09	-	-	-	86.4	-	-	13.6	3.5	840.0
Decile10	-	-	-	100.0	-	-	-	0.0	840.0
Total	-	-	-	97.7	-	-	2.4	0.6	8408

We do not expect any people losing income after the reforms, as any family affected by the reform will experience a net increase in income. This is confirmed in Tables 2a and 2b. This reflects the generosity of both policy reforms relative to the March 1998 tax and transfer system. Table 2a shows that the largest gains in welfare benefits go to those who are in deciles 3 to 7. This is expected since Policy A has the largest effect on working couples whose family incomes are above the minimum income limit. Contrary to Policy A, Table 2b shows that the largest gainers from the Policy B reforms are in deciles 8 and 9. This is consistent with expectations since Policy B draws couples with dependent children who are working and earning income above the pre-reform maximum income limit (which was $65,941 per annum) into receiving Family Payment. The effect is large since people who previously received nothing will receive a relatively large amount as a result of the newly introduced taper rate replacing the “sudden death” of the minimum Family Payment.

Table 3a: Income Gainers/Losers by respondent's age and number of children and age[12]

Individual level per capita non equivalised income unit income									
	Decrease in $				Increase in $				
	<10	5-10	1-5	none	1-5	5-10	>10	Average	Count
Age of youngest child									
No deps	-	-	-	99.9	-	0.0	0.1	0.0	5153.4
<1 year	-	-	-	83.0	2.5	4.1	10.5	3.3	464.6
1 year	-	-	-	84.3	3.2	1.6	11.0	2.9	387.7
2 years	-	-	-	75.9	3.3	3.5	17.3	4.3	372.2
3 years	-	-	-	80.7	0.9	2.5	15.9	4.6	250.7
4 years	-	-	-	84.7	1.4	2.4	11.6	2.9	221.9
5 years	-	-	-	79.2	6.1	1.2	13.4	3.3	206.5
6 to 9 yrs	-	-	-	82.9	2.2	2.4	12.4	3.6	643.9
10 years	-	-	-	83.3	-	1.1	15.6	3.0	157.6
11 years	-	-	-	80.3	2.2	1.4	16.2	4.1	139.5
12 years	-	-	-	86.2	2.6	4.6	6.6	2.1	232.6
13 years	-	-	-	90.5	2.5	2.6	4.4	1.2	164.4
14 years	-	-	-	92.2	2.4	1.3	4.1	1.0	173.4
Number of children									
None	-	-	-	100.0	-	-	-	0.0	4432.9
One	-	-	-	94.2	1.1	0.8	4.0	0.9	1416.6
Two	-	-	-	86.1	2.5	2.0	9.4	2.4	1708.2
Three	-	-	-	73.1	2.9	4.4	19.7	5.6	747.4
Four	-	-	-	80.5	3.0	3.4	13.0	4.6	189.7
Five	-	-	-	71.2	-	5.6	23.2	6.5	46.4
Six	-	-	-	50.1	4.7	8.1	37.1	11.4	27.2
Age									
15 to 19	-	-	-	91.2	-	-	8.8	2.8	19.5
20 to 24	-	-	-	91.8	0.2	0.6	7.4	1.8	297.9
25 to 29	-	-	-	90.6	1.6	1.5	6.4	1.8	692.9
30 to 34	-	-	-	84.8	2.5	2.7	10.0	2.8	976.8
35 to 39	-	-	-	84.1	2.3	2.1	11.5	3.2	1115.6
40 to 44	-	-	-	88.2	1.2	2.4	8.2	2.2	1086.3
45 to 49	-	-	-	97.0	0.8	0.1	2.0	0.4	1029.7
50 to 54	-	-	-	99.1	0.2	0.2	0.5	0.1	906.6
55 to 59	-	-	-	99.9	0.1	-	-	0.0	675.8
60 to 64	-	-	-	99.9	0.1	-	-	0.0	542.2
65 plus	-	-	-	100.0	-	-	-	0.0	1225.1
Total	-	-	-	93.2	1.0	1.1	4.8	1.3	-
Count	-	-	-	7983.9	85.8	89.7	408.9	-	8568.3

[12] The simulations for both policies are carried out for couples with and without children. Therefore, the "count" column includes individuals with and without children. Only couples with children are affected by the reform.

