FINANCE COMMITTEE

AGENDA

27th Meeting, 2015 (Session 4)

Wednesday 4 November 2015

The Committee will meet at 9.30 am in the Robert Burns Room (CR1).

1. Decision on taking business in private: The Committee will decide whether to take items 5, 6 and 7 in private.

2. Scottish Fiscal Commission Bill: The Committee will take evidence on the Bill at Stage 1 from—

   Robert Chote, Chairman, Office for Budget Responsibility (by videoconference);

and then from—

   Professor Ronald MacDonald, Professor of Macroeconomics and International Finance, University of Glasgow;

   Dr Jim Cuthbert;

   Mark Taylor, Assistant Director, Audit Services Group, Audit Scotland.

3. Scottish Rate of Income Tax: The Committee will take evidence from—

   Professor David Bell, University of Stirling.

4. Proposed Contingent Liability (in private): The Committee will take evidence from—

   Jamie Hepburn, Minister for Sport, Health Improvement and Mental Health, and Sara Lightbody, Special Projects Manager, Scottish Government.

5. Pentland Hills Regional Park Boundary Bill: The Committee will consider a draft letter on the Financial Memorandum to the Local Government and Regeneration Committee.
6. **Lobbying (Scotland) Bill:** The Committee will consider its approach to the Financial Memorandum.

7. **Footway Parking and Double Parking (Scotland) Bill:** The Committee will consider its approach to the Financial Memorandum.

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The papers for this meeting are as follows—

**Agenda Item 2**
SFC Cover note

**Agenda Item 3**
SRIT Cover note

**Agenda Item 4**
PRIVATE PAPER

**Agenda Item 5**
PRIVATE PAPER

**Agenda Item 6**
PRIVATE PAPER

**Agenda Item 7**
PRIVATE PAPER
Finance Committee

27th Meeting 2015 (Session 4), Wednesday 4 November 2015

Scottish Fiscal Commission Bill

1. The Scottish Government introduced its Bill to give the Scottish Fiscal Commission a basis in statute on 28 September 2015. Copies of the Bill and its accompanying documents have previously been circulated to the Committee. The Committee issued a call for evidence which can be found in Annexe A to this paper.

2. At its meeting on 28 October 2015 the Committee took evidence from the Bill team. A link to the Official Report of the meeting can be found here.

3. At its meeting today the Committee will take evidence from Robert Chote, Chairman of the Office for Budget Responsibility via video conference.

4. This will be followed by evidence from a panel comprising of—

   Dr Jim Cuthbert
   Professor Ronald MacDonald, Glasgow University
   Mark Taylor, Audit Scotland

5. Written submissions from the panel can be found in Annexe B.

Alison Wilson
Senior Assistant Clerk to the Committee
October 2015
Scottish Fiscal Commission Bill – Call for Evidence

The Scottish Government introduced its Bill to give the Scottish Fiscal Commission a basis in statute on 28 September 2015:

The Commission has been operating on a non-statutory basis since June 2014. The Scottish Government has already consulted on a draft of the Bill and the responses are available here: http://www.gov.scot/Publications/2015/09/2406/downloads

The Finance Committee which now has the role of scrutinising the Bill as introduced has previously examined proposals for a Scottish Fiscal Commission (SFC) and published its report in February 2014:
http://www.scottish.parliament.uk/parliamentarybusiness/CurrentCommittees/72938.aspx

The Committee also considered the role and remit of the SFC as part of its consideration of the Smith Commission proposals for an updated fiscal framework for Scotland:

Forecasting tax revenues

Section 2(1) of the Bill requires the Commission to assess the reasonableness of the Scottish Ministers' forecasts. The policy memorandum states that “the preparation of forecasts of tax revenues which underpin the Scottish Budget should be the responsibility of Scottish Ministers, who should in turn be directly accountable to the Scottish Parliament for these forecasts.” It is not proposed that the Commission should prepare its own forecasts. However, the Committee recommended in its submission to the Scottish Government consultation on the draft Bill that the Commission should carry out its own forecasts.

The Committee would welcome views on whether:

- there is a need for independent forecasts in addition to the Scottish Government official forecasts?
- the Commission should have the capacity and resources to make its own forecasts even if its role is to assess the official forecasts?
- the Scottish Government forecasts should be subject to sensitivity analysis carried out by the Commission?
- the Commission should be able to develop its own forecasting methods and analytical capacity in order to provide a benchmark set of projections?

