A closer look at the UK's 'additional' top tax rate

By John Thompson (April 21, 2015)

1.   The last Labour Government increased the top income tax rate for high earners from 40 to 50 per cent starting in 2010-11. This 'additional' rate would only be paid on taxable incomes over £150,000, affecting about 300 thousand 300,000 individuals, or one per cent of taxpayers. Though the tax yield for this additional rate was not expected to be large, only about 0.5 per cent[1] of the overall tax revenues, its significance should not be underestimated. This was the first increase in the UK income tax rate for high earners since 1974 and was a partial reversal of the cuts in the rates introduced by Conservative Governments in the late 1970s and 1980s. The debates about the value and risks of taxing top incomes from those times are again current, with increasing hostility to tax evasion and avoidance, and concerns about growing inequality, as well as the focus on trying to reduce the rate at which our public debt is increasing. Under the Coalition Government the additional rate was reduced from 50 to 45 per cent in 2013-14. Though they had originally introduced the 50 per cent rate as a temporary measure, the Labour Party opposed the reduction to 45 per cent, and has indicated that if it leads the next Government it will restore the rate back to 50 per cent[2].

2.   In 2012 HMRC published a report (HMRC, 2012) providing an estimate of the yield from the introduction of the 50 per cent additional rate, and a prediction of the impact of reducing that rate to 45 per cent. Their best estimate of the underlying yield due to the additional rate in 2010-11 was £1.1 billion pa, far lower than the original estimate of £2.5 billion pa, and their estimate of the cost of reducing the rate to 45 per cent was just £100 million pa. At the time of writing no further work on the yields arising from these tax changes has been completed[3], though there has been a presentation of preliminary findings from a new study by the Institute for Fiscal Studies (Browne et al, 2015). The HMRC report also argues that higher taxes would make the UK less competitive and lead to lower economic growth.

3.   In this closer look at the HMRC report it is first shown that tax yield estimates rely on an unacknowledged assumption, and that the uncertainties in these estimates are large and are not reduced by comparisons with other studies

based on other tax changes at other times. The second section shows that the conclusions about the impact of tax rates on economic growth are due to a misreading of some of the evidence, and a failure to acknowledge the full range of arguments and evidence in the literature[4].

Tax yields from the additional 50 per cent top rate of income tax

4.   HMRC stress that their attempt to estimate the revenue accruing from the additional income tax rate was 'challenging' and that the estimates are therefore uncertain, a view supported by those who have looked at their estimating in detail, in particular the Office for Budget Responsibility (OBR) and the Institute for Fiscal Studies (IFS)[5]. Despite the acknowledged challenges, the HMRC report concluded that:

> 'the underlying yield from the additional rate is much lower than originally forecast (yielding around £1 billion or less), and that it is quite possible that it could be negative'

The then Exchequer Secretary to the Treasury, David Gauke, has argued that further reports were 'entirely unnecessary', explaining that 'the impact of reducing the additional rate of income tax has been examined in great detail'[6]. But these conclusions are hard to square with the uncertainties described in the HMRC report, even without taking account of an unacknowledged assumption.

5.   The challenges arise because, as well as raising an extra ten pence for every pound over a net income[7] of £150,000, introducing a new 50 per cent additional rate could have changed taxpayers' behaviour in ways that change the total amount of net income declared. For example, the new rate may have triggered retirement, emigration, reduced working, or an increased investment in avoiding or evading tax. What is needed is an estimate of what the total net income would have been had the additional tax never been declared or implemented. This is particularly difficult because the incomes of top earners tend to vary from year to year. Further, top earners often have the ability to bring forward income planned for future years, in effect delaying the full effect of the tax rise. If we want to know what the underlying impact of the tax changes are, we need to take account of these temporary income movements. In addition to the difficulties outlined, the HMRC report was completed to a schedule that meant they had to work with an incomplete set of tax returns for 2010-11, and no information at all for the following years.

6.   The 50 per cent rate was introduced in 2010-11, and widely anticipated in the 2009-10 tax returns, so the HMRC researchers derived a formula for the annual change in net total income for those individuals whose net income was £150,000 or more using data from1994-95 to 2008-09. This formula could then be used to estimate what the net total income would have been in 2009-10 and

2010-11 had the additional tax rate not been introduced. The formula explains most of the year to year variation in the total income of top earners. The problem is that, good as it might appear the formula is not good enough to provide an accurate estimate of tax yield, with an average absolute difference between the actual and estimated net incomes of about £2 billion[8]. From figures in the HMRC report we find that their central estimate of a £1.1 billion yield should be viewed as sitting within the range from more than a £4 billion yield to more than a £2 billion loss[9]. Such a wide range of possible values amounts to accepting that 'we have very little idea what the yield was'.