Table 3b: Income Gainers/Losers by employment status, number of children and age

Individual level per capita non equivalised income unit income									
	Decrease in $				Increase in $				
	<10	5-10	1-5	none	1-5	5-10	>10	Average	Count
Age of youngest child									
No deps	-	-	-	99.9	-	-	0.1	0.0	5153.4
<1 year	-	-	-	95.9	-	-	4.1	0.7	464.6
1 year	-	-	-	95.2	-	-	4.8	2.0	387.7
2 years	-	-	-	95.0	-	-	5.0	0.9	372.2
3 years	-	-	-	96.6	-	-	3.4	1.1	250.7
4 years	-	-	-	92.5	-	-	7.5	1.7	221.9
5 years	-	-	-	90.0	-	-	10.0	2.4	206.5
6 to 9 yrs	-	-	-	93.8	-	-	6.2	1.7	643.9
10 years	-	-	-	96.6	-	-	3.4	1.0	157.6
11 years	-	-	-	97.4	-	-	2.6	0.4	139.5
12 years	-	-	-	94.2	-	-	5.8	1.0	232.6
13 years	-	-	-	92.9	-	-	7.1	1.2	164.4
14 years	-	-	-	88.2	-	-	11.8	1.4	173.4
Number of children									
None	-	-	-	100.0	-	-	-	0.0	4432.9
One	-	-	-	96.4	-	-	3.6	0.5	1416.6
Two	-	-	-	93.7	-	-	6.3	1.4	1708.2
Three	-	-	-	95.7	-	-	4.3	1.6	747.4
Four	-	-	-	94.1	-	-	5.9	2.1	189.7
Five	-	-	-	100.0	-	-	-	0.0	46.4
Six	-	-	-	100.0	-	-	-	0.0	27.2
Age									
15 to 19	-	-	-	100.0	-	-	-	0.0	19.5
20 to 24	-	-	-	98.7	-	-	1.3	0.2	297.9
25 to 29	-	-	-	97.7	-	-	2.3	0.5	692.9
30 to 34	-	-	-	95.8	-	-	4.2	1.2	976.8
35 to 39	-	-	-	94.3	-	-	5.7	1.4	1115.6
40 to 44	-	-	-	95.9	-	-	4.1	0.8	1086.3
45 to 49	-	-	-	97.2	-	-	2.8	0.5	1029.7
50 to 54	-	-	-	99.6	-	-	0.4	0.1	906.6
55 to 59	-	-	-	100.0	-	-	-	0.0	675.8
60 to 64	-	-	-	100.0	-	-	-	0.0	542.2
65 plus	-	-	-	100.0	-	-	-	0.0	1225.1
Total	-	-	-	97.7	-	-	2.4	0.5	-
Count	-	-	-	8366.6	-	-	201.7	-	8568.3

Table 3a shows that the income gain is highest for those who have a youngest child aged between one and eleven years old. The majority of increases is greater than $10 per week. The largest average increases are observed for those who have three or more children. The latter is at least partly due to the higher payment rates for the fourth and subsequent children and to the higher cut-out incomes for households with more children. Couples aged over 45 have on average the smallest income gain, which is most likely related to the fact that they no longer have dependent children. Table 3b shows that every couple affected by policy reform B experiences an increase in family income of greater than $10 per week. The results indicate that Policy B has the largest impact on those aged between 30 to 44 and those who have between one and four children. The number of households with five or six children is relatively small. The zero effect in Table 3b indicates that this group of households in the sample have incomes below the relevant income range.

3.3. Effect on the Marginal Effective Tax Rate

The Marginal Effective Tax Rate (METR) measures the percentage of additional income that would be paid in taxes or withdrawn from benefit payments. Thus, for example, a METR of 90 per cent means that for one extra dollar of income earned, the individual only keeps 10 cents with the other 90 cents paid out in taxes or through loss of benefits.

Table 4 presents the METRs before and after the welfare reform for couples with children, ranging from 0 per cent to over 100 per cent. In this table, only the METRs of income unit heads are represented. The pre-reform is shown in the first row and the post-reform is shown in the second and third row. For example, in the first row, 12 per cent out of 2068 couples with dependents face a METR of zero per cent. High METR levels can create employment disincentives. For couples with dependent children, the largest proportion of households has a METR of around 40 per cent.

