Institute for Fiscal Studies

The impact of tax and benefit reforms by sex: some simple analysis

IFS Briefing Note 118

James Browne

The impact of tax and benefit reforms by sex: some simple analysis

James Browne

Institute for Fiscal Studies

1. Introduction[1]

The Equalities Act 2010 puts an obligation on the government to give 'due consideration' to how its policies affect gender inequalities. In this paper, we show some simple ways in which the government could examine the impact of tax and benefit reforms on men and women using household level data that it already has available.[2] All of the figures and tables in this document could be produced using the data underlying the analysis presented in Annex A of the Budget document. Although the tax and benefit rules treat otherwise-identical men and women equally, it may be the case that men lose more than women from tax and benefit changes (or vice versa) because other characteristics such as income, time use and family structure differ systematically between men and women. An analysis of the distributional impact that takes gender into account pays attention to these systematic differences. We perform this analysis for all tax and benefit changes to be introduced between 2010–11 and 2014–15, separating out those that are due to be in place by 2012–13 and those to be introduced in 2013–14 or later. We do not examine the impact of Universal Credit, which will have begun to be rolled out by 2014–15, because not all of the details of this reform have been released.[3] We include a full list of the reforms modelled in an Appendix.

[1] This paper was funded by the Fawcett Society and the ESRC Centre for the Microeconomic Analysis of Public Policy at the Institute for Fiscal Studies (RES-544-28-5001). The author would like to thank Mike Brewer, Sue Himmelweit and Diane Elson for useful comments on an earlier draft of this Briefing Note. All remaining errors are the responsibility of the authors. The Family Resources Survey was made available by the Department for Work and Pensions, which bears no responsibility for the interpretation of the data in this Briefing Note. Expenditure and Food Survey data are collected by the Office for National Statistics and distributed by the Economic and Social Data Service. Crown copyright material is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland. Contact: james_browne@ifs.org.uk.

[2] See http://cdn.hm-treasury.gov.uk/2011budget_annexa.pdf.

[3] In particular, we do not yet have details of how support for childcare will be included in Universal Credit and how the localised council tax benefit will interact with Universal Credit. An analysis of the components of Universal Credit that have been finalised can

It is necessary to use household surveys to examine the impact of all tax and benefit reforms together since these are the only data source that contain sufficient information to calculate accurately all households' tax liabilities and benefit entitlements. Although the samples are representative of the whole population and are of sufficient size to do analysis by various subgroups reasonably accurately (the Family Resources Survey contains around 25,000 households and the Expenditure and Food Survey around 6,000), the samples become too small for us to draw conclusions when we examine the impacts on groups that are relatively small in the population as a whole. It might be possible for HM Treasury to examine impacts for these smaller groups since it also has access to administrative data which can be used to examine the impact of individual tax and benefit changes by sex. This would have a larger sample size, but is not available to outside researchers.

It should be noted that the analysis presented in this report does not constitute a full gender impact assessment. This is because we examine distributional effects at the household level, meaning that we do not examine the differential impact of tax and benefit changes on the incomes of male and female members of a couple, for example. Unfortunately, however, the IFS tax and benefit microsimulation model does not currently assign each benefit to the correct member of a couple (therefore, we are able to estimate each family's benefit entitlement, but not each individuals receipt of benefits). An obvious extension to the analysis presented here would be to examine the impact of tax and benefit reforms on the income of individual men and women within each household. A full gender impact assessment would also need to model all possible behavioural responses – as usual, our analysis of the distributional impact of tax and benefit changes does not allow individuals' behaviour to change when the tax and benefit system changes.

We also assume that pre-tax prices in the economy are unaffected; this means, for example, that we assume that changes in indirect taxes are fully passed through to consumers.[4]

This briefing note proceeds as follows. In section 2, we examine the impact of tax and benefit changes on single-adult households by the sex of the adult. Section 3 examines the impact of tax and benefit changes on couple households according to the sex of the higher earner. In section 4, we

---

be found in M. Brewer, J. Browne and W. Jin (2011), 'Universal Credit: a preliminary analysis', IFS Briefing Note 116, http://www.ifs.org.uk/publications/5415.

[4] For more detail on the methodology we use to examine distributional impacts, see J. Browne and P. Levell (2010), 'The distributional impact of the June 2010 Budget: a revised assessment', IFS Briefing Note 108, http://www.ifs.org.uk/publications/5246.

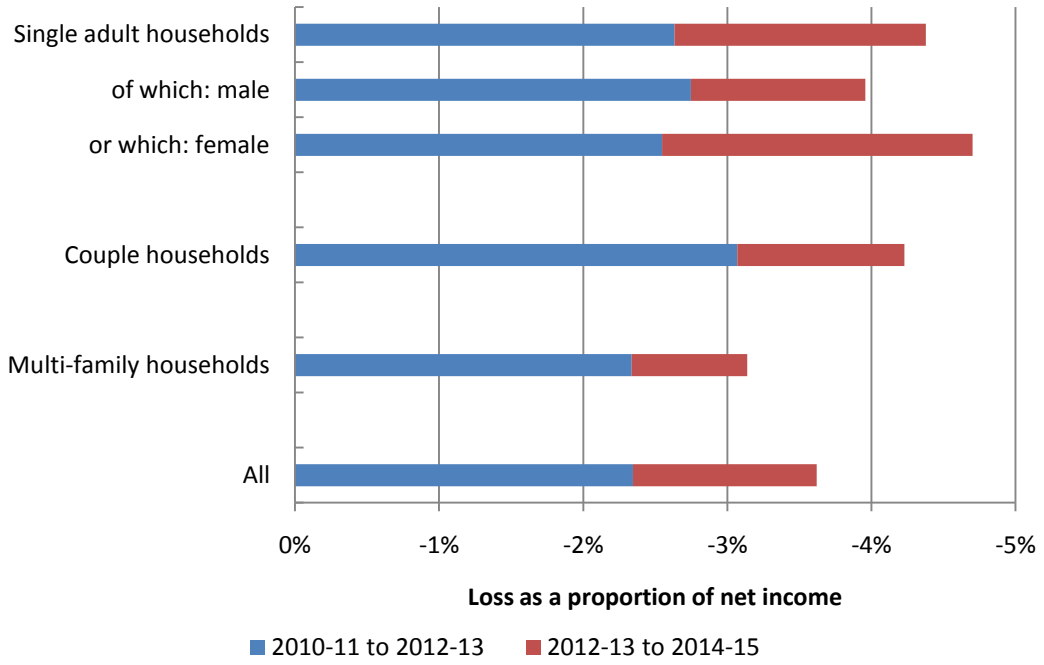
examine how tax and benefit changes affect men and women's incentives to work, and section 5 concludes.

Since it can be difficult to understand which particular changes to the tax and benefit system are driving particular changes during a period in which so many changes are being implemented, in an appendix we show the distributional impact of two particular reforms by sex (freezing Child Benefit for three years and restricting the Sure Start Maternity Grant to the first child), and the impact of freezing the Working Tax Credit for three years on the work incentives of men and women.

2. Distributional impact by sex for single-adult households

Figure 2.1 below shows the change in net income arising from tax and benefit changes to be introduced between 2010–11 and 2012–13 for single adult households, split by whether the adult is male or female. We also include the average percentage loss for couple and multi-family households for comparison.

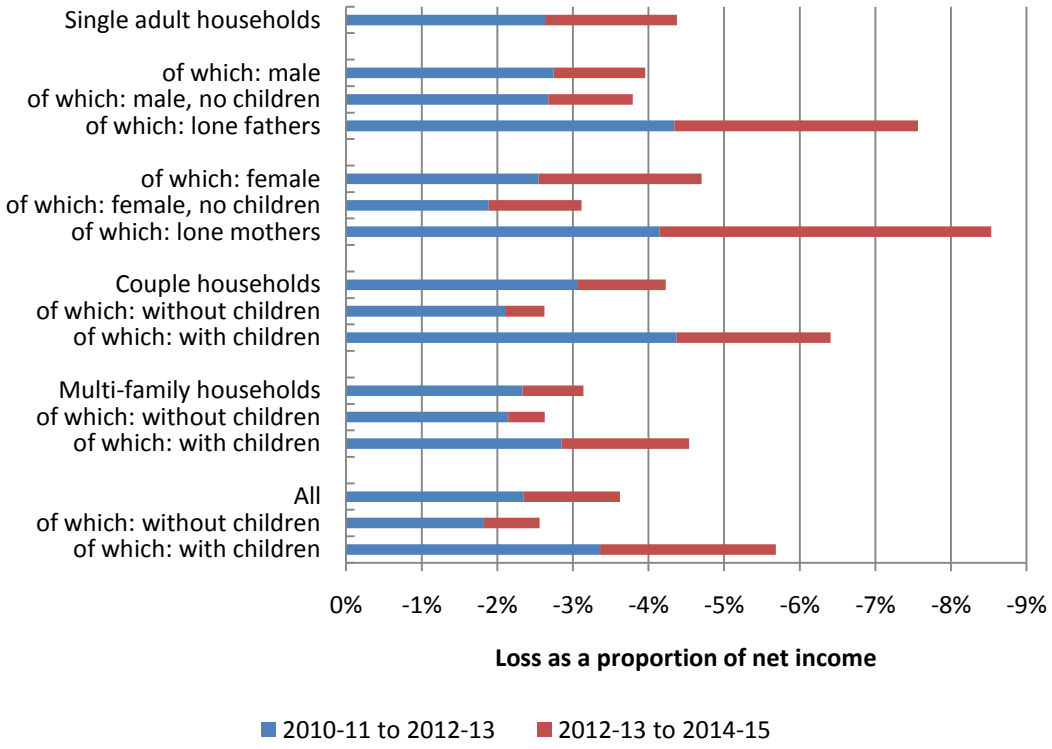
Figure 2.1: Impact of tax and benefit reforms on household incomes for single adult households by sex of adult, with average loss for couple and multi-family households for comparison



Notes: Assumes increases in employer NICs are passed on to employees in the form of lower wages and that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Sources: Author's calculations using TAXBEN run on the 2008–09 Family Resources Survey and 2008 Expenditure and Food Survey.