7.   The authors go on to say that they may have overstated the range of yield; that is they may have overstated the uncertainty. While there are cogent reasons for this assessment we should remember that error estimates in general have a tendency to be overconfident. Also, there is one complication that appears to have been overlooked; that is the movement of individual taxpayers in and out of different income groups.

8.   Where the analysis is based on repeated cross sectional data, changes to the composition of target or control groups are a well recognised problem. In this estimation, the formula used to estimate what the net total income of the target 'affected' (£150,000 and over) group would have been in 2009-10 and 2010-11 had the additional tax rate not been introduced, included the annual change in total net income for individuals with net incomes between £115,000 and up to £150,000. This was referred to as the 'unaffected' group and it is the case that all taxpayers included in this group in any particular year would not be liable to the additional tax[10]. But we cannot be sure that the total income for that group was unaffected; potentially it could have been.

9.   Consider an imaginary taxpayer with net income of £160,000 pa. Knowing the 50 per cent rate was to be introduced in 2010-11, he was able to move £11,000 which would have been paid in 2010-11 to 2009-10, thereby making a one off saving of £1,000, in effect delaying the introduction of the additional rate by one year. This is summarised in table 1.

Table 1: Net incomes (£ thousands) with and without 50 per cent tax for an imaginary taxpayer

	2008-09	2009-10	2010-11	2011-12
Additional 50% rate tax from 2010-11	160	171	149	160
No additional 50% rate tax in any year	160	160	160	160
Yield from introduction of 50% rate	0.0	4.4	-4.4	1.0

In 2010-11 the total net income in the 'unaffected' group was £149,000 higher than it would have been had the additional tax not been introduced. There was no tax advantage in reducing the income to £149,000 rather than £150,000, but he preferred to leave something in reserve to ensure that the 2010-11 income would be below the additional rate threshold.

10.   If some taxpayers do change their behaviour in the way illustrated in table 1, there are two impacts which would bias the estimation of tax yield downwards. Firstly, since the 'unaffected' group isn't factored into the HMRC calculations, no account will have been taken of the income tax and NI paid in 2010-11 on the £149,000 income of the taxpayer who has been shifted from the 'affected' to the 'unaffected' group. This has a very small impact. Secondly, as described above, the 'unaffected' group's total net income is used to estimate what the 'affected group's total income would have been had the additional tax not been introduced, so the lift in the 'unaffected' group's total net income will increase the 'affected' net income estimate. This could have a significant impact. For a movement of one per cent of the 'affected' group taxpayers into the 'unaffected' group in 2010-11 as a result of the additional tax, the actual underlying yield from introducing the 50 per cent rate would be about £1.5 billion higher than calculated without taking into account this income group movement.[11]

11.   It is not straightforward to determine whether movement between income groups has a material impact on the tax yield estimate[12]. Preliminary findings by the IFS (Browne, 2015) are consistent with only a very small number of taxpayers making moves like that shown in table 1 (see paragraph 14), though we are not yet in a position to say what the overall effect of various movements between income groups has on the yield estimate. Other possible group movements would lead to an over estimation of tax yield, implying that the reported central estimate of £1.1 billion was too high[13]. However, we have no reason to assume that the effects of different group movements would cancel out, so without further investigation we have to accept that the uncertainties are even greater than identified in the HMRC report.

12.   The conclusion in the Executive Summary that 'it is difficult to construct a plausible outcome consistent with a yield estimate as high as those original forecasts' is not supported by the evidence contained within the HMRC report, even if we ignore the uncertainty from 'income group movement'. The original forecast of yield (£2.5 billion pa) is well within the range of yields from the 2012 estimates. We cannot rule out a yield of that magnitude, or even higher, nor a much lower yield.

Preliminary findings from the Institute for Fiscal Studies

13.   The Institute for Fiscal Studies have access to much of the relevant data and they plan to try and replicate HMRC's modelling, check its robustness, and

extend the analysis to later years where data are available, and explore some alternative methodologies. Recently they presented their 'work in progress' (Browne et al, 2015), based on data which included two sets of data which were unavailable to HMRC in 2012. Firstly IFS have complete data for 2010-11 and so do not have to extrapolate from the 94 per cent of returns available to HMRC. Secondly IFS have data for 2011-12, whereas the latest data available to HMRC were the incomplete 2010-11 returns.

14.   They show the taxpayer 'density' (taxpayers per pound) for £500 income bands from £90,000 to £160,000 for 2010-11. Reductions in income to around the £150,000 threshold would be expected to produce 'bunching'; that is a departure from what would be expected by interpolating from the rest of the distribution of taxpayers across incomes, and allowing for any bunching that occurs without a threshold. The bunching at £150,000 is much less pronounced than found for a similar plot across the threshold income between 20 and 40 per cent rates[14].

