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Were we really all in it together? The distributional effects of the 2010-2015 UK Coalition government's tax-benefit policy changes

Abstract

This paper examines the distributional impacts of changes to benefits, tax credits, pensions and direct taxes between the UK Elections in May 2010 and in May 2015. The changes did not have a common effect on all household incomes; nor did the direct tax-benefit changes contribute to deficit reduction. Effectively, reductions in benefits and tax credits financed part of the direct taxes cuts, but the overall net fiscal cost increased pressure for cuts in other public services and increases in other (more regressive) taxes. The main gains were in the upper middle of the income distribution and the main losers were at the bottom and those close to, but not at, the very top. Across most of the distribution the changes were regressive. By comparing with other analyses of policy changes in the same period we illustrate the importance of analytical choices and assumptions for detailed conclusions on their distributional effects. We also show how some groups were clear losers or gained little on average – including lone parent families, large families, and families with younger children. Others were gainers, including two-earner couples, and those in their 50s and early 60s. The findings show that a dominant feature of the period was that the combination of higher tax-free income tax allowances, financed by cuts in benefits and tax credits was generally regressive. As this combination also lies at the heart of the proposed policies of the Conservative government since 2015, we would expect these effects to be intensified in the coming years.

Keywords: Income distribution; direct taxes; social security; United Kingdom; Coalition government.

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1. Introduction

A crucial issue in assessing the record of the UK's Conservative-Liberal Democrat Coalition government between May 2010 and May 2015, is who bore the heaviest burden from the combination of 'austerity' aimed at reducing the public sector deficit and from its reform programmes across the public sector.

This paper looks in detail at one of the central, and most highly-charged, parts of this – the effects of reforms and other changes to social security benefits and tax credits and to personal taxes. It does not consider the effects of the substantial cuts in spending on certain other public services, such as those provided by local government.¹ Nor does the main analysis look at other changes in the tax system outside personal taxes; indeed, its focus is on *direct* taxes (income tax and employee National Insurance contributions).² We look at both the distributional effects between income groups and between the population divided in other ways, such as by family type and age.

With that restricted focus, this might be thought a straightforward exercise with a clear set of answers: who lost and who gained? At its heart is a comparison of how people *were* affected by the tax and benefit system put in place by the Coalition by the time of the 2015 election with how they *would have been* affected by the system inherited in May 2010 with no reforms and no cuts. There are several ways of approaching what seems like a simple question, depending on the choices made as to what the actual system is compared with, and how this is done.

First, to compare the 'inherited' system with the actual one in place in May 2015, how should we assume the inherited system would have been changed each year as the overall economy changed? Would a 'neutral' assumption be that the original levels of benefits and tax allowances should increase in line with *price* inflation or in line with some measure of average *income* growth? Depending on the exact question, either might be appropriate. We show our main results against both price- and earnings-linked bases.

Second, in presenting distributional analysis, how big should be the income groups examined? Are we interested, for instance, in how the top or bottom 10 per cent as a whole have been affected, or in

differences – which turn out to be important – *within* top or bottom groups? We show our main results by vingtile (twentieth) of the population.

Third, modelling of this kind can be carried out assuming that everyone who is entitled to benefits and tax credits receives them, or can allow for what is known to be only partial take-up of means-tested payments. In our analysis we allow for partial take-up, as for a distributional analysis we believe it is important to capture the lack of effect of changes to means-tested benefits on those not taking them up who are most likely to be at the bottom of the distribution.³ We explore the effects of assuming full take-up in section 5.

Finally, there were important reforms that were announced but not yet been implemented by May 2015 – such as the introduction of Universal Credit to replace several existing means-tested payments. In this analysis we look only at changes that were already in place in May 2015 and given that so few households were affected by it in 2015, we do not include the introduction of Universal Credit.⁴

These choices as well as others about the scope of policies considered and how to do the distributional analysis have an impact on conclusions about who gained and lost. We look at our results across the income distribution in section 4 and in section 5 compare with similar analysis that makes some different choices (Adam et al, 2015; HM Treasury, 2015) drawing out how each variation affects the final conclusion. Before that, in section 2, we describe the range of policy changes and reforms covered by the analysis, and in section 3 our data and methods. In section 6 we look at alternative breakdowns, including by household type and age. Section 7 summarizes the findings and reflects on their implications.

In this analysis there are some general points to note. First, the modelling does not take account of any behavioural effects of policy change – for instance on how the richest families choose to receive their investment returns with different top levels of income tax, which could reduce the effect of changes in top tax rates. At the same time, the data source we use has incomplete coverage of those with the very highest incomes. The analysis may for example understate the overall value of the *gains* to the top one or two per cent of the distribution from the cut in the top income tax rate from 50 to 45

per cent. Second, there are important dimensions of policy change which we do not cover including within the social security system. To set our results in context of overall austerity policies under the Coalition, total public spending was £11.7 billion lower in real terms in 2015/16 than in 2010/11 (HM Treasury 2016, table 4.1), reflecting the net effects of some areas where it had grown, and others where it had been cut. By comparison, the net benefit reductions we analyse in Figure 1(a) were equivalent to around 1.1 per cent of household disposable incomes, or £8.5 billion at 2015/16 prices (including changes to Council Tax support). These were offset by a real increase in state pensions (relative to CPI inflation) of £3.1 billion. We also show that personal direct taxes were cut, rather than contributing to deficit reduction. It was indirect taxes, which are not generally the focus of this paper, that were increased.

2. How were policies changed?

The Coalition introduced some headline-grabbing reforms to taxes and benefits, such as the major increase in the income tax personal allowance, made less-heralded changes that had a large effect on particular households, and announced others whose effects will take some years to become fully apparent. How benefit amounts and tax thresholds were indexed also reshaped the distributional effects of benefits and taxes. Initially, the Coalition continued to protect the real value of benefits, even as real wages fell. But subsequent decisions to freeze benefits (such as Child Benefit and parts of tax credits), to increase many working-age benefits by only 1 per cent for three years, and to switch from RPI-based inflation adjustment to using the CPI, tended to unwind the effects of this initial decision.

The Coalition started with a commitment to increase the **income tax** personal allowance to £10,000, which was achieved (in nominal terms) by 2014/5, with a further increase to £10,600 in 2015/6. The value of the increase was designed to be no greater for higher rate taxpayers than others, so the basic rate limit (the top of the basic rate band) was reduced accordingly (except in the final year, 2015/6).

