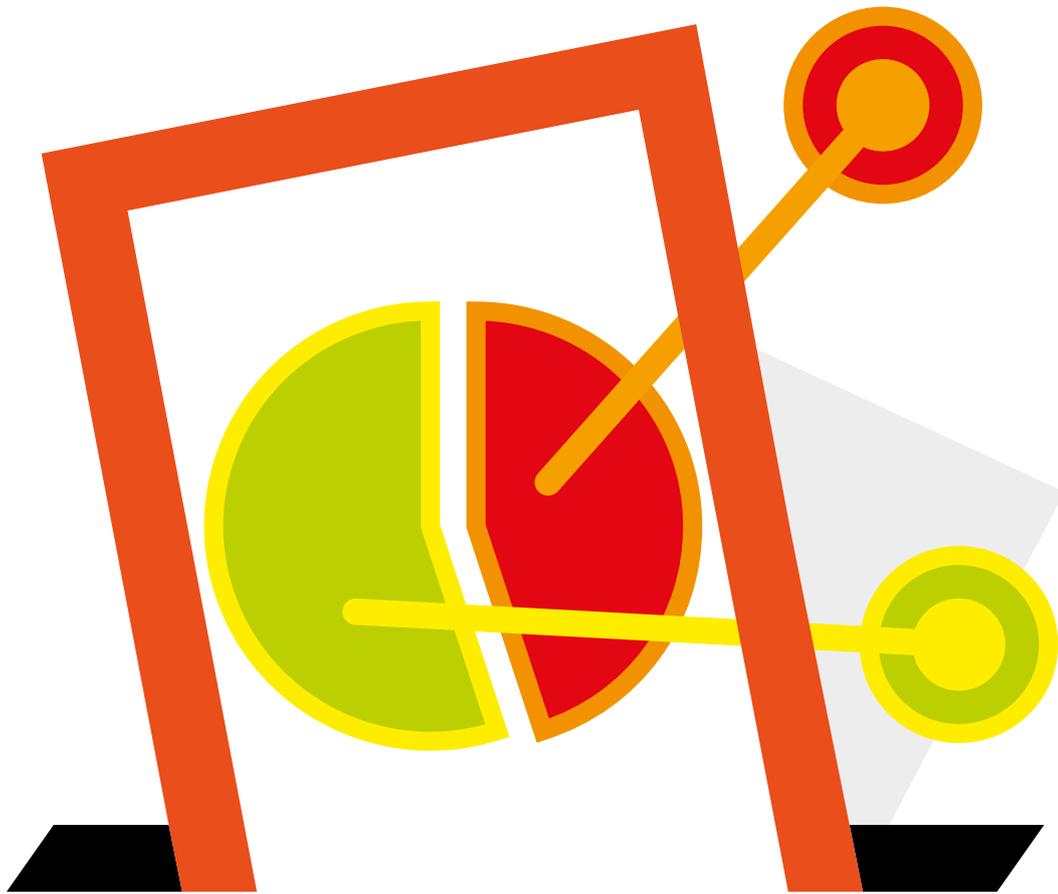


A series of background briefings on the policy
issues in the May 2015 UK General Election

Top rate of income tax

Alan Manning



CEP ELECTION ANALYSIS

The Top Rate of Income Tax

- In 2010, Labour raised the top rate of income tax (the ‘additional rate’) from 40% to 50% for those with taxable income over £150,000. The personal allowance was phased out for those with income above £100,000, leading to a marginal tax rate of 60% for the affected workers.
- The coalition government reduced the additional rate to 45% in 2013 but retained the phase-out of the personal allowance.
- In the current election campaign, the Labour manifesto proposes to restore the 50% rate for those with taxable income over £150,000 while the Greens propose to raise it to 60%. The UKIP manifesto mentions the ambition to lower the rate to 40%. The Liberal Democrat and Conservative manifestos do not mention the top rate of tax, though it was widely reported that the Conservatives wanted a rate of 40% when the rate was reduced in 2013.
- In 2012-13, only 0.9% of taxpayers (273,000 people) had taxable income above £150,000. They received 11% of total taxable income and paid 25% of income tax.
- Compared with the average taxpayer, top taxpayers are male, aged 35-54, living in London and the South East, working in finance, and company directors.
- *Reported* taxable income falls as tax rates increase. So rises in the top tax rates bring in less government revenue than one would predict assuming taxable income does not respond. Indeed, tax revenue might even fall.
- The magnitude of this change is very unclear. For example, a change from the current rate of 45% to 50% would bring in an extra £1-1.8 billion in income tax in 2014-15 using HMRC estimates. But there are likely to be changes in national insurance receipts, VAT receipts and other taxes if income is shifted to other sources. A pessimistic evaluation of all the effects might suggest a fall of £0.4 billion but an optimistic evaluation might suggest a rise of £2.8 billion.
- Taxable income falls after tax rates rise because (i) people work less so earn lower incomes and/or (ii) people spend more resources on avoidance and even evasion, which can take many forms.
- Theory and evidence both show that the level of work of high paid employees hardly responds to changes in tax rates (there is no reliable evidence for the self-employed).
- There is clear evidence that avoidance responds to changes in tax rates, for example, shifting income between tax years and income types in response to changes in tax rates. Avoidance is probably the main problem when raising the top rate of income tax.
- Evidence from other countries suggests that making avoidance harder and high rates of tax are complements to each other.

