



Redistribution, Work Incentives and Thirty Years of UK Tax and Benefit Reform

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Executive Summary

Governments wishing to reduce inequality by redistributing money from the rich to the poor face the dilemma that in doing so (by increasing tax rates and means-tested benefits, for example) they reduce the incentive for individuals to increase their incomes. Policy-makers have tried to balance these objectives in different ways and, partly as a result of this, the tax and benefit system today is very different from the one that existed thirty years ago. In this paper we look at how the tax and benefit system redistributed income and affected incentives to work in 2009–10, and at the effect of tax and benefit reforms between 1978–79 and 2009–10 on the level of inequality and work incentives.

The tax and benefit system as a whole redistributes significantly from rich to poor. But whether tax and benefit reforms have contributed to or counteracted the sharp increase in income inequality seen in the UK over the last 30 years is hard to determine definitively, in part because it depends on what is meant by ‘reform’. The tax and benefit system in 2009–10 did more to reduce inequality than if the 1978–79 system had remained in place with tax thresholds and (more importantly) benefit rates increased in line with inflation, but did less to reduce inequality than if the rates and thresholds of the 1978–79 system had kept pace with GDP per capita. Within this period, though, Labour’s reforms were clearly more progressive than those of the previous Conservative government: Labour’s reforms between 1997 and 2009 had a similar effect on overall inequality as increasing benefit rates in line with GDP, while the Conservatives’ reforms were roughly equivalent to increasing benefit rates in line with inflation. Labour’s reforms were particularly generous to low-income families with children and pensioners.

When looking at work incentives, we distinguish between the incentive to be in paid work at all (as opposed to not working) and the incentive for those in work to increase their earnings. Taxes and withdrawn benefits meant that, in 2009–10, the additional income that workers received (or non-workers would have received) by being in work could ultimately buy them around half of what their employer paid out, on average. That is much the same as it was thirty years earlier. There were, however, changes within this period. The incentive for people to be in paid work, after weakening between 1978 and 1981, strengthened during the mid to late 1980s, changed little during the course of the 1990s, and weakened after 2003. Tax and benefit reforms have been one of the key drivers of these changes. The Conservatives’ tax and benefit reforms

unambiguously strengthened the incentive for people to be in paid work, whereas Labour's between 1997 and 2009 had relatively little effect.

While these trends in the incentive to work at all have been shared by most groups, the incentive for lone parents to be in work did not strengthen between 1978 and 1997, but has strengthened since 1999. The period since 1999 has also seen a weakening of the incentive for couples with children to have two earners rather than one. The expansion of in-work support for low-income families with children since 1999 is the main factor that explains these two trends. Although these reforms strengthened the incentive for lone parents to work and for couples with children to have one earner, they weakened the incentive for couples with children to have two earners.

For the vast majority of workers in 2009–10, an extra pound paid out by their employer would buy them between 40p and 60p-worth of goods and services. However, there was a significant minority of workers who would only keep between 17p and 27p of each additional pound they earned. This is because they faced steep withdrawal of tax credits or housing benefit if they increased their earnings a little. The incentive for those in work to increase their earnings weakened on average between 1978 and 2009. This was particularly true for workers with children, and can to some extent be explained by tax and benefit reforms. In particular, over the last ten years more and more working families with children have become eligible for means-tested benefits and tax credits, meaning that they face steep withdrawal of these as they increase their income. However, tax and benefit reforms alone cannot explain the increase in EMTRs among working parents – other factors such as increases in real earnings and rents are likely to have been important as well. By contrast, the incentive for those without children to increase their earnings remained fairly constant over time.

1. Introduction

Governments wishing to reduce inequality by redistributing money from the rich to the poor face the dilemma that in doing so (by increasing means-tested benefits and tax rates, for example), they reduce the incentive for individuals to increase their incomes. Policy makers have tried to balance these objectives in different ways, and partly as a result the tax and benefit system today is very different from the one that existed thirty years ago. In this paper, we look at the effect of the UK tax and benefit system on the income distribution and work incentives in 2009,

and then go on to look at how tax and benefit between 1978 and 2009 affected incomes and work incentives.

Section 2 documents how the tax and benefit system redistributes from high-income to low-income households, as well as providing additional support to households with children and pensioners. It also looks at two aspects of work incentives created by the tax and benefit system: the incentive for an individual to work at all, and the incentive for someone in work to earn more. We show how these incentives vary across the population and how they depend on whether a person has children, whether they are a member of a couple and, if so, whether their partner works.

In Section 3, we discuss how tax and benefit reforms between 1978 and 2009 affected the overall level of inequality in the UK. While income inequality has increased dramatically in the UK (see, for example DWP (2010), Barnard (2010) and Joyce et al. (2010)), it is not clear whether this is as a result of, or in spite of, tax and benefit reforms. One strand of the literature in this area has compared how much the tax and benefit system has reduced income inequality in different years (the so-called ‘actual payments’ approach).¹ Most studies that have used this methodology have concluded that the tax and benefit system reduces income inequality by as much as it did thirty years ago. But the amount of redistribution any given tax and benefit system does will depend on the initial distribution of income and other characteristics in the population in which it operates. Other things being equal, a progressive tax and benefit system will redistribute more if applied to a more unequal income distribution. In this paper, we use the alternative ‘what if?’ approach to estimate how unequal the distribution of income would be today had there not been any tax and benefit reforms between 1978 and 2009 using the IFS tax and benefit microsimulation model, TAXBEN. Comparing this with the level of inequality under the actual system yields an estimate the effect of tax and benefit reforms. While this avoids the problems of the ‘actual payments’ approach that arise from comparing different populations, there are two other important issues that arise with this methodology:

- First, one is required to take a view as to what the ‘no-reform’ scenario is – does ‘no change’ mean increasing tax and benefit parameters in line with prices, earnings or something else? As we

¹ See, for example Goodman et al. (1997), Hills (2004) and Jones et al. (2009). Brewer et al. (2010) decomposes changing inequality in the UK and identifies the impact of the benefit system, but not that of the tax system.

shall see, this decision makes a fundamental difference to our results.²

- Secondly, in calculating what would have happened to inequality as the economy evolved if the tax and benefit system had not changed, we assume that tax and benefit reforms did not themselves affect the evolution of the economy. But individuals and firms respond to the incentives created by the tax and benefit system, so this assumption is unlikely to be accurate in practice. The true effect of tax and benefit reforms on inequality, therefore, depends not only on their direct redistributive effects, but also on how they affected people's decisions to work, save, and so on. These indirect effects depend partly on how far individuals respond to such incentives, which is difficult to estimate; but we can more easily estimate how the incentives themselves have been changed by tax and benefit reforms.

We broadly follow the methodology of Clark and Leicester (2004), with some slight refinements that allow us to model the effect of local taxes and disability benefits. More details of our methodology are given in Appendix A.

Section 4 uses the same 'what if?' methodology to calculate measures of work incentives created by suitably uprated tax and benefit systems from previous years. We examine whether tax and benefit reforms have made it more or less worthwhile for individuals to work at all and how they have affected the benefit to workers from earning a little more. In both of these, there are substantial variations in the trends across the population that are unclear from aggregate figures.

The main contribution of this paper is to use what we consider to be the best practice to analyse the effect of tax and benefit reforms on inequality and work incentives in a consistent manner. This paper expands upon and updates analysis in the Mirrlees Review of the tax system (Adam et al., 2010). This is itself an update and refinement of the analysis of the effect of tax and benefit reforms on income inequality presented in Clark and Leicester (2004). It also brings up to date descriptive information on the changes in work incentives over time and analysis of the effect of tax and benefit reforms on work incentives presented in Adam et al. (2006).

² For more analysis of how the choice of uprating system affects the income distribution over time, see Sutherland et al. (2008).

The analysis in this paper was completed before the March 2010 Budget. It therefore does not take into account any tax and benefit reforms announced in either of the 2010 Budgets, or preannounced changes that took effect from April 2010. Browne and Phillips (2010) contains analysis of the effect of tax and benefit reforms between 1997 and 2010 on the distribution of household incomes and work incentives, which does take into account all measures in place in April 2010.

Note that throughout this paper we assume full take-up of entitlements to means-tested benefits as calculated by the tax and benefit microsimulation model, rather than rely on self-reported amounts. Since in practice not everyone will claim the benefits to which they are entitled, and there are some errors and lags in the claiming process, the tax and benefit system does less redistribution in reality than in our model.

2. The UK tax and benefit system in 2009–10

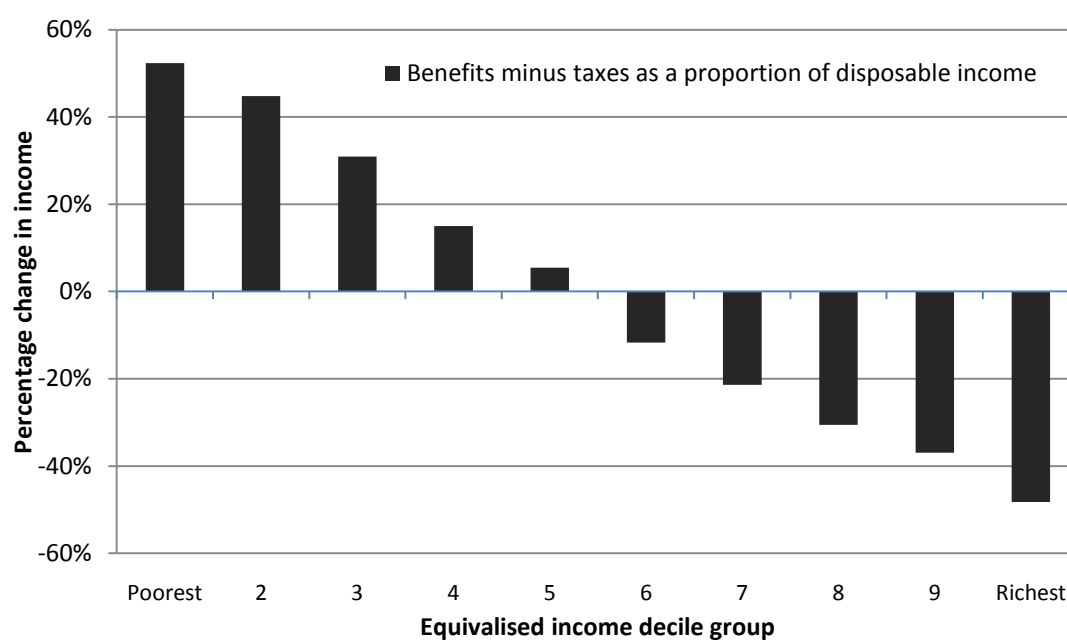
In this section we present an overview of how the UK tax and benefit system in 2009–10 affected the distribution of income and work incentives.

2.1 The effect of the UK tax and benefit system on the distribution of income

Figure 2.1 below shows the overall redistributive effect of the UK tax and benefit system. It is clear that it redistributes money from high income to low income households, with benefits minus taxes making up approximately half of the disposable income of the poorest tenth of households, while the richest tenth find that net taxes amount to nearly half their income.³

³ The tax and benefit system looks rather more progressive in Figure 2.1 than in Table 14 of Barnard (2010). This reflects several differences in methodology, two of which are particularly noteworthy. First, we simulate entitlement to means-tested benefits and tax credits; Barnard (2010) uses self-reported receipt, which dramatically underestimates total payments of tax credits in particular. Second, we assume employer National Insurance contributions (NICs) are incident on the firm's workers (via lower wages), like employee NICs and income tax, whereas Barnard (2009) assume they are incident on the firm's customers (via higher prices). Economic theory predicts that the long-run incidence of an earnings tax should not vary according to whether it is notionally levied on the employer or the employee.

Figure 2.1: Distributional impact of the UK tax and benefit system in 2009–10



Notes: Income decile groups are derived by dividing households into ten equal-sized groups based on their disposable income adjusted for family size using the McClements equivalence scale. Assumes full take-up of means-tested benefits and tax credits. Excludes most ‘business taxes’ (notably corporation tax and business rates, though not employer National Insurance contributions) and capital taxes (notably inheritance tax, stamp duties and capital gains tax).

Source: Authors’ calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on updated data from the 2005–06 Expenditure and Food Survey.

Analysis by the Office for National Statistics (Barnard, 2010) shows that it is the benefit system that is responsible for the bulk of this reduction in inequality, reducing the Gini coefficient, a summary measure of inequality that can take values between zero (when everyone has the same income) and one (where one person has all the income in the economy), from 0.521 to 0.376.⁴ In other words, whereas the distribution of private income has a Gini coefficient of 0.521, the distribution of private income plus benefits is much less unequal, with a Gini coefficient of 0.376. Direct taxes reduce the Gini coefficient slightly further to 0.342, whereas indirect taxes appear to increase inequality slightly, increasing the Gini coefficient from 0.342 to 0.377. This last point requires some qualification, however.

Indirect taxes bear heavily on those with high expenditures, and will clearly target those with high incomes in any particular year less precisely than, say, an income tax does. But much low income observed at a point in

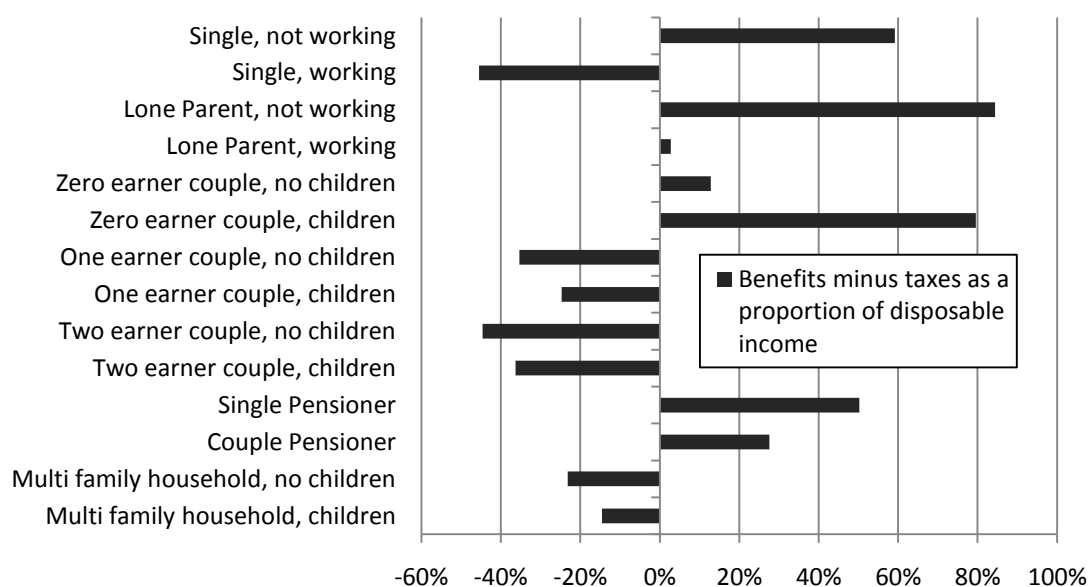
⁴ The Gini coefficient is half the average income gap between all pairs of individuals, as a fraction of average income. See, for example, Barr (2004) for an introduction and Sen (1973, 1992) for fuller discussion.

time is temporary and need not reflect low lifetime living standards: while some people are persistently poor, many have volatile earnings, are temporarily unemployed, are studying, are taking a break from the labour market to raise children, are retired with hefty savings, etc. People's ability to borrow and save means that those with low current incomes will typically have high expenditure relative to their income, and many of those who in a particular year have low income but pay a lot in indirect taxes are people we would not ordinarily think of as 'poor'. Over a lifetime, income and expenditure must be equal (apart from inheritances), and indeed annual expenditure is arguably better than annual income as a guide to lifetime living standards.⁵ If we were to look at the effect of the tax and benefit system on lifetime income inequality, the contrast between 'progressive' direct taxes and 'regressive' indirect taxes would appear much less stark. This is not to say that indirect taxes are progressive relative to lifetime income – that depends on whether goods consumed disproportionately by the lifetime-poor are taxed more heavily (via tobacco duty, for example) or less heavily (as with VAT zero-rating of most food) than other goods – but certainly their effect on the distribution of annual income gives only a partial, and arguably misleading, impression of their overall effect.

Figure 2.2 shows that the tax and benefit system tends to redistribute income from households with more workers towards those with fewer people in work, and from working-age households without children towards households with children and pensioners.

⁵ Studies that have examined the use of expenditure rather than income for looking at distributional outcomes include Goodman et al (1997), Blundell and Preston (1998), Meyer and Sullivan (2003, 2004), Goodman and Oldfield (2004) and Brewer et al (2006).

Figure 2.2: Distributional impact of the tax and benefit system by household type

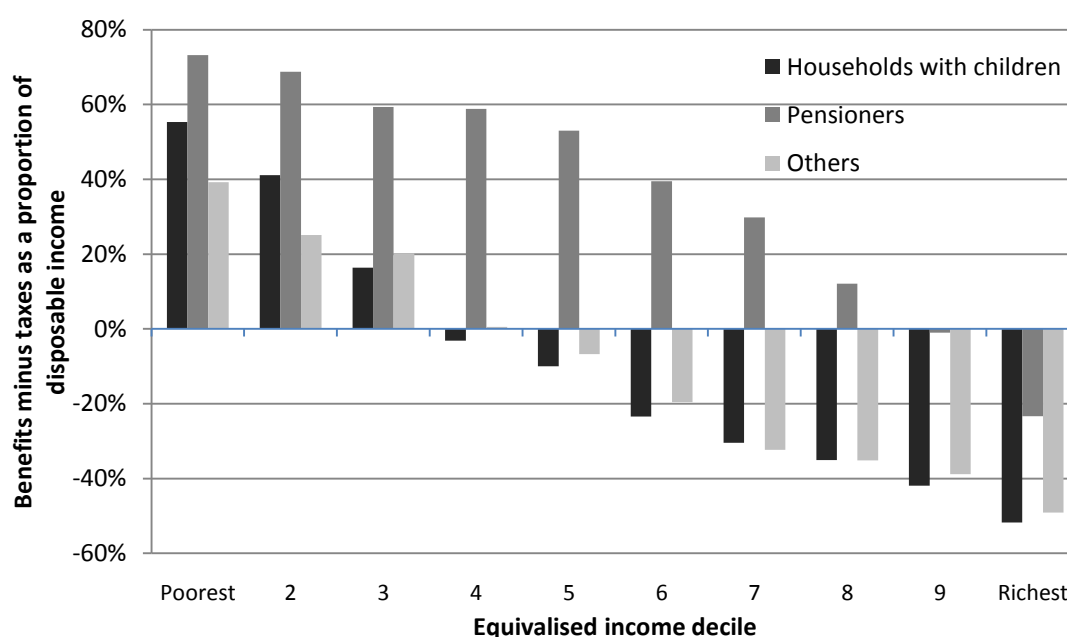


Notes: Assumes full take-up of means-tested benefits and tax credits. Excludes most ‘business taxes’ (notably corporation tax and business rates, though not employer National Insurance contributions) and capital taxes (notably inheritance tax, stamp duties and capital gains tax).

Source: Authors’ calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on updated data from the 2005–06 Expenditure and Food Survey.

Many of these differences between household types are in reality the result of their different positions in the income distribution. But Figure 3.3 demonstrates that the tax and benefit system distributes money to pensioners even once their position in the income distribution is taken into account. It also gives more support to households with children at the bottom of the income distribution, although not to those further up.

Figure 2.3: Distributional impact of the UK tax and benefit system in 2009–10



Notes: As for Figure 2.1.

Source: As for Figure 2.1.

2.2 Work incentives in the UK in 2009–10

This section examines the distribution of work incentives in the UK under the current tax and benefit system. We begin by defining the summary measures of financial work incentives used in this paper before discussing how we calculate these measures using the IFS tax and benefit microsimulation model, TAXBEN. We then show how these vary across the whole population and between different types of individual in 2009–10.

2.2.1 Defining our measures of financial work incentives

An individual's financial incentive to work depends on the relationship between hours of paid work and net income. Therefore, we need to consider the effects of all aspects of the tax and benefit system when we investigate work incentives, not simply income taxes paid by those in work. In particular, the withdrawal of means-tested benefits can be just as important in the decision of whether to work or not for those on low incomes. And indirect taxes are just as important as direct taxes and benefits: since the attractiveness of working presumably depends on the quantity of goods and services that can be purchased with net earnings, a tax that reduces earnings should have the same effect as one which increases prices.

There are two important dimensions of work incentives that we attempt to quantify:

- the financial reward for working compared to not working, which we call the incentive to work at all.
- The incentive for those in work to earn more.

The incentive to work at all

Two commonly used measures of the incentive to work at all are the participation tax rate (PTR) and the replacement rate (RR). PTRs give the proportion of earnings that are not taken away in tax or lower benefit entitlements when an individual starts work, while RRs give an individual's out of work income as a percentage of their in work income. Therefore,

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

$$RR = \frac{\text{net income out of work}}{\text{net income in work}}$$

Therefore, someone whose income after taxes and benefits was £50 if they did not work and £200 if they did work, earning £250, would have a PTR of 40% and a RR of 25%.