Taken together, the threshold for higher rate (40 per cent) tax, fell in real terms over the period as a whole. Pensioners gained less from the higher personal allowances, because the more generous ‘age allowance’ they received was phased out. At the same time, the top rate of tax for income above a threshold fixed at £150,000 in cash terms, introduced just before the 2010 election, was reduced from 50 to 45 per cent.

A further income tax reform from 2015/6 allowed spouses in married couples to transfer up to 10 per cent of any unused personal allowance between them (restricted to basic rate taxpayers).

National Insurance contributions (NICs) were increased by 1 percentage point and the lower thresholds were increased by more than regular indexation.

Tax credits were adjusted to become less generous in real terms, and their reach up the income distribution reduced. While the maximum amount of Child Tax Credit paid *per child* increased in real terms, the ‘family’ element was frozen and restricted to low income families, the addition for babies was removed, and the proportion of childcare costs covered was reduced, alongside cuts in the generosity of Working Tax Credit. Hours of work conditions in Working Tax Credit were also adjusted.

Child Benefit was cut in real terms and reduced for families with anyone earning more than £50,000 (withdrawn entirely for those earning £60,000 or more). The **Winter Fuel Payment** was cut substantially in cash terms in 2011 when the Coalition did not continue the temporary increases introduced by Labour.

The conditions to receive **benefits for disability and incapacity** were made more restrictive, with fewer people entitled,⁵ and contributory Employment and Support Allowance was time-limited to one year and means-tested thereafter.

Housing support for private sector tenants (**Local Housing Allowance**) was subject to major restrictions on the maximum amount of rent covered and **Housing Benefit** for social tenants was reduced for tenants deemed to be under-occupying, and deductions for resident non-dependants were increased.

A £26,000 **annual cap** on all working age benefits was introduced except for recipients of disability payments or Working Tax Credit.

While **Council Tax** was frozen for part of the period (and all of it in Scotland) and increases were restricted in the remainder, **Council Tax Benefit** was abolished, with local authorities taking responsibility for any replacement “Council Tax support” (with most reducing generosity for working-age households).

In the last three years of the period most working age benefits were **indexed** by 1 per cent instead of the customary index (see below) which would have resulted in larger increases in some years. On the other hand, the **Basic State Pension** was indexed by the highest of the Consumer Prices Index (CPI), the growth in average earnings and 2.5 per cent (the new ‘triple lock’), and the Guarantee Credit in **Pension Credit** increased by the same cash amount, but the Savings Credit element was cut.

The regime of default indexation (adjustment from year-to-year) was also reformed, generally abandoning the use of the Retail Prices Index (RPI) and the related ‘Rossi’ index in favour of the CPI.⁶

The switch implies slower growth in benefits and tax thresholds and although the effects of such measures may be small from year to year and when inflation and income growth are low, they accumulate over longer periods to have significant fiscal and distributional effects (Sutherland et al., 2008).

3. Data and methods

To calculate household disposable income under the different policy scenarios, we use the UK component of EUROMOD, the EU tax-benefit microsimulation model and micro-data from the Family Resources Survey (FRS). EUROMOD simulates cash benefit entitlements and direct personal tax and social insurance contribution liabilities on the basis of the tax-benefit rules in place and

information available in the FRS. Market incomes are taken from the data, along with information on other personal and household characteristics (e.g. age and marital status). Policy instruments which cannot be simulated are also taken directly from the data: these include most contributory benefits and pensions and disability benefits (due to limited information) See Sutherland and Figari (2013) for further information about EUROMOD and De Agostini and Sutherland (2016) for a detailed description of the UK component.

A number of assumptions and analytical choices influence our results. First, some changes can only be modelled approximately, including the restrictions on eligible rent in Local Housing Allowance and Housing Benefit and the replacement of Council Tax benefit by Council Tax support.⁷

Secondly, we try to reflect non take-up of means-tested benefits and tax credits because of the importance of representing those not claiming their entitlements in the income distribution. The first main effect is on the ranking of people by household income. Those not taking up naturally appear at or near the bottom of the distribution. Secondly, partial take-up implies smaller losses (gains) since if means-tested payments are not reaching those entitled to them, then they do not lose (gain) when their value is cut (increased).

More generally, the income measure used to rank individuals in analysing the distributional effects of policy change may be critical to the results. Here we use a common ranking by household income from the starting point of our analysis in 2010/1, using 2010 simulated disposable household income (under 2010 prices), adjusted for differences in household size and composition using the modified OECD equivalence scale.

We use 2009/10 FRS data and update market incomes to 2015/6 levels using source-appropriate indices. Benefits, pensions and Council Tax which cannot be simulated with the information available in the FRS are also updated to 2015/6 levels using available information on the indexation or change in average amounts. As we are isolating the effects of policy change, we do not adjust for changes in the labour market, household composition or demographic characteristics of the population over the period. Tax-benefit policies for May 2015 are simulated using EUROMOD and the resulting levels

of household income are compared with those from applying the system that the Coalition inherited in May 2010.

A key question then is what this “no reform” scenario would look like, given that prices and incomes have changed. There are several options for indexing the 2010/1 system, corresponding to natural interpretations, but no neutral or definitive choice can be made (Hills et al., 2014). For example, if all 2010/1 monetary parameters were adjusted for price changes, the benefit system would maintain real living standards (other things being equal) for those at the bottom. On the other hand, if the system kept pace with the growth in market income, that would achieve fiscal neutrality (and incidentally, would keep inequality and relative poverty constant, other things equal). In times of economic fluctuation or of persistent real income growth, it is important to understand the different distributional implications of alternative counterfactuals reflecting the actual movements in the associated economic indicators.

A different approach, often used in the analysis of policy changes in the UK, aims to capture the indexation that would have occurred if the government had been completely passive. This “business as usual” scenario makes use of different indexes for different elements of policy, including no indexation for some, in line with Office for Budget Responsibility assumptions as well as statutory rules (De Agostini et al., 2015, appendix 3). It uses values of the index from the previous September, or typically ex ante predictions of such indexes, and includes rounding conventions.

In our analysis we explore the implications of indexing the whole 2010/1 tax benefit system forward to 2015/6 by two different factors: inflation, as measured by the CPI, which grew by 11.2 per cent over the period, and the nominal growth in average earnings (AEI) which, unusually, was somewhat less: 9.8 per cent.⁸

For instance, in 2010/1 Child Benefit for the first child was £20.30 per week. If it had been uprated by the CPI each year until 2015/6, protecting its real value, it would have been worth £22.58 by then, or £22.28 uprated in line with earnings growth. In fact it was only £20.70 in 2015/16. As it was barely increased in nominal terms, its value fell compared to either of the counterfactual indices.