Tax and benefit reforms to be introduced by 2012–13 do not affect single-adult households significantly differently according to the sex of the adult. However, those to be introduced between 2012–13 and 2014–15 do proportionately reduce the incomes of households with a single woman more than those with a single man. Much of this difference arises because very few men who live with no other adults are lone parents (more than 90% of lone parents are female). This is shown in figure 2.2: single women without children actually lose less than single men without children as a percentage of income from these reforms, but lone parents are a group that loses a particularly large amount from tax and benefit changes to be introduced after 2012–13, which increases the average loss for women as a whole. Since lone parents are particularly reliant on income from benefits, they particularly lose out from the change to using the Consumer Prices Index (CPI) to uprate benefits each year. Although this change took effect from April 2011, discretionary increases in the child element of the Child Tax credit have been announced to take effect in 2011–12 and 2012–13 which offset this impact for lone parents during these years.

Figure 2.2: Impact of tax and benefit reforms on household incomes for single adult households by sex of adult, couple households and multi-family households by presence of children

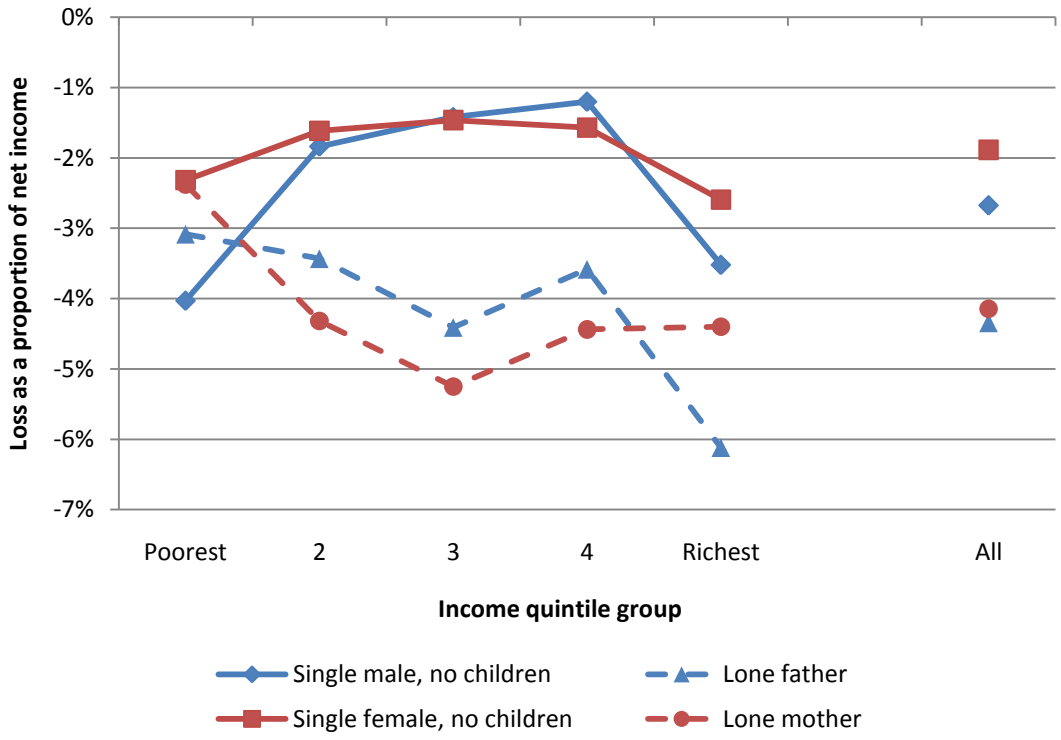


Notes: As Figure 2.1.

Much of the remaining difference between single men and women without children arises because of differences in the average income of men and women living alone: women tend to do fewer hours of paid work than

men, on average, and earn less per hour of paid work. As we shall see, among single-adult households without children, the highest earners lose the most as a percentage of their income from reforms coming into effect between 2010–11 and 2012–13, which arises because changes to income tax and National Insurance liabilities particularly increase liabilities for those with high incomes. To demonstrate this, in figures 2.3 and 2.4 we split each household type further by quintile of the overall income distribution. Figures 2.3 and 2.4 show the impact of tax and benefit reforms to be introduced between 2010–11 and 2012–13 and 2010–11 and 2014–15 respectively. It should be noted that the sample sizes for each quintile of the income distribution for each household type (and particularly lone fathers) are relatively small, meaning that caution should be applied when drawing conclusions about differences between different groups. However, the difference in impact across the income distribution within each household type are smaller than the difference between lone parents and single people without children. This shows that it is the fact that more than 90% of lone parents are women that is driving the overall difference in the impact of reforms between single men and single women.

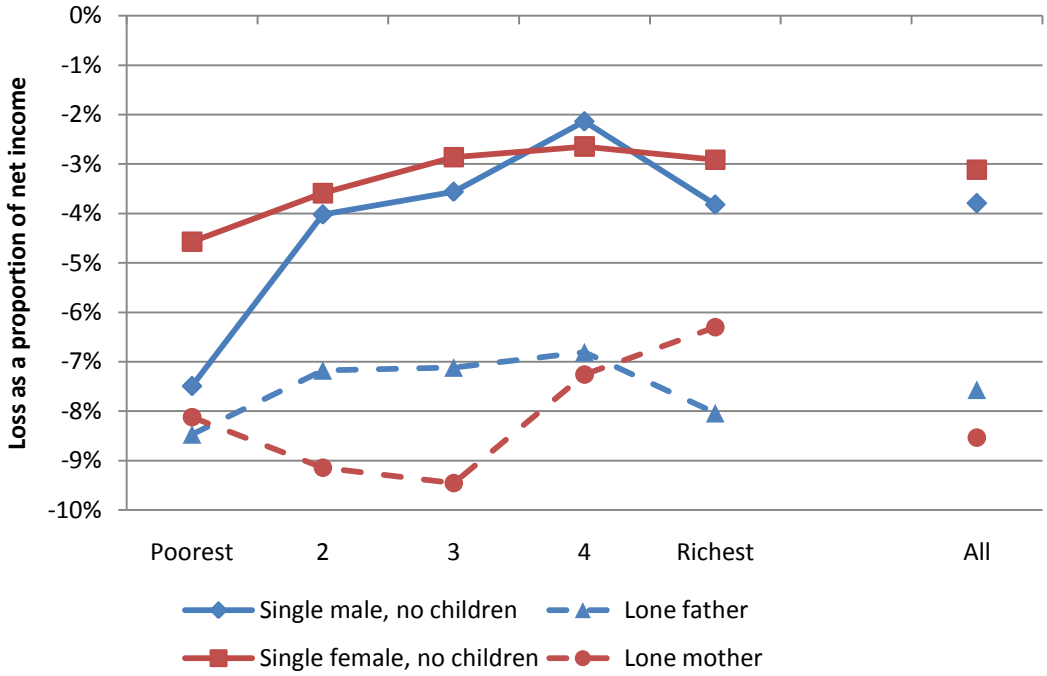
Figure 2.3: Impact of tax and benefit reforms to be introduced between 2010–11 and 2012–13 on household incomes for single adult households by sex of adult



Notes: Income quintile groups are derived by dividing all households into five equal-sized groups according to income adjusted for household size using the McClements equivalence scale. Quintile group 1 contains the poorest fifth of the population, quintile group 2 the second poorest, and so on up to quintile group 5, which contains the richest fifth. Assumes increases in employer NICs are passed on to employees in the form of

lower wages and that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15. Source: Author's calculations using TAXBEN run on the 2008–09 Family Resources Survey and 2008 Expenditure and Food Survey.

Figure 2.4: Impact of tax and benefit reforms to be introduced between 2010–11 and 2014–15 on household incomes for single adult households by sex of adult



Notes and Sources: As Figure 2.3.