For both of these measures:

- Net income means income after benefits have been added and taxes deducted.
- Low numbers indicate that the incentive to 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 work, whereas a RR of 0% would indicate that an individual would not receive any income if they did not work. A PTR or RR of 100% would indicate that all of an individual's earnings would be taken from them in tax or lower benefit entitlements if they worked, so they would be no better off working than not working. High PTRs and RRs are sometimes referred to as the 'unemployment trap'.
- We include employers' National Insurance and indirect taxes in the PTR measures where appropriate by including employers' National Insurance in gross employer cost and adding on the household's

average consumption tax rate. Therefore, the PTRs that we report here are as follows:

$$PTR = \frac{\left(1 - \frac{\text{net income in work} - \text{net income out of work}}{\text{gross earnings} + \text{employer NI}}\right) + CTR}{1 + CTR}$$

Where

$$CTR = \frac{\text{total indirect taxes paid}}{\text{total expenditure}}$$

- For individuals in couples, it is possible to calculate the RR and PTR using individual or family income, and this choice will affect our impression of the strength of the financial reward to work. For example, a low-earning person living with a high-earning partner may have no independent income if he or she does not work, and therefore would have a very low RR – a strong financial incentive to work – when calculated using individual income. However, the same individual would have a very high RR when calculated using family income, because whether he or she works makes little difference proportionally to the family’s income. By contrast, the PTR for this individual is likely to be very low (if the individual is only paying income tax and employee national insurance contributions on a small portion of their earnings, and is in a family too rich to be entitled to tax credits) regardless of whether individual or family income is used for the calculation. In this paper, we use family income for both measures.

Both these measures attempt to capture the incentive to work at all, but they are different, and as a result of this, these measures behave differently following different sorts of changes in income. In particular:

- A constant increase in income at all hours does not change the PTR, but increases the RR. This means that the PTR would suggest no change in incentives, but the RR would suggest that they have got weaker.
- At a given level of hours of work, an increase in the gross hourly wage will strengthen incentives according to the RR, but will have ambiguous effects according to the PTR.

According to economic theory, the impact of an equal cash gain in in-work and out-of-work incomes should be to reduce the attractiveness of working compared to not working, and the impact of an increase in the

hourly wage should be the reverse. The RR captures this intuition from simple economic theory. However, the PTR describes how the tax and benefit system affects the incentive to work: it distinguishes between whether a reduced reward to work is caused by higher taxes or lower wages, for example, which the RR does not. Broadly speaking, therefore, the RR measures the strength of work incentives whereas the PTR measures the effect of the tax and benefit system on work incentives. Both are interesting, and because of this difference in what the two measures are describing, much of the empirical analysis that follows will use both measures.

For non-workers, an assumption is required about how much they would earn, and how many hours they would work, if they did move into work. We describe how we approach this in Box 2.1.

Appendix A gives some technical details of how we measure work incentives, but one issue that deserves highlighting is the treatment of support for mortgage interest (SMI). SMI is available as part of out-of-work benefits (income support, income-based jobseeker's allowance (JSA), income-based employment and support allowance and pension credit), but it is not available for the full duration of benefit claims: there is a waiting period before SMI becomes payable, and JSA claimants can receive SMI only for a maximum of two years.⁶ It is therefore unclear whether estimates of RRs and PTRs should include SMI in out-of-work income. SMI is often overlooked because relatively few people actually receive it – only 4% of income support claimants and 3% of income-based JSA claimants, for example⁷. But SMI matters more for work incentives than this implies, because while more non-workers rent their accommodation than have a mortgage, most workers have a mortgage. The potential availability for SMI can thus be important for many people in work. Throughout this paper, we assume that SMI is available to all those who meet the non-time-related eligibility criteria. But we note that including SMI in this way can have a significant impact on estimated incentives to work at all for some

⁶ Rules on SMI, including the length of the waiting period and the time-limiting of payments to JSA claimants, have been subject to rapid change recently and are likely to change again. For current purposes the important point is that SMI is only available in some parts of benefit spells.

⁷ Source: DWP Tabulation Tool (<http://research.dwp.gov.uk/asd/index.php?page=tabtool>), based on 5% sample data for February 2010. Corresponding figures for pension credit are not given, but are likely to be rather higher: pension credit claimants make up the majority of SMI recipients.

groups – the first earner in families, and particularly those with children. This is shown in chapter 4 of Mirrlees et al. (forthcoming).

BOX 2.1: Calculating in-work incomes for non-workers

It is relatively straightforward to use a tax and benefit microsimulation model to work out what someone's family income would be if they did not work. However, we need to make more assumptions to calculate what non-workers would earn were they to start work. Numerous econometric techniques have been devised to perform such analysis, but in this paper we keep to a relatively simple approach:

- We first estimate an OLS log earnings equation for each of four hours bands (0-15, 16-23, 24-29 and 30+) using those individuals observed in the relevant hours category in our data, regressing log weekly earnings of individuals observed employed in the relevant hours category on various characteristics including age, sex, ethnicity, housing tenure, number of children and partnership status.⁸
- We then use the estimated impacts of these characteristics on earnings to predict earnings for the non-workers if they were to work that number of hours. Since a large part of the variation of earnings is unexplained by these characteristics, we add to each prediction an error term drawn from the distribution of residuals. This enables us to calculate a hypothetical PTR and RR for each individual if they were to work that number of hours.
- We then use a multinomial logit model to estimate the probability of each individual choosing to work that number of hours, conditional on working at all, again using the observed behaviour of the workers in our data.
- To create a single PTR and RR for each non-worker, we create an average of the PTRs and RRs for the four hours bands, weighted using these predicted probabilities.

There are problems with this approach, the main one being that earnings in work are a large determinant of the decision to start work, and therefore it would be natural to expect that the earnings that would be earned by someone not currently working would be lower than those earned by someone currently in work with identical observed characteristics. So-called 'selection adjustments' can be made to overcome biases introduced into the model in this way, but these typically require strong assumptions about the relationship between an individual's wage rate and how many hours they decide to work. We therefore keep to a very simple approach, although it is likely that this will overestimate earnings in work for non-workers. This means that our estimates of RRs for non-workers are likely to be biased downwards, but it is ambiguous in which direction our estimates of PTRs for these individuals will be biased.

⁸ The coefficients of these equations are available on request.

The incentive to earn more

The incentive for those in work to increase their earnings can be measured by the effective marginal tax rate (EMTR). The EMTR 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 working more hours, or through promotion, qualifying for bonus payments or getting a better-paid job. In this paper, we use the term “incentive to earn more” for all these possibilities.

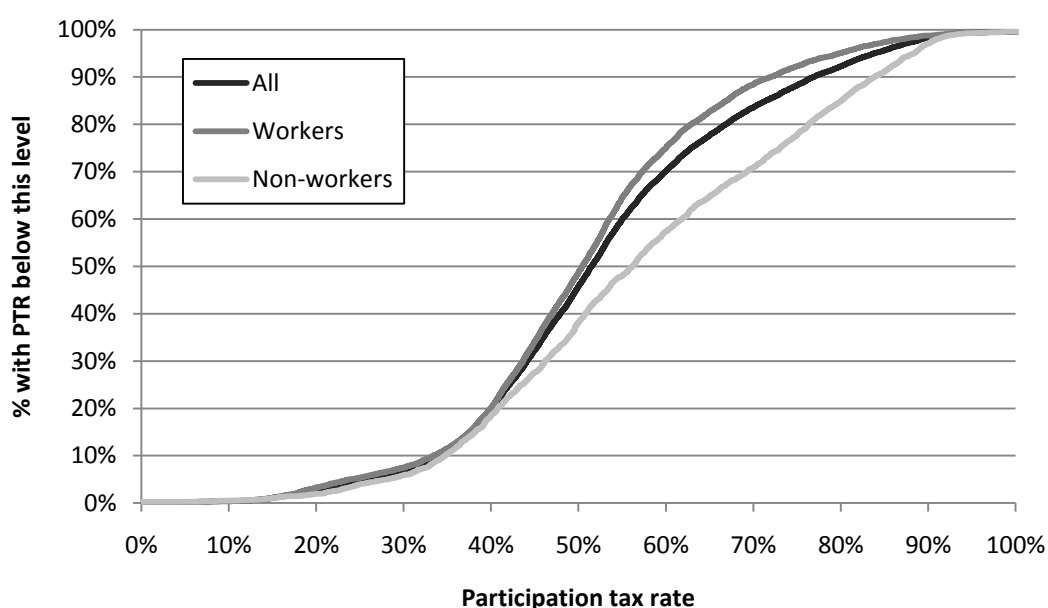
As with the incentive to work at all, low numbers mean stronger financial incentives. An EMTR of zero means that the individual keeps all of any small change in what their employer pays, and a rate of 100% means that the individual keeps none. High EMTRs amongst workers in low-income families are often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

2.2.2 The incentive to work at all

Work incentives for all working-age adults

Figure 2.4 shows the cumulative distribution of PTRs for the whole adult population below state pension age, including non-workers using predicted earnings in work as described above. Reading across, we can see that around 20% of adults under the state pension age have PTRs below 40%, and 30% have PTRs above 60%. This means that around half of adults below the state pension age have PTRs in a relatively narrow band from 40% to 60% – their earnings can buy them about half of what they cost their employer. It is also clear that one of the reasons non-workers do not work is that the incentive for them to work at all is, on average, weaker – around 30% of non-workers have PTRs above 70%, compared to only 10% of workers. Indeed, of those who have PTRs greater than 70%, 60% do not work.

Figure 2.4: Cumulative distribution of PTRs in 2009–10

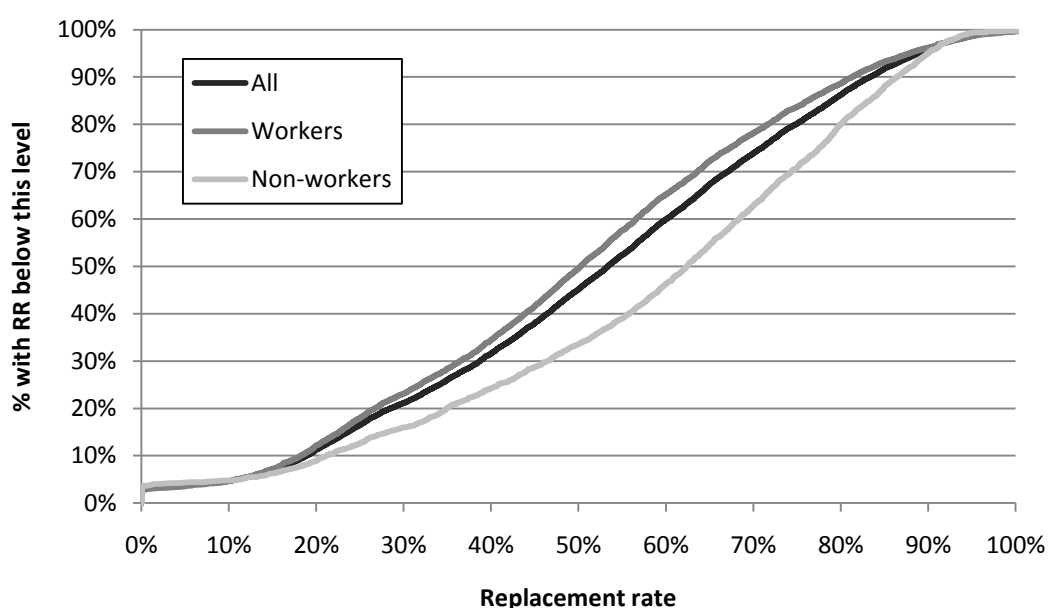


Notes: Calculations for personal direct and indirect taxes and benefits only: excludes most ‘business taxes’ (notably corporation tax and business rates though not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Excludes those over state pension age.

Source: As for Figure 2.1.

Figure 2.5 shows the same picture for RRs. We can see that there is more variation in RRs than in PTRs. Variation in RRs comes about for a number of reasons: people work (or would work) different numbers of hours at different wages, and are entitled to different levels of income when they are out of work. Around two-thirds of non-workers receive at least half of what they would receive if they worked, whereas only half of workers would receive this much if they did not work. This again shows that one of the likely reasons why non-workers do not work is that the incentive for them to do so is not as strong. It should be noted, though, that many non-workers have a partner who works, and therefore one reason their RRs are high is because their earnings would represent only a small proportion of their family’s income if they worked.

Figure 2.5: Cumulative distribution of RRs in 2009–10



Notes: As for Figure 2.4.

Source: As for Figure 2.4.

How does the incentive to work at all vary by family type?

We have seen how much the incentive to work at all varies across the whole population of working-age adults. Much of this variation can be accounted for by differences in the way the tax and benefit system treats people with and without children, single people and members of couples and, among those in couples, by differences between those whose partner does and does not work. Therefore, the 'partner works' category contains all of those in two-earner couples, and non-earners in one-earner couples. The 'partner doesn't work' category contains all of those in zero-earner couples and earners in one-earner couples. The number of people falling into each category is as follows:

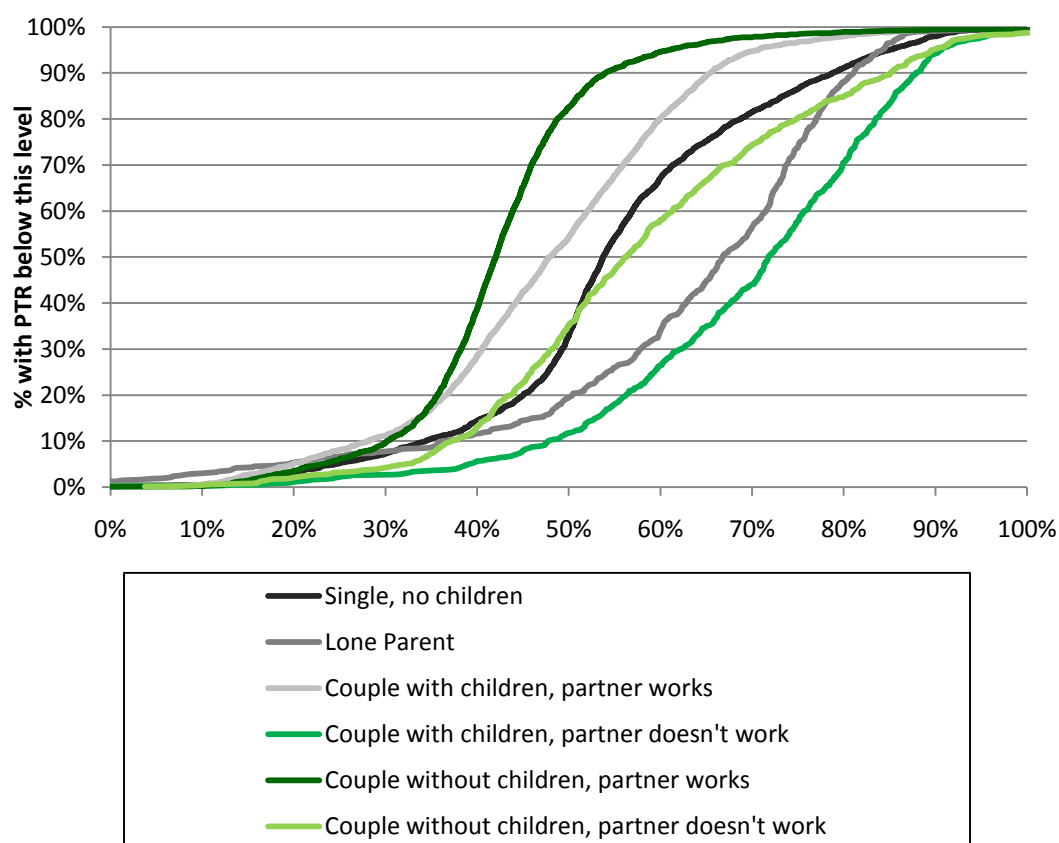
Table 2.1: Number of individuals falling into each group

Group	Number in population below state pension age (millions)		
	Workers	Non-workers	Total
Single, no children	6.9	3.3	10.3
Lone parent	0.9	0.9	1.8
Couple with children, partner works	6.6	1.7	8.3
Couple with children, partner doesn't work	1.7	0.9	2.5
Couple without children, partner works	7.3	1.4	8.7
Couple without children, partner doesn't work	1.6	1.6	3.2
Total	25.1	9.6	34.8

Note: Figures may not sum due to rounding.

Source: Authors' calculations using the 2005 EFS.

Figure 2.6: Cumulative distribution of PTRs by family type



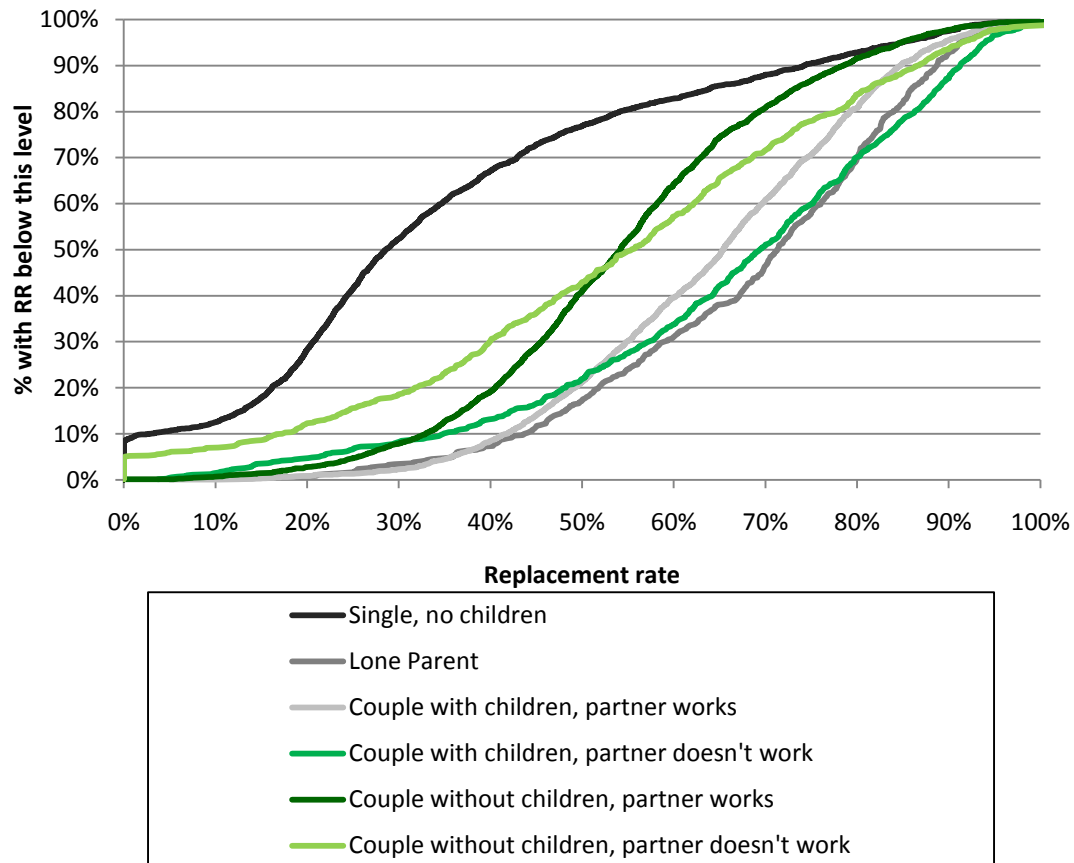
Notes: As for Figure 2.4.

Source: As for Figure 2.4.

Figure 2.6 shows the cumulative distribution of PTRs for each of these six types of individual. We can see that those individuals who would receive large amounts of out-of-work support if they did not work, such as lone parents and those in a couple with children whose partner does not work,

have the weakest incentives to work. On the other hand, those who would not receive such entitlements, namely those whose partner is working, have the strongest incentives to work. Single people without children and those in couples without children whose partner does not work would receive some out-of-work benefits if they stopped work, but these are much less generous than for those with children. Therefore, their PTRs fall somewhere in the middle.

Figure 2.7: Cumulative distribution of RRs by family type



Notes: As for Figure 2.4.

Source: As for Figure 2.4.

Figure 2.7 performs the same analysis for RRs. The positions of the different types of individual change when we consider RRs rather than PTRs: those who have a working partner now appear to have a much weaker incentive to work. This comes about because their earnings make up a relatively small proportion of their family's income, and therefore the family's income would not be very much lower if they did not work. Therefore, their RR is high when family income is used as the income measure. As we discussed in section 2.2, the picture would be reversed if individual income were used as the income measure. This is because individuals whose partner works are unlikely to have large benefit

entitlements when they are not working, meaning that their individual out-of-work income, and hence their RR, would be very low.