By contrast, the income tax threshold would only have been £7,100 if uprated with earnings or £7,200 with prices, but was actually raised to £10,600.

But it is the combined effect of a large series of changes over the five years that will determine the overall net effects. This is the subject of the following sections.

4. Effects of Coalition policy changes May 2010 to May 2015 across the income distribution

Figures 1 (a) and (b) show our central results – the effects of Coalition changes to taxes and benefits and indexation decisions compared with what the system they inherited in May 2010 would have become if unreformed but uprated in line with CPI inflation (in the top panel) or with the growth in average earnings (in the bottom panel). They show average gains or losses from six broad parts of the direct tax and benefit systems, and (as the solid line) the net effect of all of them together combining the various negative and positive effects. Negative effects (downward pointing parts of the bars) are due to increases in tax and contribution liabilities, or reductions in benefit and pension entitlements, positive effects to tax and contribution cuts or benefit increases. This is shown for each twentieth ('vingtile') of individuals according to their equivalised household disposable income. We divide the population this finely because of the importance of the differences in results between groups right at the top and the bottom of the distribution. There is a limit to how finely we can make these divisions because our results would not be statistically reliable if the sample sizes became too small. Confidence intervals at the 95% level around the net effects are shown on the figures (and some others later in the paper), indicating that the broad shape of the effect is reliable.

The components shown separately in the figures are: income tax; National Insurance contributions (employee and self-employed); state pensions (including the Basic State Pension, War Pension and Widow's Pension); Council Tax, net of Council Tax benefit or Council Tax support; non means-tested benefits (including Child Benefit, Winter Fuel Allowance, Attendance Allowance, Disability Living Allowance, contributory Jobseeker's Allowance, contributory Employment and Support Allowance, and others); and means-tested benefits (including Working Tax Credit, Child Tax Credit,

Income Support, income based Employment and Support Allowance, income based Jobseeker's Allowance, Pension Credit, Housing Benefit and the effect of the benefit cap).⁹

Looking first at the results compared to price-indexation in the top panel, a first observation is that *overall* households *gained* from the changes, by around 1 per cent of incomes on average. Means-tested and other benefits were cut, compared to a price-indexed system. But people paid less net Council Tax (as cuts of what was Council Tax benefit were more than offset by Council Tax itself falling in value in real terms), and they gained from reduced income tax liabilities (with the increased personal allowance) and from state pensions rising faster than CPI inflation. Remarkably, given that this was a time of austerity, the combined effect of these reforms (not including indirect tax increases) emerges as having a net cost to the public finances, increasing the pressure to cut other public services or increase other taxes to meet the Coalition's deficit reduction targets.

But this average effect hides a substantial distributional change. Overall, the poorest twentieth lost nearly 2 per cent of their incomes and three of the next four twentieths also lost. But, with the exception of the top twentieth, the income groups in the top half of the distribution were net gainers. From the bottom to four-fifths of the way up, the changes were clearly regressive, hitting those lower down hardest and helping those higher up most as a share of their incomes. This is because benefit reductions were greater for the bottom half than their gains from lower Income Tax. But rising through the top fifth of the distribution the gains from higher income tax allowances were increasingly offset by other changes, so that the top twentieth make a small loss on average – although it should be added that within this, those in the top one per cent represented in this survey emerge as narrow *gainers* as a result in the cut of the top marginal rate from 50 to 45 per cent.¹⁰

On this basis, compared to a price-linked counterfactual, the reforms had the effect of making an income transfer to the richer half of households, partly financed by some of those in the poorest third (and some of the very richest), while making no contribution to deficit reduction.

The bottom panel shows the results if the comparison is made with the May 2010 system uprated in line with average earnings growth. This would be consistent with preserving a system that had the

same *relative* generosity as at the start, and would thus be neutral towards inequality. When real incomes are growing, this kind of base usually shows a less favourable position for the bottom than when a price-linked base is used.¹¹ But over this period, when real earnings were falling, the comparison is with a somewhat *less* generous base system – the one that would have emerged if the real value of benefits and tax allowances had been *cut* in line with real earnings. Against this comparator, households as a whole *gained* by an average of 1.5 per cent of disposable income. In other ways, the pattern is similar to that in figure 1(a), but with greater differences for those in the bottom half. The bottom twentieth was still worse off, however, by nearly 1 per cent, while others had net gains, apart from the very top group. The largest gains – up to 2.5 per cent of disposable income on average – were for those in the top half of the distribution, but below the top tenth. On this basis the changes are also shown as regressive until the very top, with larger net gains for the top half of the distribution. The better-off half of households were gaining both from the overall system being more generous than it would have been with earnings indexation, and from a net transfer from the poorest households.

Figure 1 shows that using either comparator, reductions in the value of both means-tested and non means-tested benefits were the main contributing factor to income losses. Looking at the detail, the overall net effects resulted from reinforcing changes:

- Changes to means-tested benefits meant the largest proportionate losses to the bottom half of the distribution, particularly to those just below the middle.
- Changes to non means-tested benefits were straightforwardly regressive – equivalent to 2.5 per cent of income (against a price-indexed base) at the bottom, but with very small effects in the top half.
- Changes to Council Tax and associated benefits meant losses for most of the bottom third, but gains for the top half of the distribution. Right at the bottom though some households that fail to claim means-tested support, and so did not lose through its reform, gained from the freeze in the level of the tax.

- Income tax changes – notably the real increase in personal allowances – meant gains for all income groups, but were worth most proportionately for those in the middle of the distribution. Only the top twentieth paid more income tax than it would have done under the old (price-linked) system. Within this group, however, the very top 1 per cent were paying less income tax in this analysis, because of the cut in the highest marginal rate from 50 to 45 per cent.
- National insurance changes (a higher threshold but a higher contribution rate) meant small gains for all groups except the top twentieth, which was paying slightly more.
- More generous indexation of state pensions meant gains for all income groups, although with the largest proportionate gains to the bottom half of the distribution.

The regressive overall effect is therefore largely the result of households nearer the bottom losing the most from reduced means-tested and non means-tested benefits, while those in the top half have gained most from lower income tax, with the exception of the very top twentieth, which is paying more in direct taxes than it would have done.