Role of the SFC Prior to the Publication of the Scottish Government Forecasts

Section 4(1) of the Bill as introduced requires the Commission to publish its report on the assessment of the reasonableness of the forecasts for the devolved taxes on the same day as the draft budget is published. Section 4(3) requires the Commission to provide a copy of the report to Ministers in advance of publication.

This means that the Commission will be required to carry out its assessment of the Government’s forecasts prior to publication. The Commission describes this approach in its first report in October 2014 as “one of enquiry and challenge, followed by response, followed by further enquiry and suggested improvements.”

The Commission also states on its website that throughout “the year the Commission scrutinises the Scottish Government’s work in developing models and methodologies to produce its forecasts. Its interaction with the Scottish Government informs the Commission’s understanding of the reasonableness or otherwise of their forecasts and its scrutiny improves the methods used by the Scottish Government and thereby the eventual forecasts.”

The Committee has previously recommended that, if the SFC is to have only a forecast assessment role, in order to ensure the Commission’s independence it is essential that it has no role in producing the forecasts. The Scottish Government responded that it “agrees that the SFC should have no role in producing the original forecasts” and “intends to set this out in establishing the remit of the body, on a non-statutory basis for an interim period and on a statutory basis in due course.” The policy memorandum states that the Commission is able to “exert significant influence over the forecasts which underpin the Scottish Draft Budget.”

The Committee would welcome views on whether:

- the Commission should exert significant influence over the forecasts at the same time as providing an assessment of their reasonableness?
- the Commission should have a role throughout the year in scrutinising the Scottish Government’s work in developing models and methodologies to produce its forecasts?
- the Commission should carry out its assessment of the Scottish Government forecasts either before or after publication?
- the Commission should be required to send a copy of its report on its assessment of the forecasts to Ministers prior to publication and, if so, how far in advance?

Additional Functions

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2 [http://www.fiscal.scot/media/media_364407_en.pdf](http://www.fiscal.scot/media/media_364407_en.pdf)
The Policy Memorandum states that the “policy content of the Bill at introduction reflects the existing legislative competence of the Scottish Parliament, as amended by the Scotland Act 2012. In time, we expect to see the remit of the Commission develop substantially to take account of the new fiscal powers to be devolved under the Scotland Bill currently proceeding through the Westminster Parliament and any further future devolution.”

The consultation on the draft Bill identified a number of possible future functions including the assessment of the Scottish Government’s performance against fiscal rules and assessment of mechanisms for adjusting the block grant.

The Committee recommended in its submission to the government consultation on the Bill that the functions of the Commission should include judging the performance of the Scottish Government against its fiscal targets and an assessment of the long-term sustainability of the public finances. The Committee also recommended that there should be a legislative requirement for the Scottish Government to prepare a charter for budget responsibility.

The Committee would welcome views on whether:

- the Commission should have a wider role in assessing the sustainability of Scotland’s public finances such as adherence to fiscal rules and, if so, should the Bill be amended now to reflect this?
- the Bill should be amended to include assessment of mechanisms for adjusting the block grant?
- there should be a legislative requirement for the Scottish Government to prepare a charter for budget responsibility and the Commission should have a role in assessing adherence to the charter?

Right of Access to Information

Section 7 of the Bill states that the Commission has a right of access at reasonable times to any relevant information from the Scottish Government, Revenue Scotland, SEPA and the Registers of Scotland. The Committee has previously recommended that the right of access should be established on a statutory basis and the detail set out in a Memorandum of Understanding (MoU). The Committee also recommended that it is essential that any contact between the Commission and these bodies should be based on a transparent framework of co-operation and that the basis of the working relationship should be set out in a MoU. The Scottish Government agreed with these recommendations.

The Committee would welcome views on:

- is the right of access in the Bill robust enough?
- is there a need to include a requirement for a MoU on the face of the Bill?
- what principles should underpin the working arrangements between the Commission and the Scottish Government and other relevant public bodies?

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- the process and timings for the Commission’s engagement with the Scottish Government and how this should be set out in the MoU?
- the process and timings for the Commission’s engagement with HMRC and the OBR and how this should be set out in the MoU?