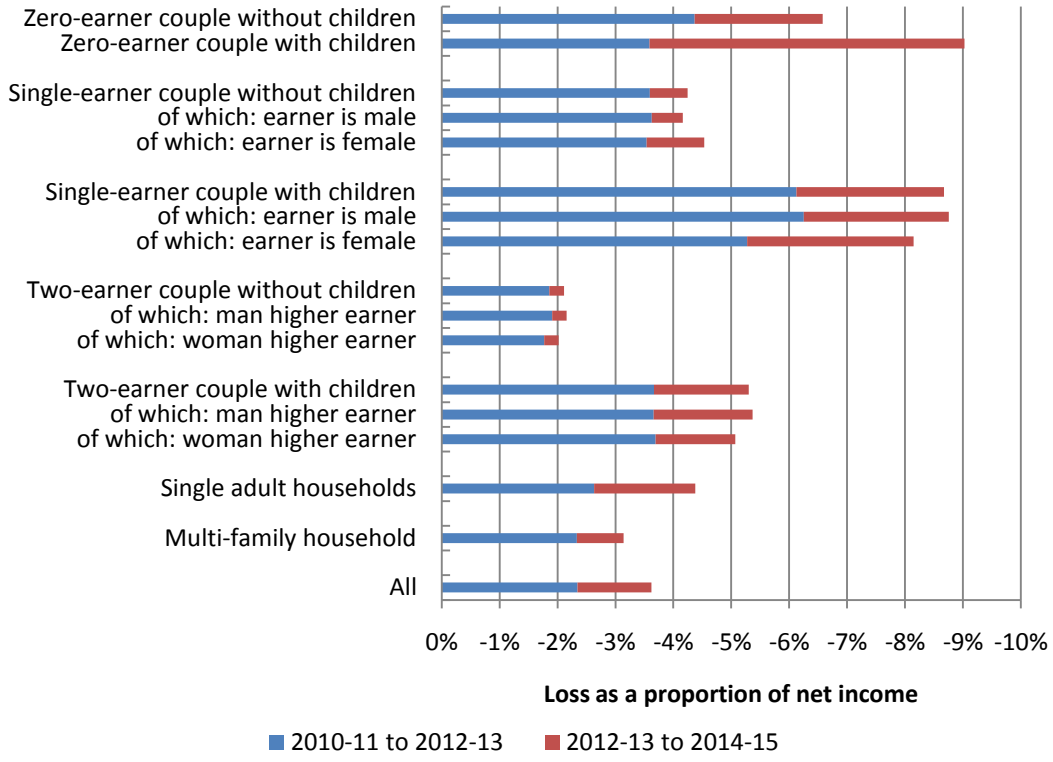
3. Distributional impact by couples depending on sex of earner

The analysis in the previous section examined the impact of tax and benefit reforms on household incomes. We might also be interested in how tax and benefit reforms affect the incomes of individual men and women. Unfortunately the IFS tax and benefit microsimulation model does not currently assign each benefit to the correct member of a couple (therefore, we are able to estimate each family's benefit entitlement, but not each individuals receipt of benefits). An obvious extension to the analysis presented here would be to examine the impact of tax and benefit reforms on the income of individuals within each household.[5] Something that can be done easily though is to examine the impact of tax and benefit changes on family incomes by the sex of the earner in single-earner couples, and

[5] Note though that, since we would expect at least some degree of income sharing within households, the change in an individual's income is likely to be a less good guide to the effect of tax and benefit reforms on an individual's welfare than the change in household income on the household's welfare overall. It is also impossible to investigate the impact of changes to indirect taxes at the individual level since the data on expenditure patterns used for this analysis are collected at the household level.

the sex of the higher earner in two-earner couples. We perform this analysis in figure 3.1 below.

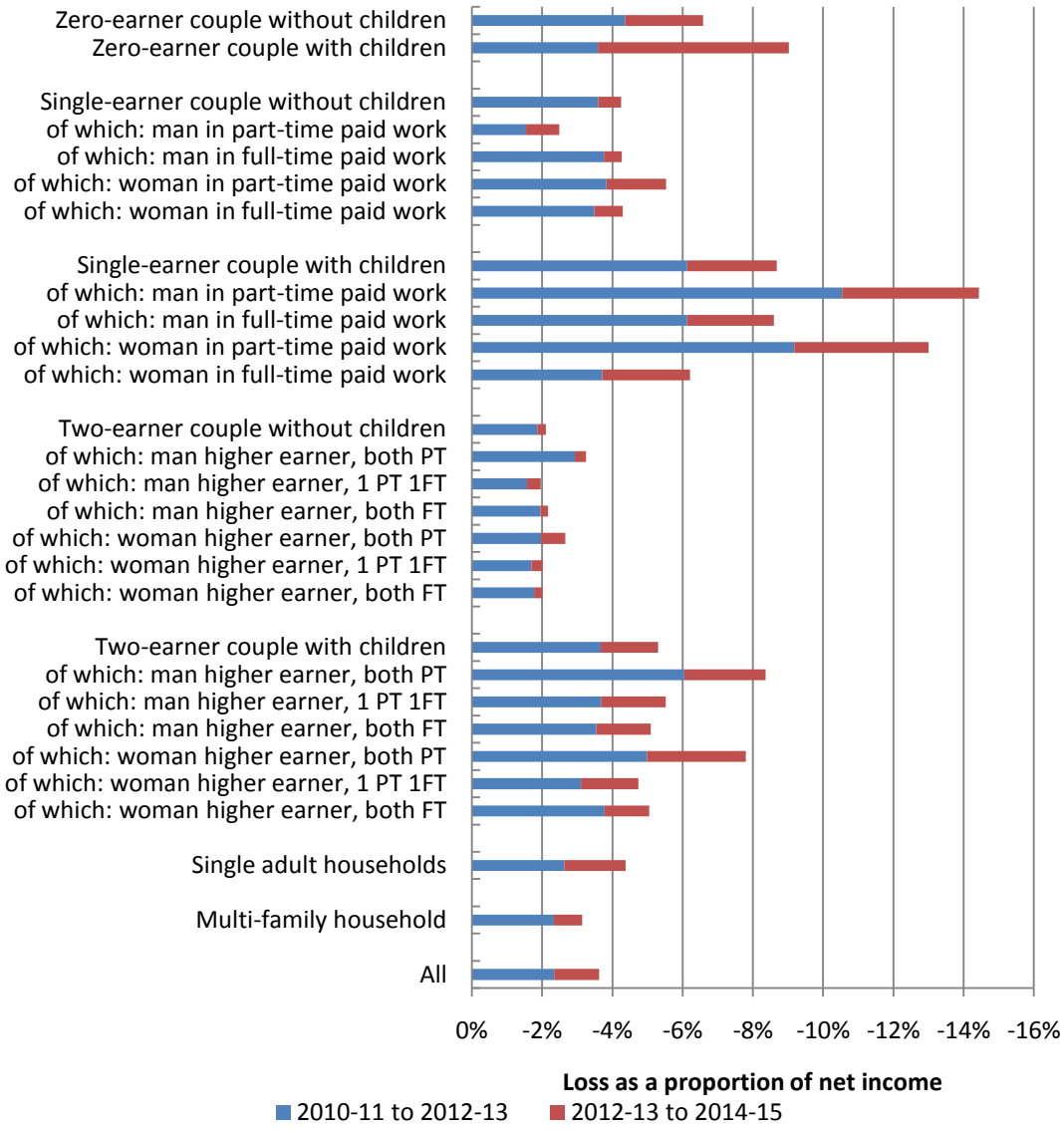
Figure 3.1: Impact of tax and benefit reforms on household incomes for couple households by sex of (higher) earner with average loss for single adult and multi-family households for comparison



Notes and Sources: As Table 2.1.

We can see that the impact on the household income of couples with no earners and only one earner is much greater, as a proportion of income, than on households with two earners, and this is true for couples with and without children. There is relatively little difference according to whether the man or the woman is doing paid work or is the higher earner. This is still true when we further break this impact down by whether the earner(s) have a full time or part time paid job (see figure 3.2). The extremely large losses for single-earner couples with children where the earner is working part time are the result of the minimum weekly hours of paid work necessary to qualify for Working Tax Credit increasing from 16 to 24 in April 2012 for couples with children, which results in very large losses for those in a couple with children in paid work of 16 to 24 hours per week. It is likely that some of the individuals holding these part-time jobs would either increase their hours of paid work or withdraw from the labour market in response to this change.

Figure 3.2: Impact of tax and benefit reforms on household incomes for couple households by sex and hours of employment of (higher) earner with average loss for single adult and multi-family households for comparison



Notes and Sources: As Table 2.1.

4. The impact of budget measures on the financial work incentives of male and female workers

As well as directly impacting on household incomes, tax and benefit changes affect the financial incentive for individuals to undertake paid work, and the financial incentive for them to increase their earnings (for example through increasing their hours of paid work). In this section we examine how changes to taxes and benefits that have been announced to be introduced between 2010–11 and 2014–15 affect the incentive to do paid work and the incentive for both men and women to increase their earnings.

We define our measures of financial work incentives in section 4.1, before we show how tax and benefit reforms have affected the financial work incentives of men and women according to these measures in section 4.2.

4.1 Our measures of work incentives

The incentive to undertake paid work at all

We measure the incentive to undertake paid work at all by examining the PTR. This gives the proportion of earnings that are taken away in tax or lower benefit entitlements when an individual starts paid work, i.e.

$$PTR = 1 - \frac{net\ income\ in\ paid\ work - net\ income\ out\ of\ paid\ work}{gross\ earnings}.$$

Therefore, someone whose income after taxes and benefits was £50 if they did not do paid work and £200 if they did do paid work, earning £250, would have a PTR of 40% (1 – {£200 – £50}/£250).

Note that:

- Net income means income after benefits have been added and taxes deducted.
- Low numbers indicate that the financial incentive to do paid work is strong and vice versa. A PTR of 0% would indicate that an individual did not have to pay any tax on their earnings and did not lose any benefit entitlement when they started paid work. A PTR of 100% would indicate that all of an individual's earnings would be taken from them in tax or lower benefit entitlements if they did paid work, so they would be no better off in paid work than not having a paid job. High PTRs are sometimes referred to as 'the unemployment trap'.
- For individuals in couples, it is possible to calculate the PTR using individual or family income, and this choice will affect our impression of the strength of the financial reward to do paid work. In this paper, we use family income (as we stated at the beginning of section 3, the IFS tax and benefit microsimulation model does not assign benefits to the correct member of a couple in all cases, meaning that it cannot calculate individuals' in work and out of work incomes accurately).
- PTRs do not take into account the financial cost of doing paid work in terms of childcare costs, travel costs etc. The childcare element of Working Tax Credit is counted as income that individuals receive when they are in paid work, but the cost of childcare (and any other costs that are involved in undertaking paid work) is not deducted from that income.