These results show the average position of those within each twentieth of the distribution. Within each income group, however, there are gainers and losers. Compared with a price-linked base, for instance, overall about 70 per cent gain and 30 per cent lose. However, in the bottom three-tenths and in the top tenth, around 40 per cent are losers.¹²

5. Comparison with other analysis

Given its importance, it is both helpful and unsurprising that others have examined this question, notably the official analysis in HM Treasury (2015) and that of the Institute for Fiscal Studies in Adam et al. (2015). Those analyses agree that Coalition tax-benefit reforms were regressive across most of the income distribution, from the second to the seventh income decile groups (see the grey lines in figures 2 and 3). However, what they show for the top and bottom of the distribution differ

somewhat from ours and from each other. In this section we examine how much of these variations can be accounted for by different analytical choices and coverage of policy changes.¹³

A first reason for differences is that both of the other analyses compare Coalition policies with what would have happened if the May 2010 policies had been indexed using the “business as usual” uprating regime that applied at the start of the period, with many elements indexed using RPI but others frozen or indexed in other ways. By contrast, our analysis uses as a base the May 2010 system, uprated consistently with either CPI or earnings growth. Our analysis therefore incorporates, for instance the effects of the freezing (in nominal terms) of the thresholds to both the top rate of tax and the abatement of the income tax personal allowance, relative to what would have happened if they had been CPI-indexed. Affecting more people, the increases in the income tax personal allowance look less generous when judged against the increase in RPI as in the Treasury and IFS analysis than they do when compared with CPI.

As well as the counterfactual indexation assumption, a number of differences between each of the three analyses help to explain differences in the pattern of income change across the distribution, and in particular the relative effects at the bottom and the top.

First, there are differences in the policy changes covered. IFS and the Treasury include the effects of increased VAT and some other indirect tax changes, which figure 1 does not. The Treasury does not include the effects on the bottom of the income distribution of some important reductions to benefit entitlement, explained below, that are within our and the IFS analysis.¹⁴ Nor does the Treasury include the effect of reducing the top rate of tax from 50% to 45%, on the basis that behavioural reactions would (fully) mitigate the first round effects. Meanwhile, IFS includes the effect of increasing the rates of employer National Insurance contributions, assuming full incidence on employees, and the restrictions on tax relief for annual and lifetime private pension contributions (assuming the estimated revenue is received proportionately from those with earnings above £100,000) whereas this is excluded from our analysis and that of the Treasury shown in figure 2 (see below for the scale of this).

Secondly, there are varying assumptions about how policies work. The Treasury analysis, like ours, allows for incomplete take-up of benefits, but IFS assumes full take-up.

Finally, there are differences in choices about how to analyse the results. Our analysis counts *people* and ranks them by their household income but the Treasury and IFS analyses count *households*. Our analysis and that of the Treasury adjust household incomes for size and composition using the modified OECD equivalence scale but the IFS analysis uses the McClements scale. In the IFS analysis and ours the percentage change in household income is calculated with reference to the income in the base system, whereas the Treasury calculates the change as a percentage of income under the 2015 system. Our analysis in figure 1a breaks the population down into twentieths by income whereas the Treasury and IFS use tenths.

Figure 2 shows the effects of the various choices made by the Treasury, if applied in our modelling, by comparison with the Treasury's own results, excluding indirect tax changes (the grey line). First, we show in the solid line our results broken down by tenths of the income distribution. This averages out the losses of the bottom two groups in Figure 1(a).

The short-dashed line in figure 2 shows the effect of adopting Treasury (and IFS) practice of counting households rather than people, and of calculating the percentage change in relation to the end (rather than the start) of the period. This makes rather little difference in this instance.

The long-dashed line then shows how the effects change if the policy changes omitted from the Treasury analysis are also removed from ours. The changes that are omitted are the reduction in the top rate of income tax from 50 to 45 per cent which increases the losses in the top group; and restrictions to Housing Benefit and Council Tax benefit/support as well as the introduction of the benefit cap, all of which reduce incomes at the bottom of the income distribution. This tilts the distributional picture from one showing the bottom losing and the top breaking even to one showing the bottom gaining and the top losing. This difference in coverage emerges as the main reason why the two sets of results differ (in fact the lines now overlap at the bottom).

Finally, we follow Treasury practice and replicate their “business as usual” assumptions for income tax thresholds (retaining CPI indexation for the rest of the tax-benefit system). The effect, combined with the other changes, is shown by the dotted line. Our results are now quite close to those of the Treasury across the whole distribution (with the exception of the top decile group where our estimate of the loss is still about 0.7 percentage points lower); these analytical and coverage choices explain the bulk of the differences. The remainder reflects the difference in counterfactual indexation of benefits and pensions between CPI and business-as-usual, the effects of different methods to model non take-up as well the use of different data: the Treasury uses data from the Living Costs and Food Survey 2008-2011, as well as any differences we have not been able to identify.¹⁵

Figure 3 explores the effects of some of the main differences with the IFS analysis (shown in grey). Again, we start from our own analysis as shown in figure 1a (but by decile groups). A first difference is in the IFS use of the ‘McClements’ equivalence scale when ranking households. The effect on our results, shown by the short-dashed line is minor.

A key difference is the IFS assumption of complete take-up of means-tested benefits and tax credits. The long-dashed line shows what difference this assumption makes to our analysis. Partial take-up implies smaller losses since if means-tested payments are not reaching those entitled to them, then they do not lose when their value is cut. Perhaps unexpectedly, the take-up assumption has an effect right across the income distribution. This is because the payments we assume to be affected by non take-up include the family element of the Child Tax Credit to which families with quite high incomes could be entitled in 2010.¹⁶ Also low-income families or individuals, entitled to means-tested payments may live in high income multi-family households, while the take-up assumption affects the ranking of households between income groups. The assumption of full take up makes the most difference at the bottom, increasing the estimated size of the bottom tenth’s loss from 0.3 to 1.7 per cent.

The IFS analysis includes the effects of indirect tax changes and changes to employer NICs. While we cannot allow for the effects of all indirect tax changes, the dotted line in figure 3 adds in estimates

of the effects of the rise in VAT¹⁷ along with our simulated estimates of the effects of changes to employer NICs. This combines a further regressive effect from the VAT increase with the more progressive effect of the NIC change.¹⁸ The shapes of the results are now very similar. At the top of the distribution our results are now close to those of IFS and the remaining discrepancy in the upper middle and top is likely to be due to the different assumptions about indexation, as illustrated in the comparison with Treasury analysis. Any remaining differences may be explained by the difference in the indexation assumption (as for the Treasury comparison), our approximations in the modelling of VAT and our omission from the modelling of other indirect tax changes and restrictions on pension contribution tax relief, as well as the use of different data: the IFS analysis uses FRS data for a different year (2012/3), as well as further factors that we have not been able to identify.

