

Distributional Modelling of the Australian Tax and Social Security System Changes: 2005-2015 and beyond

2 June 2017

Ben Phillips and Matthew Gray *ANU Centre for Social Research and Methods, Australian National University

The authors are grateful to Nick Biddle, Miranda Stewart, Matthew Taylor and Peter Whiteford for comments on this paper.

1. Introduction

This paper presents the cumulative results from modelling of the distributional impact of changes to the personal income tax and social security system in Australia over the period 2005-06 to 2015-16 and planned changes to 2020-21. For much of the first period, successive governments implemented changes that resulted in significant personal income tax cuts and for many groups increased social security payments. With the end of the mining boom and the lingering effects of the Global Financial Crisis (GFC) the Federal Budget moved into deficit. To bring the budget back into balance, successive governments have attempted to make budget savings through cuts to welfare programs. The 2017-18 Commonwealth Budget increases taxes directly and indirectly through the effects of bracket creep.

This paper first considers the period 2005-06 and 2015-16, a time where policy changes were broadly in the direction of lower taxes and higher welfare payments. The paper then considers the years since 2015-16 (including projections to 2020-21) where policy has taken a strong shift towards increased taxation and lower welfare payments.

We use ANU's recently developed microsimulation model of the Australian Tax and Transfer system *PolicyMod* to estimate the impact on households and the Commonwealth Budget of all of the major changes in legislation in this area and to develop estimates of the total impact on different household and income level types.

2. Methodology

This section describes the modelling approach which can be summarised into four steps.

- 1. Estimate the gross, disposable and equivalised household incomes of households in 2015-16 based on the 2015-16 tax and social security policy settings using the PolicyMod population basefile.¹
- 2. Conduct the "hypothetical experiment" of applying the 2005-06 tax and social security policy settings to the 2015-16 population. This produces estimates of what post-tax incomes would have been in 2015-16 if the 2006-06 social security and tax system had continued without policy changes.
 - a. The 2005-06 social security and taxation policy settings are projected forward to what they would have been in 2015-16 with the application of the 2005-06 indexation rules. This is important to prevent a tax threshold bracket creep effect which would have occurred in the absence of policy change something which in our view would have been unlikely to have been allowed.
 - b. The projecting forward of the 2005-06 policy settings includes changes in the eligibility for different government payments.
 - c. The simulations assume that there were no behavioral response to policy changes since 2005-06.
- 3. The third step involves decomposing the changes in household incomes between 2005-06 and 2015-16 into the components due to changes in: (i) the social security system; (ii) the taxation system; and (iii) wages and employment. To consider the employment and wages outcomes we have compared the 2005-06 and 2013-14 Survey of Income and Housing Surveys. The wage and employment component is simply the growth in average wage rates and hours worked for each household type and income quintile.
- 4. For the projections of the impact of policy change through to 2020-21 we take the policy settings for 2020-21 according to the 2017-18 Commonwealth Budget and apply these to our comparison year (2015-16).
 - a. Projected 2020-21 policy parameters are deflated to 2015-16 values.² Changes generally apply where policy change is planned, including to Family Payments, Medicare Levy, grandfathering arrangements for energy supplements, the new childcare subsidy (including activity testing) and the removal of the School Kids Bonus.
 - b. The effects of expected bracket creep are taken into account by deflating the 2020-21 planned income tax thresholds by projected wages growth.

While the modeling involves taking into account a large number of often complicated policy changes and requires the making of a number of simplifying assumptions, the analysis presented in this paper attempts to undertake a conceptually simple hypothetical comparison of those who

¹ The PolicyMod population baseline is based on the 2013-14 Survey of Income and Housing (SIH) updated for projected demographic change between 2013-14 and 2015-16 and uprated to be in 2015-16 dollars. Uprating is done using a range of appropriate inflators including CPI and wage growth.