15.   The complete data showed that the fall in total net income in 2010-11 was greater than found with the extrapolated data, and that this fall was especially noticeable for the 'unaffected' group[15][16], which would suggest the behavioural response to the tax increase was smaller than HMRC had estimated. Though IFS do not spell this out, this would suggest that, had the HMRC had complete 2010-11 data, all other things being the same, their central estimate of the underlying tax yield would have been higher.

16.   The 2011-12 data showed increases from 2010-11 in total income for both the affected and control groups, but much smaller increases than we might expect from HMRC modelling of the temporary forestalling effect reducing the total income in 2010-11. This could mean that the forestalling effect was smaller than estimated which would mean that the underlying tax yield would be lower. An alternative explanation is that, by 2011-12, another temporary effect had kicked in with top earners postponing income in anticipation of a tax cut. Though the reduction from 50 to 45 per cent was formally announced on 21 March 2012, there were plenty of indications that the change was coming, both from previous statements from the Chancellor of the Exchequer, and from comment and speculation in the press (Seely, 2014).

17.   The IFS researchers stress that these are early provisional findings and they do not revise the original estimate of underlying tax yield, stressing the need for further research. This is to be welcomed, and no doubt we will learn much from this analysis, but to expect robust accurate estimates of the underlying tax yields from the 50 and 45 per cent rates may be unrealistic, given that the short term effects are so large, and difficult to quantify. With the 50 per cent rate only being applied for three years, and its introduction and reduction both anticipated years before the changes, we may have to live with a large degree of uncertainty unless higher rates are introduced on a longer term basis.

Cost of reducing the additional top rate of income tax to 45 per cent

18.   Having assessed the impact of the introduction of the 50 per cent additional tax, the HMRC report then goes on to forecast the cost of reducing this tax to 45 per cent. This was achieved by assuming a 'taxable income elasticity'; this is a measure of how the total net income changes with a change to the marginal tax rate. An elasticity of 0 would mean that there was no change in the total income, a value of 1 would mean that percentage change in the total income was the same as the change in the marginal tax rate. The elasticity associated with the original £2.5 billion yield for the increase to 50 per cent was 0.35, while the elasticity implied by the £1.1 billion was 0.48.

19.   The cost of reducing the top rate from 50 to 45 per cent was based on a 'taxable income elasticity' of 0.45, slightly lower than that central estimate of 0.48 found from the analysis of the introduction of the 50 per cent rate. Of course, the uncertainties and any biases inherent in the estimate of the yield from the 50 per cent tax must affect this prediction for the 45 per cent rate. In addition some further assumptions had to be made in order to estimate the effect of a reduction in tax rate from 50 to 45 per cent from an elasticity based on an increase in rates from 40 to 50 per cent. The assumptions made are reasonable, but they do mean even greater uncertainty[17].

20.   Despite acknowledging the uncertainties, the report concludes somewhat confidently that the cost of reducing the additional tax to 45 per cent would only cost £100 million pa, and that this would be a price well worth paying for an increase in competitiveness and growth that a lower tax rate would lead to in the longer term.

21.   An increased confidence in the £100 million estimate was built on a review of previous studies. They showed that the central estimate of elasticity (0.48) found from the analysis of the 50 per cent rate sits comfortable within the range of values from earlier studies. The study viewed as the most relevant (Brewer et al, 2010) reported elasticities between 0.08 and 0.93, depending on the time period and model specification, with a value of 0.46 taken as the most reliable. These estimates used data for the UK from 1962 to 2003, and are based on a regression of the income share of the top 1 per cent of earners against marginal tax rates, controlled by the high (5 per cent) but not top (1 per cent) income share. The estimates depended on the assumption, acknowledged by the researchers, that the growth in top incomes would have been the same as the growth in high incomes, had tax rates not changed. And, as the HMRC report acknowledges, we cannot assume this elasticity will apply in 2010-11, even if we assume that this 'tentative' estimate is accurate. Choosing an elasticity of 0.45 may be 'sensible', but only if we accept that it sits within a very wide range of possible values.

22.　These tax yields only relate to changes in revenue from income tax; they are what might be called 'first order'. The HMRC report also considers one 'second order' impact, the reduced VAT takings resulting from retirement, emigration, reduced working and so on, the 'supply' element of tax elasticity. This requires a whole series of assumptions; the proportion of the behavioural change due to 'supply', the proportion of the lost income that would have been spent, where it would have been spent and what it would have been spent on. This tower of uncertainty we should recall is built on an uncertain base – the total tax elasticity. Also, as will be described in the next section, the removal of highly paid individuals from the labour market could increase incomes for the lower paid who will spend more and generate more VAT revenues. Other second order effects were ignored. For example, increased tax evasion will put more income at the disposal of the taxpayer and, by the same argument, may increase VAT receipts. Increased tax avoidance may increase the take on other taxes, depending on the scheme. For example individuals who are the sole owners and managers of a company may have a choice to take income as corporate profit or personal income. An increase in the income tax rate may induce a reduction in the personal income, but if the corresponding increase in corporation tax is not accounted for, the overall reduction in yield will be exaggerated. It is unclear whether the net effect of all second order impacts would be to increase or decrease the overall estimate of tax yield.