Each of the seemingly technical choices has advantages and disadvantages, but this comparison shows quite how critical they can be. Variations in them account for most of the differences between the three sets of results, although not all. Particular mixes of approach and assumptions will be most appropriate for different questions. The key conclusion from this comparison is the value of making those choices explicit, so that readers can more clearly understand what assumptions are being made and the coverage of reforms included.

6. Effects of Coalition policy changes May 2010 to May 2015 by household and personal characteristics

Returning to our own results, we examine what they show when households are categorised in other ways than by income group. In doing this we concentrate on the results compared with an *earnings*-linked base, that is, equivalent to those in figure 1b (as this is usually the more neutral assumption in terms of fiscal balance as well as income inequality). The results compared to a price-linked base show generally similar differences between groups, although with a somewhat less favourable (or more unfavourable) position for those with a large proportion of income coming from benefits or pensions (such as lone parent families or older pensioners).

First, figure 4 shows distributional effects by the age group of each individual, taking account of all income changes in their household.¹⁹ Children have been the least favourably treated, together with those in their 30s and early 40s. Interestingly – given how badly people in their 20s have done in the labour market since the start of the recession²⁰ – the changes to taxes and benefits favoured them on average, as they tended to gain from direct tax changes, and not to lose much from benefit cuts. Those in their early sixties were the greatest beneficiaries, gaining from direct tax changes and (some) from favourable indexation of pensions, and with ‘empty nesters’ without children losing less than others from benefit cuts. Those aged over 65 had gains averaging 2-3 per cent of income from ‘triple-locked’ state pensions rising much faster than earnings, although this was partly offset by cuts to other benefits, particularly for the oldest. Direct tax changes had little effect on those over 65 (as the ‘age allowance’ was withdrawn when the main personal allowance was increased).

Some of these age-related differences are closely linked to the differences between different kinds of household, shown in figure 5. Two-earner households and those with elderly members were the most favourably treated, as a result of direct tax changes and state pensions, respectively. By contrast, lone parent families did worst, losing much more through cuts in benefits and tax credits and higher (net) Council Tax than they gained through higher income tax allowances. Families with children in general, and large families (with three or more children) in particular, also did much worse than the average.

These effects were not, however, uniform across each household type or age group. Figure 6 shows net effects on individuals (reflecting their households’ incomes) in three different age groups by their position in the overall income distribution. The most favourably treated were working-age adults and pensioners with higher (but not the highest) incomes, and low-income pensioners. The least favourably treated were low-income working-age adults and children, together with children in the highest-income households (at this level of aggregation). In the latter case this was due to smaller gains (or losses) from income tax changes than lower down the distribution, combined with the withdrawal of Child Benefit from higher-rate taxpayers. Across the distribution apart from the bottom

tenth, children fare worse than the other two groups. Gains for their families from direct tax cuts were offset by cuts (relative to earnings) in Child Benefit and tax credits.

7. Conclusions

Whether we were “all in it together”, making equivalent sacrifices from austerity, is critical to understanding the Coalition’s record. This article examines in detail one aspect of this, the distributional impacts of the changes to benefits, tax credits, pensions and direct taxes between the systems of May 2010 and May 2015.

The changes did *not* lead to uniform changes in people’s incomes. First, it is striking that the overall fiscal effect of the changes between May 2010 and May 2015 compared to either a price- or earnings-linked base system did not contribute to deficit reduction overall – rather the reverse, increasing the pressure for cuts elsewhere. In effect, the reductions in benefits and tax credits financed most of the cuts in direct taxes. Some groups were clear losers or gained little on average – including lone parent families, large families, and families with younger children. Others were gainers, including two-earner couples, and those in their 50s and early 60s.

Looking at the income distribution as a whole, the changes were regressive. Against a price-linked base, the poorest 30 per cent lost or broke-even on average and the top half gained, with the exception of most of the top 5 per cent (but excluding the very top). This was the result of the combination of: changes to benefits and tax credits which made them less generous for the bottom and middle of the income distribution; changes to Council Tax and associated benefits from which those in the bottom third (except the poorest 5 per cent) lost but the top half gained; changes to income tax (higher personal allowances) which meant the largest gains for those in the middle, but with some tax increases for the top 5 per cent; and state pension changes (particularly the ‘triple lock’) which were most valuable as a proportion of incomes for the bottom half. The experience of this period illustrates how increases in tax-free income tax allowances paid for by real cuts in benefits and tax credits are regressive.

Because real earnings fell over the period, an earnings-linked base would have been somewhat less generous to households, so by comparison with that, the overall gain to households was greater. Looked at this way, the results were still regressive, apart from at the very top.

Our analysis does not cover the effects of all policy changes introduced by the Coalition. However, in some cases these would exacerbate rather than reduce the regressive pattern that we have shown. In particular, the indirect tax changes are regressive across the income distribution (HMT, 2015; figure 2D). On the other hand, the increase in tax due to limits to lifetime and annual tax relief on private pension contributions, which we do not model, only affects the top decile group. HM Treasury (2012, table 2.1) put the additional annual revenue raised by 2015/6 as £600 million, which would be just 0.3 per cent of the income of the top tenth (although concentrated on the top part of it).

Furthermore, we do not adjust for the under-representation of those with the very highest incomes in the survey on which our analysis is based, so we may understate gains to the top few per cent of the population from the cut in the top income tax rate. Finally, the incidence of cuts in services is generally concentrated on the bottom half of the income distribution.²¹

In broad terms our conclusions confirm the findings of other analyses of the distributional effects of Coalition policy reforms: we were not all equally affected. All the analyses show the effects as regressive across most households, from the second to the seventh income decile groups. But our analysis shows a more clearly regressive picture overall than those published by the Treasury or the IFS (which also differ from each other). We have shown how this is largely explained by different assumptions, policy coverage and analytical choices in the three studies. Aside from the issue of policy coverage, where the key lesson is the need for clarity about which changes are included and how much approximation is involved, three dimensions in particular stand out.

The first is how large an income group is grouped together at the top and bottom of the income distribution. Most such analysis considers the income distribution in terms of tenths or decile groups (or grouping by fifths). Our analysis of the 2010-15 changes shows how most of those within the top tenth are not in fact affected by what has happened to income tax for those with incomes above

£100,000. But the incomes of those right at the top are so large, that what happens to them dominates the averages that would be shown for the top tenth as a whole. So for instance, against a price-linked base, the next-to-top twentieth of the distribution are not losers on average.