Appointment of Members and Staff

The Bill provides for Members of the Commission to be appointed by Ministers but only if the Scottish Parliament has approved the appointments. The current Members will form the first statutory Commission, serving to the conclusion of their current appointment terms. All subsequent appointments to the Commission will be subject to the Public Appointments and Public Bodies etc. (Scotland) Act 2003. Members (including the Chair) can only be appointed for one fixed term. The period of appointment is to be determined by Ministers who may also remove a member from office under specified conditions but only with the approval of the Parliament. The Commission will determine its own staffing arrangements, with the terms and conditions of employment to be agreed firstly with Ministers.

The Committee would welcome views on whether:

- the proposed appointment and removal procedures are adequate for ensuring the independence of Commission Members?
- Ministers should determine the period of office of each Member or should it be specified in the Bill?
- appointments should be for one fixed term or should there be an option for a further term?
- should the Commission determine its own staffing arrangements on the basis of terms and conditions of employment agreed firstly with Ministers?

Resources

The Financial Memorandum (FM) states that the estimated recurring costs arising from the Bill are £850,000. Staff costs are estimated at £345,000 from 2017-18 on the basis of the provisions within the Bill and 6 full time equivalent staff. Member costs are estimated at £112,000. This includes £104,000 for the remuneration of Members and £8,000 for expenses. The daily rate is £465 for the Chair and £331 for other Members with an assumed time commitment of 1.5 days per week.

The committee would welcome views on:

- the overall costs set out in the FM;
- the number of staff;
- the remuneration and assumed time commitment of Commission members;
- the likely costs of expanding the Commission’s role to include an assessment of key aspects of Scotland's fiscal framework such as the Scottish Government’s adherence to fiscal rules.

How to submit your evidence

The closing date for responses is Friday 6 November 2015.
All responses should be sent electronically (in Word format – no confirmatory hard copy required) to finance.committee@scottish.parliament.uk. Written responses will be handled in accordance with the Parliament’s policy for handling written evidence received in response to calls for evidence. All written evidence received may be published by the Parliament and will be treated as a public document. If you wish to submit evidence in confidence or anonymously please read the policy at the link above.

What happens next?

The Committee will be considering those witnesses it wishes to hear oral evidence from in due course, informed by the written evidence received. Oral evidence sessions are likely to be in November and December.

Contact

Should you require alternative formats of this information or further assistance in making a written submission to the Committee, please do not hesitate to contact the clerking team of the Committee via the email address above or by telephone on 0131 348 5451.
Introduction

Before responding to some of the specific questions identified in the call for evidence, it is appropriate to make two general comments on the nature of the requirement for forecasts and risk assessments.

The first is to repeat a point made in my written evidence to the Committee before their hearing in November 2013: namely, that there are inherent limitations as regards the forecasting role of any independent financial scrutiny body. The implication is that the role of assessing risk should, in many ways, be more important than the actual production of forecasts. This point will prove extremely relevant when it comes to considering what the role of SFC should be in producing forecasts, what the timing of their input should be, and how independent the SFC should be of the forecasting activities of the Scottish government.

My second general comment relates to a clarification of the nature of the forecasting problem which faces the Scottish government and the SFC: (and here, when I refer to forecasting, I mean it in the broad sense of forecasting plus risk assessment.) It is useful to distinguish three different aspects to the forecasting problem:

a) There is the problem of forecasting the Scottish government’s devolved tax revenues, over the short term, (i.e., forthcoming budget year), and medium term, (public expenditure planning horizon.) This aspect, of forecasting devolved tax revenues, is what the Bill appears to concentrate on.

b) But wider than this, there is also the problem of forecasting the Scottish government’s overall revenues over the same time horizons. After all, only about half of the Scottish government’s revenues will come from devolved taxes. The other half will come from the operation of the modified Barnett formula, modified, that is, by the abatements for devolved taxes, and the operation of the “Holtham” indexation of these abatements. Forecasting the overall revenues will be a difficult task, quite unlike that undertaken by the OBR when it forecasts the UK government’s tax revenues: (the modelling in Ref.1 gives some indication of the complexity of what is involved.) It will be extremely important that this task is done well, not just for public expenditure planning purposes, but also for understanding how the post-Smith financial settlement is operating.
c) And finally, it will also be very important to produce periodic assessments over the longer term of where the Scottish government’s budget is being taken by the post-Smith arrangements. Such projections will be essential to inform the Scottish government’s long term policy on public expenditure, and on the tax rates it will set: but also so that a properly informed dialogue can take place in good time with Westminster about whether problems are emerging with the fiscal settlement, and whether changes will be required.