Tax rates, competitiveness and economic growth

23.　The review of the evidence relating to tax rates and economic growth is highly selective with respect to which papers are cited and then how the results reported in those papers are presented. In one case the summary of the findings is the opposite of what was originally reported. The effect is to create an impression of a consensus where none exists.

24.　There are also arguments based on supposition without any supporting evidence, for example that high taxes may result in individuals investing 'less in education and training than they might otherwise have chosen'. Despite caveats or 'get out' clauses sprinkled through the narrative, it concludes with unqualified statements that high income tax rates would deter investment and result in highly productive individuals leaving the UK labour market, both of which would reduce economic growth. Here two of the key papers used to support this conclusion are examined more closely.

Investment and Entrepreneurship

25.　The HMRC report focussed on the impact of income tax rates on Foreign Direct Investment (FDI). Of the evidence cited, the results of the most relevant paper (Djankov, 2008) were summarised as follows:

'there can be a negative relationship between the highest rate of personal income tax and FDI flows, though the effects for personal income taxes are smaller than the effects of corporate taxes'

This does not report the whole picture. The association of income tax with FDI is negative and significant (at the 5 per cent level) after controlling for corporate tax with two of the three corporate tax measures used, though not when corporate tax was controlled with the 'Statutory Corporate Tax Rate'. The coefficient for income tax is small, smaller in fact than VAT and sales taxes. Only 'other taxes' showed smaller coefficients, and then only with two out of the three corporate tax formulations.

26.   The researchers looked at three other outcomes, none of which were reported in the HMRC review. They were:-

- Total investment (Gross fixed capital formation, GFCF)

- Business density - number of limited liability corporations per 100 working age people

- Entry rate - number of limited liability corporations registered per year per 100 working age people

None of these outcomes was significantly and negatively associated with income tax. Indeed total investment is positively and significantly associated with income tax rates, though this relationship disappears with the removal of two outliers, China and Vietnam. While this test of robustness was important in showing what was described as a 'fluke' result, there is always a risk of introducing a bias when excluding data without setting out the criteria in advance, which seems to be what happened in this case. We may wonder whether such a test would have been carried out had the result not been surprising to the researchers. The FDI by income tax plot has its own outliers. Would that association remained significant if they were excluded? (The paper does not include data to enable the reader to see if this is the case.)

Highly productive individuals

27.   Why do some individuals have such high incomes? Because their skills, abilities and energies mean that they are highly productive, or, equivalently, that their skills are in great demand and short supply. Hence Wayne Rooney is paid £300,000 per week[18]. This answer is at the heart of much economic analysis and underpins the assessment of tax rates and growth in the HMRC report. Let us, for now, accept it as being an accurate description, at least for most individuals.

28.   A distinction is made between two components of tax elasticity, 'avoidance (and evasion)' and 'supply'. While avoidance will reduce tax yield, because the income after tax is not reduced, the direct effects on economic

growth are likely to be small[19]. If we assume that part of the elasticity found is due to 'supply', that is whole or partial withdrawal from activity in the UK, through retirement, emigration or reduced working, then the output from highly productive individuals will be reduced leading to lower economic growth. Further, it is argued, the highly skilled also increase the productivity of the people they work with, so that their reduced participation can be expected to have a wider impact. The HMRC report claims that evidence suggests that between a third and a half of the overall behavioural response is due to 'supply' effects, but the source of this evidence is not referenced. Some anecdotal evidence of increased emigration is presented, but it is unclear whether this is due to the introduction of the 50 per cent rate. The provisional conclusion is that the migration impact was 'muted', but only because the higher rate was perceived as a temporary measure.

29.   Rather than trying to isolate the supply component of tax elasticity, some studies take an overview by looking at the relationship between tax rates and economic growth, through time and across different countries. The HMRC report cites several papers taking this approach. The most recent (Piketty et al, 2011), and arguably the most relevant, given it is the only study they cite to focus on the top one per cent of earners, was summarised as follows:

> 'A regression result in a recent study implies that higher taxes may reduce real GDP per capita levels, although the results are not conclusive.' [20]

When this was pointed out to Piketty, his response was to remark that 'it is indeed quite surprising to learn that our paper with Saez and Stantcheva was used in this manner, given that we basically find the opposite'. Their analysis was based on GDP per capita and top marginal tax rates for 23 OECD countries from 1960 to 2010. Regressions were carried out with a variety of control variables and for the periods 1960- 2010, 1960-1980 and 1980-2010. Their results were as follows:

> 'The regressions consistently display negative coefficients across the full period, suggesting that low top tax rates are detrimental to growth. The estimates however are not fully robust to the choice of time period . . . Therefore, we can conservatively conclude that low top tax rates do not have any detectable positive impact on GDP per capita. Our preferred bottom row specification including the largest set of controls shows insignificant effects for all three periods.' (Piketty et al, 2011, page 26; Piketty et al, 2014, page 257. NB these refer to the working paper available to HMRC in 2012, and the final peer reviewed journal article.)