The incentive to earn more

The incentive for those in paid work to increase their earnings can be measured by the METR. This measures how much of a small change in employer cost is lost to tax payments and forgone state benefit and tax credit entitlements, and it tells us about the strength of the incentive for individuals to increase their earnings slightly, whether through increasing their hours of paid work, qualifying for bonus payments or getting a better-paid job. In this paper, we use the term 'incentive to earn more' to encompass all these possibilities.

As with PTRs, low numbers mean stronger financial incentives. A METR of zero means that the individual keeps all of any small change in what their employer pays, and a rate of 100% means that the individual keeps none. High METRs amongst workers in low-income families are often referred to as 'the poverty trap'.

4.2. Methodology

We include in our sample only those individuals who are observed in paid work in the data. It is straightforward for our tax and benefit microsimulation model, TAXBEN, to calculate the incomes those in paid work would receive if they were to leave paid work, and to calculate METRs for those in paid work.[6] It is possible to also estimate what those without paid jobs would earn were they to have a paid job and therefore estimate PTRs for them also; since the aim of this paper is to illustrate the sort of analysis that could be done to examine the effect of tax and benefit changes on gender inequalities we do not do this here.[7] This would be an obvious extension of the analysis in this paper. Any such analysis would need to take careful consideration of how to estimate earnings levels for men and women not currently in paid work. Since presumably at least one of the reasons that those not in paid work do not participate in the labour market is because their earnings in paid work would be low, simply assuming that those not in paid work would earn as much as those in paid work with similar characteristics is likely to produce an upwards-biased estimate of their potential earnings level. This is particularly important when we are comparing PTRs of men and women who are not

[6] We assume that those in paid work would not qualify for Employment and Support Allowance if they were to leave paid work.

[7] However, previous IFS research has also examined the incentive for those without a paid job to undertake paid work, see, for example, S. Adam and J. Browne (2010), 'Redistribution, work incentives and thirty years of UK tax and benefit reform', IFS Working Paper 10/24, http://www.ifs.org.uk/publications/5367. We find that those who do not have a paid job typically have weaker incentives to undertake paid work: in 2009–10, around 30% of those who did not have a paid job had PTRs of 70% or more compared to just 10% of those who did.

currently in paid work as the magnitude of this selection bias is likely to be different by sex.

Throughout this analysis, we incorporate the effect of employer National Insurance Contributions and indirect taxes in our calculations of PTRs and METRs. This is because employee and employer NICs are effectively, in the long-run, the same tax and so should have the same impact on individual's incentive to do paid work – employers might pay employees more in the absence of employer NI (and similarly employees might work for less in the absence of employee NI). Indirect taxes are as important as direct taxes and benefits, since the attractiveness of undertaking paid work or of earning a little more presumably depends on the quantity of goods and services that one can purchase with the wages earned.[8]

4.3. Results

Table 4.1 compares key points of the distributions of PTRs of men and women in paid work under the April 2010 (i.e. before the increases in VAT and fuel duties that took effect in January 2011), April 2012 and April 2014 tax and benefit systems. (The tenth percentile of women's PTRs is the PTR of the woman who has a higher PTR than 10% of women and a lower PTR than the other 90%, etc.)

[8] We incorporate indirect taxes by estimating, for each individual the average tax rate paid on their household's spending. This allows for the size of the wedge between income and the value of consumption for that person's household, but this will not quite be an accurate measure of how indirect taxes affect work incentives unless the average tax rate on what additional income is spent on is the same as that on existing purchases.

Table 4.1: Key points of the distribution of PTRs for men and women in paid work under different years' tax and benefit systems (%)

	10th percentile			*25th percentile*			*Median*			*75th percentile*			*90th percentile*		
	2010	*2012*	*2014*	*2010*	*2012*	*2014*	*2010*	*2012*	*2014*	*2010*	*2012*	*2014*	*2010*	*2012*	*2014*
Men	36.3	36.1	36.0	42.0	42.6	42.6	49.8	49.8	49.7	60.0	60.2	60.2	72.9	73.7	73.7
Women	23.4	21.7	21.9	34.5	34.0	33.7	41.7	42.5	42.4	53.0	53.4	53.2	68.9	69.6	69.7

Note: Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Table 4.2: Mean PTRs for men and women in paid work under different years' tax and benefit sytems (%)

	Mean		
	2010	*2012*	*2014*
Men	51.9	52.3	52.3
Women	44.4	44.4	44.4

Note: As for table 4.1.
Source: As for table 4.1.

Table 4.3: Key points of the distribution of METRs for men and women in paid work under different year's tax and benefit systems (%)

	10th percentile			*25th percentile*			*Median*			*75th percentile*			*90th percentile*		
	2010	*2012*	*2014*	*2010*	*2012*	*2014*	*2010*	*2012*	*2014*	*2010*	*2012*	*2014*	*2010*	*2012*	*2014*
Men	40.1	41.1	41.1	44.5	46.7	46.7	47.5	49.6	49.7	53.9	56.2	56.3	75.8	78.0	77.1
Women	31.4	23.9	24.3	43.3	45.1	45.0	46.4	48.4	48.4	50.4	52.6	52.6	76.6	78.9	78.3

Note: Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Table 4.4: Mean METRs for men and women in paid work under different years' tax and benefit systems (%)

	Mean		
	2010	*2012*	*2014*
Men	51.1	52.6	52.6
Women	48.7	49.5	49.5

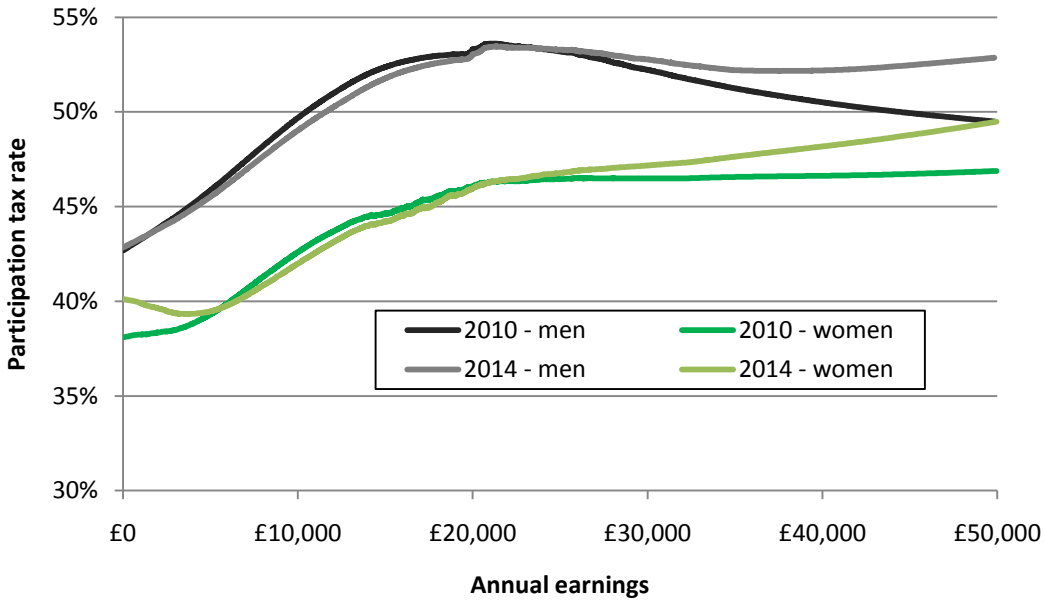
Note: As for table 4.3.
Source: As for table 4.3.

We can see that tax and benefit reforms being introduced between 2010–11 and 2014–15 will slightly weaken, on average, both the incentive to undertake paid work at all, and the incentive for those in paid work to increase their earnings slightly. However, this masks differences between different groups of both men and women – some individuals whose incentive to undertake paid work at all is stronger under the 2010 tax and benefit system see their incentive to undertake paid work strengthened by the reforms to be introduced by 2012–13. It is the increases in the income tax personal allowance and the employee and employer National Insurance thresholds that are driving this change. By contrast, those who have the weakest incentives to do paid work under the 2010 system will see their incentives to do paid work weaken, on average: this is mainly due to the freezing the main and 30-hour elements of the Working Tax Credit, and the increase in the rate at which tax credits are withdrawn as income increases from 39% to 41%. This last reform, together with the increases in National Insurance rates from April 2011, will also slightly weaken the incentives to earn more for most individuals. However, some low earners will be brought out of income tax and National Insurance as a result of the increases in the personal allowance and National Insurance thresholds in April 2011 and April 2012, and this is why the 10th percentile of the distribution of women's METR distribution falls as a result of reforms to be introduced between 2010 and 2012.