Introduction

In the 1970s, the highest rate of income tax on earned income was 83%. Margaret Thatcher's government reduced it to 60% in 1980 and 40% in 1989 (equal to the higher rate). From 1989 to 2010, the highest rate of income tax remained at 40% and this was not a live political issue.

But the marked rise in income inequality in recent decades together with the deterioration of the public finances after the financial crisis led the Labour government to raise the top rate to 50% (the 'additional rate') for those reporting taxable income in excess of £150,000 per annum, taking effect in April 2010. At the same time, the personal allowance was reduced for those with income above £100,000 leading to a marginal tax rate of 60% for those who were affected – those with incomes between £100,000 and £120,000.

The coalition government published a review of the revenue effect of this in March 2012.¹ Based on that analysis, they announced a cut in the top rate to 45%, taking effect in April 2013.

In the current election campaign, the Labour manifesto proposes to restore the 50% rate for those with taxable income over £150,000 while the Greens propose to raise it to 60%. The UKIP manifesto mentions the ambition to lower the rate to 40%. The Liberal Democrat and Conservative manifestos do not mention the top rate of tax, though it was widely reported that the Conservatives wanted a rate of 40% when the rate was reduced in 2013.

The additional rate in national and international context

The highest marginal income tax rates in selected countries in 2013 are shown in Table 1. The UK is the lowest among these countries, but the rates are quite similar. The academic discussion focuses not on the top tax rate but on the overall tax burden, including employer and employee national insurance contributions, and indirect taxes like VAT. This is used to produce a measure of what is called the marginal effective tax rate (METR – see Annex for details). The METR measures the fraction of what one produces that is claimed by the government taking account of all taxes. The second column of Table 1 shows an estimate of this for top earners and the third column for someone at average earnings.

Table 1: The top rate of income tax in selected countries, 2013

Country	Highest tax rate	Marginal effective tax rate (top 1%)	Marginal effective tax rate (average)
UK	45.0%	60.4%	49.1%
United States	46.3%	51.4%	44.7%
France	54.5%	69.2%	67.2%
Germany	47.5%	55.9%	66.6%
Denmark	56.2%	65.0%	53.8%
Sweden	56.7%	73.6%	58.4%
Japan	50.8%	53.9%	39.2%

Source: OECD Tax Database <http://www.oecd.org/ctp/tax-policy/tax-database.htm#pir>, Piketty et al (2014) for indirect tax rates.

¹<http://webarchive.nationalarchives.gov.uk/20140109143644/http://www.hmrc.gov.uk/budget2012/excheq-income-tax-2042.pdf>

Table 2: Indicative marginal and average tax levels for selected levels of earnings, UK, 2014-15

Taxable Income	Percentile of earned income distribution	Marginal income tax rate	Marginal NI rate (employee only)	Combined marginal tax rate	Average income tax	Average NI rate	Total average tax rate
£22004	50	20%	12%	32%	11%	9%	19%
£30945	75	20%	12%	32%	14%	9%	22%
£48250	90	40%	2%	42%	19%	9%	27%
£105000	97	60%	2%	62%	31%	5%	36%
£122000	99	40%	2%	42%	35%	5%	40%
£150000		45%	2%	47%	36%	4%	40%
£200000		45%	2%	47%	38%	4%	42%
£1,000,000		45%	2%	47%	44%	2%	46%

Note: This excludes the employer NI contributions, currently at 13.8%. Percentiles taken from ASHE. This assumes all income is earned as an employee.

Table 2 shows the marginal and average tax rates for income tax payable in the UK for selected levels of earned income. The phase-out of the personal allowance for those with taxable income above £100,000 causes this group to face a marginal tax rate of 60%, considerably above the marginal rate for other high earning workers. This is an undesirable anomaly.

Who pays the additional rate?

HMRC reports that there were 273,000 income taxpayers in the tax year 2011-12 with reported taxable income above £150,000 and hence liable for the additional 50p rate, out of a total of 30.6 million taxpayers. So 50p taxpayers represented 0.9% of all taxpayers.

In 2012-13, additional rate taxpayers received 11.1% of total taxable income.² After income tax, they received 8.2% of total after tax income. They paid about 25% of all income tax. Income tax is about 25% of total tax revenue.

Compared with other taxpayers, the top 1% (which is almost identical to the additional rate taxpayers) are more likely to be male, aged 35-54, in London and the South East, working in financial services, and self-employed or the director of a company. The average reported taxable income of the 1% is over £255,000, of which about 90% is earned income and 10% is investment income.

² Source is

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403272/Income_Tax_Liabilities_Statistics_-_February_2015.pdf. Many statistics are reported for the top 1% of taxpayers though this group is not exactly the same as the additional rate taxpayers.