So the regression referred to in the HMRC report does not provide evidence to support the view that increasing top rate tax would lead to decreased growth. The researchers acknowledge their conclusion depends on an assumption that there are no other factors which change the trend in GDP growth which are

correlated with the changes in top tax rates. Plausible examples of such factors are given which could bias their estimates up or down, which were not directly tested, but further analysis using different data sets suggest that the net effect of such factors is small.

30.   Wayne Rooneys do exist, but they are not typical. In the USA those in the arts, media and sports only account for 1.6 per cent of the top one per cent of income earners[21]. The typical high earner is a top manager. We have no reason to believe the UK is different. Many of these top managers, whose productivity is hard to estimate, are at least partly able to determine their own salaries with only limited checks. The strength of these checks will depend on the strength of corporate governance and the social norms of the country in which organisations operate. This is a much simplified summary of an argument set out by Thomas Piketty in his 'Capital in the Twenty-First Century' (Piketty, 2014), who concluded that 'hands in the till' is probably a more apt metaphor than 'invisible hand' to describe the huge increases in income enjoyed by senior executives in the USA and to a lesser extent in the UK and other English-speaking countries.

31.   Fred Goodwin provides an extreme example of a disconnect between income and value. With no banking qualifications or, it seemed, any real understanding of banking, he took the Royal Bank of Scotland (founded 1727) to what would have been bankruptcy without support of the UK taxpayers and walked off with a pension of £342,000 a year and a tax free lump sum of £2.7 million[22]. This is not to say, of course, that Fred Goodwin is a typical top earner, but this example is a vivid reminder that income may not be a perfect measure of productivity, which is crucial to understanding why large tax elasticities do not necessarily imply a link between top tax rates and economic growth.

32.   As we have seen, a work cited in the HMRC report (early version Piketty et al, 2011; final version Piketty et al, 2014) found no evidence of a positive correlation between reductions in marginal top tax rates and economic growth, yet this study also derived tax elasticities broadly consistent with other studies, showing strong effects, particularly for the USA and UK in the period 1981 to 2010. This might seem puzzling from a conventional interpretation of tax elasticities, but the main point of this paper was to demonstrate that elasticities in total tell us little about what impact tax rates have on economic growth, nor on which tax rate would yield the greatest revenue.

33.   The paper referred to in the HMRC report proposed that the tax elasticity in total should be decomposed into three, rather than two, elements, adding 'Bargaining' to 'Supply' and 'Avoidance'.

Total elasticity = Supply + Avoidance + Bargaining

34.   'Supply' refers to those changes already described, like early retirement or emigration. If supply were the main component of the observed elasticity

then the optimal tax rates to maximise tax revenue as conventionally estimated would apply. 'Avoidance', to which we may add evasion, will also limit optimal tax rates as conventionally estimated, though the authors stress that, for developed countries, this should be largely within the control of governments, and, therefore, should not be taken as a given.

35. 'Bargaining' introduces the idea that when the top tax rate falls, high earners will start bargaining more aggressively to increase their income. This increase is not related to an increase in productivity and is a zero sum game where the gains at the top come at the expense of the rest. This means that the increased tax gained from the increased income for top earners will be at least partly offset by the loss of income and tax from others. The optimal tax rate could be much higher than a conventional estimate that does not take account of the bargaining effect. The 'trickle-up' transfer from lower to upper incomes will not lead to economic growth.

36. The evidence assembled is consistent with a sizeable bargaining component to the observed tax elasticity[23], with the implication that optimal top tax rates, that is the rates that maximise revenue, may be higher than conventional estimates, and that higher rates will not necessarily lead to slower growth.

37. It is possible that the 'three elasticities' story does not go far enough in identifying the potentially benign effects of rises in the top rate of tax. Consider the CEO heading a lower than average performing firm with weak governance, who is on good terms with all the members of the compensation committee. He has been the CEO for a considerable time and much of his knowledge and skills are particular to that firm, so that his departure would cause some disruption. For anyone who is familiar with the modelling of CEOs' incomes (Piketty et al, 2014), it comes as no surprise to learn that his income is higher than it might otherwise be expected, given the size and lack of success of the firm. Our CEO already has a bargaining offer for a position overseas when a top rate tax rise is announced. This tips the balance and he decides to emigrate rather than bargain further. There is some disruption but a replacement is found with lower remuneration, and in due course bringing in this 'new blood' is judged to have been beneficial. Technically the response was a 'supply elasticity' but in terms of the long term impacts on tax revenue and economic growth it is not very different from the 'bargaining elasticity' in that the loss of direct and indirect taxes with the reduction in the top income would be compensated in the long term by a reduced 'trickle up' from the lower paid.