There is little difference in these trends between men and women: women in paid work have, on average, stronger incentives to be in paid work than men in paid work, and slightly stronger incentives to increase slightly their earnings under each of the tax and benefit systems considered here. This is because they tend to be lower earners than men. One case where we do observe a significant difference between men and women is that more than 10% of women in paid work will not be paying any income tax after the increases in the personal allowance to be implemented by 2012, significantly reducing the 10th percentile of the distribution of women's METRs. The fact that there are more low earning women than low earning men also reduces the 10th percentile of the distribution of women's PTRs by more than that of men since an increase in the personal allowance is more important for low earners. Figures 4.1 and 4.2 demonstrate this point – the tax and benefit changes to be introduced between 2010–11 and

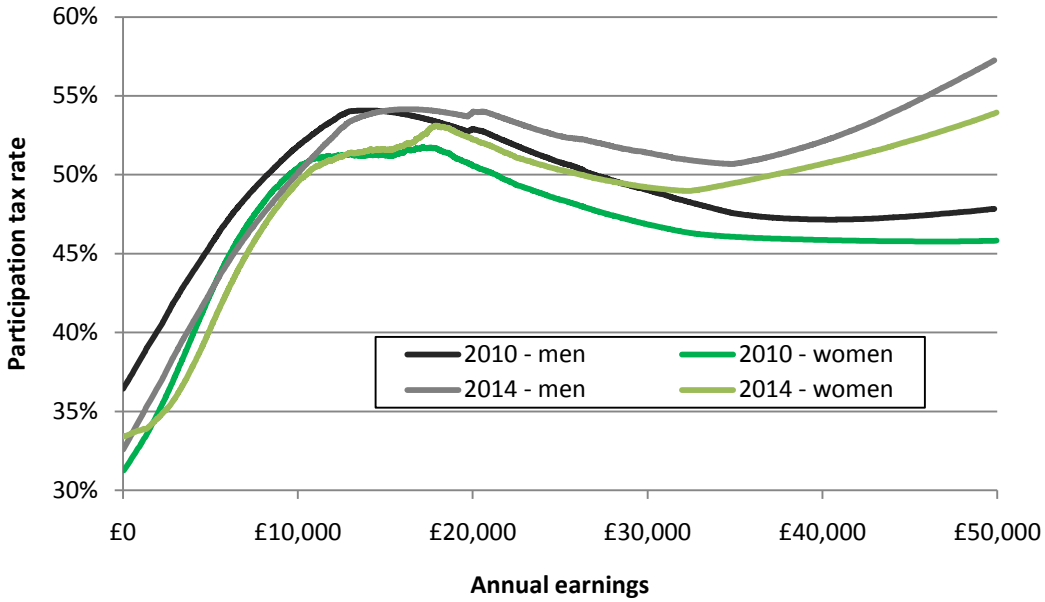
2014–15 slightly reduce PTRs for lower earners but increase them for higher earners. The same is true for METRs: they fall at low levels of earnings for both men and women as a result of the increase in the income tax personal allowance and National Insurance thresholds, but increase at higher levels of earnings because of higher National Insurance rates, higher VAT rates, the lowering of the threshold at which the higher 40p rate of income tax starts to be applied and the more aggressive means-testing of tax credits.

Figure 4.1: PTRs by earnings for men and women in paid work under different years' tax and benefit systems



Note: Non-parametric (lowess) estimates of PTRs at each earnings level. Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Figure 4.2: METRs by earnings for men and women in paid work under different years' tax and benefit systems



Note: Non-parametric (lowess) estimates of METRs at each earnings level.Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

At any given level of earnings, we can see that the tax and benefit changes being introduced between 2010–11 and 2014–15 have a very similar impact on the PTRs and METRs of men and women in paid work, on average. However, the average PTRs and METRs at each earnings level are higher for men than for women. It is likely that this is because women in paid work are more likely than men in paid work to have a partner who does paid work. Since those with a partner in paid work are less likely to face steep withdrawal of means-tested benefits and tax credits when they move into paid work, meaning that their financial incentives to do paid work or increase their earnings are stronger, financial incentives to do paid work are stronger for women on average. This is shown in table 4.5, where we show the mean PTR and METR for paid workers in different family types, again split by the sex of the individual.

Table 4.5: Mean PTR and METR (%) under different years' tax and benefit systems for those in paid work by family type and sex

	Mean PTR			*Mean METR*		
	2010	*2012*	*2014*	*2010*	*2012*	*2014*
Single man	53.7	53.3	53.3	48.8	49.6	49.7
Single woman	55.5	55.3	55.6	52.9	53.9	53.8
Man in couple, partner not in paid work	62.6	64.9	65.2	60.3	61.7	61.3
Woman in couple, partner not in paid work	51.1	53.7	54.0	56.3	58.6	58.8
Man in couple, partner in paid work	47.5	47.8	47.6	49.7	51.6	51.6
Woman in couple, partner in paid work	37.7	37.5	37.3	45.4	45.9	45.9

Note: Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

We can see that the increase in the mean PTR is driven by an increase for single-earner couples – other groups see almost no increase in their PTR, on average. All groups see a small increase in their average METR, particularly those in single-earner couples, who are more likely to be eligible for tax credits and so face an increase in the rate at which tax credits are withdrawn as income rises, as well as in National Insurance rates.

Again, the average impact of the reforms does not differ significantly according to the sex of the paid worker, although note that the average PTR falls as a result of the changes for single men but rises very slightly for single women and falls for women in couples whose partner is in paid work but rises very slightly for men in the same situation. There are much more significant differences though in the levels of PTRs and METRs of men and women: women in couples have a stronger incentive to undertake paid work than men, but single women have a weaker incentive to undertake paid work than single men on average. Since, as figure 4.1 shows, PTRs and METRs are on average lower at lower levels of earnings, the first of these can be in part explained by the fact that women in couples whose partner does not do paid work tend to work fewer hours than men in the same situation, and women in two-earner couples earn less than their partners on average. This also means that the partners of women in paid work will, on average earn more than the partners of men in paid work. The higher an individual's partners earnings are, the less likely it is that the individual in question will face steep withdrawal of means-tested benefits and tax credits when they start paid work. This therefore also helps explain why the PTRs and METRs of women in paid work are, on average, lower than those of men in paid work.

Table 4.6 below shows that the higher PTRs for single women than single men are driven by the fact that the more than 90% of lone parents are

women – lone parents have weaker incentives to do paid work than single people without children. This is mainly because lone parents have higher entitlements to means-tested benefits when they are not in paid work, meaning that they have to earn more before they escape the steep withdrawal of means-tested benefits and tax credits. Note also that, whereas the tax and benefit reforms being introduced between 2010–11 and 2014–15 slightly reduce PTRs on average for single people without children, they slightly increase them for lone parents. This is because, whereas financial incentives to do paid work are strengthened for single people without children as a result of increases in the income tax personal allowance and National Insurance thresholds, they are weakened for lone parents by policies such as freezing Working Tax Credit rates, reducing the proportion of childcare costs that can be covered by Working Tax Credit, means testing tax credits more aggressively (both of which reduce their incomes when in work) and increasing the child element of the Child Tax Credit (which increases their incomes when out of work). This explains why PTRs fall for single men but rise for single women, on average.

Table 4.6: Mean PTR and METR for those in paid work under different years' tax and benefit systems for those in paid work by family type and sex

	Mean PTR			*Mean METR*		
	2010	*2012*	*2014*	*2010*	*2012*	*2014*
Single man without children	53.4	53.0	53.0	48.3	49.1	49.2
Single woman without children	55.1	54.4	54.5	47.8	48.8	48.8
Lone father	65.6	67.0	67.5	69.4	73.3	73.0
Lone mother	57.0	58.5	59.6	71.4	72.7	72.3
Man in couple without children, partner not in paid work	55.6	56.5	56.5	51.8	53.9	53.3
Woman in couple without children, partner not in paid work	48.4	50.4	50.7	50.2	53.3	53.2
Man in couple with children, partner not in paid work	68.9	72.6	73.1	68.1	68.7	68.4
Woman in couple with children, partner not in paid work	57.5	61.5	62.1	70.9	71.6	72.1
Man in couple without children, partner in paid work	42.2	42.3	42.2	47.1	49.2	49.4
Woman in couple without children, partner in paid work	36.6	36.2	36.1	44.3	45.4	45.6
Man in couple with children, partner in paid work	53.9	54.5	54.1	52.8	54.6	54.3
Woman in couple with children, partner in paid work	39.1	39.1	38.6	46.9	46.5	46.2

Note: Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

We still see however that the tax and benefit changes reduce the PTRs of women in couples whose partner is also in paid work but very slightly

increase those of men in the same situation. This may be driven by the different types of paid work men and women do – as previously stated, women are more likely to have a part-time job and earn less on average per hour of paid work. In table 4.7 we split the subgroups further according to whether an individual's partner is in part-time or full-time paid work.

Table 4.7: Mean PTR and METR for those in dual-earner couples under different years' tax and benefit systems by family type, sex and hours of paid work

	Mean PTR			*Mean METR*		
	2010	*2012*	*2014*	*2010*	*2012*	*2014*
Man in couple without children, partner in part-time paid work	43.7	43.8	43.9	47.8	49.5	49.9
Woman in couple without children, partner in part-time paid work	37.3	37.7	37.6	44.4	44.4	45.2
Man in couple with children, partner in part-time paid work	58.3	58.1	57.9	55.6	57.8	57.3
Woman in couple with children, partner in part-time paid work	55.5	53.3	53.3	63.3	60.3	61.7
Man in couple without children, partner in full-time paid work	41.8	41.9	41.8	46.9	49.1	49.3
Woman in couple without children, partner in full-time paid work	36.5	36.1	36.1	44.3	45.4	45.6
Man in couple with children, partner in full-time paid work	49.9	51.3	50.8	50.3	51.7	51.6
Woman in couple with children, partner in full-time paid work	38.6	38.7	38.2	46.4	46.1	45.7

Note: Those in paid work only. Tax and benefit system as applies in April of each year. Assumes that councils means test council tax benefit more aggressively when it is localised and expenditure reduced. Excludes impact of Universal Credit in 2014–15.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

We can see therefore that some of the difference between the financial work incentives of men and women in two-earner couples arises because of how many hours of paid work their partners do, but this does not fully account for the difference. As discussed previously, the fact that women are more likely to have part time jobs and that men earn more than women on average are likely to be important factors driving the difference both in the average PTRs and METRs and the effect of tax and benefit reforms on the financial work incentives of men and women in two-earner couples.