Table 3: Top rate taxpayers compared with other income taxpayers

Taxable income	More than £150k	Less than £150k, more than £100k	Less than £100k, more than £75k	Less than £75k, more than £50k	Less than £50k
% of total taxpayers	0.6	0.7	1.1	3.4	94.3
% male	86	80	77	73	52
% aged <35	7	8	12	15	32
% aged 35-54	67	64	62	60	35
% aged 55+	26	28	26	26	33
% London & South East	55	44	43	38	26
% finance	29	15	14	9	3
% professional	21	19	17	14	6
% self-employed	33	26	16	11	11
% directors	22	22	17	10	2
Average total taxable income (£k)	344	120	86	59	15
Average total earned income	311	105	76	54	14
Average total investment income	33	15	10	5	1
Average total tax paid	133	36	22	12	2
Income tax paid as % of taxable income	38.7	30.0	25.6	20.7	11.5

Source: Author's calculations from Survey of Personal Incomes, 2010-11. Note that reported taxable income (and especially investment income) for the highest earners in this year is probably artificially reduced because this was the first year of the additional rate – see Table 4 below.

Economic analysis of the top rate of tax

The main aim of increasing the top rate of tax is to raise revenue at a time when the public finances are in poor shape. So how much revenue is raised is a key question. A naïve approach to computing the revenue raised from the 50p rate would be to add up all taxable income above £150,000 at the old rate and multiply this by the increase in the tax rate – this is called the pre-behavioural yield by HMRC.³

HMRC currently forecasts it will raise £30.3 billion in 2014-15 from the additional rate,⁴ and a rise of the top tax rate from 45% to 50% would lead to a rise in income tax revenues of about £3.3 billion if reported taxable income did not fall as the tax rate rose. But there is good evidence that a behavioural response leads to a smaller tax take than the pre-behavioural yield would suggest.

³ The academic literature tends to call this the mechanical revenue effect.

⁴

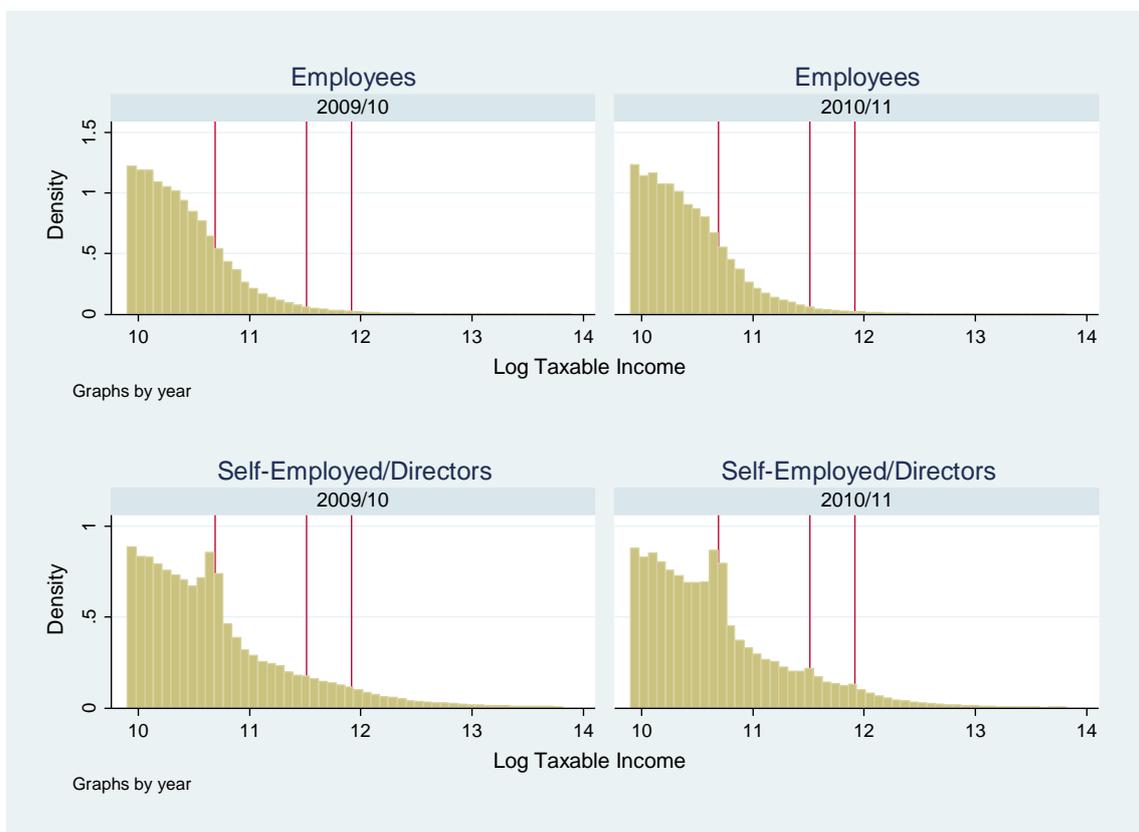
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403272/Income_Tax_Liabilities_Statistics_-_February_2015.pdf.

First evidence for a behavioural response?

The simplest way to show a behavioural response is to show that there is bunching of reported taxable income at the points where tax rates change,⁵ as it is hard to explain this except as a behavioural response to taxes. Figure 1 presents the distribution of taxable incomes for incomes above £20,000 per annum in the UK in the tax years 2009-10 and 2010-11. They are shown separately for employees and the self-employed/directors. The red lines correspond to the points where the tax rate changes – the start of the higher rate, the point where the personal allowance starts to be phased out and the introduction of the additional rate. The last two lines only apply in the tax year 2010-11.

For the self-employed/directors, there is clear bunching and evidence of bunching in 2010-11 that did not exist in 2009-10 and which reflects changes to the tax system in 2010-11. It is clear that there is a behavioural response. For employees, there is little if any evidence of bunching perhaps, suggesting a smaller behavioural response for this group.