Table 4: Distribution of METRs for couples with dependents (row percentages)

	0	**0-10**	**10-20**	**20-30**	**30-40**	**40-50**	**50-60**	**60-70**	**70-80**	**80-90**	**90-100**	**>100**	**Ave**	**Count**
Pre-Reform	12	0	1	4	26	41	0	1	6	6	0	2	45.20	2068
Policy A	12	0	1	4	23	40	2	9	7	2	0	1	45.36	2068
Policy B	12	0	1	4	26	41	0	1	6	6	0	2	43.64	2068

The average METR before and after the reform are roughly similar for Policy A, although there have been some changes in the distribution. From Figure 1, it can be seen that for some households the METR would have increased whereas for other households the METR may have decreased after the reform. These shifts show up in Table 4.

The average METR after implementation of Policy B has decreased, but the changes must have been within the categories. Figure 1 shows that this policy change only affects households in the higher income range over a relatively small range. The METR decreases because a withdrawal rate has been introduced for the minimum rate of the Family Payment to replace the "sudden death" of the payment. On the other hand, people who previously were ineligible for benefits are eligible after the reform, which increases their METR.

4. Behavioural Simulation Results (MITTS-B)

Policy reforms, such as those simulated in the previous section, may induce changes to individuals/households labour supply. Failing to capture these changes can provide misleading results, particularly with regard to the Government's costings. In this section we present the results of the policy simulations outlined earlier using Mitts-B, which is the behavioural component of Mitts. Labour supply transition matrices showing the probability of changing to particular discrete levels of hours worked per week for married men and women are presented in the first subsection. The extent of changes in work probabilities and predicted hours by gender are discussed in Subsection 4.2. Finally, Subsection 4.3 presents the effect of labour supply responses on Government revenue and expenditure.

4.1. Labour Supply Transition Matrices

Tables 5 and 6 show the labour supply transition matrices for married men and women respectively. Tables 5a and 6a show the results of the Policy A reforms while Tables 5b and 6b show the results of the Policy B reforms. These matrices show the probability of moving between discrete hours levels resulting from a policy reform. The probabilities on the diagonal represent the individuals who were not induced to vary their number of hours worked. The elements in the lower triangular of the matrix (below the diagonal) represent the individuals who are expected to work less whereas the upper triangular elements (above the

diagonal) represent those expected to work more. For example, the first row and fifth column of Table 5a shows that the probability of moving from 0 to 40 hours worked is 0.1 per cent. The '-' denotes an empty cell. Fewer labour supply points are included for men than for women because the number of men working part-time hours is lower than the number of women. Distinguishing five-hour intervals for men would result in cells with very few observations at the lower end of labour supply.

From the tables we see that the policy changes proposed have a negligible effect on the supply of labour with very small proportions of both married men and women located off the diagonals in the matrices. This means few people alter their hours of work.

Table 5a: Married men's labour supply transitions (row percentages)

From pre to post reform: rows to columns							
	0	10	20	30	40	50	Pre reform
0	99.7	-	0.0	0.0	0.1	0.1	42.0
10	-	100.0	-	-	-	-	1.3
20	-	-	100.0	-	-	-	1.3
30	-	-	-	99.9	0.1	0.0	2.9
40	0.0	-	0.0	0.1	99.8	0.1	32.2
50	0.0	-	0.0	0.1	0.2	99.6	20.3
Post reform	41.9	1.3	1.3	3.0	32.3	20.3	100.0

Table 5b: Married men's labour supply transitions (row percentages)

From pre to post reform: rows to columns							
	0	10	20	30	40	50	Pre reform
0	100.0	-	-	-	0.0	0.0	42.0
10	-	100.0	-	-	-	-	1.3
20	-	-	100.0	-	-	-	1.3
30	-	-	-	100.0	0.0	0.0	2.9
40	0.0	-	0.0	0.0	99.9	0.1	32.2
50	-	-	-	0.0	0.1	99.9	20.3
Post reform	42.0	1.3	1.3	2.9	32.2	20.4	100.0

Reducing the withdrawal rate for Family Payment, Policy A, makes work more attractive for a very small proportion of married males and induces them to not only participate in the work force, but to work full-time. The income effect associated with this policy change causes a

small proportion of married men to reduce their hours of work. The reforms associated with Policy B, increasing the income threshold for the minimum rate of Family Payment and replacing the "sudden death" income test with a gradual withdrawal rate, has virtually no effect on the labour supply choices of married men. Small effects are observed for men working full-time hours. Given the high level of income at which households would be affected it is according to expectations that the policy change does not affect men working part time. The increase in net income resulting from the policy change is relatively small, especially for households at this income level.