2.2.3 *The incentive to earn more*

The distribution of effective marginal tax rates among workers

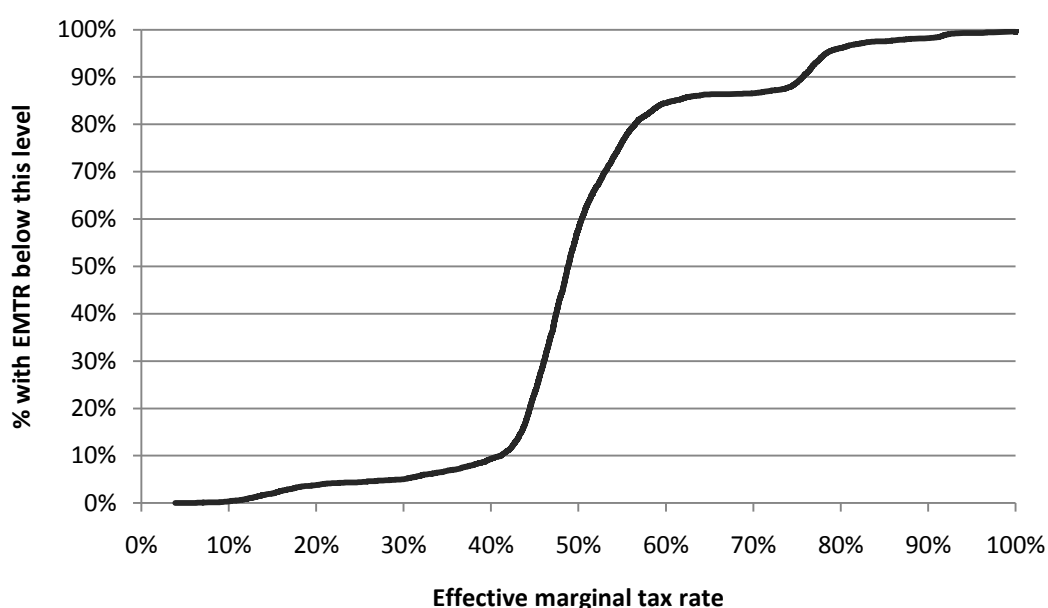
Figure 2.8 shows the distribution of EMTRs among all workers in 2009–10. We see that the distribution is highly concentrated in the range from 40% to 60%, with three-quarters of workers having EMTRs in this range. This is not surprising given that the combined marginal income tax and National Insurance rate for most individuals (including both employee and employer NI contributions) was between 35.5% and 47.7% in 2009–10.⁹ There is a small but significant group of around 10% of workers who would only keep between 17p and 27p of each additional pound they earned. This is because they face steep withdrawal of tax credits or housing benefit if they increased their earnings a little.

⁹ Of course, consumption tax rates also need to be added on to these rates. For someone who has no means-tested benefit entitlement,

$$= \frac{\text{income tax rate} + \text{employee NI rate} + \text{employer NI rate} + \text{consumption tax rate}}{1 + \text{employer NI rate} + \text{consumption tax rate}}$$

. Consumption tax rates are different for each household based on their consumption patterns, which is why the jumps in the line are not vertical.

Figure 2.8: Cumulative distribution of EMTRs in 2009–10, workers only



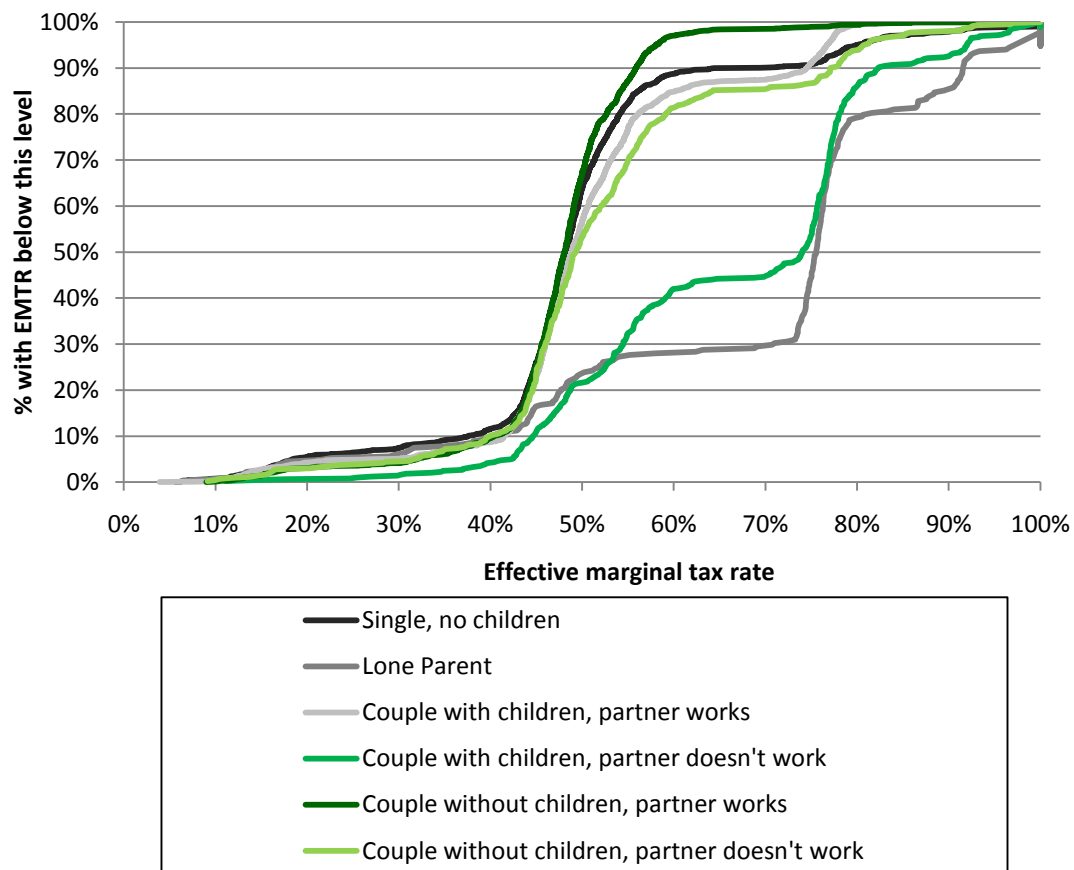
Notes: Calculations for personal direct and indirect taxes only: excludes most 'business taxes' (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). Excludes non-workers.

Source: Authors' calculations using TAXBEN run on updated data from the 2005–06 EFS.

How does the incentive to earn more vary by family type?

Figure 2.9 shows the distribution of EMTRs for the same six types of individual as in Figure 2.7. We see that the distribution of EMTRs is even more highly concentrated between 40% and 60% for those groups who are less likely to be subject to withdrawal of means-tested tax credits or housing and council tax benefits, namely those without children and those in two-earner couples with children. However, 40% of working lone parents and 35% of couple parents whose partner does not work have very high EMTRs of between 75% and 80%. This is because these are the main groups who are entitled to tax credits and housing benefit while working.

Figure 2.9: Cumulative distribution of workers' EMTRs by family type

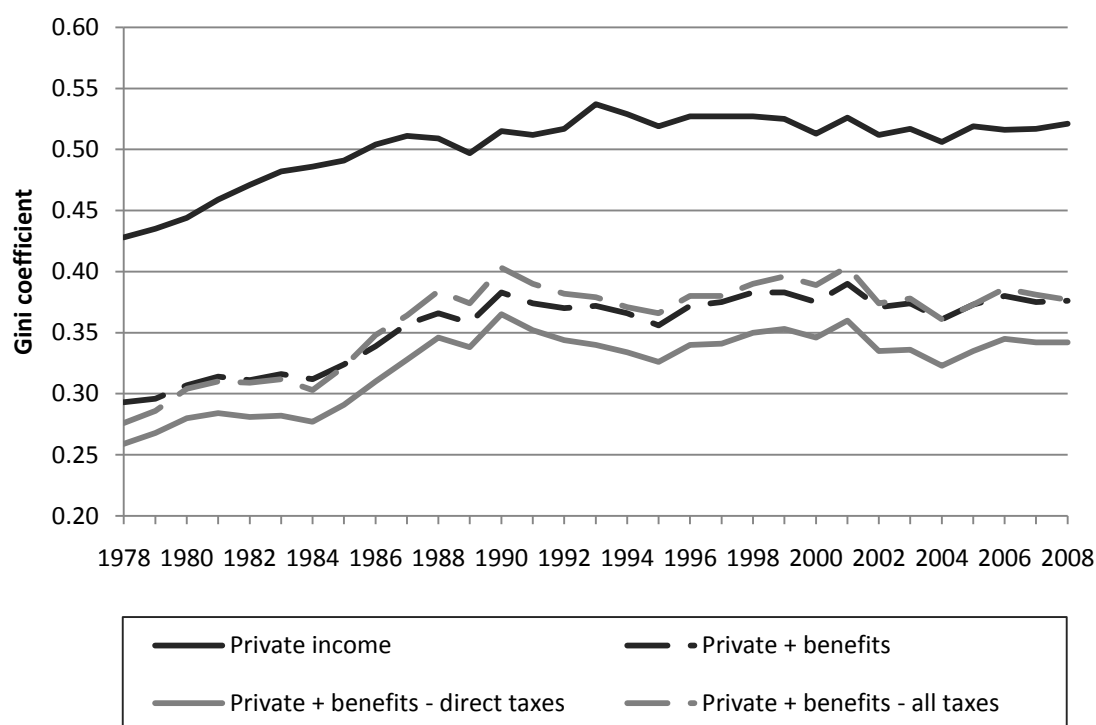


Notes: As for Figure 2.8.
Source: As for Figure 2.8.

3. The effect of thirty years of tax and benefit reforms on the distribution of income

We saw in section 2.1 that the tax and benefit system reduces income inequality. However, the UK has seen an exceptionally large increase in income inequality in the last 30 years. Figure 3.1 shows the Gini coefficient at various stages in the redistributive process over the last 30 years.

Figure 3.1: Inequality at different stages of the redistributive process, 1978-2008



Note: Excludes corporation tax, inheritance tax, stamp duty on securities and some smaller taxes. Years are fiscal years from 1993 onwards (so 2008 means 2008-09) and calendar years before that.

Sources: Barnard (2010) and Jones et al. (2008).

The amount by which the tax and benefit system reduces the Gini coefficient did not change significantly between 1978 and 2008. This does not mean, however, that the tax and benefit systems at the beginning and end of the period were equally progressive since, as we discussed in section 2.1, the amount of redistribution that a given tax and benefit system achieves depends on the distribution of private income and other characteristics of the population. Any progressive tax and benefit system will achieve more redistribution when the initial level of income inequality is higher, as there will be more people paying higher rates of tax at the top of the income distribution, and more people eligible for means-tested benefits at the bottom. Therefore, a different approach is needed to isolate the effects of tax and benefit reforms.

As we argued in section 1, the ‘what if?’ approach can be used to investigate what income inequality would have been had previous years’ tax and benefit systems been kept unreformed. But as we have already mentioned, this requires us to take a view as to what “unreformed” actually means: would it mean benefit levels and tax thresholds keeping pace with price inflation or growth in average earnings, GDP or something else? In this paper, we consider three ‘no reform’ baselines:

- one in which all taxes and benefits are uprated in line with the Retail Prices Index (RPI) so that there is no real change in rates and thresholds;
- a second in which they are increased in line with growth in per-capita GDP and;
- a third in which tax thresholds (and excise duties and local taxes) are increased in line with the RPI but benefit (and tax credit) rates are increased in line with per-capita GDP.¹⁰

The rationale for this third scenario is two-fold: first, it corresponds reasonably closely to the government's standard uprating practice prior to 1978; and second, reforms since 1978 have had relatively little impact on the overall budgetary position if measured relative to this baseline (much less than relative to universal price-uprating or universal GDP-uprating), which seems like a relatively 'neutral' counterfactual to choose.¹¹

Throughout this paper we use an uprated 2005 population – this tells us the effect of tax and benefit reforms on the level of inequality among the 2005 population. If underlying household characteristics have significantly changed over time, though, for example if one group was relatively poor in 1978 but relatively rich now, then this might not be a good guide to the effects of a particular reform at the time it was introduced. Using data from that time would be necessary to answer this question. Clark and Leicester (2004) analyse reforms relative to RPI-uprating from 1979 to 2001 using data from each year to look at that year's reforms, and find that this makes little difference to their results, so we do not repeat their analysis here.¹²

Figure 3.2 shows how different the Gini coefficient in 2009 would be if previous tax and benefit systems had remained in place and simply been

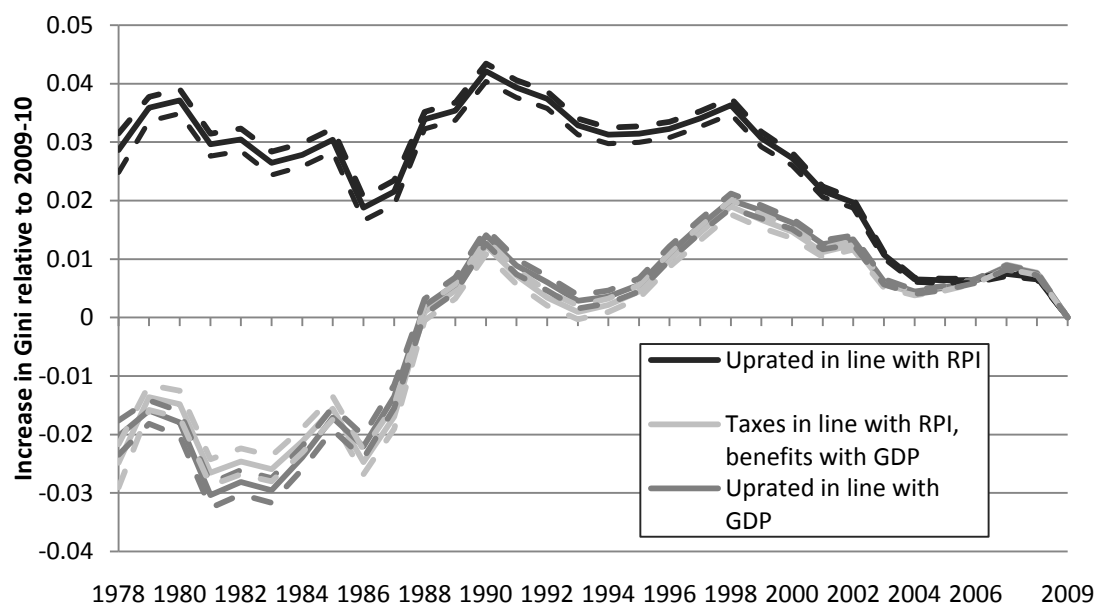
¹⁰ For brevity we refer to uprating in line with GDP rather than GDP per capita from now on.

¹¹ Government borrowing in 2009–10 would be £65bn lower if a price-uprated 1978 tax and benefit system had been in place, £30bn higher under a GDP-uprated 1978 system but only £10bn lower in our third scenario. Note that these estimates, like Figure 18, ignore changes to most 'business taxes' (notably corporation tax and business rates) and capital taxes (notably inheritance tax, stamp duties and capital gains tax).

¹² The only exception to this is for the reforms introduced by the new Conservative government in 1979. Their abolition of the very high income tax rates above 60% affected very few individuals at the time, as there were very few individuals with incomes high enough to be subject to these rates, but if the reform is simulated in 2005, there is a much larger effect on inequality as a result of there being more individuals affected.

updated according to these three baseline scenarios. The effect of any sampling error is small, as shown by the dotted lines around the central estimate.¹³ The figure shows, for example, that the Gini would be 0.029 higher if the 1978 tax and benefit system had simply been updated in line with the RPI: in other words, reforms relative to price indexation since then have acted to reduce the Gini coefficient by 0.029. It is clear that the choice of baseline is of crucial importance. The 2009 tax and benefit system reduced inequality considerably more than the 1978 system would have done if it had been price-indexed, but by much less than if benefits had been GDP-indexed after 1978. (Whether tax thresholds are increased in line with prices or GDP does not significantly alter this conclusion.) Indeed, relative to a GDP-updated baseline, tax and benefit reforms from 1978 to 2008 acted to increase the Gini coefficient by about 0.034, and accounted for more than a quarter of the total increase in disposable income inequality up to 2008 shown in Figure 3.1.

Figure 3.2: Effect on the Gini coefficient of replacing the 2009–10 tax and benefit system with those from previous years updated in line with RPI



Note: Gini coefficients are for post-tax income, after direct and indirect personal taxes and benefits: excludes most 'business taxes' (notably corporation tax and business rates, though not employer National Insurance contributions) and capital taxes (notably inheritance tax, stamp duties and capital gains tax). Taxes and benefits are those applying in April of the year shown. Dotted lines represent 95% confidence intervals based on 200 repetitions of the bootstrap.

Source: Authors' calculations using the IFS tax and benefit micro-simulation model, TAXBEN, run on uprated data from the 2005–06 Expenditure and Food Survey.

¹³ These are based on 200 repetitions of the bootstrap.

What is clear, however, is that Labour's reforms were more progressive than the Conservatives'. Labour's reforms between 1997 and 2009 had a similar effect on overall inequality as increasing benefit rates in line with GDP (and would be virtually identical if we excluded the effect of the temporary VAT cut in 2009), while the Conservatives' reforms were roughly equivalent to increasing them in line with inflation. This masks substantial variation between different periods, though: for example, reforms between 1986 and 1990 increased the Gini coefficient by 0.023 relative to RPI indexation, while reforms in the years before and after this tended to reduce inequality on the whole. In particular, the large reductions in top income tax rates in 1979 and 1988 were associated with large increases in inequality. Cuts in the basic rate of income tax, as in 1987, 1996 and 1997, are also associated with increasing inequality. This is not surprising since income tax cuts are worth nothing to lower income households who do not pay any income tax to start with, and are worth the most to the richest households.

Similarly, increases in direct tax rates are associated with lower inequality, as in 1986 when employers' National Insurance contributions were extended above the Upper Earnings Limit, and in 2003 when National Insurance rates were increased by 1%. Other increases in direct taxes, for example through lower income tax thresholds, as in 1981, were also associated with lower inequality, though these had a smaller effect on overall inequality as they cost each taxpayer the same cash amount, meaning a higher proportion of income for low income taxpayers. The shift from joint to individual taxation in 1990 is also associated with an increase in income inequality. This reform redistributed income from one-earner to two-earner couples, who tend to have higher incomes. 1990 was also the year in which the community charge or poll tax was introduced in England and Wales, which was also responsible for increasing inequality.

Benefit increases tend to reduce inequality. Many benefits are explicitly means-tested. But even non-means-tested benefits tend to reduce inequality, both because they are typically given to groups such as families with children or pensioners who tend to be lower down the income distribution, and because a given cash amount is worth more as a percentage of income to poorer households. Between 1999 and 2004, large increases in means-tested support for families with children and pensioners – such as increases in income support levels for families with children, the introduction of the working families' tax credit (and subsequent replacement with child and working tax credits), and the introduction of the minimum income guarantee for pensioners (and subsequent replacement with pension credit) – were associated with a

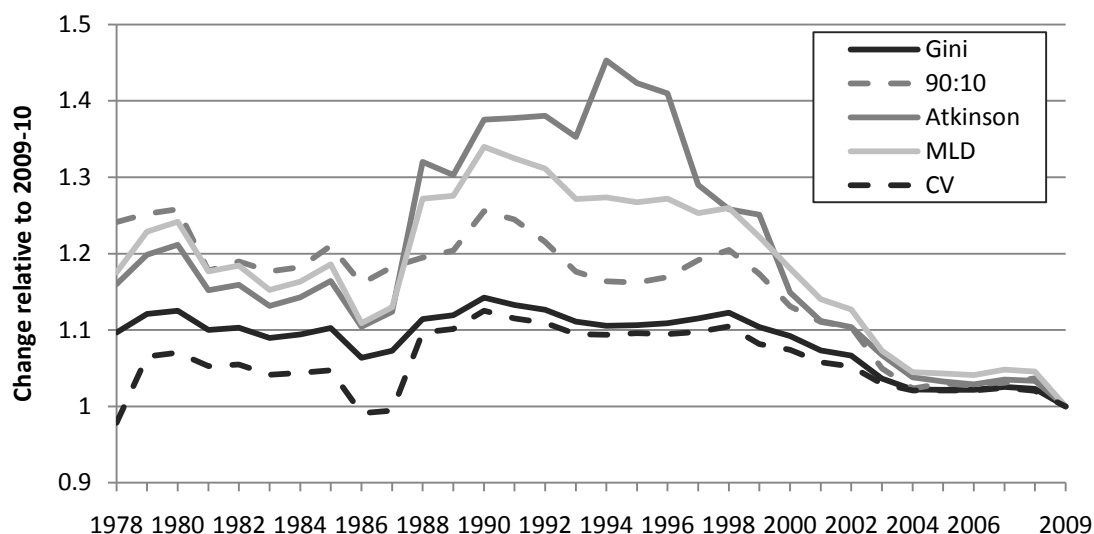
large reduction in inequality. Note that this reduction is larger when we look at reforms relative to RPI indexation of benefits, since in times of positive real income growth, increases in benefits are larger relative to this baseline than to the baseline of GDP-indexation.

A concern we might have with these results is that they are dependent on some peculiarity of the Gini coefficient. To address this, Figures 4.3–4.5 look at the effect of returning to previous years' tax and benefit systems on other measures of inequality. We normalise each of these so that they equal 1 in 2009–10. The measures we consider are as follows:

- The 90:10 ratio is the simplest of these measures: it is the ratio of the income of the household at the 90th percentile point to that at the 10th percentile point. Therefore, only changes that affect these two points of the income distribution will affect this measure. Changes that only affect the bottom 10%, or the top 10%, or that only affect the distribution within the middle 80% of the income distribution leave this measure unchanged.
- The Atkinson measure allows one to choose a value for society's aversion to inequality, defining the amount that society considers it necessary to give a 'poor' person, having taken a given amount of income from a 'rich' person, in order to keep overall social welfare the same. The (essentially arbitrary) value we have chosen for this parameter is 1.5, which reflects a society that considers it necessary to give £33 to a 'poor' person to justify taking £100 from a 'rich' person.¹⁴
- The mean log deviation (MLD) measures the expected percentage difference between a randomly selected individual and overall mean income. It is particularly sensitive to changes affecting the very bottom of the income distribution.
- The coefficient of variation (CV) is the ratio of the standard deviation of the income distribution to its mean. It is particularly sensitive to changes affecting the very top of the income distribution.