Figure 1: Bunching in reported taxable income



Source: Author's calculations from the Survey of Personal Incomes, an administrative dataset.

The size of the behavioural response

The most common measure of the behavioural response is the elasticity of taxable income with respect to one minus the marginal tax rate – this measures the percentage reduction in reported taxable income for a 1% fall in 1 minus the marginal effective tax rate.⁶ The higher

⁵ See Saez (2010) for a more detailed explanation of this.

⁶ See Saez et al (2012) for a survey of this concept and evidence on it.

the elasticity of taxable income, the lower the tax rate that maximises revenue (often known as the ‘Laffer rate’). More details on this are in the Annex.

One would not want a rate higher than the Laffer rate, but one might choose a lower rate if one thought that taxes at the top should not just be set to maximise revenue.

There is ample evidence that reported taxable income does vary with tax rates but the size of the estimated elasticity varies considerably across different types of workers (typically being higher for the self-employed), different types of income (typically being higher for investment income than labour income) and in different tax systems (typically being higher in tax systems that give more opportunity for avoidance and evasion).

For the UK, we have a number of estimates but most do not go much further than ‘back-of-the-envelope’ and all emphasise the large degree of uncertainty in the estimate. Brewer et al (2010) estimate an elasticity of taxable income of 0.46 based on the changes in top tax rates in the 1980s. A similar estimate was used by HMRC and the Office for Budget Responsibility (OBR) in their analysis of the 50p rate. In contrast, the 2010 Budget that proposed the 50p rate used an elasticity of 0.35 based on studies from other countries.

But there is considerable uncertainty about the elasticity and other underlying assumptions behind these calculations. The Annex shows how calculations of the Laffer rate depend on a lot of things about which we know very little and that it is not possible to answer questions such as ‘how much extra revenue would be raised by raising the top rate from 45% to 50%?’ with any degree of confidence. Similarly, estimates of the total impact on government revenues are also very uncertain.

Nevertheless, it is possible to consider a range of estimates. The HMRC and OBR forecasts relate to the consequences for income tax receipts from those paying the additional rate – this can be estimated simply once one assumes a value for the elasticity of taxable income. Based on the HMRC forecasts of incomes in 2014-15, a rise of the additional rate to 50% from the current 45% would raise income tax receipts by £1 billion if the elasticity of taxable income were 0.45, and by £1.8 billion if it were 0.3. If one takes account of changes in national insurance payments, the change in receipts would be £0.5 billion or £1.5 billion.

But there are also consequences for other tax receipts. If the lower taxable income is shifted to other sources where it is taxed, then tax revenue from other sources will change. But if total post-tax income changes, consumption might also change and, hence, indirect tax receipts.

If one wanted to make a pessimistic evaluation of a move from 45% to 50%, one might assume a high elasticity of taxable income – that none of the reduction in taxable income shows up as income elsewhere and that consumption falls one-for-one as taxable income falls. In this case the rise from 45% to 50% would reduce total tax revenues by about £0.5 billion.

On the other hand, if one wanted to make an optimistic evaluation of a move from 45% to 50%, one might assume a low elasticity of taxable income, that all of the reduction in taxable income shows up as income elsewhere where it is taxed at a high rate and that all variation in income for high earners results in changes in savings. In this case, one could argue that total

tax revenues would rise by about £2.5 billion. A wide range of intermediate outcomes are possible – this is discussed in the Annex.

The causes of the behavioural response

There are a number of reasons why taxable income may respond to changes in tax rate:

- a. Labour supply responds: for example, people work fewer hours, put in less effort, retire earlier or emigrate.
- b. People spend more resources on tax avoidance and even evasion.

The evidence for the UK is that the avoidance/evasion response is more important than the labour supply response.

The impact of tax rates on hours and effort

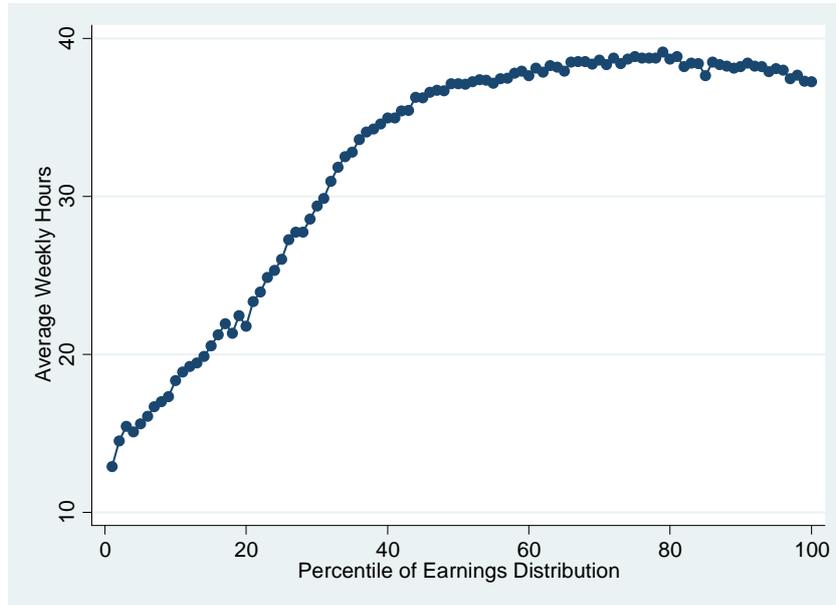
In the economic analysis of labour supply, the impact of a change in tax rates is often divided into an income effect and a substitution effect. The substitution effect of a higher tax rate is that the post-tax real hourly wage falls, which means an extra hour of labour can buy fewer goods and services and tends to reduce hours of work and effort. The income effect is that a rise in taxes means that fewer goods can be bought overall which tends to increase hours of work. The theoretical prediction about the impact of a rise in taxes on hours of work is ambiguous.