The 60 per cent income tax rate

38.   While income tax rates are always emphasised in political debates, they are only one parameter in the determination of individuals' net contributions. Even if we leave aside National Insurance contributions and means tested benefits, we have much bigger effective marginal tax rates than the 45 per cent for the top one per cent. When, in 2010-11, the 50 per cent additional rate was first charged, a taper on personal allowances was also introduced. This meant that those earning between £100,000 and £112,950 had a marginal income tax rate of 60 per cent, as their personal allowance was tapered from £6475 to zero. Various commentators have pointed this out from when the taper was first proposed, yet since then, though the 50 per cent rate was reduced to 45 per cent in 2013-14, the personal allowances taper has remained. The number of taxpayers caught with the 60 per cent tax rate will have increased as the starting income has been frozen in cash terms, and as the personal allowances have increased, so that now those with incomes between £100,000 and £120,000 are affected. Though Government was worried about the 50 per cent and now the 45 per cent rates affecting the motivation of the top one per cent, they are apparently content to see a 60 per cent rate for a growing number of other taxpayers. Is it that this group are less likely to be in a position to avoid tax or emigrate? Or is it that they are less able to lobby their cause?

What should be done?

<u>More analysis would be useful, but it may not remove uncertainties, and a wider perspective is needed</u>

39.   The publication of the HMRC report into the effect of the 50 per cent rate (HMRC 2012) was a huge step forward in openness, with the description of the methods used being much more detailed than found in many journal articles. In addition HMRC were also most helpful in responding to questions about these details; though any remaining misunderstandings are, of course, not their responsibility. It is to be hoped that this is not a one off, and that in future publication of the basis on which claims about tax policies are made becomes the norm.

40.   If the policy debates are to be well informed, it's essential that the caveats, assumptions and uncertainties included in academic papers and technical reports are appreciated more widely. This does not only apply to the direct estimates of tax yields, but also to the belief that higher top tax rates lead to lower growth, a belief which has much less secure foundations than is usually appreciated. Given the huge uncertainties which can be found in the 2012 HMRC estimates, there is a strong case for further analysis. In the HMRC report we read that, 'Government will continue to monitor the evidence from the introduction of the 50p rate and the academic literature and will update its

estimate of the TIE' [taxable income elasticity] 'if compelling evidence emerges that 0.45 is not a sensible central assumption'[24]. So it seems that further analysis may be taking place though none has been published.

41.   The results from the work being undertaken by the Institute for Fiscal Studies should be published later in 2015. From the presentation of their first exploration of the data it seems they will also be looking at the impact of the effective 60 per cent rate for those with incomes from £100,000. As well as being of interest in itself, the 60 per cent rate will start to directly affect 'unaffected' comparator group from 2012-13[25].

42.   How can the tax yield estimates be improved? With frequent changes in rates, particularly if they are announced well in advance, or just anticipated, estimating an underlying tax yield with any confidence may not be possible, and in such circumstances an 'underlying' rate is only hypothetical; what would the tax yield have been were it to have continued? If rates were more stable there may still be a problem, as highlighted in the HMRC report, in extrapolating further from a 'base year', though pushing back the base year as far as 2004-5 and comparing actual with derived total incomes through to 2008-09 seemed to show that this problem may not be as great as feared [26].

43.   There may be scope to base the modelling on individual, or at least less aggregated data, enabling other variables such as, for example, the age and sex of the taxpayer, or the sector they work in, to be included, although there is no guarantee this would produce more accurate estimates. It is also important to decompose 'elasticity' into its separate components, in particular to identify evasion, avoidance and emigration. It may be that individual tax data, possibly merged with other sources, can achieve this. Lest unrealistic expectations be raised, any further analysis will still be 'challenging' and so we must not expect the estimates to fall within narrow limits.

44.   There is also a need for more broadly based research to look at progressive taxation in the context of the increasing inequality in incomes and wealth. As these inequalities increase, so the proportion of the tax receipts from top earners increases, and this potentially makes the tax revenues unstable. This is usually presented as a problem of progressive taxation, with a light tax for high earners the solution, but it can also be viewed as a problem of increasing inequality, with progressive taxation as potentially part of the solution, as outlined by Piketty. This alternative view fits well with the growing evidence that inequality is inefficient, or, rather, that the current levels of inequality are already greater than optimal.