5. Conclusions

This paper has shown some simple ways in which the government could examine how the impact of tax and benefit changes varied by sex using the same data that underlies the distributional analysis that is published in the Budget documentation. This might be a way in which the government

could demonstrate that it has had 'due regard' to the effect of its policies on gender inequalities, as it is required to do by the Equalities Act 2010.

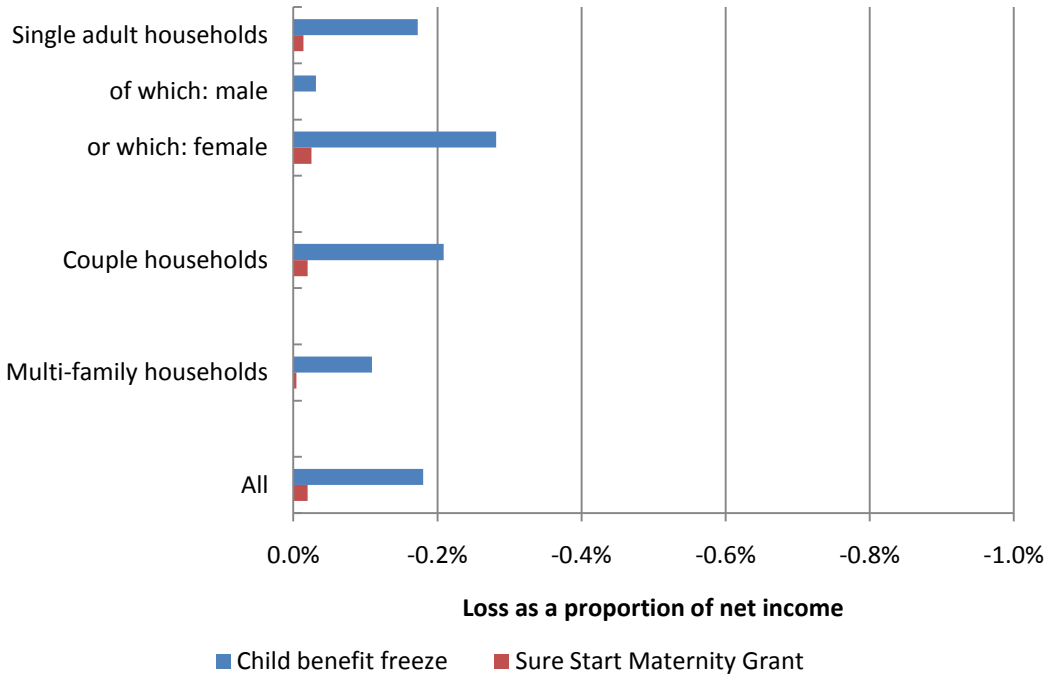
However, we freely acknowledge that what we have shown here falls a long way short of a full gender impact assessment of tax and benefit changes. In particular, by examining changes at the household level, our analysis does not examine the impacts on the incomes of individual men and women within each household. We also find that small sample sizes prevent us from investigating fully the systematic differences between men and women that drive the differential impacts we observe. Nevertheless, we still see some interesting results:

- Tax and benefit changes to be introduced between 2010–11 and 2014–15 will cause a larger loss for households with a single adult female than a single adult male. This is largely driven by the particularly large loss for lone parents from these reforms, over 90% of whom are women.
- There is relatively little difference in the distributional effect of tax and benefit reforms between single-earner couple households according to whether the man or the woman is the earner, and between two-earner couple households according to whether the man or the woman is the higher earner on average. Overall though, dual earner couples have smaller percentage losses than single earner couples.
- Looking at work incentives, the overall package of reforms slightly weakens the incentive for both men and women both to do paid work on average and to increase their earnings, but this disguises considerable variation within both distributions. In particular, those with the strongest incentives to do paid work at all under the 2010–11 tax and benefit system see their financial work incentives strengthened due to the increases in the income tax personal allowance and the employee's National Insurance threshold whereas those with the weakest incentives to do paid work have seen them further weakened by cuts to the Working Tax Credit. As increasing the income tax personal allowance and employee's National Insurance thresholds particularly strengthen financial work incentives for those on low earnings, these changes reduce the PTRs and METRs of women in paid work more than those of men in paid work. However, reforms to tax credits (freezing Working Tax Credit rates, reducing the proportion of childcare costs that can be covered by Working Tax Credit and means-testing tax credits more aggressively) will weaken work incentives for lone parents, more than 90% of whom are women.

Appendix A: Impact of individual tax and benefit policies

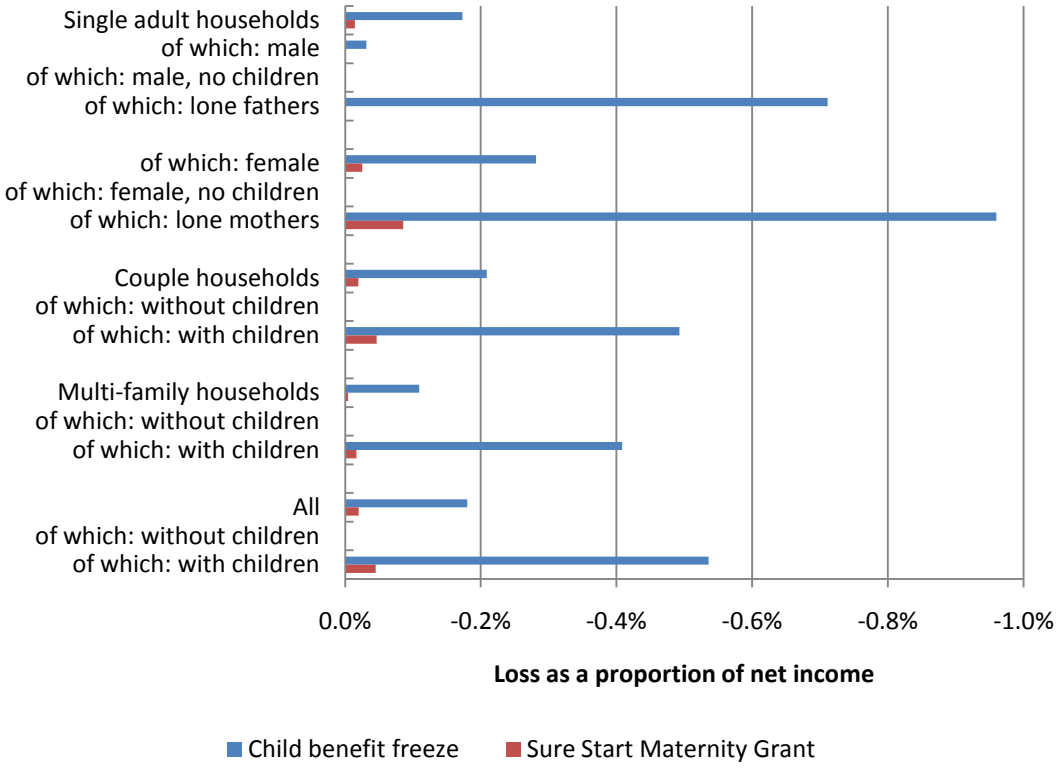
Since it can be difficult to ascertain precisely which tax and benefit policies are driving the results in sections 2–4, in this Appendix we show the impact of particular benefit changes on the incomes of different household types (as in sections 2 and 3) and work incentives of men and women (as in section 4). The figures below show the impact of freezing child benefit and restricting the Sure Start Maternity Grant to the first child on the same household types as in sections 2 and 3. As these changes only affect households with children, we do not break down couples without children into smaller groups in Figures A.3 and A.4. The results of this analysis are as we would expect – since the cash loss is the same for all eligible family types, the loss is higher as a percentage of income for household types with lower average incomes. Since only women are eligible for the Sure Start Maternity Grant and women earn less per hour and do fewer hours of paid work than men on average, this means that average losses are higher as a percentage of income for single adult households where the adult is male than those where the adult is female.