The coalition government's assessment of the 50p rate argued that 'most evidence for high earners suggests the substitution effect may outweigh the income effect i.e. the overall effect of a tax rate increase on labour supply is negative'.⁷ For employees, the data do not support this position. A rise in the marginal tax rate for the highest earners would reduce their post-tax hourly earnings to the level of those slightly lower in the current earnings distribution so it is reasonable to suppose their hours would be similar to those worked for that group.

Figure 2 plots average hours of work against percentile in the earnings distribution. Above the median, it is clear there is no relationship between post-tax hourly earnings and hours of work.

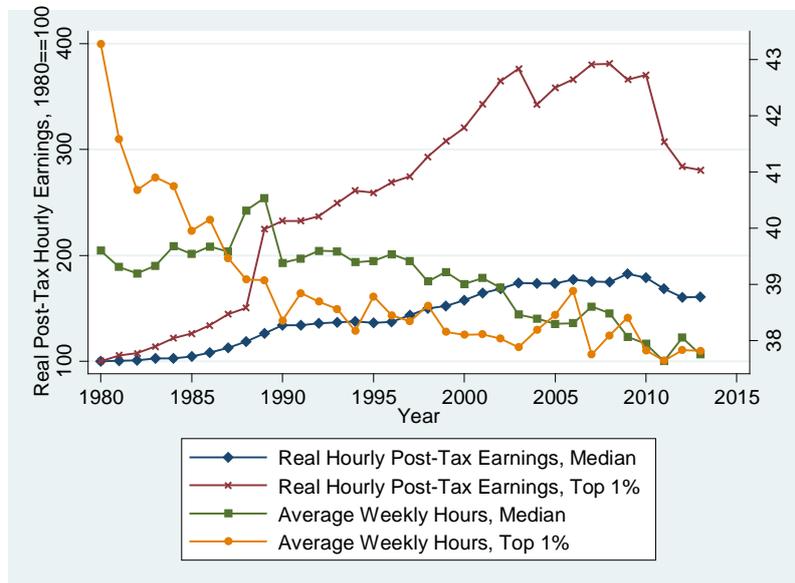
⁷ HMRC (2012) Para 2.4.

Figure 2: Average hours of work across the distribution of earnings: UK, 2013



Source: Author’s computations from Annual Survey of Hours and Earnings.

Figure 3: Changes in post-tax real hourly earnings and average hours for the median and top 1%



Source: Author’s computations from Annual Survey of Hours and Earnings.

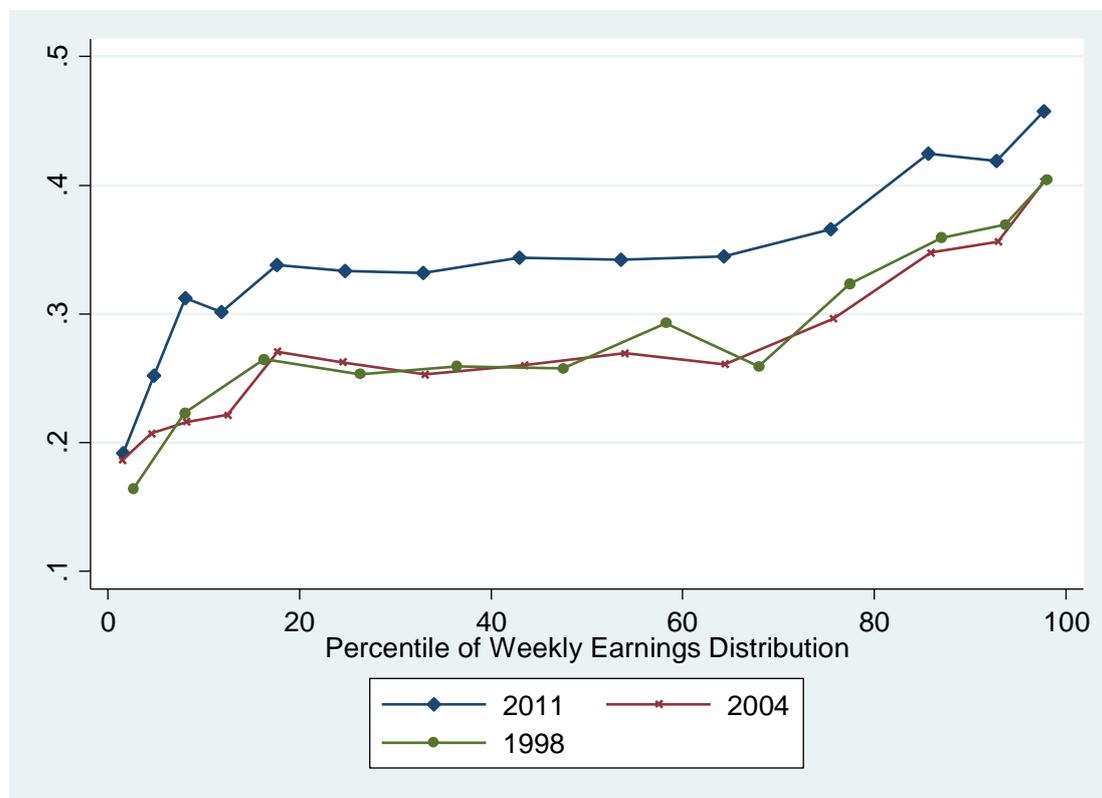
Figure 3 plots average real post-tax hourly wages for the median worker and the top 1% over the period 1999-2014 together with the average hours of those two groups. This figure shows a number of things. First, over the 30-year period, the incentive to work for the top 1% has risen hugely both in absolute terms and relative to the median worker. But their hours of