¹⁴ For more discussion of this measure, see Brewer et al. (2006).

Figure 3.3: Effect on various measures of inequality of replacing the 2009–10 tax and benefit system with those from previous years uprated in line with RPI



Note: All measures are for post-tax income, after direct and indirect personal taxes and benefits: excludes most 'business taxes' (notably corporation tax and business rates, though not employer National Insurance contributions) and capital taxes (notably inheritance tax, stamp duties and capital gains tax). Taxes and benefits are those applying in April of the year shown.

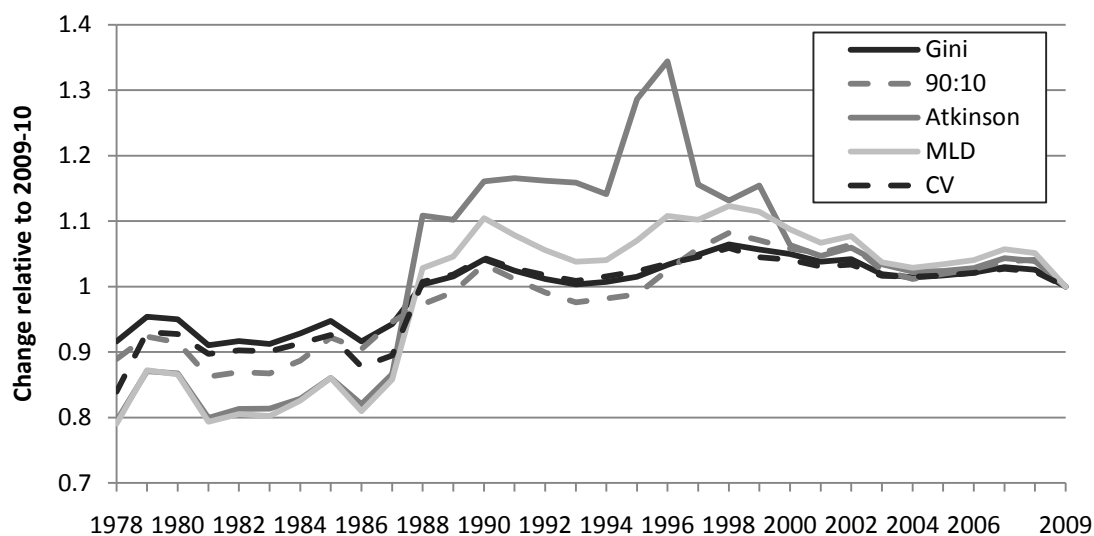
Source: Authors' calculations using the IFS tax and benefit micro-simulation model, TAXBEN, run on uprated data from the 2005–06 Expenditure and Food Survey.

We can see that all the measures give a similar impression of the effect of policy reforms on inequality. All the measures show that reforms between 1978 and 1980 and 1986 and 1990 tended to increase inequality compared to the baseline of RPI indexation whereas those between 1980 and 1985 and since 1995 have tended to reduce inequality. Nevertheless, there are some subtle and interesting differences between the different measures:

- The coefficient of variation is the only measure under which inequality would be higher in a price-uprated 1978 tax and benefit system. This is because this measure is particularly sensitive to changes that affect the very top of the income distribution. The reduction in the top rate of income tax from 83% in 1978 to 40% since 1988 has a particularly large influence on this measure, therefore.
- By contrast, the 90:10 ratio is unaffected by changes that only affect the richest tenth of households. Therefore, reductions in top income tax rates have relatively little impact on this measure, meaning that the Conservatives' reforms also appear to have reduced inequality significantly when this measure is used.

The measures also behave in a similar way when we use the baseline where benefits are uprated in line with GDP and taxes are increased in line with the RPI (Figure 3.4) and when we use the baseline where both are increased in line with GDP (Figure 3.5).

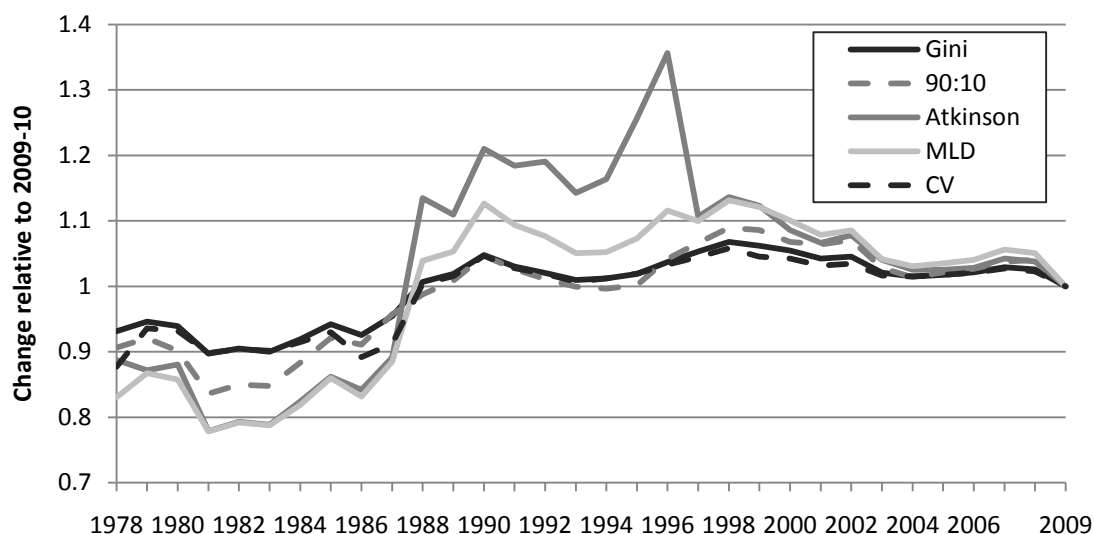
Figure 3.4: Effect on various measures of inequality of replacing the 2009–10 tax and benefit system with those from previous years with benefits uprated in line with GDP and taxes uprated in line with RPI



Notes: As for Figure 3.3.

Source: As for Figure 3.3.

Figure 3.5: Effect on various measures of inequality of replacing the 2009–10 tax and benefit system with those from previous years uprated in line with GDP



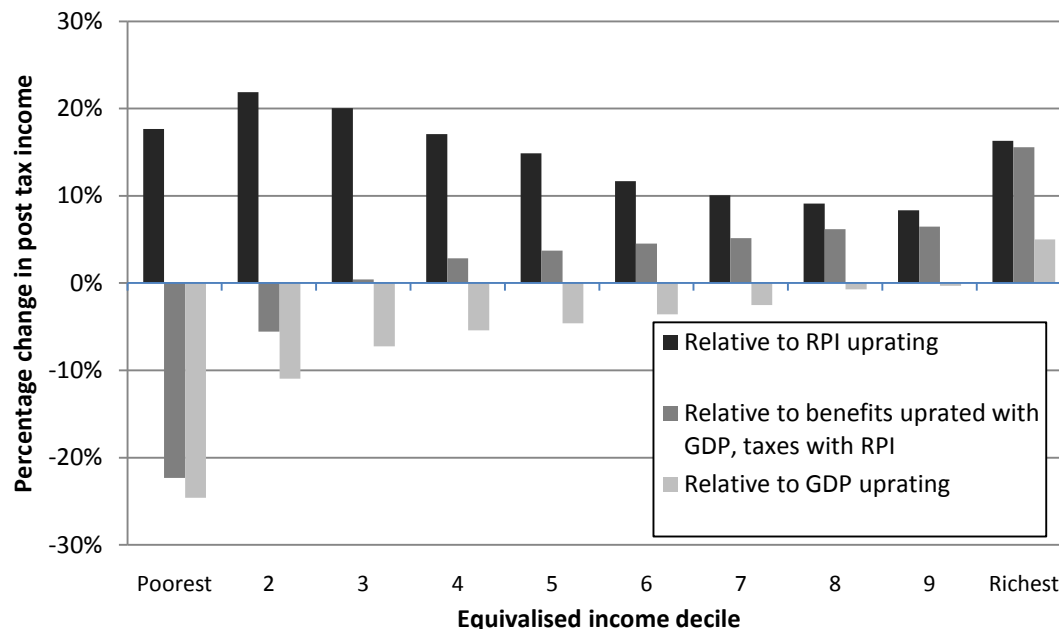
Notes: As for Figure 3.3.
Source: As for Figure 3.3.

A further way of demonstrating the effect of tax and benefit reforms on the distribution of income is to look at changes by income decile group or household type.¹⁵ Figure 3.6 shows the distributional effect of all reforms since 1978 relative to each of the three baselines. We again find that the baseline chosen is of crucial importance. Relative to RPI uprating, reforms since 1978 represent a giveaway to all income decile groups, with the poorest half and the richest tenth of households gaining most as a percentage of income. Compared to the scenario where benefits are uprated in line with GDP and taxes uprated in line with the RPI, though, we get a very different picture for low income households. This is because benefits are a very important component of their income and, while there have been real increases in benefits since 1978, these have not kept pace with increases in per-capita GDP. By contrast, higher-income households are unsurprisingly more affected by whether tax thresholds are uprated in line with RPI or GDP than by what happens to benefits. When we compare reforms relative to GDP indexation of tax thresholds as well as benefits,

¹⁵ Note that we rank households by their equivalised net income under the 2009 tax and benefit system. We could alternatively have chosen to do so based on their net income under the 1978 tax and benefit system, or their gross income. The first of these would tend to make reforms look more progressive, as those who have benefited most from the reforms would be higher up the income distribution in 2009 as a result, while the effect of the second is ambiguous. Jenkins and van Kerm (2008) discuss these issues in a longitudinal context.

only the richest tenth of households have gained on average. This is because it is only for these households that the reductions in statutory marginal income tax rates since 1978 have been sufficient to compensate for the fact that tax thresholds have not risen in line with GDP.

Figure 3.6: Distributional impact of tax and benefit reforms from 1978 to 2009



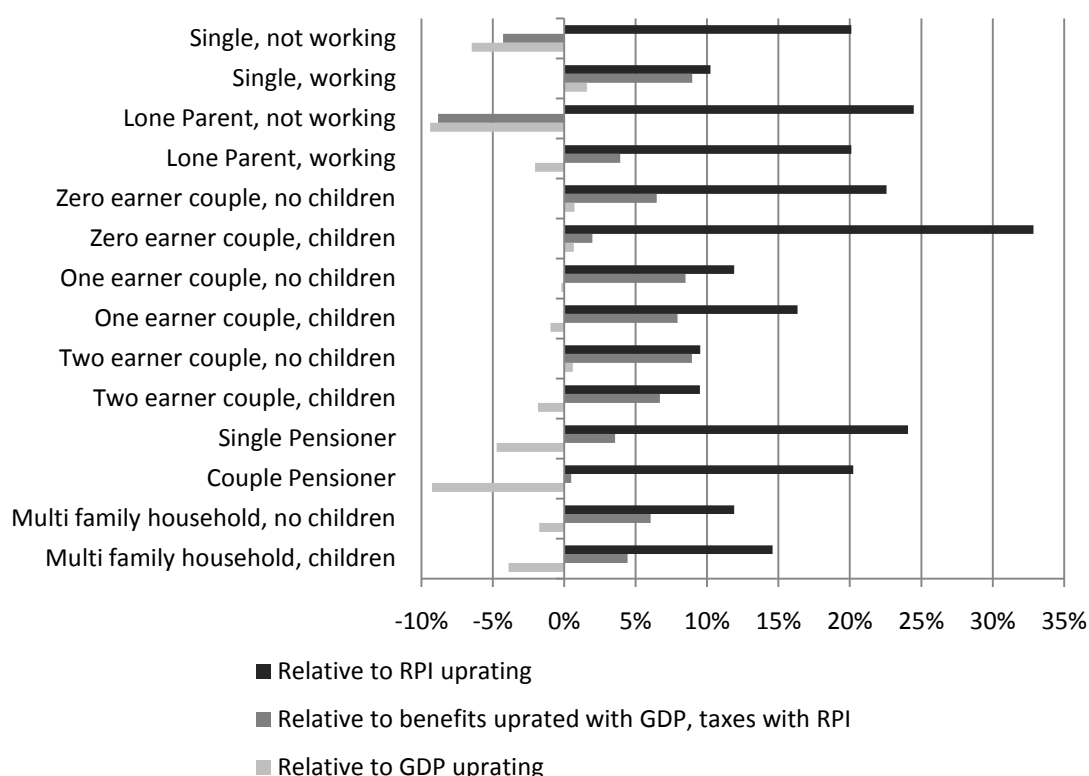
Notes: Households divided into ten equally sized groups based on their disposable income, adjusted for family size. Assumes full take-up of means-tested benefits. Excludes most ‘business taxes’ (notably corporation tax and business rates, though not employer National Insurance contributions) and capital taxes (notably inheritance tax, stamp duties and capital gains tax).

Source: Authors’ calculations using TAXBEN run on uprated data from the 2005–06 EFS.

Figure 3.7 shows the same analysis by household type. We again see a big difference in the results depending on which baseline we use. For household types who have large benefit entitlements, namely those without any adults in work (including pensioners), the big difference in the results is between the baselines where benefits are increased in line with RPI and those where they are increased in line with GDP. By contrast, for those household types whose entitlement to benefits is low and tax liabilities are large, in particular single workers and two-earner couples, the difference is greater between the baselines where tax thresholds are increased in line with the RPI and that where they are increased in line with GDP. Relative to a baseline of RPI-indexation, pensioners and low income households with children have gained the most since 1978 and two earner couples have gained least. This picture almost reverses when we compare reforms relative to a baseline where benefits are increased in line with GDP, however. Relative to this baseline, one- and two-earner

couples and single people in work have benefited most from reforms since 1978, whereas lone parents and single childless people not in work are worse off. Compared to a baseline of GDP-indexation, most household types are worse off on average, with pensioners and non-working single people (with or without children) losing the most from reforms. But zero-earner couples and two-earner couples without children have still benefited from reforms relative to this baseline.

Figure 3.7: Distributional impact of tax and benefit reforms from 1978 to 2009 by family type

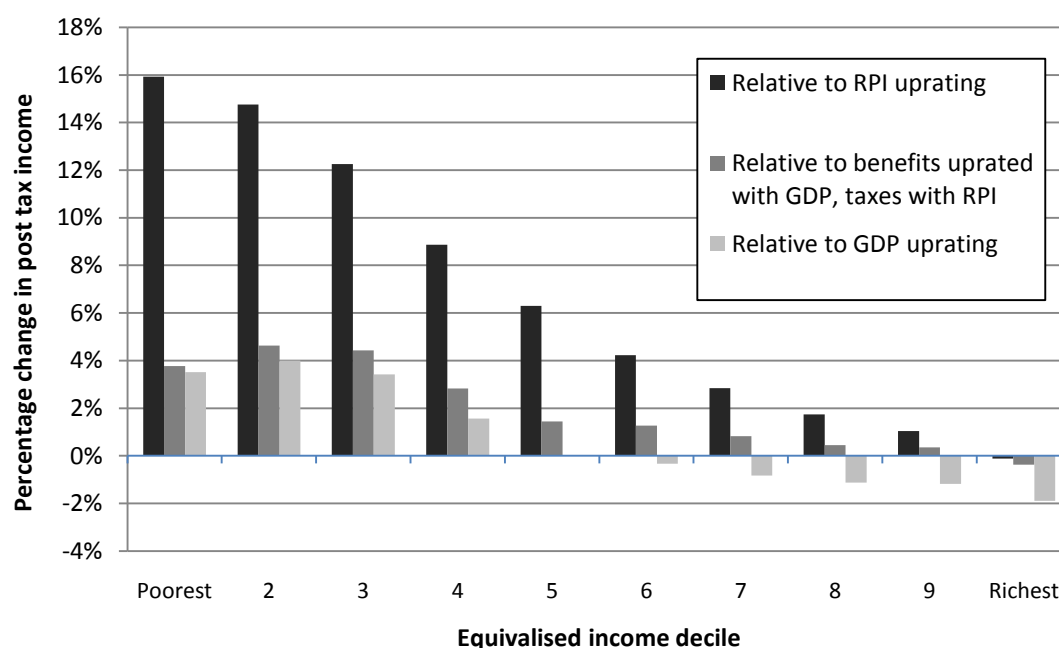


Notes: As for Figure 3.6.
Source: As for Figure 3.6.

We saw in Figure 3.3 that there was a big difference between the reforms enacted by Conservative governments between 1979 and 1997 and those enacted by Labour between 1997 and 2009 in terms of their progressivity. Figure 3.8 shows the effect of tax and benefit reforms since 1997 by household income decile:¹⁶

¹⁶ Figure 3.8 appears different to figures in Chapter 3 of Browne and Phillips (2010). This is because Browne and Phillips attempt to account for tax and benefit reforms that are difficult to attribute to particular households (predominantly those levied on businesses and on capital gains) by assuming that they affect all households equally as

Figure 3.8: Distributional impact of tax and benefit reforms from 1997 to 2009

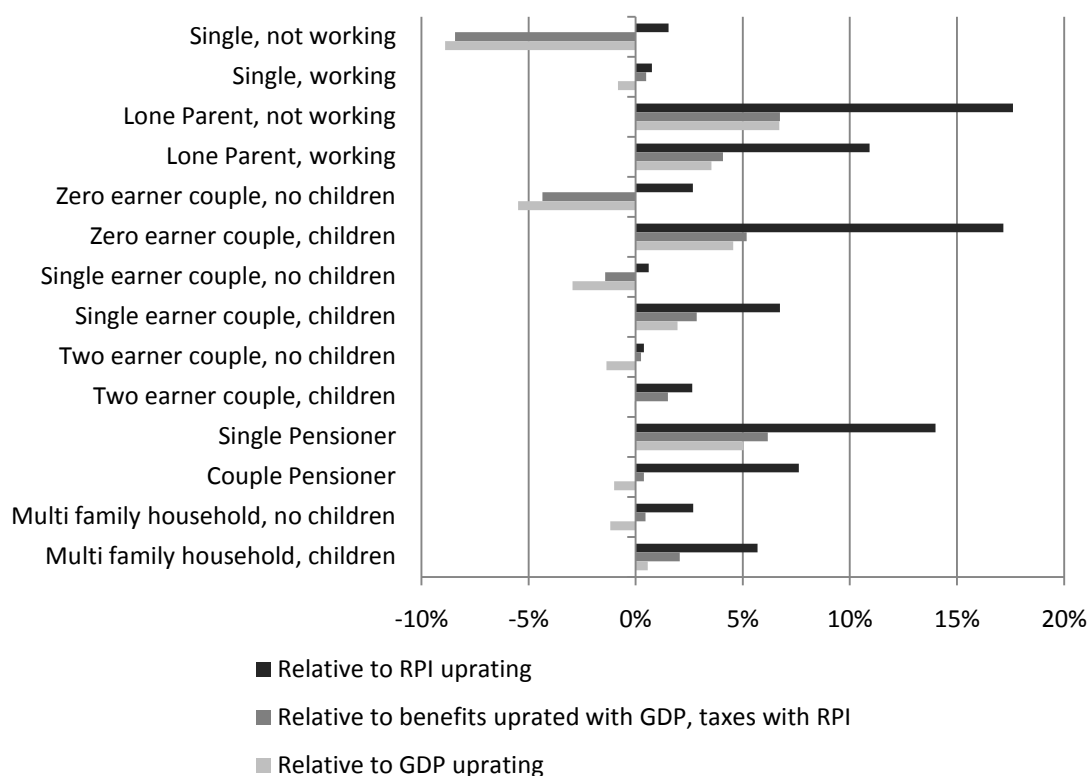


Notes: As for Figure 3.6.
Source: As for Figure 3.6.

We see that Labour’s reforms since 1997 have been clearly progressive, no matter which baseline is used. However, the degree of progressivity appears greater when compared with the relatively ungenerous baseline of RPI indexation than those where benefits are increased in line with GDP. This analysis does, however, disguise considerable variation between different household types, as Figure 3.9 shows. In particular, households with children and pensioners have gained significantly from Labour’s tax and benefit reforms, whereas working-age adults without children have scarcely benefited from Labour’s reforms, no matter which baseline is used as the basis of comparison.

a proportion of their income. This gives a more accurate impression of the overall net tax rise from households as a result of tax and benefit reforms (since all taxes are ultimately incident on households), but is unlikely to be an accurate description of the distributional impact of these tax and benefit reforms.

Figure 3.9: Distributional impact of tax and benefit reforms from 1997 to 2009 by household type



Notes: As for Figure 3.6.
Source: As for Figure 3.6.

Summary

Inequality has increased since 1978, but whether tax and benefit reforms are responsible for this depends on what is meant by a 'reform'. Relative to a baseline of RPI-indexation, tax and benefit reforms have reduced inequality slightly; but reforms have increased inequality when compared to a baseline where benefits are increased in line with GDP. Even in this case though, tax and benefit reforms are only responsible for around a quarter of the increase in the Gini coefficient between 1978 and 2008.

Labour's tax and benefit reforms between 1997 and 2009 tended to reduce inequality, whereas those of the previous Conservative government tended to increase it. Labour's reforms were particularly generous to households with children and pensioners.