² Deflated using projected wages growth and projected CPI as appropriate. The projections of wage growth and CPI are the projections in the 2017-18 Commonwealth Budget.

policy changes between 2005 and 2015 benefit financially ('winners') and those who are adversely affected ('losers'). A similar exercise for the period 2015 to 2020 is undertaken. Broadly speaking we anticipate that many households will have benefited from tax cuts (that more than offset bracket creep) and more generous welfare payments between 2005 and 2015. The expectation is that in the absence (mostly) of any adjustments to the tax thresholds households will pay more in tax and that welfare cuts will leave many households worse off by 2020-21.

The aspects of the social security and tax system included in the modelling are personal income taxation including the Medicare levy and the Budget Repair Levy. All the major social security benefits including Pensions and Allowance, Family Tax Benefits and School Kids Bonus, Supplements, Child Care Benefit/Child Care Rebate and the new Childcare Subsidy. Not included are the maternity payments (e.g., Baby Bonus) and Paid Parental Leave.

3. The period 2005 to 2015

The period between 2005 and 2015 was one of significant personal income tax cuts. These cuts resulted from rate reductions and more generous thresholds and an increase to the Low Income Tax Offset. One tax increase was the gradual removal of the Dependent Spouse Tax Offset.

The major change to welfare payments was the increase in pensions (including Disability, Veteran Affairs, Carers and Age Pensions). There were also some changes to Family Payments, particularly increasing payments related to older dependent children. There was a significant reduction in welfare payments received by many single parents resulted from the transitioning of single parents onto Newstart once their youngest child turned 8.

Figure 1 shows the impact of policy change (welfare and taxation) on household income. The impact is expressed in terms of percentage of gross household income. For most household types and income levels, the impacts of policy change were swamped by the very significant increases in average wages that occurred over this period.

For higher income couples with children and couple only households, wages growth accounted for around a 20 to 25 per cent real increase in gross (pre-tax) household income.³ For higher income lone person and single parent household it accounted for 14 to 18 per cent increase. Tax reductions increased disposable incomes by an average of 1 to 2 percentage points for higher income households. The impact of welfare changes were minimal for most of these households due to the targeted (means tested) nature of the Australian social security system.

For low income households, particularly lone persons, there were significant gains of between 8 and 11 per cent in gross income. This change is related to higher Disability Support Pensions, Age Pension, Carer Payment and some other pension (excluding Parenting Payment Single) for singles

³ The results are presented by equivalised disposable household income quintile. Equivalised income has been used in order to adjust for difference in the costs of living between households of different sizes and compositions. The new OECD equivalence scale has been used. This takes a value of 1.0 for the first adult plus 0.5 for each subsequent adult plus 0.3 for each child. Income quintiles are calculated for the total population.

resulting from the 'Harmer Pension Review' increases in 2009. The standout result is for single parents (Quintile 1) for whom welfare payments under the 2015-16 rules reduced gross income by 13.2 per cent compared to the 2005-06 rules. As part of the Welfare-to-Work Policyphased-in initially by the Coalition Government in 2006 and accelerated via the removal of grandfathering provisionsby the Labor Government in 2013 single parents with a youngest child aged over 7 were shifted onto the much less generous Newstart payment. This payment also is indexed by inflation (CPI) rather than wages as was Parenting Payment. The average loss for this group was \$4,431 per year in 2015-16 dollars compared to 2005-06. All other groups were found to be better off, largely as a result of tax cuts.⁴

⁴ There are very few single parent families in the highest income quintile (Q5) which means the sample numbers in the Survey of Income Household are very low and hence the results for this group may not be statistically reliable and thus we ignore the results for this group.



Figure 1 – Policy Impact and Wages Growth 2005-2015

Source: ANU PolicyMod.

Figure 2 shows the aggregate budget impact of all measures implemented between 2005 and 2015 by 2015 by income quintile.. The majority of the impact is the \$14 billion in tax cuts (in per annum terms) in 2015-16 dollars. Welfare increases totaled \$6.7 billion (in per annum terms). In aggregate (total benefit from welfare gains and tax cuts), using this 'day-after' approach to modelling without any consideration of second-round effects the total cost to the budget was \$21 billion per year by 2015-16.