work have fallen both in absolute and relative terms. The introduction of the 50p rate reduced the incentives to work for the 1% to where they had been in the late 1990s. There is no reason to think their labour supply would have been any different from then and this is a very similar level of hours of work.

This is consistent with the findings from Denmark in Kleven and Schultz (2013) of an elasticity of labour income of 0.085 for the top 10% of Danish wage earners.

It may be that it is effort not hours that responds to changes in taxes. Effort is hard to measure, but Figure 4 presents some suggestive evidence based on the fraction of employees who report that their job requires very hard work.

Figure 4: Fraction of employees who strongly agree that their job requires “very hard work”



Source: Author’s analysis of Workplace Employee Relations Survey

Figure 4 suggests the higher paid do see themselves as working harder than do the lower paid although all groups report higher effort in 2011. But there is little evidence here of a response to changes in post-tax earnings here – between 1998 and 2004 the earnings of those at the top rose relative to the average (see Figure 3) but their effort did not.

It should be noted that all of this relates to employees – we lack any credible data on the behaviour of the self-employed.

The conclusion that there is no credible evidence of a labour supply response is in line with a recent survey that concluded that ‘there is no compelling evidence to date of real economic responses to tax rates... at the top of the income distribution’ (Saez et al, 2012).

Migration

This is not a marginal decision so it will most likely be based on the overall tax burden not marginal tax rates. But for the very highest earners, the average and marginal tax rates will be very similar. Recent research by Kleven et al (2013, 2014) does find a migration response for professional footballers and immigrants to Denmark. So high marginal tax rates may discourage some immigration though fluctuations in exchange rates lead to much bigger changes in the attractiveness of living in different countries. But native emigration is not found to be sensitive to taxes.

Effects on economic growth

It is sometimes argued that the contribution of the highest earners to the economy other than themselves is higher than the tax revenue they pay because their entrepreneurial activities raise economic growth. There is little evidence for this claim.

Piketty et al (2014) find no evidence that top tax rates have a detrimental effect on economic growth. And the Scandinavian countries have had high tax rates for decades without drifting ever further behind other countries, as one would expect if there was a sizeable growth effect.

Tax avoidance and evasion

Tax avoidance involves legal steps to reduce the tax paid while evasion is illegally avoiding tax. The dividing line between legal and illegal is a continual battle between HMRC and tax planners – with HMRC actively pursuing what it deems to be ‘aggressive tax avoidance’ schemes. The coalition government has implemented a number of policies to reduce tax avoidance and all the main parties currently say they will do more to combat avoidance with Labour mentioning a target revenue of £7.5bn.⁸

Tax avoidance is the central problem when trying to raise tax revenue from the wealthy and can take many forms. To give a specific example, consider the tax-shifting that occurs when individuals have some discretion over when they receive income or the form in which they receive it and choose to declare income when the tax rate is lower. For example, if one’s income in one tax year is £155,000 and another is £145,000, there is a tax saving if one can find a way to report taxable income of £150,000 in both years.

With tax-shifting, care needs to be taken in computing the revenue consequences of raising tax rates. Less tax revenue will be raised if declared income just switches to sources that are less heavily taxed.

It is clear that tax-shifting is possible and can be large-scale. When the 50p rate was introduced, it was announced in advance and there is clear evidence of income being paid before April 2010 when it would be subject to the 40% tax rate. This is consistent with international evidence. Tax-shifting is likely to be particularly marked when a large tax change is signalled in advance – but precise estimates of the effect are hard to come by.

⁸ For example, <https://www.gov.uk/government/publications/tax-avoidance-schemes-currently-in-the-spotlight> details 23 schemes that HMRC believes are being widely offered to help those using them to avoid tax.

Table 4 presents the changes in reported income between 2009-10 (when the top tax rate was 40% but it was known to be going to rise to 50% for the top 1%) and 2010-11 (when the additional rate was in place).

Table 4: The change in reported taxable income, 2009-10 to 2010-11

	Top 1%	Top 10% but not Top 1%	Top 50% but not Top 10%	Bottom 50%
Total Taxable Income	-16.9	-0.1	1.5	5.6
Total Earned Income	-7.3	0.0	2.0	5.1
Total Investment Income	-56.3	-2.6	-7.5	18.3
Dividends	-65.3	-0.7	1.8	7.1

Source: Author's computations from Survey of Personal Incomes.