One caveat to these findings is needed. In calculating what would have happened to inequality as the economy evolved if the tax and benefit system had not changed, we assume that tax and benefit reforms did not themselves affect the evolution of the economy. But individuals and firms

respond to the incentives created by the tax and benefit system, so this assumption is unlikely to be accurate in practice. The true effect of tax and benefit reforms on inequality, therefore, depends not only on their direct redistributive effects, but also on how they affected people's decisions to work, save, and so on. These indirect effects depend partly on how far individuals respond to such incentives, which is difficult to estimate; but we can more easily estimate how the incentives themselves have been changed by tax and benefit reforms, and it is to this question that we now turn.

4. The effect of thirty years of tax and benefit reforms on work incentives

Section 2.2 looked at the distribution of some measures of financial work incentives in the UK in 2009–10 and examined which groups tended to have the strongest and weakest incentives to work at all and to increase their earnings. This section examines how these incentives changed between 1978 and 2009 both in terms of the incentive to work at all as measured by the PTR and RR, and the incentive to earn more as measured by the EMTR.

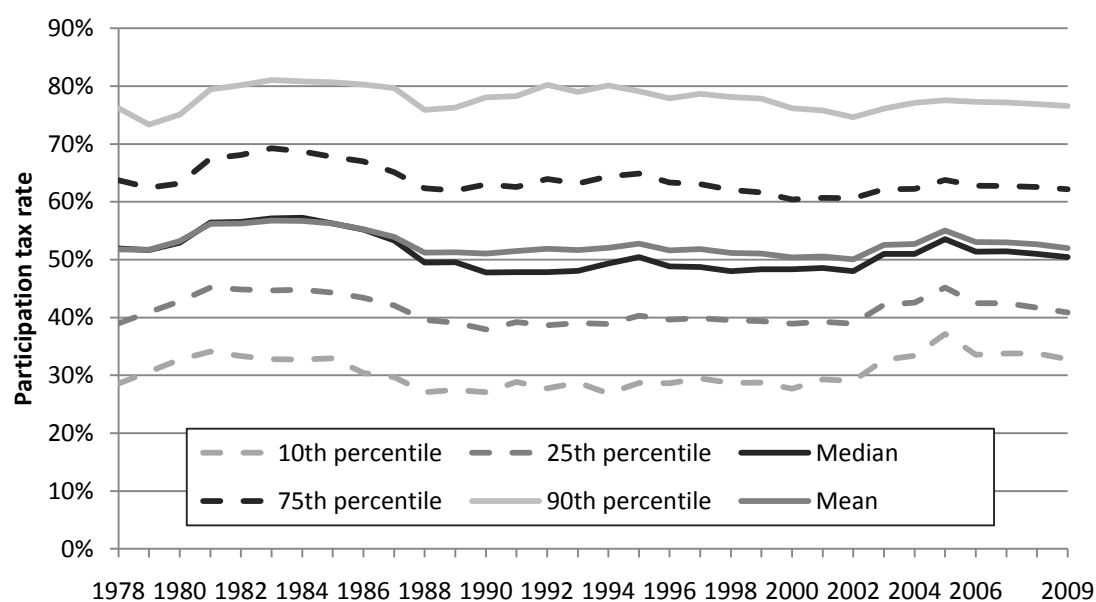
We also examine to what extent changes in average PTRs, RRs and EMTRs have been caused by changes in the tax and benefit system by looking at what PTRs, RRs and EMTRs would have been under uprated tax and benefit systems from previous years. Appendix B examines how all of these changes vary by family type.

4.1 What has happened to financial work incentives over time?

The incentive to work at all

Figure 4.1 shows various points in the distribution of PTRs between 1978 and 2009.

Figure 4.1: Participation tax rates, 1978–79 to 2009–10



Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Includes only those who are below state pension age.

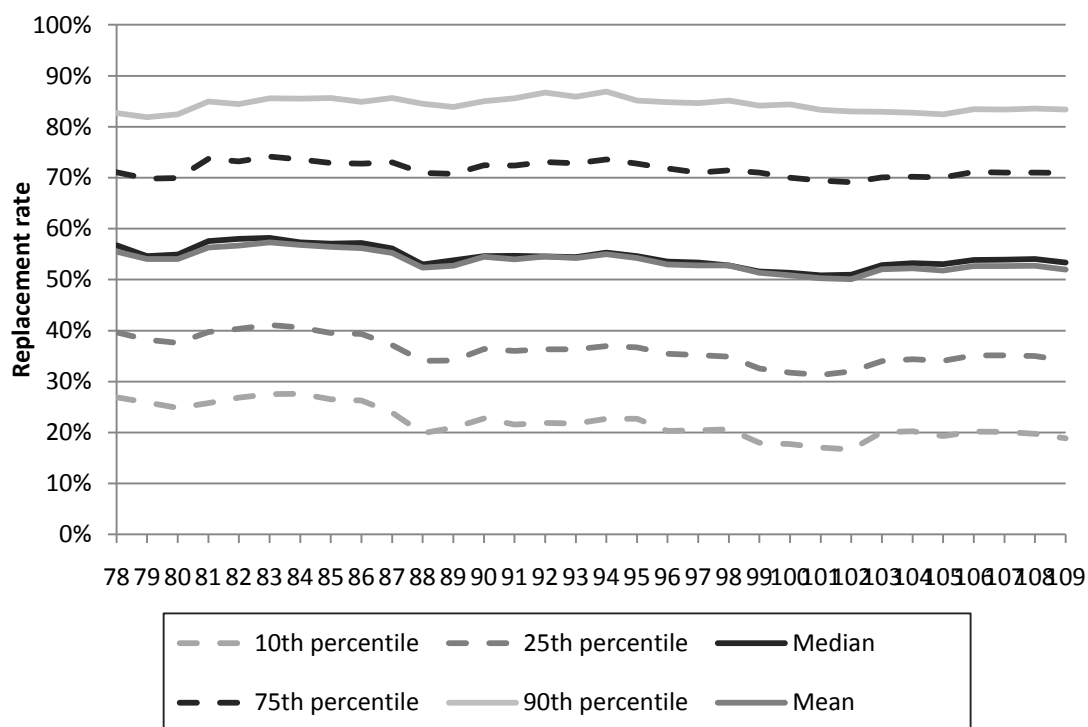
Source: Authors’ calculations using TAXBEN run on data from the Family Expenditure Survey from 1978 to 2000–01 and the Expenditure and Food Survey from 2001–02 to 2005–06. Analysis for years after 2005 uses uprated 2005 data.

We can see that average PTRs were around the same in 2009 as they were thirty years previously at just over 50%. While the median PTR was lower in 2009 compared to 1978, the mean was not: this is because there were fewer individuals with very low PTRs in 2009. (This can be seen from the increases in the 10th and 25th percentiles of the distribution). Generally, PTRs tended to increase from 1978 to 1981, decline from then on until 1990, increase slightly in the early 1990s and fall back again in the second half of the decade. A similar pattern emerged in the 2000s, with PTRs increasing particularly strongly between 2002 and 2005 before declining slightly.

Appendix B examines trends in mean PTRs for different groups and finds that there was relatively little variation in trends in PTRs between groups, although PTRs for lone parents did not fall during the course of the Conservatives’ period in government from 1979 to 1997 but then fell dramatically between 1999 and 2002. Also, the incentive for couples with children to have two earners rather than one weakened between 1999 and 2005.

We see similar patterns over time for RRs (Figure 4.2), although using this measure, the incentive to work at all has strengthened on average overall. However, whereas the distribution of PTRs became marginally more concentrated between 1978 and 2009, the distribution of RRs became more dispersed, as more individuals had very low RRs in 2009 than in 1978.

Figure 4.2: Replacement rates, 1978–79 to 2009–10



Notes: As for Figure 4.1.
Source: As for Figure 4.1.

Appendix B examines how RRs have changed for different types of individual. It shows that although mean RRs have tended to move in the same direction for all groups at different points in time, RRs have fallen most for single people without children and those in couples without children whose partner works. However, RRs have risen on average for those in couples with children whose partner does not work.

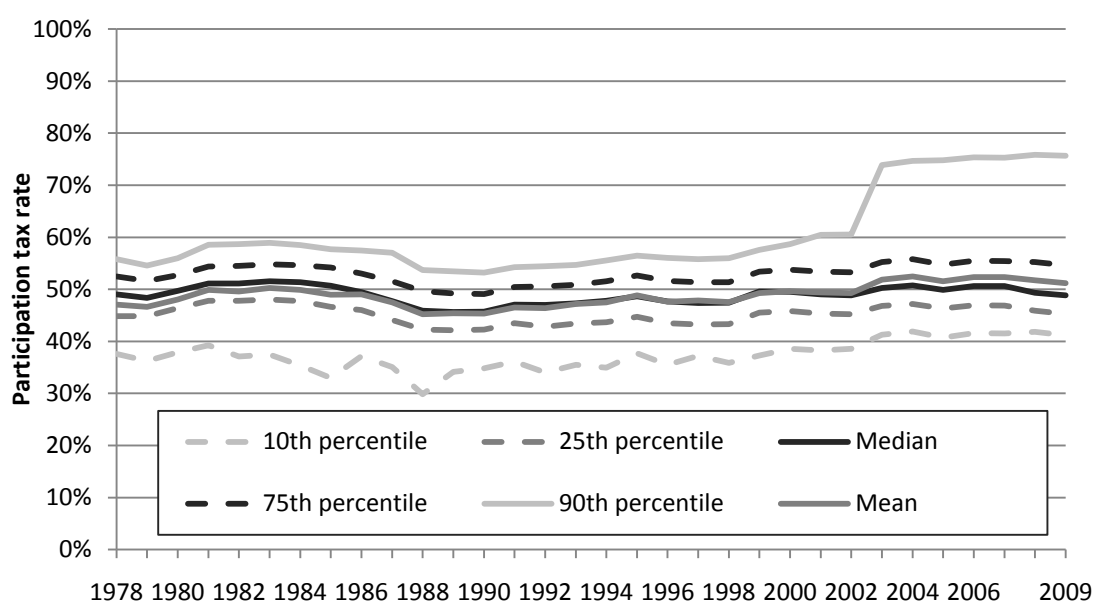
The incentive to earn more

Changes in the distribution of effective marginal tax rates (EMTRs) over time are shown in Figure 4.3. We can see that the median EMTR in 2009 was approximately the same as it was in 1978 but the mean was higher. The reason for this is the large increase in the number of workers with very high EMTRs. This principally occurred when the child and working

tax credits were introduced in 2003, as shown by the jump in the 90th percentile of the distribution of EMTRs in that year.

The trends in EMTRs over time are similar to those in PTRs and RRs: namely increases from 1978 to 1981, followed by reductions during the rest of the 1980s, a gradual increase in the early 1990s before falling back again between 1995 and 1997. Since 1997, EMTRs have increased, although they fell slightly in 2008 and 2009 as a result of the reduction in the basic rate of income tax from 22% to 20% in 2008, and the temporary reduction in the main VAT rate in 2009.

Figure 4.3: Effective marginal tax rates among workers, 1978–79 to 2009–10



Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). Only includes those in work and below state pension age.

Source: Authors’ calculations using TAXBEN run on data from the Family Expenditure Survey from 1978 to 2000–01 and the Expenditure and Food Survey from 2001–02 to 2005–06. Analysis for years after 2005 uses uprated 2005 data.

Figure B.3 in Appendix B shows how these trends have differed for different groups. It shows that groups with children have seen a much larger increase in their average EMTR than groups without children.

4.2 The effect of tax and benefit reforms on work incentives

The incentive to work at all

While tax and benefit reforms are clearly an important factor, changes in financial work incentives are also caused by changes in wages, rents, the

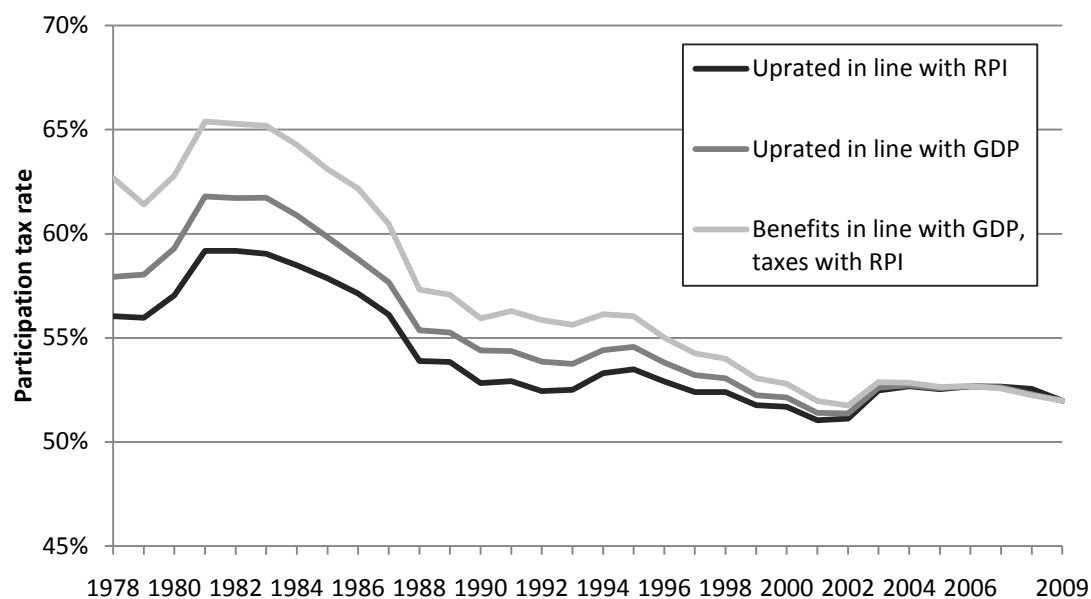
demographic composition of the population, and so on. To get a clearer grasp of the effect of tax and benefit reforms on work incentives, we once again need to look at what would have happened in the absence of tax and benefit reforms. We again take three counterfactual baselines – one where all tax and benefit parameters are increased in line with the RPI, one where they are both increased in line with GDP and one where benefits are increased in line with GDP but taxes are increased in line with RPI.

Although the mean PTR changed relatively little between 1978 and 2009 (see Figure 4.1 above), we can see in Figure 4.4 below that policy reforms tended to reduce PTRs quite significantly, no matter which counterfactual is used. The effect of tax and benefit reforms on work incentives is smallest relative to the baseline of RPI indexation and largest relative to the baseline where benefits are increased in line with GDP and tax thresholds are increased in line with the RPI. Even under this baseline though, after initially weakening work incentives, the Conservatives' reforms from 1979 to 1997 strengthened financial work incentives quite considerably, reducing the mean PTR by 3.5 percentage points (ppts). This change is even greater when compared to baselines where benefits are increased in line with GDP.¹⁷ By contrast, Labour's reforms between 1997 and 2009 were broadly equivalent to RPI-indexation, and have strengthened work incentives only slightly relative to the other two baselines.

Appendix B examines the effect of tax and benefit reforms relative to the three baselines on the average PTRs of different groups. Reforms have had similar effects on all groups; however, relative to all baselines they have had least effect on the PTRs of those in couples with children whose partner works.

¹⁷ It is clear that increasing benefits in line with GDP rather than RPI weakens work incentives overall. This is because raising benefits tends to increase out-of-work incomes relative to in-work incomes. By contrast, GDP-uprating of tax thresholds tends to strengthen work incentives as higher tax thresholds reduce the amount of tax that has to be paid on earnings.

Figure 4.4: Average PTRs that would be created by tax and benefit systems from 1978–79 to 2009–10



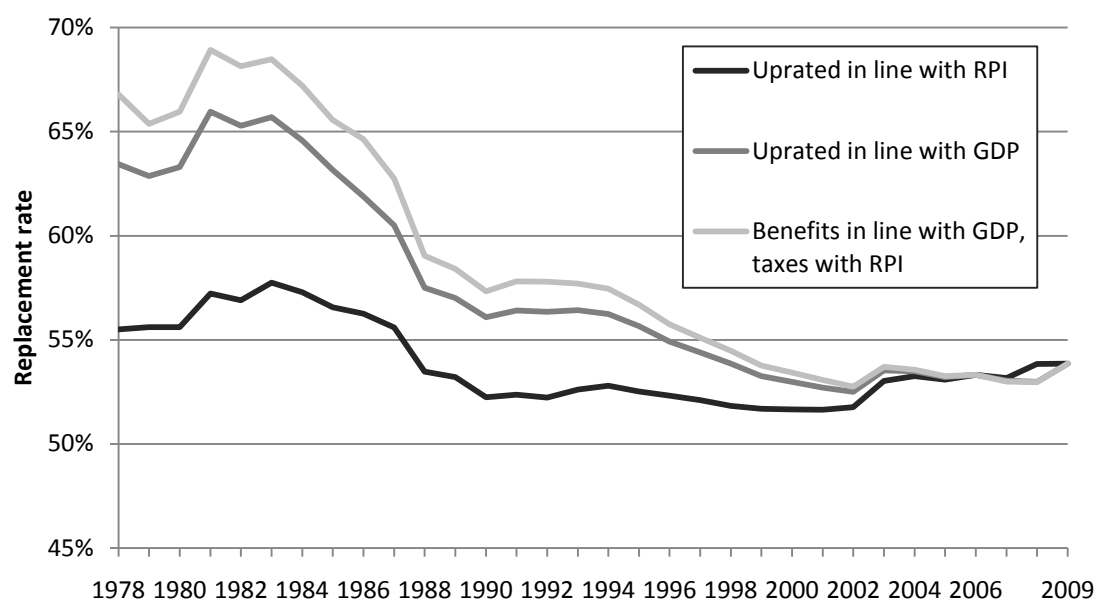
Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Only includes those below state pension age.

Source: Authors’ calculations using TAXBEN run on uprated data from the 2005–06 EFS.

Figure 4.5 shows the same analysis for RRs. We see some differences in terms of the effect of policy reforms on the incentive to work at all when this measure is used. In particular, we see that reforms relative to RPI-indexation only slightly reduced RRs and that Labour’s reforms between 1997 and 2009 tended to increase RRs. Relative to the other two baselines, though, tax and benefit reforms have reduced RRs by more than they reduced PTRs. Again, it was particularly the Conservatives’ tax and benefit reforms that strengthened the incentive to work at all, whereas Labour’s only reduced RRs slightly.

Appendix B examines the effects of tax and benefit reforms on the RRs of different groups. Relative to all the baselines, tax and benefit reforms have particularly reduced the replacement rates of single people without children, but have reduced them the least (or, in the case of reforms relative to RPI-indexation, increased them) on average for those in couples with children whose partner works. Relative to RPI-indexation, tax and benefit reforms have also acted to increase the average RR of those in couples whose partner does not work.

Figure 4.5: Average RRs that would be created by tax and benefit systems from 1978–79 to 2009–10



Notes: See Figure 4.4.

Source: See Figure 4.4.

It is interesting that, while the mean PTR in 2009 was about the same as in 1978, going back to a price-uprated 1978 tax and benefit system would increase the mean PTR by around 4 ppts. And, while the mean RR fell by around 3.5ppts between 1978 and 2009, our results suggest that policy reforms (relative to RPI-indexation) are only responsible for reducing it by around less than half a percentage point. This implies that there were other changes between 1978 and 2009 that tended to increase PTRs but reduce RRs. Potential factors at work include:

- Higher real earnings, which would tend to increase in-work income but leave out-of-work income unchanged. This would unambiguously reduce RRs. The effect on PTRs is uncertain, however, and would depend on whether the effective marginal tax rate on the additional earnings was higher or lower than the initial PTR.
- Higher real rents would tend to increase housing benefit entitlements for those out of work, increasing both PTRs and RRs.
- Changes in housing tenure patterns, in particular the increase in owner occupation since 1978 would tend to strengthen work incentives because fewer people would be entitled to housing benefit when out of work.
- The number of people entitled to disability benefits has increased since 1978. These individuals have higher levels of out-of-work

income but do not receive the same level of support when in work, meaning that their RRs and PTRs are higher.

- Changes in the demographic composition of the population. If groups who have weaker work incentives become more numerous, as lone parents did during this period, the overall average PTR and RR will increase.