Table 6a: Married women's labour supply transitions (row percentages)

From pre to post reform: rows to columns												
	0	5	10	15	20	25	30	35	40	45	50	Pre reform
0	99.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.1
5	-	100.0	-	-	-	-	-	-	-	-	-	1.5
10	0.0	-	100.0	-	-	0.0	-	-	-	-	-	2.5
15	0.4	0.0	0.0	99.6	-	-	-	-	-	-	-	3.7
20	0.4	0.0	0.0	0.0	99.4	0.0	0.0	0.0	0.0	-	0.0	4.9
25	0.3	0.0	0.0	0.0	0.0	99.7	0.0	-	-	-	0.0	4.1
30	0.6	0.0	0.0	0.0	0.0	0.0	99.3	0.0	0.0	0.0	0.0	4.0
35	0.2	0.0	0.0	-	-	0.0	-	99.8	0.0	-	-	5.2
40	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-	99.8	-	0.0	13.0
45	0.1	-	-	-	-	-	-	0.0	-	99.8	-	2.2
50	0.0	-	-	-	-	0.0	0.0	-	-	-	99.9	3.8
Post reform	55.2	1.5	2.5	3.7	4.9	4.1	3.9	5.2	13.0	2.2	3.8	100.0

As is typically the case, married women are more responsive to the policy changes, however contrary to their male counterparts, the reduction in labour supply due to their more pronounced response to the income effect, tends to outweigh any increase in labour supply due to the substitution effect. From Table 6a, we see that the higher incomes resulting from the decrease in the withdrawal rate for the Family Payment (and possibly the increased labour supply of their partners) induces some married women to exit the work force. A withdrawal from the labour market is much less apparent following the Policy B reforms. Also associated with the Policy B reforms are some increases in working hours and some decreases, however these transitions are trivial. The much smaller effect of Policy B is a reflection of the much

smaller proportion of the population who are likely to be affected by the change and the relatively small size of the change for the group who is affected.

Table 6b: Married women's labour supply transitions (row percentages)

From pre to post reform: rows to columns												
	0	5	10	15	20	25	30	35	40	45	50	Pre reform
0	99.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.1
5	-	100.0	-	-	-	-	-	-	-	-	-	1.5
10	0.1	-	99.8	0.0	0.0	0.0	-	-	0.0	-	-	2.5
15	0.1	-	0.0	99.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	3.7
20	0.2	-	0.0	0.0	99.7	0.0	0.0	0.0	0.0	0.0	0.0	4.9
25	0.1	0.0	-	0.0	0.0	99.7	0.0	0.0	0.0	0.0	0.0	4.1
30	0.1	-	-	-	0.0	0.0	99.8	0.0	0.0	0.0	0.0	4.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.9	0.0	0.0	-	5.2
40	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	99.9	0.0	0.0	13.0
45	-	-	-	0.0	0.0	0.0	-	0.0	0.0	99.9	-	2.2
50	0.0	-	-	0.0	-	0.0	0.0	0.0	0.0	0.0	99.9	3.8
Post reform	55.1	1.5	2.5	3.7	4.9	4.1	4.0	5.3	13.0	2.2	3.8	100.0

The above information is summarized in Tables 7a and 7b. The first two rows in the Tables show the percentage of people working before and after the reform. The third row shows the percentage of people who move from not working (0 hours worked) before the reform to working after the reform and vice versa for the percentage recorded in the fourth row. The fifth row shows the percentages of workers working more hours whilst those reducing worked hours are shown in the sixth row. The last row shows the average change in hours worked.

Tables 7a and 7b reinforce our earlier comments. The labour supply effects associated with the reforms, particularly the Policy B reforms, are very small. The higher return to working for certain individuals associated with a reduced withdrawal rate in Policy A, induces 0.1 per cent of married men to move into the workforce, and 0.03 per cent to work more hours. However, a higher level of net income results in 0.01 per cent of the married men to drop out of the workforce and 0.1 per cent to reduce their hours of work, essentially counterbalancing

the increase in labour supply and leading to an overall average increase in hours worked of only 0.03 hours.