Answers to specific questions.

Page 1 questions.

Is there a need for independent forecasts in addition to the Scottish government official forecasts?
Both of the general comments made in the above introduction are relevant here.
As regards forecasts of devolved tax revenues, there is certainly a need for an independent risk assessment of whatever forecasts are produced by the Scottish government: but this does not mean that the SFC would necessarily have to produce its own independent tax revenue forecast. There might be occasions when the SFC felt that the Scottish government forecast was so flawed that it needed to produce its own forecasts: but these occasions could be relatively rare.
As regards the problem of forecasting the Scottish government’s overall revenues, there will be a need for both forecasts and risk assessments. It is not clear that the current remit of the SFC is broad enough to ensure it is able, and has the resources, to carry out this work. The remit should certainly be made broad enough to enable it to do so.

Should the Commission have the ability and resources to make its own forecasts?
Yes, as well as the capacity and resources to assess the official forecast, and produce risk assessments. But in light of the comments above, the SFC may choose on occasion not to produce forecasts of its own.

Should the Scottish government forecasts be subject to sensitivity analysis carried out by the SFC?
Yes. But sensitivity analysis is only part of the broader risk assessment the SFC should be carrying out.

Should the SFC be able to develop its own forecasting methods and analytical capacity in order to provide a benchmark set of projections?
Yes, it should certainly have analytical capacity. But whether it should produce its own projections would depend on whether there were gaps in the coverage of the projections produced by the Scottish government: (i.e, the Scottish government might not be covering the three types of requirement identified in the introduction). And also on whether the SFC regarded the Scottish government projections as being of satisfactory quality.
Page 2 questions.

Should the SFC exert significant influence over the Scottish government’s forecasts, at the same time as providing an assessment of their reasonableness?

If the SFC is really going to get to grips with the Scottish government’s forecasts, and do so on a timescale which will enable its assessment to have influence, it will need to be asking about, and querying, the relevant assumptions as they are made. This will inevitably set in train a process whereby the Commission’s thinking is influenced by Scottish government analysts, and vice versa. So it is not realistic to expect the Commission to be providing forecasts which are fully independent of the Scottish government. This is where the question of risk assessment becomes vitally important. The SFC might well endorse a projection produced by the Scottish government, but still fulfil a vital, and independent, function by producing an informed assessment of the risks surrounding that projection.

Should the SFC have a role through the year in scrutinising the Scottish government’s work?
In line with previous answer: yes.

Should the SFC carry out its assessment before or after publication of the Scottish government’s forecasts?
In line with the above, much work should be completed before, (though the process need not necessarily be completed before the Scottish government publishes.)

Should the Commission be required to send a copy of its report to Ministers before it is published?
No. Ministers will presumably have a good idea of how Commission thinking is developing, because of the ongoing contacts between Scottish government and Commission staff. But to give Ministers advance warning, (other than a courtesy 24 hours or so), would open the door to Ministers trying to influence the Commission’s report.

Page 3 questions.

Should the Commission have a wider role in assessing the sustainability of Scotland’s public finances, such as adherence to fiscal rules?
Yes, in one sense: but the question of fiscal rules is problematic. Setting a rule is liable to distort behaviour: in particular, it is liable to lead to the misapprehension that the rule is the end in itself, and that breaking the rule is the cause of any wider failure. (For example, a balanced budget rule may be being breached because the economy is failing: but insisting on the rule may lead to financial tightening in an already depressed economy – precisely the wrong approach, and diverting attention away from the underlying economic problems.)
However, leaving aside the question of fiscal rules, the SFC should have a central role in assessing the sustainability of Scotland’s public finances – and, in particular, how the post-Smith financial settlement is operating. The Bill should certainly reflect this responsibility.
Should the Bill be amended to include assessment of mechanisms for adjusting the block grant?
In line with the above: yes. How these mechanisms are operating will be a key issue post-Smith: and there is need for an independent and authoritative assessment. In relation to the much simpler problem of understanding how the old Barnett formula was operating, and what the implications were, Scottish governments and the Treasury failed in this role. This highlights the importance of the SFC being involved.

Should there be a legislative requirement for a charter for budget responsibility?
In line with the above comments on the problems with rule based systems: no.