The second issue is whether all households entitled to benefits are assumed to receive them. This has an effect both because households not taking up benefits are automatically near the bottom of the distribution, and because changes to the level of payments that people do not receive cannot change their household incomes. Allowing for non-take up therefore usually reduces the scale of changes – whether positive or negative – for low income groups, relative to analysis assuming complete take-up.

Third, we demonstrated the importance of the assumption that is made about how policies would have been indexed in the absence of policy reform. Generally, the higher the value of the indexation factor that is used the less favourable the actual policies will seem for households as a whole and when measuring what happens at the bottom of the distribution relative to the top. In the period 2010-15 earnings grew somewhat more slowly than CPI and the difference in the scale or distribution of effects is relatively small. But this is not always the case. Furthermore, our counterfactual indexation assumptions are not the same as those used in the other analyses described in section 5 which aim to capture the indexation that *would have* occurred if the government was completely passive. The use of this “business as usual” scenario is focused on the effect of specific reforms compared with what would have happened without them. Our analysis, which uses indexes for the policy years in question without rounding and consistently across all policy parameters expressed in monetary terms, is intended to show the effects of how policies have evolved compared with movements in economic indicators. In analysis of the effects of policy changes it is important not only to be clear about the counterfactual indexation that is used and to interpret results appropriately, but also to appreciate that the aggregate and distributional effects may look somewhat different from those calculated using predictions of economic indicators, once the final statistics are available.

Finally, while this article has focused on the policies of the 2010-2015 Coalition government, choices in how the analysis is done are also relevant for the analysis of policy changes more generally. How salient they each are will depend on the circumstances. For example the counterfactual indexation assumption will be more important if economic indicators (prices and earnings) are changing fast or diverging.

The central driver of our findings – that increases in tax-free income allowances financed by real cuts in social security benefits and tax credits are regressive – will be of continuing relevance, as this combination also lies at the heart of Conservative government policies since 2015.

Notes

1 See Gaffney (2015) and Timmins (2015) for overviews of ‘welfare’ policy more generally.

2 It should be remembered that other factors, generally less under government control such as what happens to relative earnings and employment patterns also affect the overall income distribution.

3 Making use of information in DWP (2010) and HMRC (2010). See De Agostini et al. (2015) for more information and see Currie (2004) and Hernanz et al. (2004) for reviews of what is known about causes and consequences of non take-up.

4 Just 65,000 by May 2015 compared with the Coalition government’s aspiration that 7.5 million households would be on Universal Credit by 2017.

5 To approximate the effect of the replacement of Disability Living Allowance (DLA) by Personal Independence Payment (PIP) we randomly remove the DLA personal care component from 20% of individuals reported to receive the lowest or middle rate allowance, corresponding to the predicted reduction in caseload and making the assumption that the transition was complete by 2015.

6 See Johnson (2016) pp.19 *et seq.* for the technical problems with the design of the RPI.

7 See De Agostini et al. (2015) for details.

8 Earnings: Fiscal year average of monthly ONS Average Weekly earnings Index (K54U). CPI:

Fiscal year average monthly index from OBR Table 1.7

<http://budgetresponsibility.org.uk/pubs/150318->

[Economy Supplementary Tables March 2015.xls](#). Projections to end 2015/6 use forecasts from

table 3.5, OBR Economic and Fiscal Outlook March 2015

9 In our treatment, we include the effect of withdrawing Child Benefit from higher-rate taxpayers as an increase in tax rather than a reduction in Child Benefit.

10 See De Agostini et al. (2015) for a version of figure 1a giving results by percentile.

11 See, for instance, Sefton et al. (2009), figure 2.5, or Adam and Browne (2010), figure 3.3, for the Labour period from 1996-97 to 2008-09.

12 See De Agostini et al. (2015) figure 4.2 for more detailed breakdown.

13 See De Agostini et al. (2015), section 6 for more detailed discussion.

14 However, these changes are included in a separate Treasury analysis by quintile group, which also includes other “hard to model” changes that we do not include, such as changes to pension contribution tax relief.

15 Note that there may be interactions between the various factors and the order in which they are modelled matters.

16 Only about 60 per cent of families entitled to the family element and no other component of the tax credits, received their entitlement (HMRC, 2010).

17 See De Agostini et al. (2015) for a description of how this is done.

18 Treasury analysis including indirect taxes including the effects of changes in excise duties shows a similar effect (HM Treasury, 2015, chart 2D). Note that while VAT – and therefore the increase in it – is regressive when shown against household incomes, as here, it would not be shown as regressive if measured against household spending (see, for instance, Crossley, et al., 2009, figures 10.1 and 10.2).

19 Note that the analysis assumes that each person in a household is affected in the same way by the policy changes (as in, for instance, DWP’s *Households Below Average Income* analysis). In reality this sharing may not represent what happens in all households.

20 Hills et al. (2015), section 3. The gains from direct tax reductions were not enough, however, to prevent continuing falls in their real net incomes, up to 2012/3, at least (ibid. figures 3.8 and 3.9.).

21 For contrasting assessments of the balance of these effects, see Reed and Portes (2014) and HM Treasury (2015).

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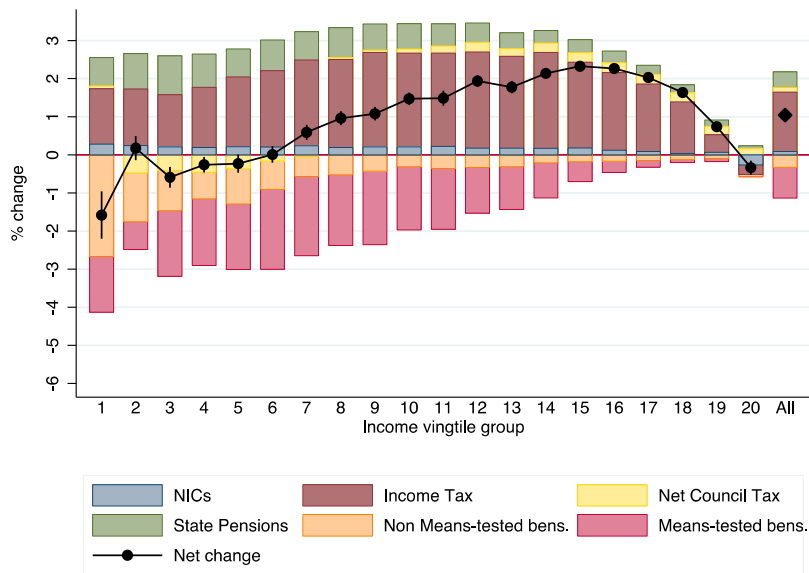
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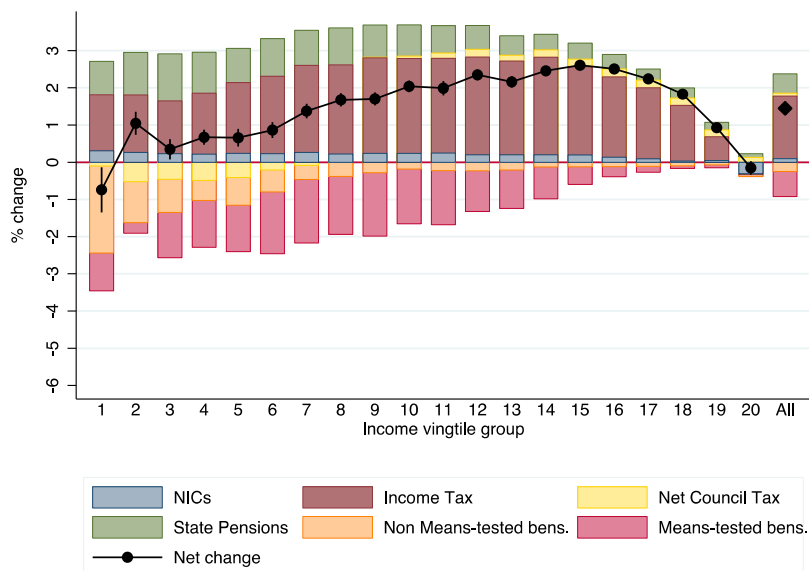
Figures