<u>Evasion and avoidance</u>

45.   We should not take tax evasion and avoidance as 'givens'. Despite the usual acknowledgements that tax elasticity is contingent on time and place, some of the discussions give the impression that a sizeable elasticity is inevitable, like an economic law. To this we have the perspective of the HMRC which, quite rightly, is concerned with its efficiency, that is the HMRC pounds spent to collect compared to the Treasury pounds collected. Why go after revenue that is difficult to collect? Such a position has to be tempered with an appreciation that a too narrow focus on immediate efficiency may weaken the system as a whole. If the 99 per cent are told that it is no use Government trying to raise more much needed revenue from the top one per cent because they won't pay up, we might expect the 99 per cent to be less willing to co-operate.

46.   There is a growing consensus across political parties and the general public that tax avoidance and evasion should be tackled more vigorously. This is important because, though reducing avoidance is often portrayed as a complex technical issue, the biggest problem is often in facing down interested parties. Measures to reduce the scope for evasion can increase tax revenue in themselves, but they are also a pre-requisite to effectively raising the tax rates for the top earners.

<u>Temporary changes of little value</u>

47.   From the 50 per cent rate evidence, it seems that short term increases are of little value. It may be possible to introduce anti-forestalling measures, but at what cost for a tax yield only lasting a short period of time? Given that the concerns about long term increases in economic growth may not be as well founded as has been assumed, and given any reduction in the 'trickle up' of earnings to the top earners would take time, the case for such increases for the long term deserves more consideration. Increasing tax rates should accompany, rather than replace, increased efforts to reduce avoidance and evasion.

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Endnotes

[1] Expected income from 50 per cent additional tax = £2.5 billion (HMRC, 2012, page 2), total HMRC revenues in 2010-11 = £468.9 billion (www.nao.org.uk/wp-content/uploads/2011/07/10121278es.pdf)

[2] http://www.labour.org.uk/blog/entry/the-labour-party-manifesto-2015

[3] HMRC published (HMRC 2014) estimates of the yield (cost) of increases (decreases) of a one percentage point change in the additional rate for 2015-16 to 2017-18, but HMRC have confirmed that these are based on a taxable income elasticity of 0.45 as derived from their 2012 report.

[4] The justification for taking a closer look at a report that is now nearly three years old is that it has yet to be superseded and is still informing debates about tax rates. That is not to ignore some of the immediate responses made at the time which anticipate some of the points made here. In particular Howard Reed's 'Did the 50p tax rate really raise less than £1 billion in 2010/11?'
http://touchstoneblog.org.uk/author/howard-reed/

[5] OBR and IFS have stressed the uncertainty around the HMRC yield estimates on various occasions. For examples see Seely (2014) pages 27, 28 and 40.

[6] www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140408/debtext/140408-0003.htm
column 201

[7] 'Net income' is defined as taxable income plus personal allowances, (HMRC, 2012, paragraph 5.2, page 27).

[8] The regression used to create the formula for total net income of the £150,000 and higher income group had a coefficient of determination (R^2) of 0.931 (Box 5.1, page 34). This would usually be considered a good fit. However, using data presented in the HMRC report for 1994-95 to 2008-09, it was shown that this corresponded to absolute differences between actual and predicted total net incomes which averaged about £2 billion. If such typical errors occurred in estimating the counterfactual total net incomes for 2009-10 and 2010-11, there could be a big impact on the estimated tax yield. This goes some way to explaining why the range estimate found by HMRC was so wide.

[9] HMRC provide a range estimate in terms of 'taxable income elasticity' (TIE). This is a measure of how the total net income changes with a change to the marginal tax rate. The elasticity range estimate was 0.14 to 0.81 (HMRC report paragraph 5.45, page 40). A rough estimate of what this corresponds to in terms of yield was calculated using a modified Box 3.1(page 15), with E= 107 (from paragraph 5.39, page 38) and F = 62 (implied from the £6.2 billion yield at table 5.2, page 39). This ignores the variation in the counterfactual income in the

simulation used to estimate the range, and does not properly account for dividend income, but it should give a rough guide to the yield range. Using this method a TIE of 0.14 corresponds to a £4.7 billion yield and a TIE of 0.81 corresponds to £2.6 billion loss.

[10] Though the 'unaffected' £115,000 up to £150,000 taxpayers would not be affected by the additional 50 per cent rate, they would have seen their personal allowance removed in 2010-11. This would have given then an incentive to bring income forward from 2010-11 to 2009-10, in the same way as an increase in their tax rate would have. Without any estimate of the extent to which such forestalling took place, this creates further uncertainty around the estimate of the tax yield from the additional 50 per cent rate.