Page 4 questions.
What should the process and timing be of the Commission’s engagement with HMRC and OBR?
The Treasury should be added to the list of bodies with whom the SFC will need to have a good, and well understood, working relationship.
In particular, if, (as this evidence strongly recommends), the SFC takes on a role in forecasting the Scottish government’s total future revenues, then it will need to have access to the Treasury’s assumptions about the long term growth in public expenditure on “devolved” services in England, (since this is what drives the Barnett formula): and on the growth in the UK income tax base, and whatever proxy is being used for growth in the UK VAT tax base, (since these assumptions will drive Holtham indexation.)
Note that the use of Holtham indexation greatly complicates the forecasting process. This is another argument, (though not the central one), for adopting a simpler approach towards indexing the abatement to the block grant for devolved taxes. (The central argument against the current proposals relates to the instability of the Holtham system: see Ref.1.) One possible alternative approach, instead of Holtham indexation, was suggested in a follow up note to the House of Lords Economic Affairs Committee, (Ref. 2), a copy of which has been passed to the Clerk of the Committee.

References.


Ref. 2. Cuthbert, J. R.: “Modelling Scotland’s Fiscal Settlement: Note for House of Lords Economic Affairs Committee following evidence session on 9th September.” (A copy has been sent to the Clerk of the Finance Committee.)
Modelling Scotland’s Fiscal Settlement:

Note for House of Lords Economic Affairs Committee following
evidence session on 9th September

Dr. J. R. Cuthbert

Introduction
At the Committee session in Edinburgh on 9th September, I gave some examples pointing out implications of the system of indexation, (Holtham indexation), proposed in Cm8990. For example, if Scotland adopted a neutral tax policy, and if, as will almost certainly be the case, the devolved tax base is growing in England relative to Scotland, then public expenditure in Scotland will eventually start to decline in absolute terms and, left to itself, would ultimately go negative.

I undertook to provide the committee with a note giving proofs of these points. The examples I gave orally, and therefore the analysis in this note, concentrate on the long term. The long term is important, because it is presumably the intention to put in place an abiding and stable fiscal settlement: but it is nevertheless only part of the story, so this note in itself should not be regarded as the definitive critique of Holtham indexation. Information on how the system behaves in the shorter term is given in the modelling paper, reference 1. That paper indicates how things could actually start to go wrong fairly rapidly – particularly given the potential, as identified in that paper, for dynamic effects which would change parameters adversely.

One implication of the material in this note, (and of the papers submitted with earlier evidence), is that neither Holtham indexation as originally proposed, nor in an adjusted form correcting for relative population change, can be regarded as satisfactory. So this note also fleshes out a suggestion I made orally to the Committee: namely, that a better approach to indexation might be to use an absolute indexation factor, rather than one which sets an implicit target based upon the rate of growth in the UK tax base. The final section of this note looks at this possibility in some more detail.

In writing this note, I have tried to keep the notation in the main part of the note to a minimum, in the interest of readability. I have done this by expressing the relevant equations in the main part of the paper in simplified form. This simplified form is useful for demonstrating why the various assertions I made actually hold – but is inadequate for giving a detailed proof. The full detail of the relevant proofs, (and the necessarily heavier notation), is restricted to the Annexes.

Holtham indexation.
Under Holtham indexation as proposed in Cm8990, there would be an abatement to the Barnett formula block grant for income tax revenues foregone by Westminster, and this abatement would be increased each year in line with the growth in the overall UK tax base.
The behaviour of the system operating under these rules is critically dependent on three parameters: these are:

- \( \theta \) = the rate of growth in nominal public expenditure, (on “devolved” services), in England. (So, for example, a nominal rate of growth of 3% in nominal public expenditure corresponds to \( \theta = 1.03 \).

- \( \lambda \) = the relative rate of growth in population in England relative to Scotland: again, expressed as a number, rather than as a percentage: so \( \lambda = 1.002 \) means that
  
  \[
  \frac{\text{population in England in year } t}{\text{population in England in year } t-1} \approx 1.002 \frac{\text{population in Scotland in year } t}{\text{population in Scotland in year } t-1}
  \]

- \( \phi \) = the relative rate of growth in the tax base, (of “devolved taxes) in England compared to Scotland: (again, like \( \lambda \), expressed as a number.)