Figure A.1: Impact of selected tax and benefit reforms on household incomes for single adult households by sex of adult with average loss for couple and multi-family households for comparison



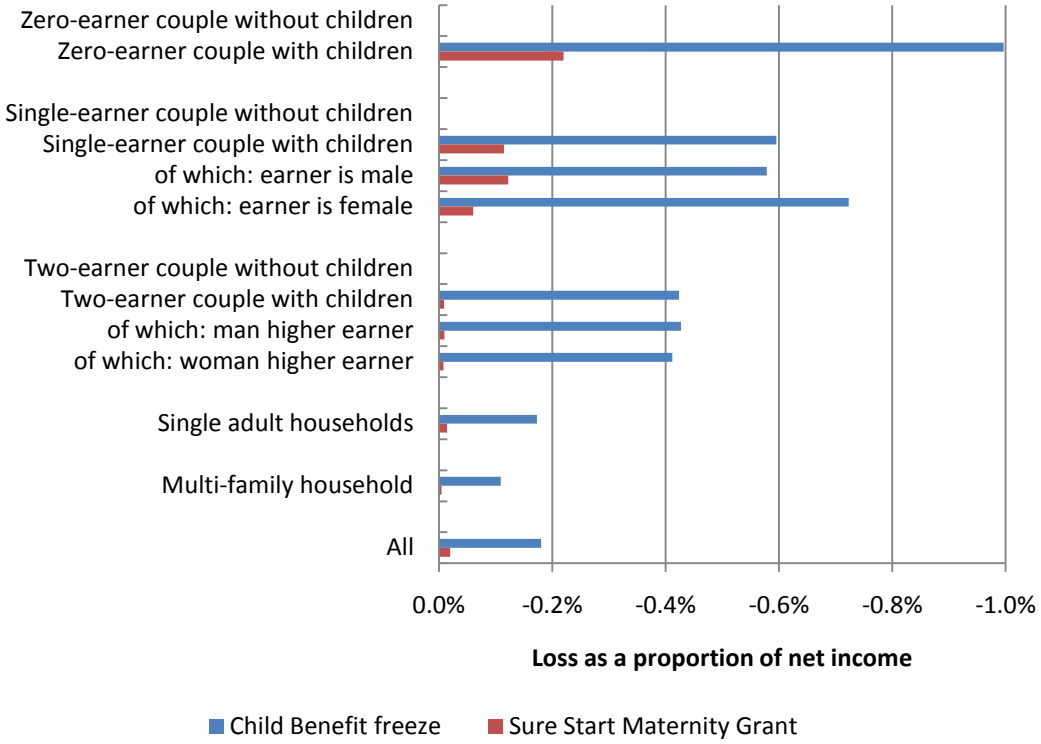
Sources: Author's calculations using TAXBEN run on the 2008–09 Family Resources Survey and 2008 Expenditure and Food Survey.

Figure A.2: Impact of selected tax and benefit reforms on household incomes for single adult households by sex of adult, couple households and multi-family households by presence of children



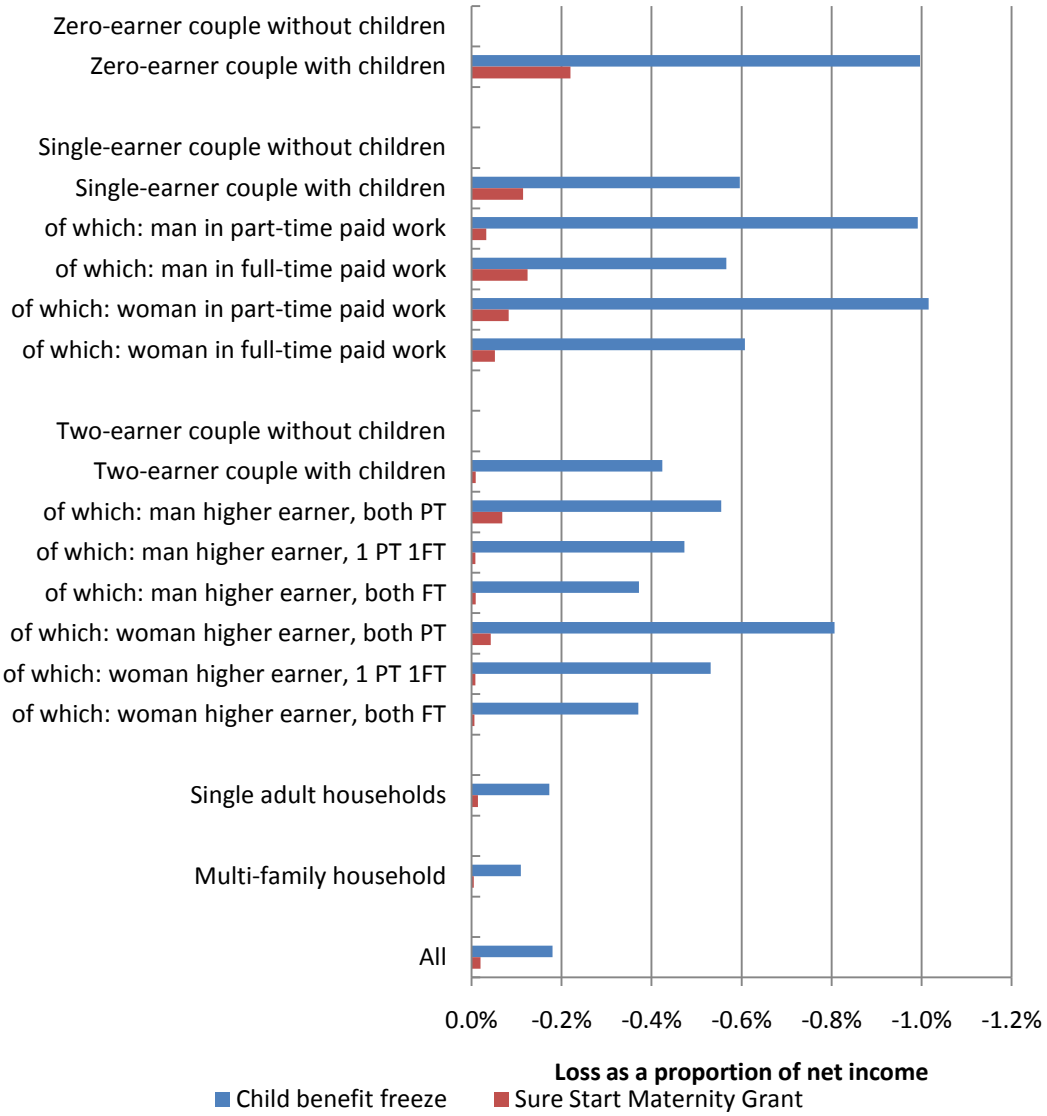
Sources: As Figure A.1.

Figure A.3: Impact of selected tax and benefit reforms on household incomes for couple households by sex of (higher) earner with average loss for single adult and multi-family households for comparison



Source: As Figure A.1.

Figure A.4: Impact of selected tax and benefit reforms on household incomes for couple households by sex and hours of employment of (higher) earner with average loss for single adult and multi family households for comparison



Source: As Figure A.1.

The tables below show the impact of freezing the standard and thirty hour components of Working Tax Credit for three years on the financial work incentives of different groups. This is the equivalent analysis to that in chapter 4. We can see that there are two offsetting effects. Low earners with children who do not have a partner in paid work see their incentives to work further weakened because they would receive less in Working Tax Credit were they to work. However, for some of those with partners in employment, the incentive to do paid work strengthens because freezing Working Tax Credit rates means they would receive less if they were to choose not to do paid work. Thus the mean PTR is actually reduced very slightly for both men and women. By reducing the number of families entitled to tax credits and who thus face steep withdrawal of tax credits if

they were to increase their earnings slightly, freezing Working Tax Credit rates unambiguously strengthens the average incentive for individuals to increase their earnings slightly.

Table A.1: Key points of the distribution of PTRs for men and women in paid work before and after three-year freeze of Working Tax Credit rates (%)

	10th percentile		*25th percentile*		*Median*		*75th percentile*		*90th percentile*		*Mean*	
	Before	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*
Men	36.3	36.2	42.0	41.8	49.8	49.7	60.0	59.7	72.9	73.1	51.9	51.8
Women	23.4	22.7	34.5	34.1	41.7	41.4	53.0	53.0	68.9	69.0	44.4	44.3

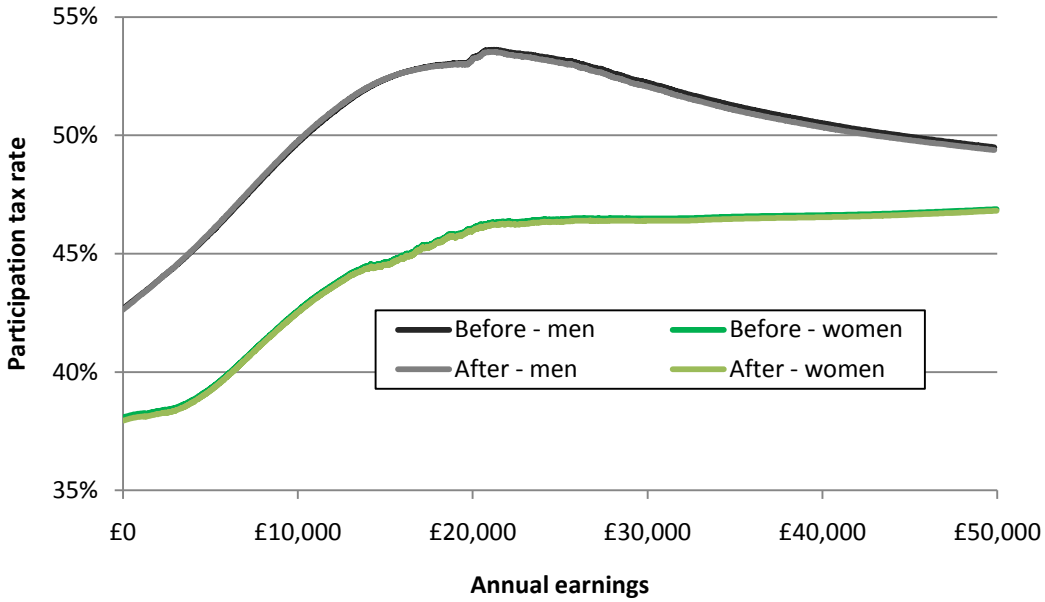
Note: Those in paid work only. 'Before' system is that which applied in April 2010.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Table A.2: Key points of the distribution of METRs for men and women in paid work before and after three-year freeze of Working Tax Credit rates (%)