[11] 1 per cent of 300,000 taxpayers with income £149,000 gives income total of 3000 x £149,000 = £0.45 billion corresponding to about £0.2 billion income tax yield excluded from the estimate. The £115,000 and up to £150,000 net total incomes for 2009-10 and 2010-11 were £22.9 billion and £24.4 billion (data presented in the HMRC report), giving an increase to 2010-11 of 6.6 per cent. If we allow for the £0.45 billion this reduces the increase to 2010-11 to 4.6 per cent, a decrease of 2.0 percentage points. This leads to a reduction in the expected increase in the £150,000 or more net total incomes for 2010-11 of 1.116 x 2.0 = 2.2 percentage points (for 1.116 multiplier see Box 5.1, page 34). This will reduce the 2010 counterfactual total by 2.2% of £97 billion = 2.1 billion (£97 billion is 2009-10 counterfactual total – see Chart 5.7, page 36). This has a small impact on the pre-behavioural yield, reducing it by £0.1 billion, but the reduction in the yield attributed to underlying behaviour is 5.2 x 7.7 / (7.7-2.1) £1.4 billion (£7.7 billion – paragraph 5.39, page 38, £5.2 billion - table 5.3, page 39). The overall impact = 0.2 – 0.1 + 1.4 = £1.5 billion. [Note that the above figures were rounded while all calculations were made accurately.]

[12] Data relating to individual taxpayers could be linked from year to year creating a longitudinal record, and facilitating 'panel analysis' rather than the 'repeated cross-sectional' analysis carried out by HMRC. However, panel analysis has other difficulties, in particular assessing and dealing with 'regression to the mean'. For discussion of these issues see Saez et al, (2012), pages 26-29. For the particular type of movement shown in table 1, the introduction of a tax increase would be expected to lead to a 'bunching' of the number of tax payers just below the threshold for the higher tax rate. IFS (Browne et al, 2015) observed relatively little bunching at the £150,000 level, though given the sensitivity of the yield estimate to such movement, their impact on yield estimates is still unclear.

[13] Consider another imaginary taxpayer with net income as shown below.

	2008-09	2009-10	2010-11	2011-12
Additional 50% rate tax from 2010-11	149	159	150	160
No additional 50% rate tax in any year	149	149	160	160
Yield from introduction of 50% rate	0.0	4.0	-4.0	1.0

The total 'unaffected' income in 2009-10 would be £149,000 lower than it should be, and the actual total net income £150,000 and over would be lifted in 2009-10 by £159,000 when the forestalling was only £9000, both of which would lead to over-estimates of the underlying yield.

[14] See Browne, et al (2015), slide 9. The random noise in taxpayer densities is greater for the £150,000 threshold. This is to be expected given the smaller numbers of taxpayers, but I think it does make the identification of the 'bunching' more difficult. Also given that the year to year changes in income are large for high income individuals even when there is no threshold, it is possible that the bunching is less concentrated in a narrow income range. While it is clear that the bunching for the 50 per cent threshold was much smaller than for the 40 per cent threshold, this noise and possible 'blurring' of the effect makes interpretation more difficult.

[15] The IFS took those with incomes between £115,000 and up to £145,000 as the control 'unaffected' group, unlike the HMRC which took £115,000 up to £150,000. This should reduce the distortions due movement of taxpayers between groups as has been described.

[16] The total net incomes for the HMRC 'unaffected' control group actually increased between 2009-10 and 2010-11.

[17] The extra uncertainties in using the elasticity derived from the increase from 40 to 50 per cent increases to estimate the effects of reducing the rate from 50 to 45 per cent are in part recognised in the HMRC report. 'Elasticities may not be symmetric for reductions in tax rates that follow increases' (paragraph A17). There is no explicit acknowledgement of the assumptions inherent in using an elasticity over a different range to make an estimate of tax yield, though the

Laffer curve used to represent the effect of varying the additional tax is described as a 'mechanical extrapolation' (paragraph A22).

[18] www.bbc.co.uk/sport/0/football/26246939

[19] If those aspiring to be top earners were ignorant of the means to avoid the higher tax rate and were thereby discouraged this could reduce economic growth in the longer term.

[20] HMRC (2012) page 11, paragraph 2.31

[21] See Bakija (2012), Table 2 - Percentage of primary taxpayers in the top one percent of the distribution of income (excluding capital gains) in 2005.

[22] This pension was originally £703,000 pa but it was reduced following the public outrage. www.theguardian.com/business/2009/jun/18/fred-goodwin-rbs-pension

[23] The authors point out that it is difficult to obtain direct evidence that increases in income of top earners come at the expense of others, but they assemble indirect evidence from a variety of sources. Using data on the income shares of the top one per cent from 18 OECD countries, they show that cuts in top tax rates have been associated with increased top income shares.. Using micro data on CEOs they explore the relationship between a variety of attributes and income. For example they show that for better governed firms CEO pay is lower.

[24] HMRC (2012, paragraph A 20, page 50)

[25] The personal allowance in 2012-13 was increased to £8105, so the taper covered the range £100,000 to £116.210.

[26] Analysis carried out using the data presented in the HMRC report (HMRC, 2012).