Table 7a: Behavioural responses: change in labour supply

Behavioural Response	Couples:	
	Men	Women
workers (%,base)	58.66	45.73
workers (%,reform)	58.75	45.67
non-work-->work (%)	0.10	0.05
work-->non-work (%)	0.01	0.11
workers working more (%)	0.03	0.01
workers working less (%)	0.10	0.02
average hours change	0.03	-0.02

Table 7b: Behavioural responses: change in labour supply

Behavioural Response	Couples:	
	Men	Women
workers (%,base)	58.66	45.73
workers (%,reform)	58.66	45.74
non-work-->work (%)	0.00	0.03
work-->non-work (%)	0.00	0.02
workers working more (%)	0.04	0.04
workers working less (%)	0.03	0.03
average hours change	0.00	0.01

As was noted above, the net effect of the Policy A reforms on married women's labour supply is negative, with an overall average decrease of 0.02 hours in weekly labour supply. This is mainly due to a negative effect on participation with a net reduction of 0.06 per cent (0.05 minus 0.11) of married women in the workforce.

The reforms set out by Policy B have a negligible effect on labour supply, particularly for married men. Married women show a minimal level of movement both into and out of the workforce with a small net positive effect on participation, and women working more outweighing those working less. Overall, increasing the threshold for the minimum rate of Family Payment and introducing a more gentle withdrawal of the payment can be expected to

lead to a marginal increase in the average hours worked by married women of 0.01 hours per week.

4.2. Effect of the reforms on work probability and hours worked

In this section, we delve into the results a little further and look at the effects that the reforms have on the probability of work and predicted hours of work by gender. The effects of the Policy A and B reforms on the probability of working are presented in Tables 8a and 8b respectively. The tables show the proportion of individuals that show a change in their probability of working after the policy reform. For example, Table 8a shows that 2 per cent of females experience a 2-10 per cent decrease in the probability of working when the Family Payment withdrawal rate is reduced from 50 per cent to 30 per cent. These tables show that the large majority of individuals show no change in their work probabilities, with females slightly more affected than males. We also see that reducing the taper rate on more-than-minimum Family Payment has a larger effect on work probabilities than the combination of increasing the threshold for minimum Family Payment and introducing a gradual taper on the minimum rate. We also note that even for those showing a change in work probability, the probability change is still very small with only a 2 to 10 percentage point difference from the pre-reform work probability.

Table 8a: Change in work probability by gender (row percentages)

	Decrease in %-points				Increase in %-points				
Gender	**>50**	**10-50**	**2-10**	**none**	**2-10**	**10-50**	**>50**	**average**	**count**
Female	-	0	2	96.0	1	-	-	-0.1	4217.4
Male	-	-	0	98.0	1	0	-	0.1	4217.4
Total	-	0.0	1.3	97.2	1.3	0.1	-	0.0	8437.7

Table 8b: Change in work probability by gender (row percentages)

	Decrease in %-points				Increase in %-points				
Gender	**>50**	**10-50**	**2-10**	**none**	**2-10**	**10-50**	**>50**	**average**	**count**
Female	-	-	1.0	99.0	1.0	-	-	0.0	4217.4
Male	-	-	-	100.0	0.0	-	-	0.0	4217.4
Total	-	-	0.3	99.4	0.4	-	-	0.0	8437.7

Tables 9a and 9b show the changes in the predicted hours of work by gender associated with the Policy A and B reforms respectively. For instance, around 1 per cent of females show a decrease in predicted hours of less than 5 hours a week when the withdrawal rate for more-than-minimum Family Payment is reduced. The tables show that there is virtually no change in predicted hours, particularly with regards to Policy B. Consistent with the work probabilities, even for those experiencing a change in predicted hours, it is only a small change with an increase/decrease of less than 5 hours a week.