Suppose that Scotland adopts a neutral policy on devolved tax rates, in the sense that it mirrors tax rates UK in the rest of the UK. Suppose also that the proportion of expenditure on “devolved” services in England which is funded by devolved taxes, (i.e., taxes which are devolved in Scotland), remains roughly constant: this seems an entirely reasonable assumption.

Then Scottish government receipts in year \( t \), (from all sources, i.e., abated Barnett plus Scottish devolved tax revenues), will be given by a formula of the form

\[
a + b\left(\frac{\theta}{\lambda}\right)^i - c\theta^i(1-\phi^i), \text{ where } b \text{ and } c \text{ are greater than zero.}
\]

(1)

(See Annex 1 for proof.)

It will almost certainly be the case that \( \phi > 1 \), particularly since the population of England has historically grown relative to that of Scotland, (i.e., \( \lambda > 1 \)), so for that reason alone the English tax base is likely to be more buoyant. For large values of \( t \), then, the formula at (1) will behave like

\[
a + b\left(\frac{\theta}{\lambda}\right)^i - c\theta^i
\]

(2)

Since \( \lambda > 1 \), this formula will be dominated by the \( -c\theta^i \) term for large \( t \), and so will in due course decline in absolute terms, and ultimately, if left to itself, would become negative, (assuming \( \theta > 1 \): i.e., that there is nominal public expenditure growth in England).

Now suppose that, under a form of fiscal autonomy, Scotland no longer receives the abated Barnett formula block grant from Westminster, but instead receives its own tax revenues from non-devolved taxes. Let \( \rho \) denote the annual rate of growth in Scotland’s non-devolved tax revenues.

Then the difference between the revenues the Scottish government would receive under fiscal autonomy, as compared to what it would receive under the Smith fiscal settlement is, for large \( t \), given by a formula of the form
\[
A + B\rho^t + C\theta^t - D\left(\frac{\theta}{\lambda}\right)^t + E\left(\frac{\theta}{\phi}\right)^t,
\]
where B, C, D, E are greater than zero

(3)

(Again, see Annex 1 for proof)

Assuming \( \theta > 1 \), this will ultimately be a positive, and increasing, function of \( t \). In other words, Scotland would ultimately be better off under fiscal autonomy, no matter what the relative values of \( \theta \) and \( \rho \) actually are.

(Although the above indicates that Scotland would always ultimately be better off under fiscal autonomy than under Holtham indexation, this should not be taken as an endorsement of fiscal autonomy. There would be considerable problems in setting up a workable system of fiscal autonomy within the UK monetary union.)

Adjusted Holtham Indexation.

In the paper on modelling Holtham indexation, (reference 1), I noted that an adjusted form of Holtham indexation would correct some, (but not all), of the problems with the basic form of Holtham indexation. Under adjusted Holtham indexation, the income tax abatement would be indexed in line with the growth in the overall UK tax base, divided by the relative rate of population growth.

In oral evidence to the Committee, I noted that, if the relative rate of growth of the tax base in England to Scotland is greater than the relative rate of population growth, (which is very likely), then relative per capita public expenditure in Scotland to England will tend to a limit under adjusted Holtham: but the limit will still be unacceptable: (Scottish per capita expenditure would be about 50% of that in England).

This is a consequence of the following equation:

Relative per capita public expenditure in Scotland to England under adjusted Holtham in year \( t \)

\[
= \text{Relative per capita public expenditure under Barnett formula} - K(1 - \left(\frac{\lambda}{\phi}\right)^t)
\]

(4)

where the value of \( K \) is approximately 0.5.

(See Annex 2.)

The first term after the equality sign in equation (4), which relates to the original Barnett formula, will converge in the long term to something which is close to \( \frac{\theta - 1}{\theta - \lambda} \); (this is proved in reference 2). Assuming “normality” returns, and there is reasonable long term growth in public expenditure in England, this limit will be slightly greater than 1. If \( \lambda < \phi \), the last term in equation (4) will tend to \( - K \), which is approximately -0.5: so the limiting value of equation (4) will indeed be approximately \( 1 - 0.5 = 0.5 \).
Policy Implications.

1. What Holtham indexation means is that the funding of the Scottish government will be aggressively penalised, unless Scotland grows its "devolved" tax base at least as fast as England’s. Since England has traditionally had a growing population relative to Scotland, this in fact means that Scotland has to grow its per capita tax base even faster than England to avoid penalisation. Moreover, the penalty involved is stringent: if Scotland were to adopt a neutral tax policy, the implication of formula (2) is that Scottish government funding would eventually go negative. In the face of these effects, it is difficult to see how Holtham indexation, as currently proposed, can be regarded as anything other than a mistake.