By income quintile, we find that most of the welfare gains accrued to quintile 2 (pension increases) and most of the tax cuts went to the top income quintile.



Figure 2 Aggregate Impact of Policy 2005-2015 \$millions pa

Source: ANU PolicyMod.

Figure 3 shows that overall, the gains went mostly to middle income household (2.8 per cent of their disposable income) while higher groups gained 2.6% and lower income groups 2.3%. The budget changes could well be viewed as largely in proportion to income and so not overly altering progressivity, although the second income quintile had the largest increase and therefore the impact could be seen as being slightly progressive.



Figure 3 Impact of policy: Change in disposable income by income quintile

Figure 4 shows the change in hours worked by different household types.⁵ There are many potential factors in driving hours worked, such as the economic climate, but it is often anticipated or at least hoped that policy change would have at least some impact on hours worked. Policy has focused heavily in recent years on increasing the hours worked within single parent families and this is one category where perhaps there have been some positive outcomes, although hours worked by single parents has been increasing since the mid-1990s. There was an increase in hours worked by single parents of 4.1 hours per week for quintile one and 7.8 for the second quintile. It should be kept in mind that these numbers are coming off a very low hour base and are generally to relatively low paid jobs. As Figure 1 indicates wages growth only accounts for a small share of the income change for low income single parents where the result is dominated by the loss of welfare payments. Wages growth had a substantial positive impact for single parent families in income quintiles 2, 3 and 4.

Source: ANU PolicyMod.

⁵ The calculation of average hours worked included those who were not employed and therefore worked zero hours and therefore reflects the impact of changes in employment rates and hours worked if employed.

For other groups we have not seen any clear patterns. Higher income groups, all of whom benefited from tax cuts have lower hours worked in 2013-14 relative to 2005-06.⁶



Figure 4 Change in Hours Worked by family type and income level

Source: 2003-04 and 2013-14 Survey of Income and Housing.

4. The period 2015-2020

⁶ The estimates include both working age and non-working age households and hence changes in average hours worked could be due, in part, to population ageing which is resulting in a high proportion of couple only and lone person households including more people who are of retirement age.

The comparison of the 2020 and 2015 policy world is in stark contrast to the period2005 to 2015. Taxes are being increased, bracket creep is not being returned and social security payments are being cut. There is a new childcare subsidy, however, with many families hitting the activity test it's benefits don't flow to all households using childcare. The Budget Repair levy is removed but the Medicare Levy is increased.

Various welfare payments are trimmed, such as family payment freezes, tighter means testing of higher income Family Payment recipients, energy supplements removed for 'new' customers, a small increase in the pension age, tighter means testing of the asset test for pensions and the School Kids Bonus is removed⁷. Figure 5 shows the percent impact of policy change by 2020-21 (on a 2015-16 basis) relative to gross household income. Overall, couples with children are reasonably equally impacted by both tax increases and welfare cuts. Overall middle and upper income couples without children and lone persons are more strongly impacted by tax increases. Single parents, again, are mostly impacted by benefit cuts given their relatively high rates of benefit receipt and low labour market incomes.

Figure 6 shows the clear relationship of expenditure cuts and tax increases by income level when considered in dollar terms. The bulk of the dollar impact is tax increases and mostly among high income families. Welfare cuts in dollar terms mostly impact middle income couples with children and single parents. Middle income couples with children will be worse off by nearly \$4,300 per year due to an equal share of tax increases and welfare cuts. High income families are mostly impacted by tax increases.

⁷ The grandfathering of the energy supplement was modelled by removing the payment from a random share of beneficiaries in line with expected entry and exit rates for each payment type. Numbers are aligned to ensure the aggregate expenditure impact equals government estimates of the impact on expenditure for this measure.



Figure 5 – Policy Impact of tax and welfare changes 2020-21

Source: ANU PolicyMod.