Table 9a: Change in predicted hours by gender (row percentages)

	Decrease in hours				Increase in hours				
Gender	**>10**	**5-10**	**1-5**	**none**	**1-5**	**5-10**	**>10**	**average**	**count**
female	-	-	1	99	0	-	-	0.0	4217.4
male	-	-	0	98	1	0	-	0.0	4217.4
Total	-	-	0.8	98.5	0.7	0.1	-	0.0	8434.7

Table 9b: Change in predicted hours by gender (row percentages)

	Decrease in hours				Increase in hours				
Gender	**>10**	**5-10**	**1-5**	**none**	**1-5**	**5-10**	**>10**	**average**	**count**
female	-	-	0.0	100.0	0.0	-	-	0.0	4217.4
male	-	-	-	100.0	0.0	-	-	0.0	4217.4
Total	-	-	0.0	99.9	0.1	-	-	0.0	8434.7

4.3. Effect of Behavioural Responses on Government Revenue and Expenditure

As was noted earlier, not taking into consideration labour supply effects when examining the costs to Government of various reforms can give misleading results. Here we examine the effects of the Policy A and B reforms on Government revenue and expenditure incorporating expected labour supply responses. In Table 1 the total cost of the reform was presented assuming no labour supply effects are present. Tables 10a and 10b, however, present the effects of the Policy A and B reforms on couples with and without taking into account labour supply effects. The first column under the heading “Pre-Reform” in Tables 10a and 10b gives the amount of income taxes and transfer payments under the March 1998 tax system. These values are weighted to reflect the Australian population. The second column provides an estimate of net change in revenue and expenditure as a result of the policy reform by allowing individuals to respond to the policy changes through changing their number of hours worked.

The third column expresses the net change in percentages. The last two columns under the heading "fixed LS" assume fixed labour supply.

Table 10a: Behavioural responses: change in tax and transfer costs

	Pre-Reform	Net change after reform			
		LS		Fixed	
	Abs. Value($m)	Abs. ($m)	%	Abs. ($m)	%
Couple					
Government Revenue					
Income Tax	48005.5	75.6	0.2	82.9	0.2
Medicare	2955.3	-0.4	0	0	0
Total Revenue	50960.8	75.2	0.1	82.9	0.2
Government Expenditure					
Tax Rebates	2472.7	9.0	0.4	0	0
Family Payment	4001.7	218.8	5.5	219.3	5.5
FTP/FTB	394.1	86.2	21.9	82.9	21
Allowances	6717.6	-45.9	-0.7	0	0
Pensions	10850.8	-0.1	0	0	0
Pharm Allow	117.5	0.0	0	0	0
Rent Allow	524.7	63.8	12.2	61.6	11.7
Total Expenditure	25079.0	331.7	1.3	363.8	1.5
Net Expenditure	-25881.8	256.6	-1.0	280.9	-1.1

Notes:
LS refers to changes taking into account labour supply.
Fixed refers to changes without accounting for labour supply responses.

The amount of Government revenue and expenditure in the pre-reform column of Tables 10a and 10b does not match the amount presented in Table 1 exactly because of the discrete nature of modelling and predicting labour supply. For example, for an individual who is observed to work 19 hours, all the calculations are done as if 20 hours were worked in the MITTS-B module. Consequently, the amounts shown in Tables 10a and 10b are less accurate as income taxes and payments are not evaluated at the actual hours but at the closest quintuple for women and the closest decuple for men. In addition, a few observations are dropped in the MITTS-B simulation because of unrealistic wages. Considering these two differences between MITTS-A and MITTS-B, the calculated pre-reform expenditures and revenues in MITTS-B are close to those calculated in MITTS-A.

Table 10b: Behavioural responses: change in tax and transfer costs

	Pre-Reform	Net change after reform			
		LS		Fixed	
	Abs. Value($m)	Abs. ($m)	%	Abs. ($m)	%
Couple					
Government Revenue					
Income Tax	48005.5	5.2	0	0	0
Medicare	2955.3	0.1	0	0	0
Total Revenue	50960.8	5.2	0	0	0
Government Expenditure					
Tax Rebates	2472.7	-0.3	0	0	0
Family Payment	4001.7	126.9	3.2	125	3.1
FTP/FTB	394.1	-0.2	0	0	0
Allowances	6717.6	-2.5	0	0	0
Pensions	10850.8	0.0	0	0	0
Pharm Allow	117.5	0.0	0	0	0
Rent Allow	524.7	-0.1	0	0	0
Total Expenditure	25079.0	123.8	0.5	125	0.5
Net Expenditure	-25881.8	118.6	-0.5	125	-0.5

Notes:
LS refers to changes taking into account labour supply.
Fixed refers to changes without accounting for labour supply responses.