2. The adjusted form of Holtham indexation analysed above, which involves correcting the indexation factor for relative population change, is a more attractive proposition than crude Holtham indexation, but still involves serious problems. Under adjusted Holtham indexation, the system is more stable, in that, under reasonable assumptions, relative per capita public expenditure in Scotland compared to England will converge to a limit, (unlike crude Holtham indexation, where the system diverges.) However, Scotland would still be penalised if it failed to grow its per capita “devolved” tax base as fast as England: and in these circumstances, the limiting value of per capita spend in Scotland would be about 50% of that in England. Effectively, adjusted Holtham indexation involves saying to the Scots: “We would be setting up a system where, if you adopt a neutral tax policy, and if you grow your devolved per capita tax base at the same rate as in England, you will be exactly as well off in public expenditure terms as under the Barnett formula. If you grow your tax base faster, you will be better off: but if you grow your tax base more slowly, in the long run public expenditure per head in Scotland will be reduced to about half that in England.” Viewed in this light, the flaws in adjusted Holtham are very apparent. First of all, the target is a challenging one: given Scotland’s lack of economic powers, and the very different nature of the income tax base in Scotland compared to England, there are bound to be long periods when Scotland fails to meet the target. Secondly, the size of the eventual penalty if it fails to do so is so large, (about 50% of levels of English per capita public expenditure), that there is no realistic option of achieving something like parity by raising Scottish tax rates: and the attempt to do so would make the dynamics of the Scottish economy even worse. Adjusted Holtham, therefore, does not look a tenable option.

3. It seems clear that a more radical re-think on the indexation arrangements is required. One possibility, which would avoid the problems with both forms of Holtham indexation, while still giving the Scottish government a real incentive to grow the tax base, could be as follows. This option would involve setting an absolute target for growth in the Scottish tax base, rather than defining a target relative to the growth in the tax base in the UK as a whole. Under this system, the indexation factor for the abatement would be set at x% in real terms per annum, where x is some appropriately chosen constant. This would avoid the problem inherent in both forms of Holtham indexation, of penalising the Scots if they fail to match some version of growth in the English
tax base. It would give Scotland a real incentive to exceed the growth rate target. And this approach solves another very significant problem as well: it could be applied equally well to the indexation of the abatement for VAT receipts – a difficult problem which does not appear to have been thought about at all as yet.

This approach does, however, raise the difficult problem of how to choose the constant x. Two comments on this are relevant:-

a) It would be appropriate to choose a modest value of x: e.g., 1% in real terms. There are three reasons for this. First, the Scottish government has limited economic powers: so the influence it can have on the growth rate of the Scottish economy is fairly small. (Further, those powers it does have do not obviously impact all that positively on the economy, when exercised alone: for example, improving education, without being able to stimulate the demand for the resulting skills, could lead to increased emigration, rather than economic growth.) Secondly, income tax, which is the main component of Scotland’s devolved tax base, is not obviously a strong suite for Scotland: (given, for example, that Scotland has about 7.4% of overall UK income tax receipts, as against about 8.3% of UK population.) Thirdly, the inevitable downside of an absolute target is that Scotland will be penalised by the indexation arrangements on those regular occasions when the overall economic cycle turns adverse: setting too high an absolute target would make the lengths of such periods insupportably long.

b) There should be a procedure for regular review of the indexation factor, (and of other aspects of the financial settlement). Without such regular review, relative public expenditure will eventually head off to levels, (either too high, or too low), which would be politically unacceptable. But the general rules for such reviews should be laid down and agreed well in advance. In particular, if Scotland was managing to outperform on any specific value of x, it should be well understood that the adjusted indexation factor following the review would not simply be the latest rate of growth in the Scottish tax base: this would destroy the incentive element in the system.

It is not being suggested that this absolute target approach to indexation is ideal: there is a pro-cyclical aspect to it which would be of concern. But in the context where Scotland is being shoe-horned into the very unsatisfactory framework set out in the Smith report and Cm8990, any solution on indexation is going to be unsatisfactory: and absolute indexation may well be a good deal less-worse than either Holtham variant.

References.