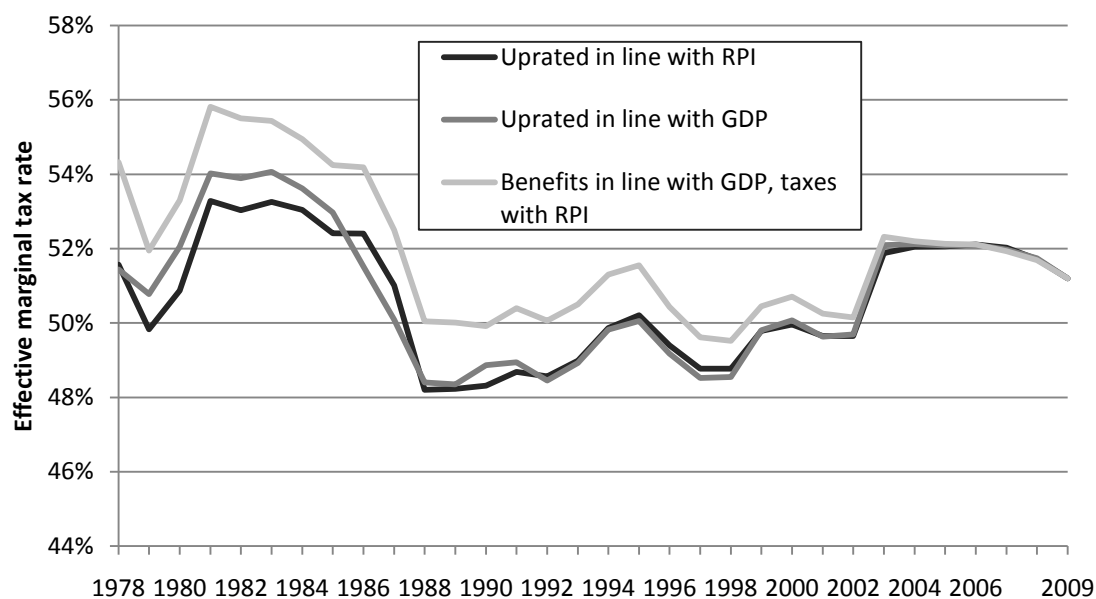
Adam et al. (2006) decompose changes in the mean RR between 1979 and 2005. They find that increases in real wages were a significant factor in reducing RRs, being responsible for an 8ppt decline. However, this was offset by increasing real rents, and factors other than tax and benefit reforms and changes to real earnings and rents, each of which increased the median RR by around 2.5ppts. The fact that real earnings growth does not have the same effect on PTRs as it does on RRs is probably the main reason why factors other than tax and benefit reforms tended to increase PTRs but reduce RRs.

The incentive to earn more

Figure 4.6 presents the same analysis as Figures 4.4 and 4.5, but for EMTRs. As in section 2.2, we only consider the EMTRs of those individuals under state pension age who are in work. We find that the mean EMTR among workers would have been virtually identical in 2009 had the 1978 tax and benefit system simply been increased in line with either the RPI or GDP, although if benefits had been increased in line with GDP and tax thresholds had increased in line with the RPI since 1978, EMTRs would have been higher.¹⁸ There is some variation in intervening years, with the Conservatives' reforms between 1979 and 1997 tending to reduce EMTRs on average and Labour's between 1997 and 2009 tending to increase them. But what is surprising, given the large effect tax and benefit reforms have had on the incentive to work at all, is that any tax and benefit system between 1978 and 2009, whichever way it was updated, would have left the mean EMTR within 5ppts of its 2009 level of 51.2%.

¹⁸ This suggests that the tendency of uprating benefit rates in line with GDP rather than RPI to increase EMTRs (which arises because more people would be on means tested benefit tapers) is exactly offset by the tendency of uprating tax thresholds in line with GDP rather than RPI to reduce EMTRs (because fewer people would be paying higher rates of income tax).

Figure 4.6: Average EMTRs that would be created by tax and benefit systems from 1978–79 to 2009–10, workers only



Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). Only includes those in work and below state pension age.

Source: Authors’ calculations using TAXBEN run on uprated data from the 2005 EFS.

Appendix B shows how tax and benefit reforms have affected the EMTRs of different groups of workers. They show that tax and benefit reforms, relative to all three baselines have tended to increase the EMTRs of workers with children on average, but have tended to reduce the EMTRs of those without children on average.

Comparing Figure 4.6 with Figure 4.3, we can see that the mean EMTR has increased from around 47% to 51% since 1978, but the mean EMTR today would still be 51% if we returned to an RPI- or GDP-uprated 1978 tax and benefit system. This implies that other changes since 1978 have tended to increase the mean EMTR. Examples of changes that could be responsible include higher real rents (which would mean that more workers faced steep withdrawal of housing benefits if they earned slightly more) and real earnings growth (which would bring people into paying higher rates of income tax). Adam et al. (2006) find that each of these changes was responsible for increasing the mean EMTR by around 1ppt between 1979 and 2005, with a further percentage point increase being accounted for by other factors.

4.3 Summary

On average, PTRs were about the same in 2009 as they were in 1978, RRs were slightly lower and EMTRs for workers were slightly higher. Analysing what would have happened in the absence of any tax and benefit reforms shows that tax and benefit reforms have tended to reduce PTRs, and have had little effect on RRs (relative to RPI-indexation) and EMTRs (relative to both RPI- and GDP-indexation). However, relative to baselines where benefits are increased in line with GDP, tax and benefit reforms reduced RRs. Relative to the baseline where benefits are increased in line with GDP and tax thresholds are increased in line with the RPI, tax and benefit reforms have reduced EMTRs also. Therefore, factors other than tax and benefit reforms have been responsible for increasing PTRs and EMTRs but reducing RRs. Real earnings growth and real increases in rents are two factors that are likely to be at work here. Higher real rents tend to weaken the incentive to work at all and the incentive to earn more as they increase the level of out-of-work income and lead to more people facing steep withdrawal of housing benefit when they earn a little more. Real earnings growth unambiguously reduces RRs as it means in-work income is higher without affecting out-of-work income, but has an ambiguous effect on PTRs and EMTRs as some people will be pushed into higher income tax brackets while others are pushed off means-tested benefit tapers as their incomes increase.

Appendix B examines how trends in our measures of financial work incentives have differed for different types of individual, and to what extent tax and benefit reforms are responsible. It shows that different groups have seen broadly similar changes in PTRs, although since 1999 the incentive for lone parents to work at all has strengthened while the incentive for couples with children to have two earners has weakened. These can both be put down to the extension of in-work support for families with children over the last ten years, with the introduction of working families' tax credit in 1999 and its replacement with working tax credit in 2003. Replacement rates have fallen by around the same amount for all groups, except for those in couples with children whose partner does not work, for whom RRs did not fall between 1978 and 2009. Tax and benefit reforms relative to RPI-indexation can partly explain this, as they tended to increase RRs of those in couples with children.

Appendix B also shows that while EMTRs have remained fairly constant over time for workers without children, they have increased for working parents. Tax and benefit reforms can partially explain this increase, although other factors such as growth in earnings and rents are also likely to have been important.

5. Conclusions

The tax and benefit system redistributes money from rich to poor, and is especially generous to pensioners and low income households with children. However, in doing so it weakens the incentive for individuals to work at all and for those in work to earn more. The majority of individuals only get to buy goods worth around half of what their employer pays out (or would pay out) when they work, with the rest being taken in taxes or lost means-tested benefit entitlements.

While inequality has increased since 1978, it is ambiguous to what extent tax and benefit reforms are responsible for this. If we define 'reforms' relative to RPI-indexation, tax and benefit reforms have slightly reduced inequality. However, if we think that in the absence of tax and benefit 'reforms' benefits would have increased in line with GDP, tax and benefit reforms acted to increase inequality. Even in this case, though, tax and benefit reforms are only responsible for around a quarter of the increased inequality since 1978. In any case it is clear that Labour's tax and benefit reforms between 1997 and 2009 tended to reduce inequality, while those of the previous Conservative government tended to increase it. Labour's reforms were particularly generous to pensioners and low-income households with children.

The incentive to work at all was little different on average in 2009 compared to 1978. There were, however, changes within this period and between different groups. During the Conservatives' period in government from 1979 to 1997, and particularly during the mid to late 1980s, the incentive to work at all strengthened on average, while between 1997 and 2009, the incentive to work at all became slightly weaker. Tax and benefit reforms have been one of the key drivers of this. The Conservatives' reforms were responsible for strengthening the incentive to work at all considerably, while Labour's had relatively little effect.

After weakening from 1979 to 1981, the incentive for workers to earn more strengthened during the Conservatives' period in government, particularly during the late 1980s. The incentive for workers to earn more weakened on average between 1997 and 2009. The pattern is different for those with and without children: the average EMTR has remained fairly constant over time for those without children, but has risen for those with children. This is partly because more and more working families with children have become eligible for means-tested benefits and tax credits over the last ten years, meaning that they face steep withdrawal of these as they increase their income. However, tax and benefit reforms cannot fully

explain the increase in EMTRs among working parents: other factors such as growth in earnings and rents were also important.

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Appendix A: Measuring the effects of tax and benefit reforms – technical issues

Much of our analysis is based on measures of net incomes and work incentives produced by the Institute for Fiscal Studies' tax and benefit micro-simulation model, TAXBEN. In this appendix we give more details of our methodology for calculating inequality and our work incentive measures under different tax and benefit systems.

Data

TAXBEN uses data from the Expenditure and Food Survey (EFS). The EFS is an annual cross-section survey of around 7,000 households in the UK, available at the time this analysis was produced from the 1960s through to 2005–06. Synthetic data for 2009–10 was created by uprating data from 2005–06, as described in Brewer et al (2009).

Net income

Net income is income after deducting direct taxes on income and adding income from state benefits and tax credits. These can generally be modelled fairly simply in TAXBEN; two exceptions are reforms to local taxation and disability benefits which are discussed below. When calculating our inequality measures for previous years' tax and benefit systems we subtract the difference in indirect tax payments under the system in question and the 2009 system from net income in order to take account of the effect of indirect tax changes on inequality. Ideally, micro-simulation estimates of work incentives would incorporate non-take-up of benefits and tax credits, but our need for a consistent approach over 30 years means we opted to assume full take-up. This means that we cannot replicate the level of inequality in 2009, but if we assume that non take-up has similar effects on inequality under each tax and benefit system, our results will still give an unbiased estimate of the effect of tax and benefit reforms on inequality.

People who work have to incur important work-related costs, such as for clothing, transport and childcare. Information on these costs is not usually collected in household surveys, making it difficult to incorporate them into our micro-simulation analysis. Data are available, however, on childcare expenditures. Deducting this expenditure from the measure of net income while working makes a considerable difference to the estimated work incentives of parents, but we do not follow this approach. This is partly because some parents spend money on childcare for non-work-related reasons, meaning that it would be wrong to assume that childcare

expenditure would not be incurred were parents not to work. Secondly, the data in the EFS is not rich enough to capture all childcare expenditure.

Reforms to local taxation

The system of local taxation in the UK has undergone two major reforms over the last thirty years. The first of these was in 1990, when the old system of domestic rates was replaced by the Community Charge or poll tax and the second was when this was replaced in turn by the Council Tax, a tax based on banded property values, in 1993.¹⁹ The 2005–06 EFS data contains details of which of the nine council tax bands a household is in and the amount of council tax they have to pay, but obviously does not enable us to directly observe what a household's liability to local taxes would have been under tax and benefit systems where the Community Charge or domestic rates regime were in force. However, the data does allow us to compare their local authority's Band D rate to the national average, and so to calculate each household's Community Charge liability in years where it is in force, we assume that local authorities would have the same ratio of tax to the national average under the Community Charge system as they do under council tax. Calculating a domestic rates value for each property is more problematic as it requires a 'rateable value' for each property that is then multiplied by a poundage. We obtain these by assuming that each property has the value of the midpoint of its council tax band and multiplying by a poundage that ensures that domestic rates raise the same amount (in real terms, or relative to GDP) as they did in the actual year. This is then multiplied by the ratio of the Council Tax rate to the national average to account for variation in rates across local authorities. Note that this may understate the level of inequality as the distribution of rates across local authorities was more diverse than the distribution of council tax rates.

Reforms to disability benefits

The system of disability benefits has changed significantly over the last 30 years with changes to the conditions for claiming the benefit. In particular, there were changes in 1992 when Disability Living Allowance (DLA) was introduced and in 1995 when Incapacity Benefit (IB) replaced Invalidity Benefit. This means that we are unable to identify precisely which individuals in our 2005–06 data would have been entitled to these benefits when they existed under previous years' tax and benefit systems. Rather than ignoring these reforms, we have assumed that individuals would be

¹⁹ For more details of these systems, see Adam and Browne (2009).

eligible for the nearest equivalent to the benefit they are currently on, so long as that existed in that year. Specifically:

- We assume that those individuals who are eligible for the medium or high rate of Disability Living Allowance in the 2005 data would have been eligible for the equivalent level of Attendance Allowance if the pre-1992 system had remained in place. However, since this reform introduced a new 'low' level of entitlement, we assume that those who are entitled to this level in 2005 would not have received anything in the pre-1992 system.
- We assume that those individuals who are entitled to Incapacity Benefit in the 2005–06 data would have been entitled to Invalidity Benefit had the pre-1995 system remained in place. Note that one of the aims of the 1995 reforms was to reduce the number of claimants by making the medical test stricter. By only giving entitlement to Invalidity Benefit to those who are eligible for IB in 2005–06, we are failing to account for this aspect of the reform as some individuals who would have received Invalidity Benefit under the old regime are not eligible for IB. We are therefore underestimating the effect of this reform on income inequality.

The 'margin' used when calculating effective marginal tax rates

The empirical analysis in this report calculates effective marginal tax rates (EMTRs) by increasing weekly earnings by 1p. Adam et al. (2006) examine the implications of using a larger margin to calculate EMTRs.

The time period considered when measuring net income

Our analysis in this report is based on a long-run measure of net income (and therefore financial work incentives), where we ignore the income disregard in the new tax credits, assume that no one is entitled to contribution-based jobseeker's allowance and allow home-owners to receive support for mortgage interest (SMI) if they are entitled to income support or income-based jobseeker's allowance. As we discuss in section 2.2, excluding SMI can have a significant effect on our conclusions about the work incentives faced by different groups, as shown in chapter 4 of Mirrlees et al. (2010).

Appendix B. How have financial work incentives changed for different groups in the population, and to what extent are tax and benefit reforms responsible?

This section shows how the incentive to work at all and the incentive for workers to earn more has changed for different groups over time, and examine to what extent tax and benefit reforms are responsible for these changes. We split people by whether they have children, whether they are single or a member of a couple and, if they do have a partner, whether their partner is in work or not. Echoing the analysis in sections 4.1 and 4.2, we examine how work incentives have actually changed since 1978 for each group before looking at the effect of tax and benefit reforms.

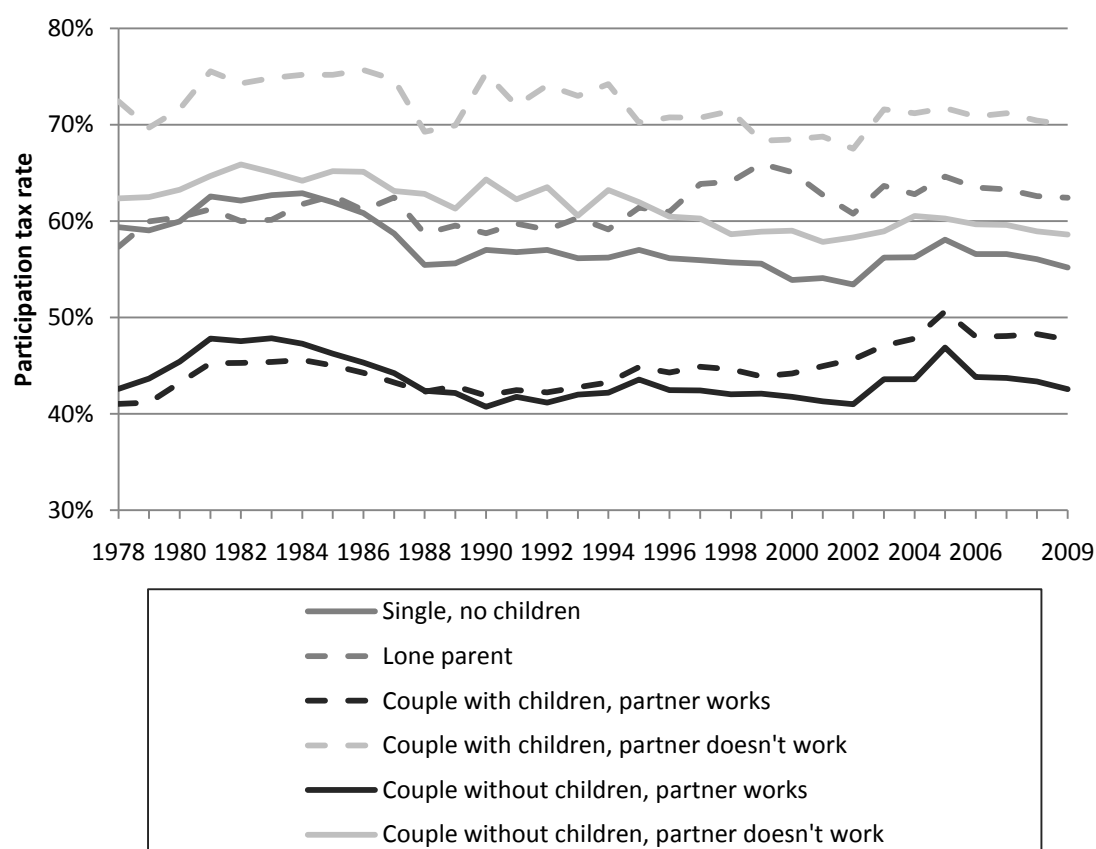
B.1 What has happened to financial work incentives over time for different groups?

B.1.1 Participation tax rates

Figure B.1 shows the trends in average PTRs for different groups since 1978. We see that most of the groups follow the overall trends shown in Figure 4.1, with increases in PTRs between 1978 and 1981 followed by a strengthening of work incentives during the rest of the 1980s, then a slight increase followed by a slight decrease during the 1990s and a marked increase between 2003 and 2005. There are some interesting exceptions to these trends, though. For example, lone parents did not see their work incentives strengthen during the course of the Conservatives' period in government from 1979 to 1997, with the mean PTR remaining in a narrow band between 58% and 64%. Since then, however, after reaching a high of 66% in 1999, the mean PTR for lone parents fell dramatically with the introduction of the working families' tax credit, reaching 61% in 2002. Other particular points to note are the big increase in the mean PTR for those in couples with children whose partner works between 1999 and 2005 and the big fall in the mean PTR among those in couples with children whose partner does not work between 1994 and 2002.

Although PTRs have generally moved in the same direction for different groups at the same time, looking over the period as a whole we can see that PTRs have increased on average for lone parents and those in couples with children whose partner works but have fallen for single people without children and those in couples whose partner does not work.

Figure B.1: Mean PTRs for different groups, 1978–79 to 2009–10



Notes: Calculations for personal direct and indirect taxes only: excludes most 'business taxes' (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Only includes those who are below state pension age.

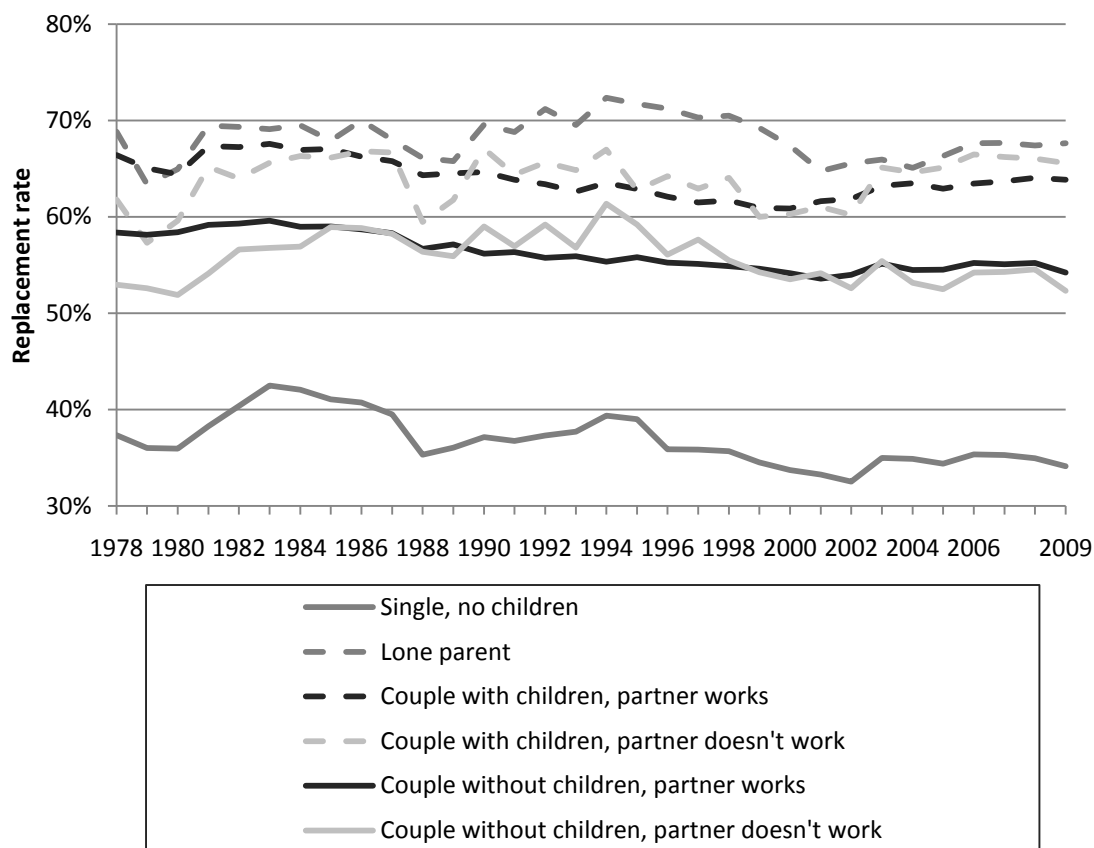
Source: Authors' calculations using TAXBEN run on data from the Family Expenditure Survey from 1978 to 2000–01 and the Expenditure and Food Survey from 2001–02 to 2005–06. Analysis for years after 2005 uses uprated 2005 data.