It is notable that the fall in the reported taxable income is much larger for the top 1% than for other groups and that the fall in reported taxable income is much larger for investment income than earned income and especially large for dividends. This is strongly suggestive of substantial tax-shifting.

International evidence suggests that the elasticity of taxable income is higher in tax systems with more potential for avoidance. For example, a recent survey by Kleven (2014) argues that Scandinavian countries can sustain high levels of taxation because their tax systems have a broad tax base and limited opportunities for avoidance. This means that strong rules against avoidance and high tax rates are likely to be complements to each other rather than substitutes.

Conclusions

Having a top tax rate of 50% compared with 45% will bring in less than the £3.3 billion revenue expected if there is no behavioural response. It is unlikely that top taxpayers will work less hard, but it is likely they will try harder to avoid paying tax. This means tougher enforcement will be needed if taxes rise.

The actual change in tax revenue depends on how much income is diverted to other sources, the rate at which that income is taxed and the extent to which consumption responds to changes in income for the wealthy, factors about which we know very little. One could argue that tax revenue would fall by £0.5 billion or that it will rise by £3 billion.

Further reading

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Technical Annex

Suppose the tax payable on a reported taxable income of Y is $T(Y)$ – for simplicity assume there is no distinction between types of income in determining the amount of tax.

The **marginal tax rate (MTR)** is the fraction of each extra pound earned that is paid in tax – for the non-mathematical this can be thought of as $MTR = T(Y+1) - T(Y)$. For the mathematically inclined it is $MTR = dT(Y) / dY$.

The **average tax rate** is the fraction of income that is paid in tax, that is $ATR = T(Y) / Y$.

Although the policy discussion and this note are phrased mostly in terms of the rate of income tax, most academic discussion is about the **marginal effective tax rate**. This includes all taxes – those paid by the employee (income tax and employee NI contributions), those paid by the employer (employer NI contributions) and indirect taxes. If marginal income tax rate on worker income is τ , the marginal employee NI contribution rate is τ_{NI} , the marginal employer NI contribution rate is τ_{Ntemp} and the indirect tax rate (mostly VAT) is τ_{IND} then the overall METR is given by:

$$METR = 1 - \frac{(1 - \tau - \tau_{NI})}{(1 + \tau_{Ntemp})(1 + \tau_{IND})}$$

This is for earned income – the treatment of investment income is a bit different.

The **Elasticity of Taxable Income**, ETI is the percentage change in taxable income for a 1% change in $(1 - METR)$. In mathematical terms it is:

$$ETI = \frac{d \log Y}{d \log (1 - METR)}$$

Computing the Laffer rate in the UK

This section contains a lot of algebra but its main purpose is to make the point that calculations of the likely tax revenue raised from the top rate of income tax depend on a lot of assumptions about behaviour, almost all of which are unknown. The discussion is phrased in terms of the Laffer rate, the top rate of income tax that maximises tax revenue.

Here are the assumptions that are made – assume the top rate of income tax is τ on taxable income, y above y^* .

National insurance

The division of this income between earned and investment income matters for tax revenue. Suppose earned income is y_{EMP} and investment income y_{INV} . For the purposes of this example we will consider taxpayers whose earned income exceeds y^* . Earned income will

typically attract national insurance contributions, both employer and employee. Denote the overall marginal national insurance contribution by τ_{NI} . Currently this is 2% for employee contributions, and an extra 3.8% in employer contributions for employees (about 1/3rds of earned income among the top 1% is from the self-employed who do not pay this). This means that the tax payable on earned income above y^* will be given by:

$$T_{EMP} = (\tau + \tau_{NI})(y_{EMP} - y^*) \quad (0.1)$$

Investment income

For investment income, national insurance is not payable. The tax rate on investment income depends on the form of the investment income but most is dividends. This is taxed at 12.5% less than the top rate of income tax. Suppose that the marginal rate of taxation on investment income is τ_{INV} less than the rate on earned income.

This means that total income tax payable on investment income can be written as:

$$T_{INV} = (\tau - \tau_{INV})y_{INV} \quad (0.2)$$

Indirect taxes

If taxable income changes and consumption falls as a result then tax revenues from indirect taxes will fall. Suppose that a fraction c of every £ of post-tax income is consumed. Then the indirect tax revenue from reported taxable income can be written as:

$$T_{IND} = \tau_{IND}c \left[(1 - \tau - \tau_{NI})(y_{EMP} - y^*) + (1 - \tau + \tau_{INV})y_{INV} \right] \quad (0.3)$$

The appropriate value of c might depend on the time horizon, being lower in the short rather than the long-run. One might also think that income not consumed generates future investment income that attracts taxation – we do not consider this. Evidence suggests that wealth persists over generations so it may not be appropriate to assume all is eventually spent.