Figure 1: Percentage change in household disposable income by income vingtile group due to policy changes May 2010 to May 2015

(a) May 2010 policies uprated using CPI



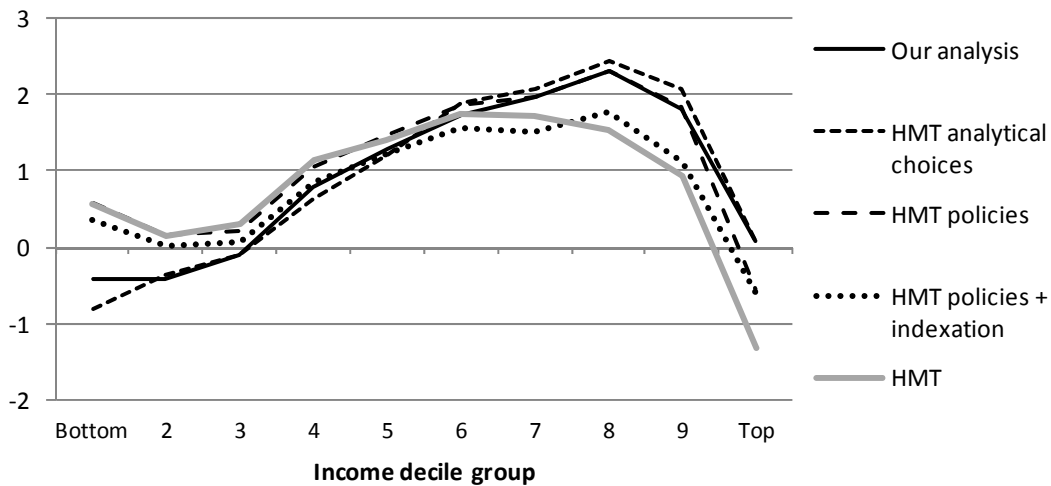
(b) May 2010 policies uprated using AEI



Notes: Observations are ranked into vingtile groups using household income in 2010 equivalised using the modified OECD equivalence scale. The net change is shown with a 95%

confidence interval, calculated using bootstrap. Source: Authors' calculations using EUROMOD G2.35.

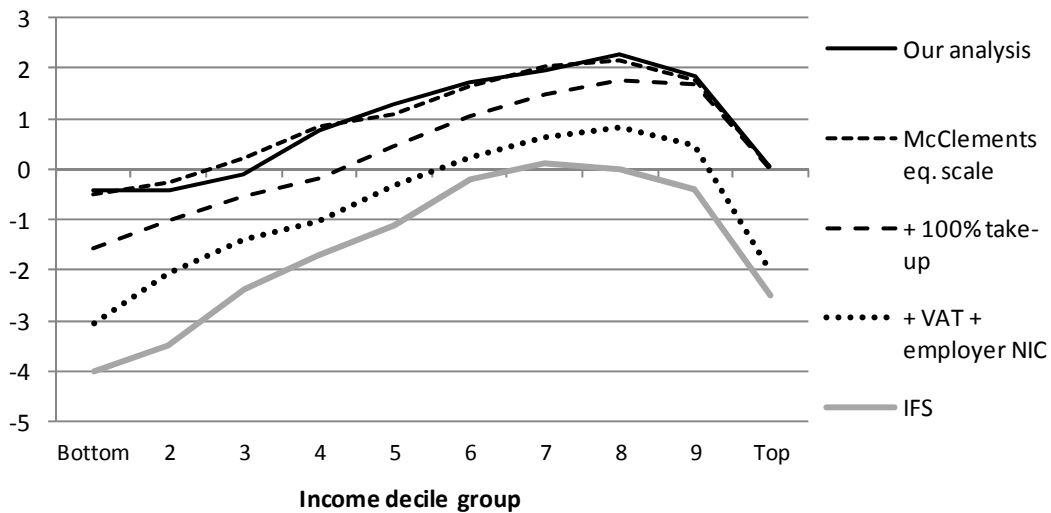
Figure 2: Percentage change in household disposable income due to policy changes May 2010 to May 2015: Varying the analytical choices and assumptions to compare with HM Treasury analysis



Notes: “HMT analytical choices” counts households rather than persons and calculates the percentage change with reference to incomes under policies in 2015 rather than 2010.