B.1.2 Replacement rates

Figure B.2 shows how RRs for different groups have changed since 1978. We see that the trends in mean RRs were similar for the six different groups over the period in question, following the familiar pattern of increasing between 1978 and 1981 before falling during the mid to late 1980s, then increasing in the early 1990s before falling back until 2003, when RRs increased a little. Since then, RRs have remained fairly constant for all groups. The one exception to this pattern is during the early 1990s, when RRs continued to decline for (actual and potential) second earners in couples. This is likely to have been caused by the shift from joint to individual income taxation in 1990 which tended to improve work incentives for second earners in couples.

But while mean RRs have tended to move in the same direction at the same time for all groups, comparing overall levels in 2009 and 1978 shows some differences. Overall, mean RRs were around 4ppts lower for those in couples without children whose partner works, 3ppts lower for single people without children and those in couples with children whose partner works, around 1ppt lower for lone parents and those in couples without children whose partner does not work and around 4ppts higher for those in couples with children whose partner does not work in 2009 compared to 1978.

Figure B.2: Mean RRs for different groups, 1978–79 to 2009–10



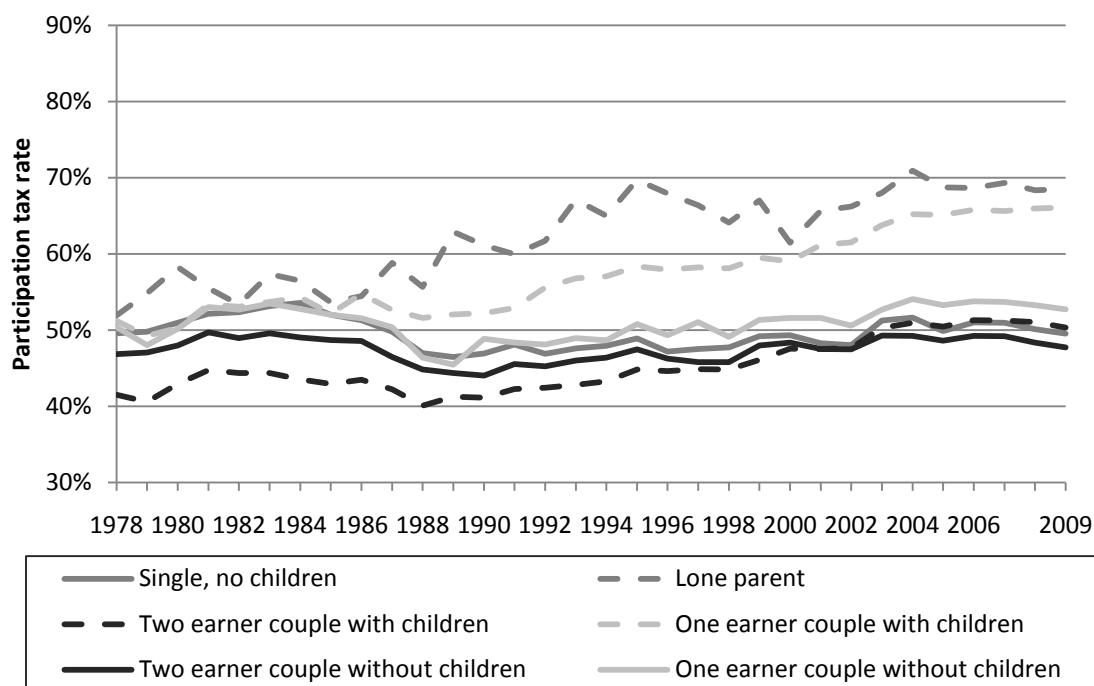
Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Only includes those who are below state pension age.

Source: Authors’ calculations using TAXBEN run on data from the Family Expenditure Survey from 1978 to 2000–01 and the Expenditure and Food Survey from 2001–02 to 2005–06. Analysis for years after 2005 uses uprated 2005 data.

B.1.3 Effective marginal tax rates

Figure B.3 shows how average EMTRs for workers in the six different groups have changed over the last 30 years. We can see that since 1988, groups with children have seen a much steeper increase in their average EMTR than groups without children.

Figure 6.9: Mean EMTRs for different groups, 1978–79 to 2009–10, workers only



Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Only includes those who are in work and below state pension age.

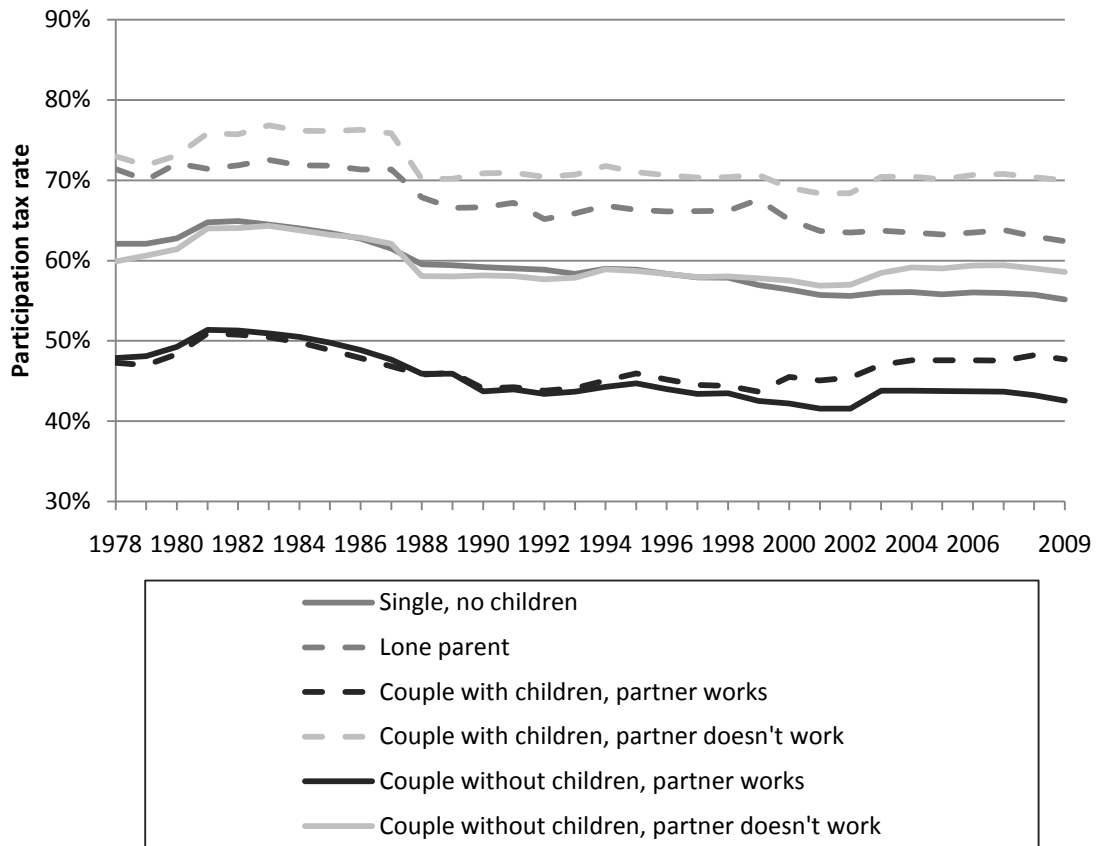
Source: Authors’ calculations using TAXBEN run on data from the Family Expenditure Survey from 1978 to 2000–01 and the Expenditure and Food Survey from 2001–02 to 2005–06. Analysis for years after 2005 uses uprated 2005 data.

B.2 The effect of tax and benefit reforms on financial work incentives for different groups

B.2.1 Participation tax rates

The next three figures show what PTRs would be today if previous years’ tax and benefit systems had been either uprated in line with the RPI, uprated in line with GDP, or if benefits had been uprated in line with GDP and tax thresholds had been increased in line with the RPI.

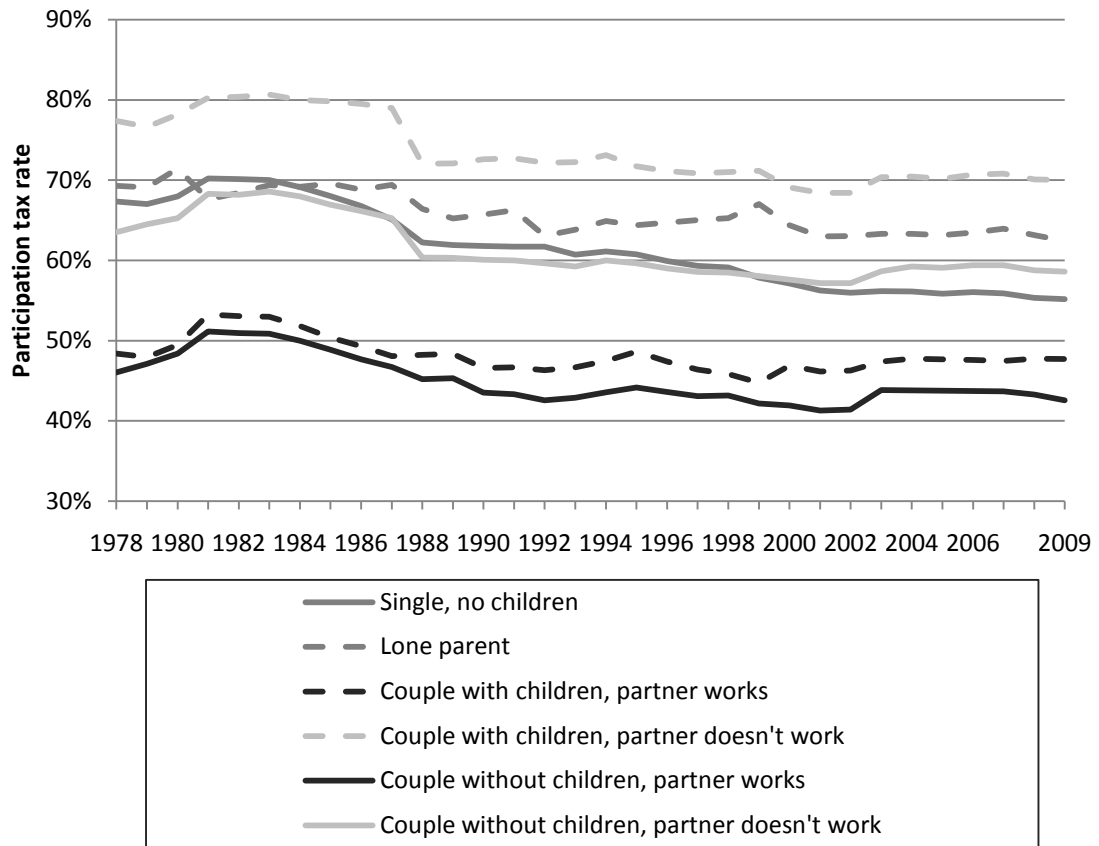
Figure B.4: Mean PTRs for different groups that would be created by RPI-uprated tax and benefit systems from 1978–79 to 2009–10



Notes: Calculations for personal direct and indirect taxes only: excludes most 'business taxes' (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Only includes those who are below state pension age.

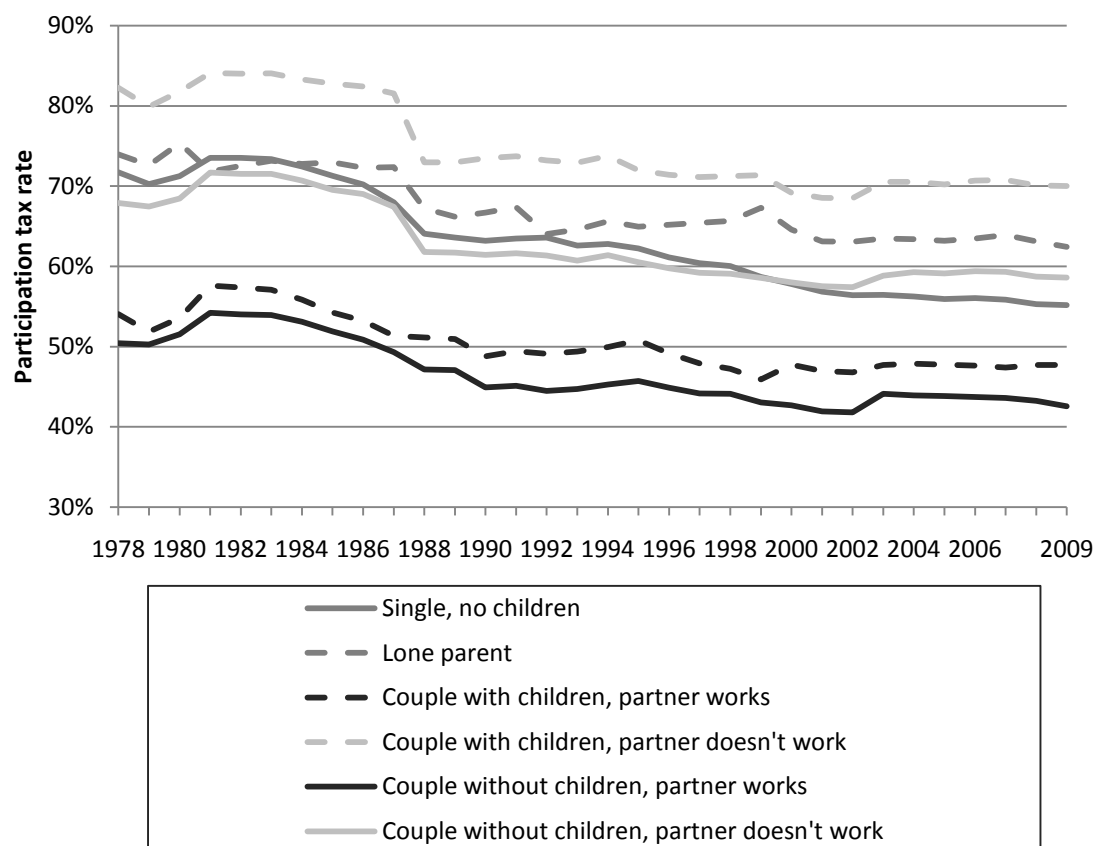
Source: Authors' calculations using TAXBEN run on uprated data from the 2005–06 Expenditure and Food Survey.

Figure B.5: Mean PTRs for different groups that would be created by GDP-uprated tax and benefit systems from 1978–79 to 2009–10



Notes: As for Figure B.4.
Source: As for Figure B.4.

Figure B.6: Mean PTRs for different groups that would be created by tax and benefit systems from 1978–79 to 2009–10 with benefits increased in line with GDP and tax thresholds increase in line with RPI



Notes: As for Figure B.4.

Source: As for Figure B.4.

Although tax and benefit reforms in particular years have tended to have similar effects on the different groups we consider here, when we look across the thirty year period as a whole, the overall effect on different groups has been quite different.

Relative to RPI-uprating, tax and benefit reforms have significantly reduced average PTRs for single people without children, lone parents and those in couples without children whose partner works but have had relatively little effect on those in couples with children and those in couples without children whose partner does not work. In particular, policy reforms have reduced PTRs more for lone parents than for other groups. Particular reforms that appear to be responsible for this are the introduction of Family Credit in 1988, the lowering of the minimum number of hours for lone parents to claim Family Credit from 24 to 16 in 1992 and the replacement of family credit with the working families' tax credit in October 1999 (note that since we are looking at the tax and

benefit system in operation in the April of each year, the effects of this reform does not show up until 2000). Also, tax and benefit reforms, particularly those between 2000 and 2005, have increased PTRs for those in couples with children whose partner works. This is a side effect of increasing the generosity of in-work benefits – while these reforms strengthen the incentive to work at all for lone parents and the first earner in a couple with children, when the second member of a couple moves into work, they immediately face steep withdrawal of tax credits when they move into work, weakening the incentive for them to work.

Relative to the other two baselines, tax and benefit reforms have particularly reduced average PTRs for single people without children, lone parents and those in couples with children whose partner does not work, although for different reasons. For single people without children and those in couples with children whose partner does not work, increasing previous years' benefit levels in line with GDP would have increased out-of-work benefit levels. Therefore, actual policy relative to this baseline represents a cut in out-of-work benefit levels, which reduces average PTRs. For lone parents, the reason that policy reforms have reduced average PTRs is still the increase in in-work benefit rates during this period, but note that the effect of tax and benefit reforms is less in these two baselines than in the baseline where benefits are increased in line with the RPI. This is because the increase in in-work benefits that occurred over the period in question is smaller relative to a baseline of GDP-uprating rather than one of RPI-uprating.

Tax and benefit reforms relative to the baselines where benefits are increased in line with GDP had less of an impact on reducing the PTRs of those in couples without children and those in couples with children whose partner works. We saw when we looked at reforms relative to RPI indexation that tax and benefit reforms had not reduced PTRs of those in couples without children whose partner does not work by as much as those of other groups, and that pattern is repeated here. For those in couples with a working partner, we can see that the effect of tax and benefit reforms on average PTRs is approximately the same as when we consider reforms relative to RPI indexation. This is because whether benefits are increased in line with GDP or the RPI makes far less difference to the PTRs of these groups than those of other groups – this is because those with a working partner tend not to be eligible for benefits when out of work.

Comparing Figure B.1 with the counterfactuals in Figures B.4, B.5 and B.6, we see that, although tax and benefit reforms tended to reduce PTRs

among lone parents by at least as much as among other groups, the actual PTR among this group is higher now than in 1978. This is likely to be because the labour market behaviour of lone parents has changed substantially over the last 30 years. In particular, lone parents were much more likely to work part-time in 2009 than in 1978. One of the reasons for this is that incentives for doing part-time work are much stronger than they were in the past, mainly due to the fact that the minimum number of hours for claiming in-work benefits was reduced from 24 to 16 in 1992. Therefore, returning to previous years' tax and benefit systems would significantly weaken work incentives for lone parents who are working less than 24 hours per week. At the time, however, lone parents were unlikely to work so little, precisely because the incentives for them to do so were weak, so the strengthening of work incentives caused by policy changes is not so clearly shown in the data on actual PTRs and RRs. This shows that, since the evolution of labour market participation over the last 30 years has been caused at least in part by tax and benefit reforms, our analysis may be biased towards the view that tax and benefit reforms have improved work incentives. This is because individuals today are likely to choose types of work where the incentives are strongest, and the incentive to undertake these types of work may not have been as strong under previous years' tax and benefit systems.

As we discussed in section 4.2, factors other than tax and benefit reforms have tended to increase average PTRs for other groups as well. The one exception to this rule are those in couples with children whose partner does not work. For this group, the small fall in their average PTR can be entirely explained by tax and benefit reforms relative to RPI indexation – other factors have had a net effect on their average PTR of approximately zero.

Summary

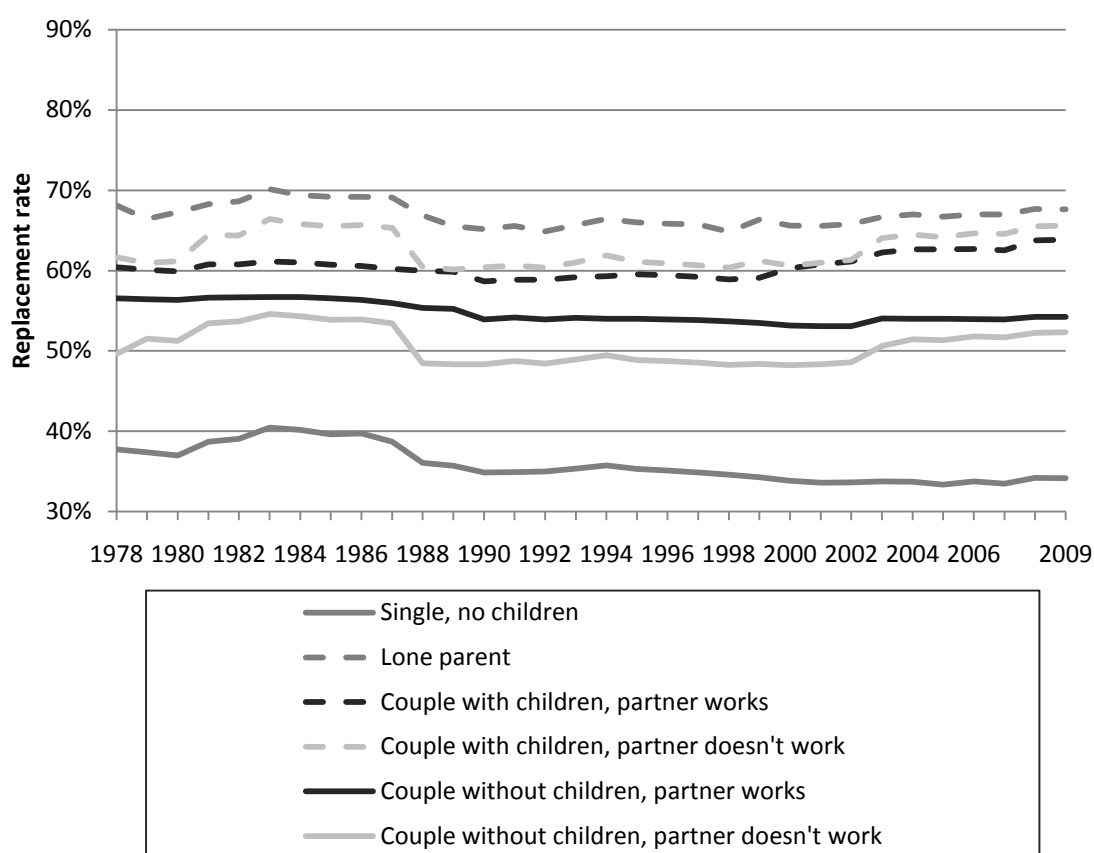
There relatively little variation in changes in PTRs between different types of individual, although since 1999 the incentive for lone parents to work at all has strengthened while the incentive for couples with children to have two earners has weakened. These can both be put down to the extension of in-work benefits for families with children over the last ten years, with the introduction of the working families' tax credit in 1999 and its replacement with the working tax credit in 2003. Tax and benefit reforms relative to RPI-indexation have particularly reduced PTRs and RRs for single people without children, lone parents and those in couples without children whose partner works. Relative to GDP-uprating, tax and benefit reforms have particularly reduced PTRs for single people without children,

lone parents and those in couples with children whose partner does not work.