Figure 7 shows the aggregate dollar impact on each income level. The results are roughly the mirror image of those presented in Figure 2. Effectively, the gains households made due to the effects of policy change between 2005 and 2015 will be undone by 2020. This result is heavily dependent upon the forecasts of Treasury for wages coming true which is a strong assumption given the current wage price index is roughly growing at 2 per cent compared to the expected 3.75 per cent by 2020-21. The unwinding of gains is most pronounced for income quintiles 3 and 4 which are expected to lose more than was gained between 2005 and 2015. The lowest income group is expected to be in balance over the 15 year period while the highest income group will be, on balance, ahead.

Source: ANU PolicyMod.



Figure 7 Aggregate Impact of Policy 2015-2020 \$millions pa

Source: ANU PolicyMod.

Figure 8 indicates that the expected changes to 2020-21 are broadly proportional to income except for the middle income group which is impacted more heavily than the higher and lower income groups.



Figure 8 Per cent impact on disposable income from policy change 2015-2020

Source: ANU PolicyMod.

Conclusions

The modelling results presented in this paper provide a comprehensive assessment of the impact of changes in the tax and social security system over the period 2005-06 to 2015-16 on Australian households and how the impacts vary for different household types and levels of income.

The period 2005 -2015

The key results are:

- Policy changes between 2005 and 2015 had, on average, a positive impact on the disposable incomes of most household types at all income levels.
- Increases in social security payments for single people on Age Pensions, Disability Support Pension and Carer Payment had a substantial positive impact on low income lone person households.

- For higher income households, tax cuts had a small but not insignificant positive impact on their disposable incomes
- Low income single parent families were the only group for whom policy change had a major negative impact on disposable household income. This is largely driven by the changes in eligibility for Parenting Payment Single with a large number being moved to the lower payment rate Newstart.
- The impact of real increases in labour market income between 2005 and 2015 are much larger for most households types than are changes to tax and social security policy. The only exception to this is for low income single parent families.
- The aggregate budget impact of all measures implemented between 2005 and 2015 is by 2015 \$14 billion in tax cuts (pa) with social security payment increases totaling \$6.7 billion (pa). The total cost to the budget was \$21 billion per year by 2015-16.

The period 2015 to 2020

The key results are:

- Proposed tax increases, bracket creep not being returned and overall cuts in social security payment have a negative impact on the disposable income across household types and income levels. In proportion terms the negative impact are generally largest on low to middle income couples with children and single parents. In dollar terms the negative impacts are largest for middle to higher income couples with children, higher income couples without children and middle income single parent families.
- The gains households made due to the effects of policy change between 2005 and 2015 will be undone by 2020. This result is heavily dependent upon the forecasts of Treasury for wages coming true which is a strong assumption given the current wage price index is roughly growing at 2 per cent compared to the expected 3.75 per cent by 2020-21.

The ANU Centre for Social Research and Methods is planning to do further research into the consequences of policy changes and labour market changes on Australian Households using the new ANU PolicyMod model.