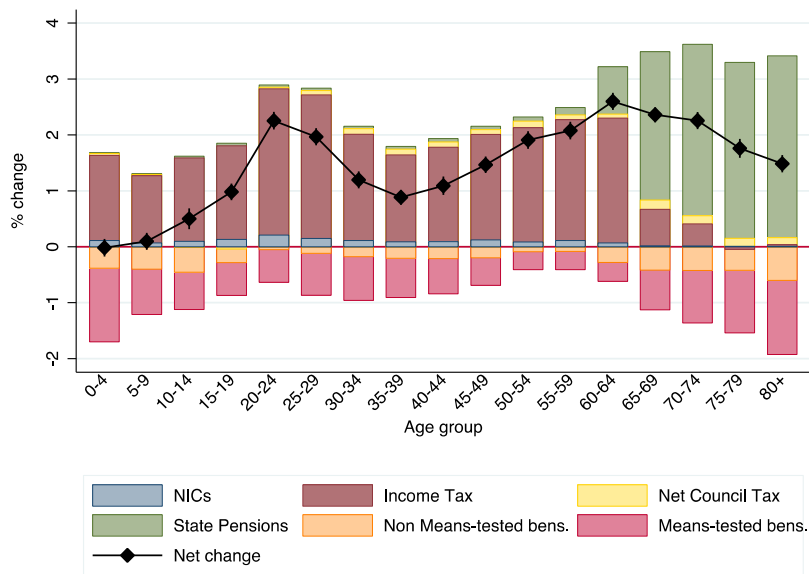
Observations are ranked into decile groups using household income equivalised using the modified OECD equivalence scale. “HMT policies” excludes some policy changes (see text). “HMT policies + indexation” in addition defines the base case with tax thresholds indexed according to 2010 “business as usual” assumptions. Source: HMT line is HM Treasury (2015) chart 2D excluding indirect tax effects. Other lines from authors’ calculations using EUROMOD G2.35.

Figure 3: Percentage change in household disposable income due to policy changes May 2010 to May 2015: Varying the analytical choices and assumptions to compare with IFS analysis



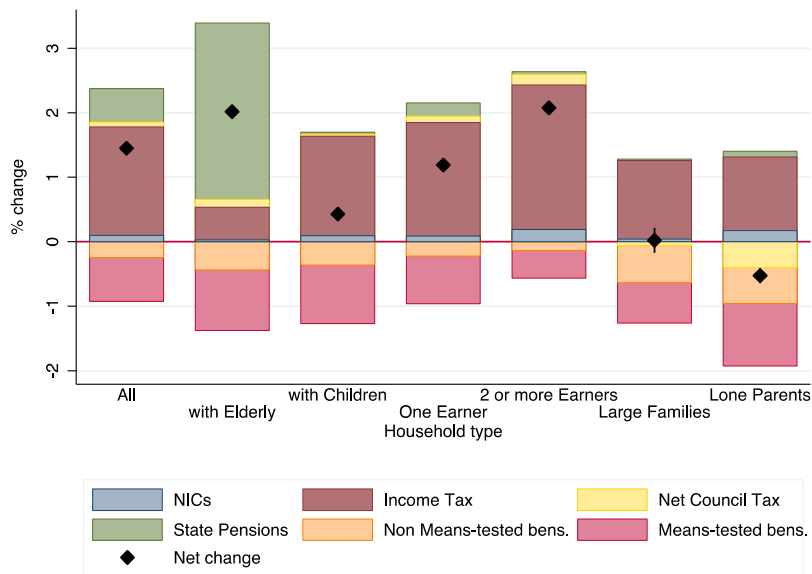
Notes: Observations are ranked into decile groups using household income under the base case scenario, equivalised using the modified OECD equivalence scale for ‘our analysis’ but the McClements scale for other lines. “+ 100% take-up” additionally removes our assumption of partial take-up of means-tested benefits and tax credits and “+ VAT + employer NIC” also adds the effect of the increase in main rate of VAT by 2.5 percentage points and changes to the threshold and rate for employer NICs. Source: IFS line is from Adam et al. (2015), figure 1. Others from authors’ calculations using EUROMOD G2.35.

Figure 4: Percentage change in household disposable income by age group due to policy changes May 2010 to May 2015 (2010 policies uprated using AEI)



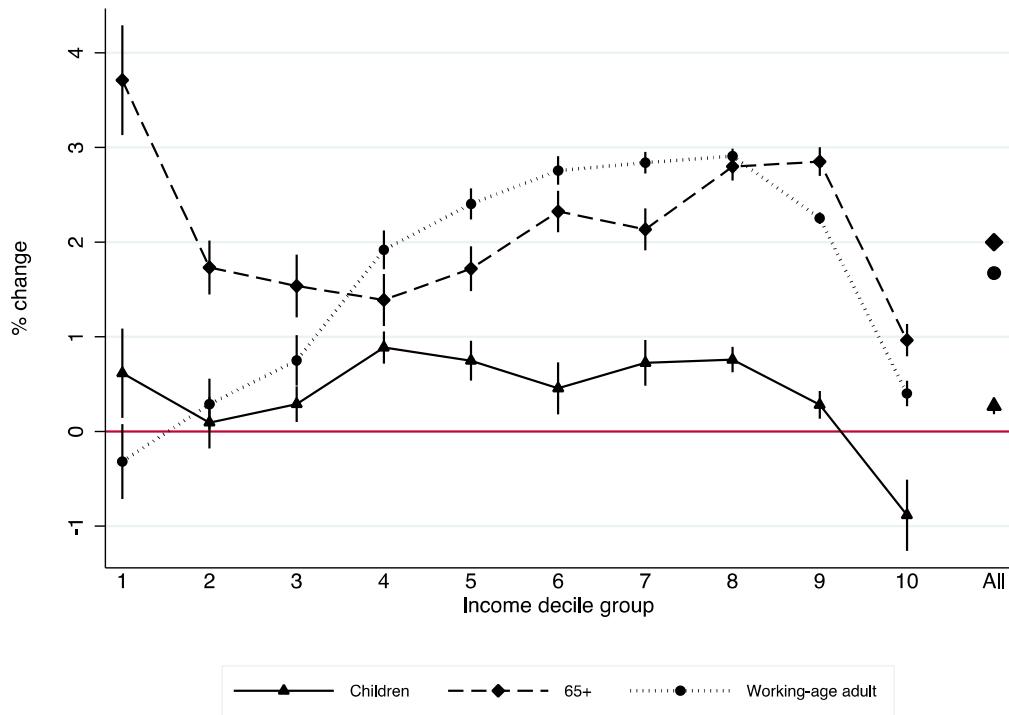
Notes: As figure 1.

Figure 5: Percentage change in household disposable income by household type due to policy changes May 2010 to May 2015 (2010 policies uprated using AEI)



Notes: As figure 1. “Large families” are households with 3 or more children. The categories are neither mutually exclusive nor exhaustive.

Figure 6: Percentage change in household disposable income due to policy changes May 2010 to May 2015 by household income decile group and age group (2010 policies uprated using AEI)



Notes: As figure 1. Observations are ranked into decile groups using household income in 2010 equivalised using the modified OECD equivalence scale. Children are defined as people aged under 16 or under 19 and in full time non advanced education. Working age adults are aged under 65.