B.2.2 Replacement rates

Figures B.7–B.9 show the same analysis for RRs, showing what RRs would be today if previous years' tax and benefit systems had been either uprated in line with the RPI, uprated in line with GDP or if benefits had been uprated in line with GDP and taxes had been increased in line with the RPI.

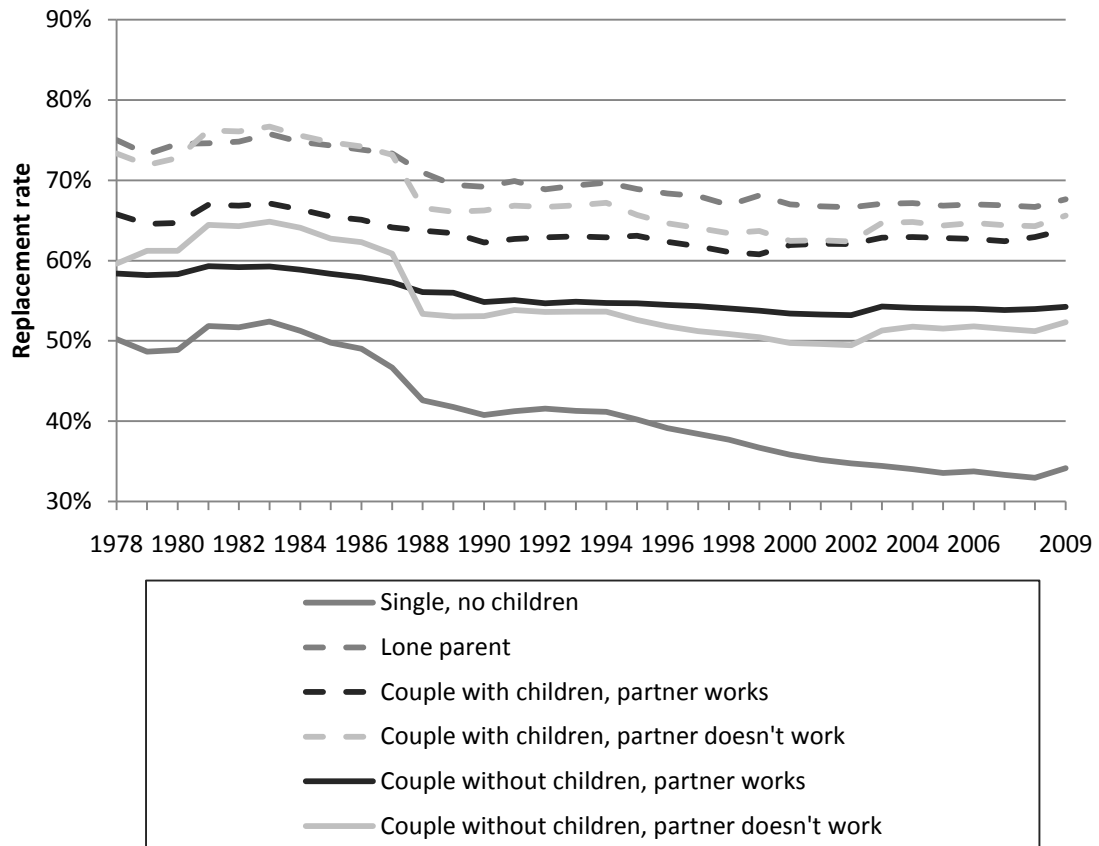
Figure B.7: Mean RRs for different groups that would be created by RPI-uprated tax and benefit systems from 1978–79 to 2009–10



Notes: Calculations for personal direct and indirect taxes only: excludes most 'business taxes' (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in Box 2.1. Only includes those who are below state pension age.

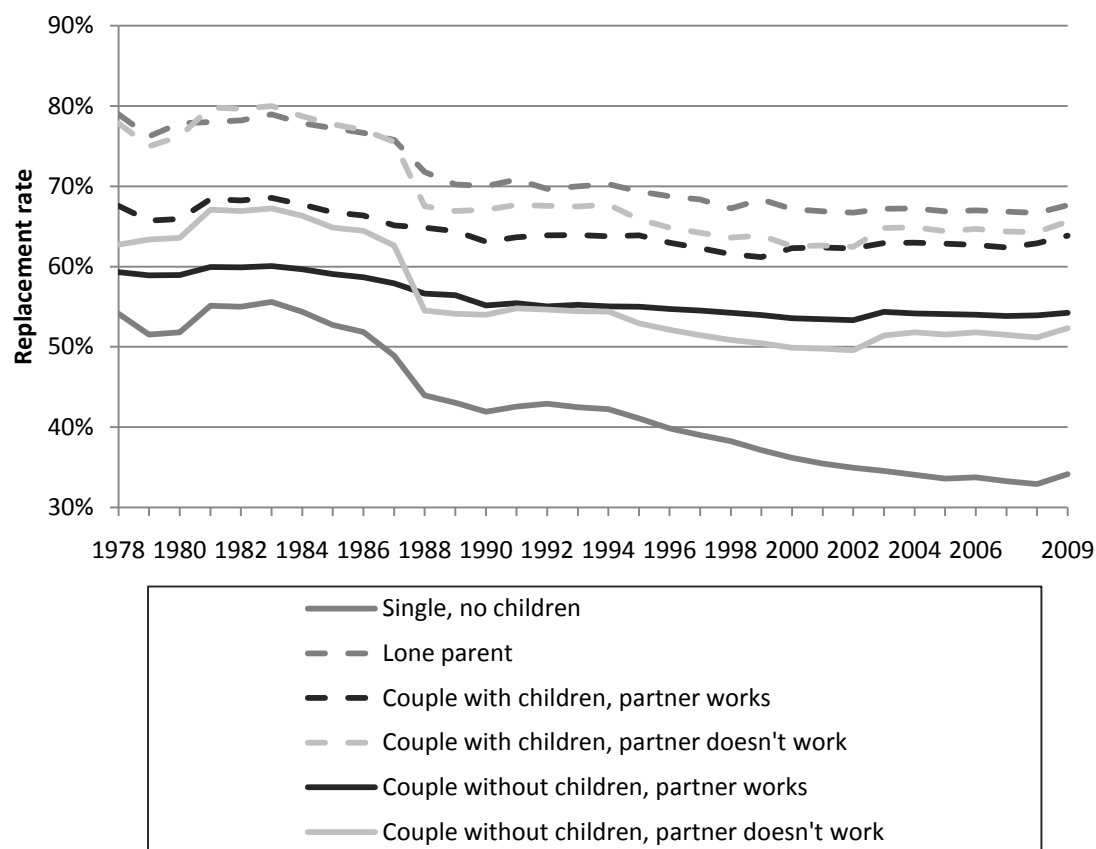
Source: Authors' calculations using TAXBEN run on uprated data from the 2005–06 Expenditure and Food Survey.

Figure B.8: Mean RRs for different groups that would be created by GDP-uprated tax and benefit systems from 1978–79 to 2009–10



Notes: As for Figure B.7.
Source: As for Figure B.7.

Figure B.9: Mean RRs for different groups that would be created by tax and benefit systems from 1978–79 to 2009–10 with benefits increased in line with GDP and taxes increased in line with the RPI



Notes: As for Figure B.7.

Source: As for Figure B.7.

We see that, relative to RPI-indexation, tax and benefit reforms particularly lowered RRs for single people without children and those in couples without children whose partner works. This is because out-of-work benefit entitlements for these groups did not increase during Labour's period in government from 1997 to 2009. Reforms also slightly reduced the RRs of lone parents on average. We also again see, as discussed in the previous section, that the incentive for couples to have two rather than one earner has weakened in recent years as a result of increases to in-work benefits and tax credits.

Looking at reforms relative to baselines where benefits are increased in line with GDP gives a much larger estimate of the effect of tax and benefit reforms on reducing average RRs, as discussed in section 4.2. However, it has much less effect on the RRs of those in couples whose partner is already working, principally because they would not be entitled to out of work benefits if they stopped working. Therefore, it makes little difference

to these individuals' RRs what happens to benefit rates. However, for those groups for whom out-of-work benefits make up a large proportion of out-of-work income, increasing previous years' benefit rates in line with GDP would have led to RRs being much higher today.

Comparing what has actually happened between 1978 and 2009 (Figure B.2) with what would have happened if the tax and benefit system had simply been increased in line with RPI inflation each year (Figure B.7), we can see that tax and benefit reforms relative to this baseline can account for almost all of the changes that have actually occurred in this period for single people without children, lone parents, those in couples with children whose partner does not work and those in couples without children whose partner works.²⁰ For the other groups (those in couples with children whose partner works and those in couples without children whose partner does not work) average RRs have fallen despite tax and benefit reforms relative to RPI uprating tending to increase the average RR for these groups. It is likely that real earnings growth is the factor that has tended to reduce average RRs for these groups.

Summary

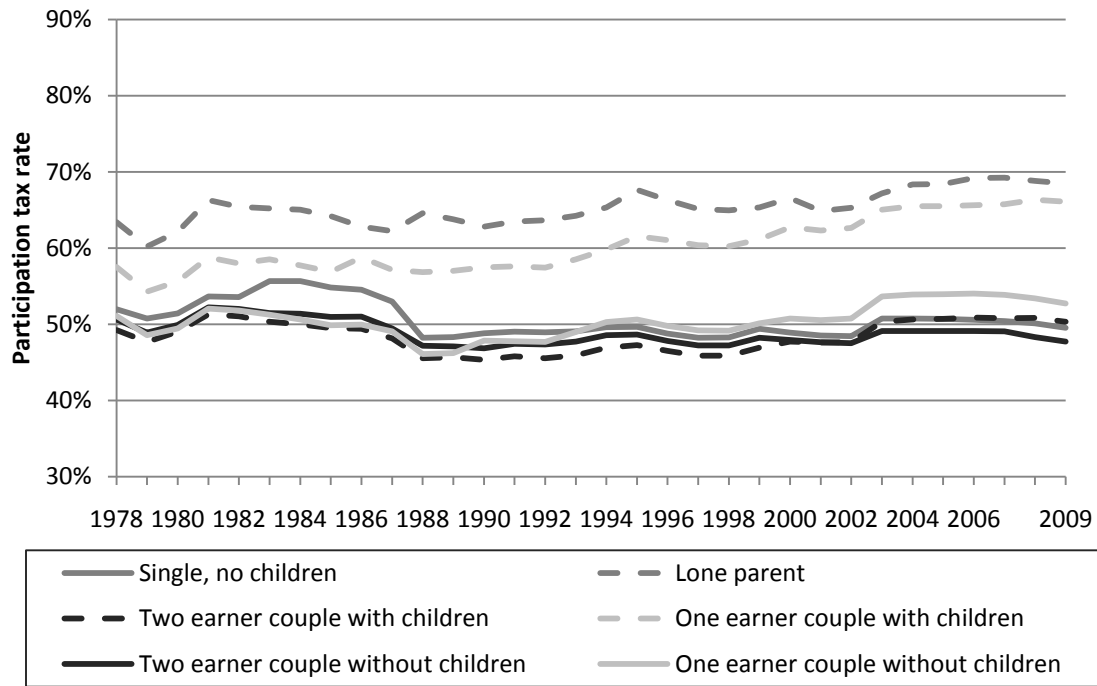
Tax and benefit reforms relative to RPI uprating have reduced average RRs for single people without children, lone parents and those in couples without children whose partner works. However, they have increased RRs on average for those in couples with children and those in couples without children whose partner does not work. This is because families with children received generous increases in out-of-work benefits under the Labour government from 1997 to 2009. For lone parents, large increases in in-work benefits meant that tax and benefit reforms have lowered rather than increased their RRs. Relative to the baselines where benefits are increased in line with GDP, tax and benefit reforms, particularly those of the Conservative government between 1979 and 1997, significantly reduced RRs for all groups except those who have a working partner. This is because out-of-work benefits tended to be increased only in line with inflation during this period, meaning that reforms relative to this baseline have involved a cut in out-of-work benefits, which would tend to lower RRs. Those whose partner works are less affected by this because they tend not to be eligible for benefits when out of work.

²⁰ Of course, this is not to say that factors other than tax and benefit reforms have had no impact at all. Rather, all the other factors at work, including changes to real earnings and rents had a net effect of approximately zero on the mean replacement rate.

B.3.2 Effective marginal tax rates

Figures B.10–B.12 show the effect of tax and benefit reforms relative to our three baselines on the average EMTRs of different groups.

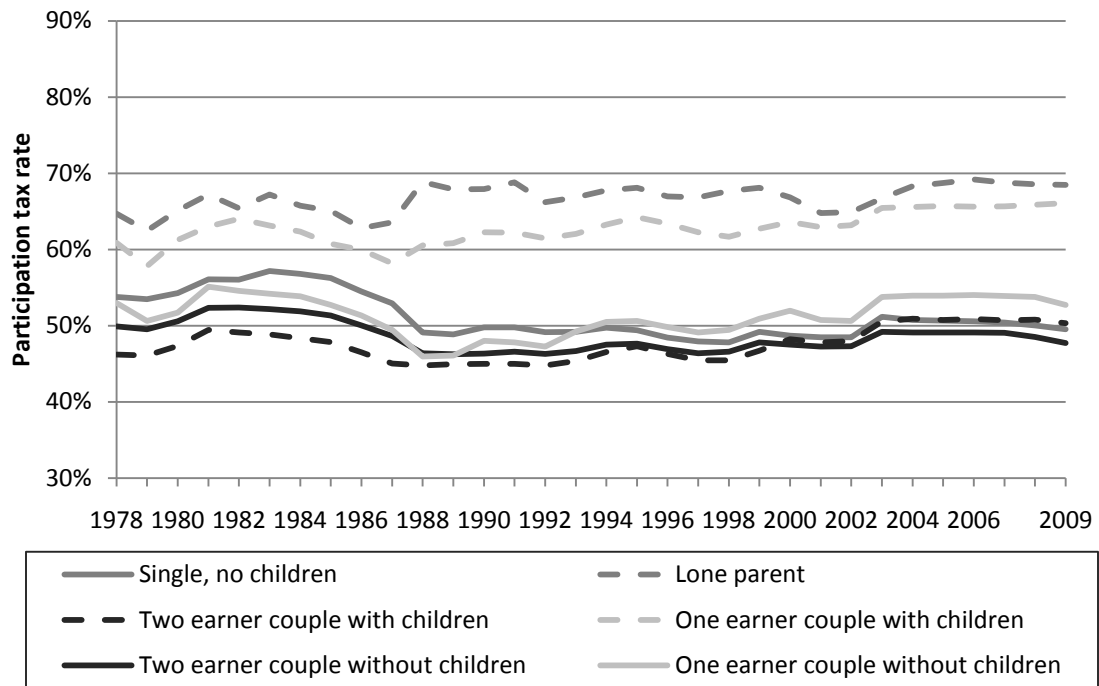
Figure B.10: Mean EMTRs for different groups that would be created by RPI-updated tax and benefit systems from 1978–79 to 2009–10, workers only



Notes: Calculations for personal direct and indirect taxes only: excludes most ‘business taxes’ (notably corporation tax and business rates but not employer NI), and capital taxes (notably inheritance tax, stamp duties and capital gains tax). In-work incomes for non-workers calculated as described in section 2.4. Only includes those who are in work and below state pension age.

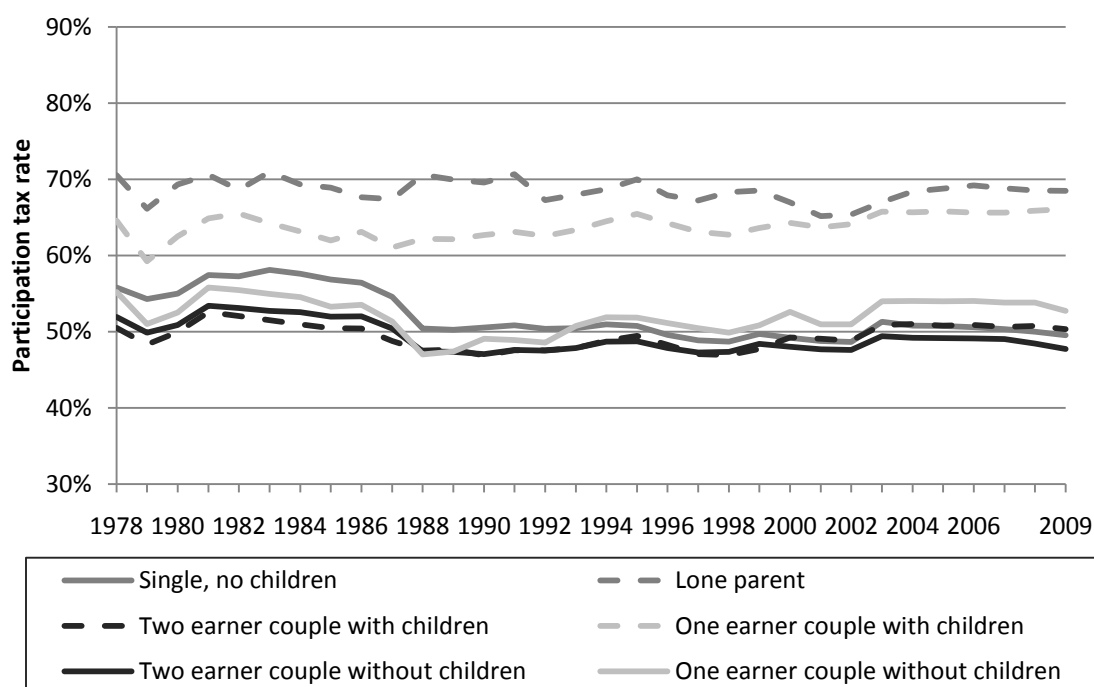
Source: Authors’ calculations using TAXBEN run on updated data from the 2005–06 Expenditure and Food Survey.

Figure B.11: Mean EMTRs for different groups that would be created by GDP-uprated tax and benefit systems from 1978–79 to 2009–10, workers only



Notes: As for Figure B.10.
Source: As for Figure B.10.

Figure B.12: Mean EMTRs for different groups that would be created by tax and benefit systems from 1978–79 to 2009–10 with benefits uprated with GDP and taxes uprated with RPI, workers only



Notes: As for Figure B.10.

Source: As for Figure B.10.

If we use either RPI- or GDP-indexation as our baseline, it is clear that tax and benefit reforms are one of the main contributors to the increase in mean EMTRs among families with children. For those without children, tax and benefit reforms relative to both of these baselines have reduced mean EMTRs slightly. It is only relative to the baseline where benefits are increased in line with GDP and taxes are increased in line with the RPI that tax and benefit reforms could be said to have reduced average EMTRs for those with children. This is because this baseline tends to involve EMTRs increasing over time both as a result of more people facing withdrawal of benefits if they increase their income (relative to a baseline where benefits are indexed with the RPI) and because more people fall into higher tax brackets over time as their incomes increases in real terms.

However, tax and benefit reforms can only explain a part of the observed increase in EMTRs for working parents, even relative to the baseline of RPI-indexation. For example, working lone parents' average EMTR has increased by 17ppts since 1978 but tax and benefit reforms relative to RPI-indexation can only explain 5ppts of this. This difference is again likely to be driven by the fact that there are many more lone parents working

between 16 and 24 hours a week today. As already mentioned, lone parents working so few hours prior to 1992 would be on out-of-work rather than in-work benefits, and these have 100% withdrawal rates. Therefore, going back to previous years' tax and benefit systems would tend to increase EMTRs significantly for these lone parents.

For two earner couples with children, tax and benefit reforms can only explain 1ppt of the 9ppt increase in mean EMTRs between 1978 and 2009. However, tax and benefit reforms, in particular the expansion of means-tested tax credits to this group, do appear to have been responsible for the increase in their EMTRs in the last ten years. Before this though, it is likely that increases in real wages were responsible for the increase in this group's mean EMTR. Higher real wages are likely to have a greater effect on increasing this group's average EMTR as, before the expansion of tax credits since 1999, they were particularly unlikely to be eligible for means-tested benefits, meaning that higher earnings would bring these individuals into higher tax brackets without reducing the number facing withdrawal of means-tested benefits.

Summary

EMTRs remained fairly constant for those without children between 1978 and 2009 but increased substantially for those with children. Much of this, especially since 1999, can be explained by tax and benefit reforms which have made many more families with children eligible for means-tested benefits, meaning that they would face steep withdrawal of these benefits if they increased their incomes slightly. However, tax and benefit reforms are not sufficient to explain the increase in EMTRs for those with children. Other factors, such as the increase in part-time working for lone parents and real earnings growth have also been important.