	10th percentile		*25th percentile*		*Median*		*75th percentile*		*90th percentile*		*Mean*	
	Before	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*
Men	40.1	40.0	44.5	44.4	47.5	47.4	53.9	53.6	75.8	75.2	51.1	50.7
Women	31.4	31.3	43.3	43.2	46.4	46.4	50.4	50.1	76.6	76.1	48.7	48.4

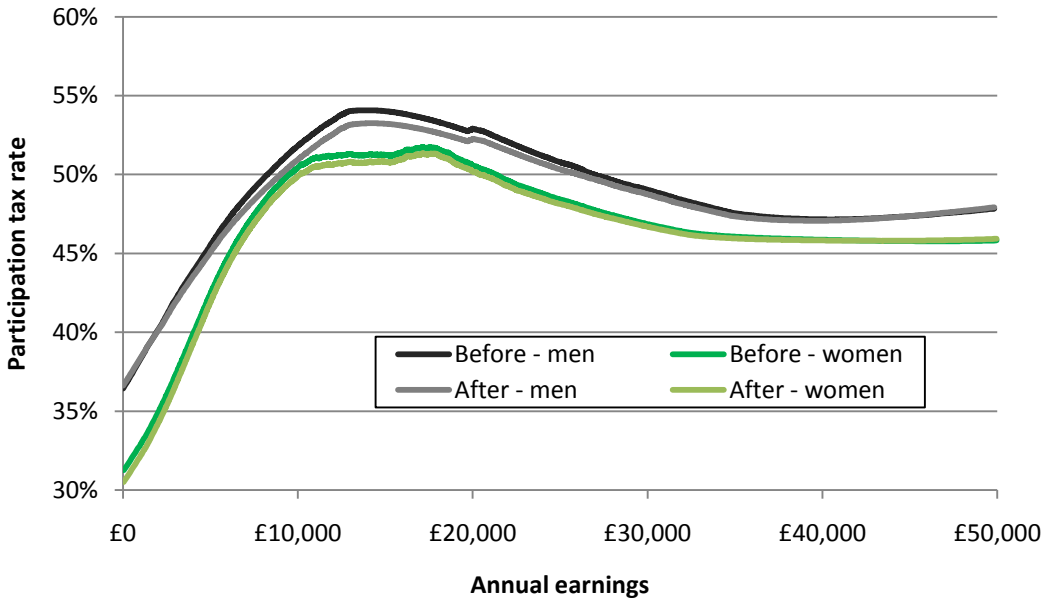
Note: Those in paid work only. 'Before' system is that which applied in April 2010.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Figure A.5: PTRs by earnings for men and women in paid work before and after three-year freeze of Working Tax Credit rates



Note: Those in paid work only. Non-parametric (lowess) estimates of PTRs at each earnings level.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Figure A.6: METRs by earnings for men and women in paid work before and after three-year freeze of Working Tax Credit rates



Note: Those in paid work only. Non-parametric (lowess) estimates of METRs at each earnings level.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Table A.3: Mean PTR and METR (%) before and after three-year freeze in Working Tax Credit rates for those in paid work by family type and sex

	Mean PTR		*Mean METR*	
	Before	*After*	*Before*	*After*
Single man	53.7	53.7	48.8	48.2
Single woman	55.5	55.8	52.9	52.4
Man in couple, partner not in paid work	62.6	62.8	60.3	59.9
Woman in couple, partner not in paid work	51.1	51.1	56.3	56.0
Man in couple, partner in paid work	47.5	47.2	49.7	49.3
Woman in couple, partner in paid work	37.7	37.4	45.4	45.1

Note: Workers only. 'Before' system is that which applied in April 2010.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Table A.4: Mean PTR and METR before and after three-year freeze in Working Tax Credit rates for those in paid work by family type and sex

	Mean PTR		*Mean METR*	
	Before	*After*	*Before*	*After*
Single man without children	53.4	53.5	48.3	47.7
Single woman without children	55.1	55.3	47.8	47.4
Lone father	65.6	66.2	69.4	69.4
Lone mother	57.0	57.7	71.4	70.6
Man in couple without children, partner not in paid work	55.6	55.6	51.8	51.5
Woman in couple without children, partner not in paid work	48.4	48.4	50.2	49.8
Man in couple with children, partner not in paid work	68.9	69.3	68.1	67.6
Woman in couple with children, partner not in paid work	57.5	57.7	70.9	71.1
Man in couple without children, partner in paid work	42.2	42.0	47.1	47.0
Woman in couple without children, partner in paid work	36.6	36.3	44.3	44.2
Man in couple with children, partner in paid work	53.9	53.7	52.8	52.2
Woman in couple with children, partner in paid work	39.1	38.7	46.9	46.3

Note: Workers only. 'Before' system is that which applied in April 2010.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Table A.5: Mean PTR and METR before and after three-year freeze in Working Tax Credit rates for those in dual-earner couples by family type, sex and hours of paid work

	Mean PTR		*Mean METR*	
	Before	*After*	*Before*	*After*
Man in couple without children, partner in part-time paid work	43.7	43.6	47.8	47.6
Woman in couple without children, partner in part-time paid work	37.3	37.3	44.4	44.1
Man in couple with children, partner in part-time paid work	58.3	58.3	55.6	54.9
Woman in couple with children, partner in part-time paid work	55.5	56.2	63.3	63.3
Man in couple without children, partner in full-time paid work	41.8	41.5	46.9	46.9
Woman in couple without children, partner in full-time paid work	36.5	36.3	44.3	44.2
Man in couple with children, partner in full-time paid work	49.9	49.5	50.3	49.7
Woman in couple with children, partner in full-time paid work	38.6	38.1	46.4	45.8

Note: Workers only. 'Before' system is that which applied in April 2010.
Source: Author's calculations using the 2008 Expenditure and Food Survey.

Appendix B: List of tax and benefit reforms

The reforms analysed in this paper are as follows:

- An increase in all employees' and employers' National Insurance rates of 1% from April 2011;
- An increase in the threshold at which employees start to pay National Insurance of £23 per week from April 2011;
- Real reductions in the point at which the higher rate of income tax starts to be paid in both April 2011 and April 2012;
- Restricting tax relief on pension contributions for those with incomes above £130,000;
- The expiry of a number of one-off giveaways for the financial year 2010–11, in particular a temporary real increase in some benefits and the income tax personal allowance;
- From April 2011, private sector tenants claiming Local Housing Allowance (LHA) would no longer be able to receive more in LHA than they have to pay in rent. (Previously claimants could keep up to £15 of the amount by which their LHA payment exceeded their rent).
- A lower hours-of-work requirement for working tax credit for some of the over 50s;
- Increases in alcohol and tobacco duties each year from 2011 to 2014;
- Increases in fuel duty that took effect in October 2010 and January 2011 and the cut in fuel duty that took effect in March 2011;
- An increase in the standard rate of VAT from 17.5% to 20.0% in January 2011.
- A £1,000 cash increase in the income tax personal allowance for those aged under 65 in April 2011 and a further increase in April 2012;
- A £21 increase in the threshold at which employers start paying National Insurance Contributions in April 2011;
- Using the CPI rather than the RPI or Rossi to uprate all benefits from April 2011 and some direct tax thresholds from April 2012;

- Withdrawing the family element of the Child Tax Credit from higher-income families;

- Increasing the rate at which tax credits are withdrawn from 39% to 41% in April 2011;

- Removing the baby element of the Child Tax Credit in April 2011;

- Increasing the child element of the tax credit in April 2011 and April 2012;

- Changes to the way in which in-year changes are made to tax credit awards so that by April 2013 increases in income of more than £5,000 (rather than £25,000) will reduce tax credit payments and by April 2012 falls in income of up to £2,500 will not increase tax credit payments. Also, claimants will have to inform HMRC about changes in their circumstances more quickly;

- Freezing Child Benefit rates for three years from April 2011;

- Earnings indexation of the State Pension in April 2011, and an increase in the Pension Credit in the same year;

- LHA rates will be set at the 30th percentile of local rents rather than the 50th percentile from April 2011. This effectively means that LHA claimants will only be able to choose from the cheapest 30% of properties in their local area of the appropriate size for their family rather than the cheapest 50%;

- Increase housing benefit deductions for resident non-dependents by uprating with prices from April 2011, and reversing previous freeze.

- Irrespective of local rents, there will be caps on the total amount of rent that can be claimed under LHA from April 2011 and rents will be capped at the 4-bedroom rate. This will prevent claimants obtaining large amounts of LHA to live in high-rent areas;

- Reductions in housing benefit for those of working age living in social housing that is under-occupied from April 2013;

- Increasing local reference rents (the maximum rents that private sector tenants can claim) in line with CPI rather than actual rents from April 2013, and;

- A further real reduction in the point at which the higher 40% rate of income tax is paid in April 2013;

- Reforms to the medical test for Disability Living Allowance from 2013-14 that are assumed to eventually reduce the number of claimants by 20%;

- Removing child benefit from families with a higher rate tax payer from January 2013;

- Time-limiting contributory Employment and Support Allowance except for the most disabled from 2012-13;

- A cash freeze in the basic and 30-hour element of the working tax credit for 3 years from April 2011.

- An increase in the hours-requirements for working tax credit for couples with children from April 2012.

- A reduction in the maximum proportion of childcare costs covered from 80% to 70% in April 2011.

- A 10% reduction in expenditure on (and localisation of) council tax benefit;

- A freeze in the savings credit part of Pension Credit for 4 years;

- A Benefit cap of £500 per week (or £350 per week for single adults) for most recipients;

- Cuts in Local Housing Allowance for single people aged 25 – 34;

- Further increases in the child element of the child tax credits in April 2011 and April 2012.