As the labour supply effects associated with the reforms are small, the difference between the amounts of Government revenue and expenditure in the static case compared to the behavioural case are also small, however there are differences which highlights the importance of taking into account labour supply effects. In Table 1a, and again in Table 10a, we see that reducing the withdrawal rate on more-than-minimum Family Payment is a costly exercise. However, the policy reform does invoke a small positive labour supply response and thus slightly reduces the expenditure required on Family Payment. As more people work after the policy change, expenditure on allowances, and even pensions to a slight extent, is reduced. As some people reduce their hours of work to make themselves eligible for the more-than-minimum Family Payment, expenditure on Rent Assistance and Family Tax Payment increases. Another adverse effect of Policy A is that income tax revenue is reduced due to the distribution of labour supply variations and Australia's progressive tax system. Revenue is lost as a result of the reduction in labour supply (to take advantage of the increase

in Family Payment) by those initially working longer hours outweighing the revenue gain associated with the increase in the labour supply of those initially either not working or working a low number of hours. The overall effect of allowing for behavioural responses is however a positive one, with the increase in labour supply leading to a slightly lower increase in net expenditure than would have been the case without behavioural effects.

As was shown in Tables 5b, 6b and 7b, Policy B invoked virtually no labour supply response thus we do not expect to see a major difference in the revenue and expenditure estimates with and without labour supply response (see Table 10b). Here we see that Family Payment has become a little more expensive after labour supply responses have been factored into the simulation. Some households are adjusting their hours of work to take advantage of the increased generosity of minimum Family Payment and thus expenditure on the payment increases. The ever so slight increase in the labour supply of couples overall, decreases expenditure on basic allowances, and increases income tax revenue thus reducing the amount of net expenditure required to finance the policy reform.

5. Conclusions

This paper uses the MITTS model to examine the effects of reforms to Family Payment on the labour supply decision of couples with dependent children. Couples of all ages are included in the simulations, although behavioural changes are only calculated for those younger than 65. Simulating policy reforms in the MITTS model provides information about the changes to the various components of Government revenue and expenditure. It also simulates the potential labour supply responses as a result of a change in the tax and transfer system. The first policy reform, referred to as Policy A, involves a reduction of withdrawal rate from 50 to 30 per cent for the maximum rate of Family Payment for household income above the minimum income limit. The second policy reform, referred to as Policy B, introduces a gradual withdrawal of the minimum rate of Family Payment of 30 cents in the dollar for household incomes over $73,000 per annum. Policy A is designed to provide a more generous support for families earning a low-to-medium income whereas Policy B concerns families with a medium-to-high income.

It is important to note that the results of the simulations presented here are predicted values and have uncertainty associated with them. Microsimulation models such as MITTS have

their limitations and are based on some assumptions. For example, the behavioural part of MITTS only represents the supply side of the labour market and thus an assumption underlying the MITTS results is that anyone who wants to work can find a job and that everyone can choose the number of hours they wish to work. Another assumption underlying MITTS is that everyone eligible for benefit payments takes up these payments. Finally, a lack of observable characteristics in the SIHC relating to job search, residence requirements and value of assets, which have been discussed in more detail in Section 2 of this paper, means that some eligibility criteria cannot be checked which may result in a slight overprediction of the number of people who are eligible.

Both policies have the effect of increasing the net income of couples with dependent children who are earning an income of either above the minimum income limit (Policy A) or above the maximum income limit (Policy B). The policy reforms simulated induce small labour supply responses. The increasing return to work within certain hours/income ranges induces some individuals to increase their labour supply. However on the other hand, the increase in net income associated with either reform and/or the higher marginal effective tax rates for some individuals causes other individuals to reduce their labour supply, with some individuals moving out of the labour force completely. This latter effect is most pronounced for married women, possibly because of an increased income level of their partners. Overall, both Policy A and B provoke a positive labour supply response, albeit very small (particularly in the case of Policy B). This has the effect of reducing the amount of net expenditure required by the Government to fund these policy reforms.

Compared to a reduction in taper rate of allowances and pensions as described in Kalb and Kew (2002), the effect on household net income of a reduction in the Family Payment taper rate is quite small. In addition, the households affected are those in the medium income range rather than the households on the lowest incomes. Both factors lead to a smaller labour supply effect.

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