Appendix

		Percent Impact relative Gross Household					
		Income			Dollar Impact on Disposable Income		
Household Type	QUINTILE	Wages_PCT	Welfare_PCT	Tax_PCT	Wages	Welfare	Тах
Couple Children	Q1	12.4%	-1.0%	1.0%	\$5,102	-\$417	\$421
Couple Children	Q2	22.2%	0.7%	1.8%	\$17,242	\$572	\$1,397
Couple Children	Q3	25.0%	-0.1%	1.4%	\$28,466	-\$146	\$1,629
Couple Children	Q4	25.3%	-0.2%	1.7%	\$39,116	-\$325	\$2,641
Couple Children	Q5	22.9%	0.3%	1.9%	\$68,436	\$844	\$5,723
Single Parents	Q1	3.7%	-13.2%	0.6%	\$1,233	-\$4,431	\$204
Single Parents	Q2	16.8%	-1.1%	0.9%	\$9,423	-\$631	\$524
Single Parents	Q3	8.0%	-0.6%	1.4%	\$6,099	-\$481	\$1,103
Single Parents	Q4	15.8%	0.8%	1.1%	\$17,705	\$951	\$1,179
Single Parents	Q5	0.1%	-0.8%	1.4%	\$293	-\$1,944	\$3 <i>,</i> 503
Couple Only	Q1	2.8%	1.7%	-0.4%	\$798	\$487	-\$120
Couple Only	Q2	4.7%	3.4%	0.1%	\$2,123	\$1,514	\$52
Couple Only	Q3	13.7%	1.6%	1.2%	\$9,747	\$1,123	\$827
Couple Only	Q4	18.2%	0.2%	1.4%	\$18,770	\$217	\$1,425
Couple Only	Q5	17.9%	0.0%	1.6%	\$36,209	\$70	\$3,274
Lone Person	Q1	0.1%	8.1%	0.0%	\$13	\$1,432	\$8
Lone Person	Q2	1.4%	8.9%	0.7%	\$416	\$2,617	\$207
Lone Person	Q3	2.3%	2.7%	2.2%	\$1,033	\$1,239	\$1,003
Lone Person	Q4	13.0%	0.5%	0.8%	\$8,778	\$315	\$511
Lone Person	Q5	16.3%	0.1%	1.6%	\$22,038	\$155	\$2,131
Other	Q1	13.2%	2.9%	0.6%	\$4,823	\$1,038	\$233
Other	Q2	8.6%	4.4%	0.5%	\$5,438	\$2,760	\$325
Other	Q3	14.4%	2.0%	1.4%	\$13,708	\$1,920	\$1,293
Other	Q4	20.1%	0.6%	1.7%	\$27,339	\$773	\$2,293
Other	Q5	22.9%	0.3%	1.7%	\$56,541	\$705	\$4,197

Table 1A 2005-15 Policy Impacts on Households

Source: PolicyMod

		Percent Impact relative Gross Household Income		Dollar Impact on Disposable Income	
Household Type	QUINTILE	Wages_PCT	Welfare_PCT	Welfare	Tax
Couple Children	Q1	-0.7%	-3.1%	-\$1,260	-\$272
Couple Children	Q2	-1.5%	-2.3%	-\$1,794	-\$1,178
Couple Children	Q3	-1.9%	-1.9%	-\$2,136	-\$2,163
Couple Children	Q4	-2.0%	-0.1%	-\$201	-\$3,057
Couple Children	Q5	-1.2%	-0.1%	-\$334	-\$3,495
Single Parents	Q1	-0.3%	-3.3%	-\$1,117	-\$91
Single Parents	Q2	-0.7%	-3.1%	-\$1,744	-\$383
Single Parents	Q3	-1.6%	-2.5%	-\$1,940	-\$1,215
Single Parents	Q4	-1.5%	-1.9%	-\$2,176	-\$1,701
Single Parents	Q5	-0.8%	0.1%	\$135	-\$1,880
Couple Only	Q1	-0.2%	-1.5%	-\$434	-\$70
Couple Only	Q2	-0.9%	-0.8%	-\$375	-\$417
Couple Only	Q3	-1.8%	-0.8%	-\$584	-\$1,316
Couple Only	Q4	-2.2%	-0.1%	-\$143	-\$2,310
Couple Only	Q5	-1.6%	0.0%	-\$47	-\$3,191
Lone Person	Q1	0.0%	-1.3%	-\$232	-\$7
Lone Person	Q2	-0.5%	-0.9%	-\$251	-\$137
Lone Person	Q3	-2.6%	-0.7%	-\$316	-\$1,161
Lone Person	Q4	-2.2%	-0.2%	-\$101	-\$1,472
Lone Person	Q5	-1.4%	0.0%	-\$53	-\$1,950
Other	Q1	-0.6%	-1.3%	-\$475	-\$231
Other	Q2	-0.8%	-0.6%	-\$373	-\$490
Other	Q3	-1.7%	-0.5%	-\$484	-\$1,622
Other	Q4	-2.2%	-0.1%	-\$188	-\$2,934
Other	Q5	-1.6%	0.0%	-\$114	-\$3,968

Table 1B 20015-20 Policy Impacts on Households

Source: PolicyMod