The elasticity of taxable income

Assume that the elasticity of total earned income with respect to one minus the marginal effective tax rate on earned income is given by e_{EMP} . This can be written as:

$$\frac{\partial \ln y_{EMP}}{\partial \ln (1 - \tau - \tau_{NIemp})} = e_{EMP} \quad (0.4)$$

Where τ_{NIemp} is the rate of employee contributions to national insurance. Equation (0.4) can be written as:

$$\frac{\hat{\partial} y_{EMP}}{\partial \tau} = - \frac{y_{EMP} e_{EMP}}{(1 - \tau - \tau_{NIemp})} \quad (0.5)$$

Assume that the elasticity of total investment income with respect to one minus the marginal effective tax rate on investment income is given by e_{INV} . This can be written as:

$$\frac{\partial \ln y_{INV}}{\partial \ln(1 - \tau + \tau_{INV})} = e_{INV} \quad (0.6)$$

Which can be written as:

$$\frac{\partial y_{INV}}{\partial \tau} = -\frac{y_{INV} e_{INV}}{(1 - \tau + \tau_{INV})} \quad (0.7)$$

Tax-shifting

When taxable income falls as a result of a rise in the top rate of income tax, there may be some shifting of income to other forms or periods when it attracts a lower tax rate. Assume that a fraction ϕ_{EMP} of lost earned income is transferred to other forms where it is taxed at a rate η_{EMP} and that a fraction ϕ_{INV} of lost investment income is transferred to other forms where it is taxed at a rate η_{INV} . This will typically include indirect taxes so will be influenced by the marginal propensity to consumer discussed earlier.

The Laffer rate

Suppose we choose the income tax rate to maximise tax revenue which can be written as:

$$T = \left[(\tau + \tau_{NI}) + \tau_{IND} c(1 - \tau - \tau_{NI}) - \phi_{EMP} \eta_{EMP} \right] (y_{EMP} - y^*) + \left[(\tau - \tau_{INV}) + \tau_{IND} c(1 - \tau + \tau_{INV}) - \phi_{INV} \eta_{INV} \right] y_{INV} \quad (0.8)$$

Where (0.5) and (0.7) tell us how earned and investment income respond to changes in tax rates. The value of τ that maximises tax revenue is given in Table A1.

Table A1: The revenue-maximising tax rate

		Marginal propensity to consume		
High elasticity of taxable income – 0.45		0	0.5	1
Measure of	0	42%	<40%	<40%
tax-shifting	0.2	51%	48%	45%
	0.4	62%	58%	55%
Low elasticity of taxable income – 0.3		0	0.5	1
Measure of	0	52%	49%	46%
tax-shifting	0.2	59%	57%	54%
	0.4	66%	64%	62%

Note: The other parameters are $\tau_{IND} = 0.15$, $\tau_{NI} = 0.158$, $\tau_{INV} = 0.075$, $a = 1.8$, and a share of investment income of 0.125.

Computing the revenue consequences of a rise in the additional rate from 45% to 50%

One question one might be interested in is the consequences for government revenue of raising the additional rate from its current rate of 45% to the 50% proposed by Labour and the Liberal Democrats.

The forecast here will use as a baseline the forecast for revenue raised from the additional rate in 2014-15 published by HMRC in February 2015⁹. It should be recognised that this forecast is hard to make in recent years because of the impact of the financial crisis and the clear shifting of income between tax years that has taken place as the additional rate was introduced and then changed.

HMRC estimate there will be 313,000 individuals paying the additional rate in 2014-15 with total income tax receipts from the additional rate of £30.3 billion.

Row 1a of Table A2 shows the pre-behavioural yield i.e. the revenue raised if there was no change in reported taxable income. Row 1b shows the effect on income tax receipts if there is a behavioural response for both a high elasticity of taxable income (0.45) and a low one (0.3).

Row 2 then shows the consequence for national insurance receipts under the assumption that earned income pays the employee rate for higher earners of 2% and two-thirds of employment income is from employees when an employer rate of 13.8% is also payable.

Row 3a presents an estimate of the reduction in indirect tax receipts from the reduction in post-tax taxable income under the assumption that the marginal propensity to consume for this group is 1 and that the indirect tax rate is 15%. Row 3b does the same but under the opposite extreme assumption, namely that the marginal propensity to consume for this group is zero.

Row 4 presents an estimate of extra tax revenue from other sources under different assumptions about the extent to which a reduction in taxable income generates tax revenue elsewhere. Row 4a assumes no extra tax revenue is raised while Row 4b assumes a high rate of 40%.

Finally Row 5 adds up all the effects. Row 5a presents the most pessimistic scenario while Row 5b the most optimistic.

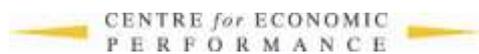
It should be emphasised that we know very little about many of the parameters needed to estimate the total revenue effects.

9

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403272/Income_Tax_Liabilities_Statistics_-_February_2015.pdf.

Table A2: The revenue consequences of raising the additional rate to 50%

		Change from baseline – elasticity of taxable income=0.45	Change from baseline – elasticity of taxable income=0.3
1a	Pre-behavioural yield	3.4	3.4
1b	Income tax receipts after response of taxable income	1.0	1.8
2	Change in NI receipts	-0.5	-0.3
3a	Change in indirect tax receipts if all change in taxable income is consumed	-0.9	-0.8
3b	Change in indirect tax receipts if none of change in taxable income is spent	0	0
4a	Change in other tax receipts if all reduction in taxable income is lost	0	0
4a	Change in other tax receipts if other tax revenue 40% of reduction in taxable income is lost	2.0	1.3
	Pessimistic scenario 1b+2+3a+4°	-0.4	0.7
	Optimistic scenario 1b+2+3b+4b	2.5	2.8



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