Annex 1: Holtham indexation.
Notation and assumptions
These are as in references (1) and (2). In particular, as in reference (2):

Let $E_t$ denote expenditure in England in year $t$, and $E^S_t$, expenditure in Scotland under the original Barnett formula: (strictly, “expenditure” here is that covered in the relevant DEL).

Let $p_t$ denote population in England in year $t$, and $p^S_t$, population in Scotland.

Let $R_t$ denote the ratio of per capita expenditures between Scotland and England at time $t$, under the original Barnett formula.

Let $k$ denote lag, (in years).

It is assumed that

a) $E_{t+1} = \theta E_t$ : (i.e., expenditure in England grows at a constant rate.)

b) $\frac{p_{t+1}}{p_t} = \lambda \frac{p^S_{t+1}}{p^S_t}$ for all $t$, where $\lambda \geq 1$: (i.e., there is a constant relative rate of growth of population in England relative to Scotland).

c) In the annual public expenditure planning round, the new final year baseline is determined as being equal to the previous end year figure: and Barnett applies only to that end year, with population shares determined at a lag $k$.

And as in reference (1):

Let $T^E_t, T^S_t, and T$, represent, respectively, tax revenues in England, Scotland and the whole UK in year $t$.

Let $\phi$ be the relative rate of growth in the tax base in England as compared to Scotland. It is assumed that $\phi$ is constant from year to year. In line with the assumption that tax take is proportional to tax base, it follows that

$$\frac{T^E_t}{T^E_{t-1}} = \phi \frac{T^S_t}{T^S_{t-1}} , \text{ for all } t.$$  

Let $a_t$ represent the abatement to the Barnett formula block grant in year $t$: then $a_0 = T^S_0$, (given the no-detriment assumption in setting the initial abatement),

and $a_t = \frac{T^E_t}{T^E_0} a_0$, under Holtham indexation, given the assumption that tax take is proportional to the tax base.

Let $E^S_t$ represent abated expenditure in Scotland in year $t$:

therefore $E^S_t = E^S_t - a_t + T^S_t$.

Finally, let $\hat{R}_t$ represent relative per capita spending levels in Scotland and England, when Scotland receives the abated block grant, plus its own revenues on devolved taxes.

Proof of Equation (1)

The formula for $E^S_t$, which is derived in the Annex to reference (2) can be rewritten as
\[ E^S_i = E^S_0 + \left(\frac{\theta}{\lambda} - 1\right) \lambda^k \left(\frac{\theta - 1}{\lambda - \lambda}\right) E_0 \frac{p^S_0}{p_0} \]

It is proved in the Annex to reference (1) that

\[-a_i + T^S_i = -T^E_i \left(\frac{a_0}{T_0}\right)[1 - \phi^{-1}]\]

It follows that

\[ \hat{E}_i^S = E_i^S - a_i + T_i^S = E_0^S + \left(\frac{\theta}{\lambda} - 1\right) \lambda^k \left(\frac{\theta - 1}{\lambda - \lambda}\right) E_0 \frac{p^S_0}{p_0} - T_i^E \left(\frac{a_0}{T_0}\right)[1 - \phi^{-1}] \]

The assumption that the proportion of expenditure on “devolved” services in England which is funded by devolved taxes remains roughly constant implies that \( T_i^E \) is proportional to \( \theta^i \). It follows that \( \hat{E}_i^S \) is of the general form given in equation (1).

"Fiscal autonomy"

Let \( N^S_i \) = non-devolved taxes in year \( t \), and suppose that \( N^S_i \) grows at rate \( \rho \).

Let \( F^S_i \) = public expenditure in Scotland under fiscal autonomy.

Then \( F^S_i = N^S_i + T^S_i \).

Therefore \( F^S_i - \hat{E}_i^S = N^S_i - E^S_i + a_i \), since the \( T_i^S \) terms cancel out,

\[ = \rho^i N^S_0 - E^S_0 + (1 - \left(\frac{\theta}{\lambda}\right)^i) \lambda^k \left(\frac{\theta - 1}{\lambda - \lambda}\right) E_0 \frac{p^S_0}{p_0} + a_i \]

Now, it follows from (2) in Annex 1 of reference (1) that

\[ a_i = \frac{T_i^E}{T_0} (1 + \phi^{-1}) \frac{a_0}{T_0^E} a_0 \]

Hence \( \frac{T_i^E}{T_0} (1 + \phi^{-1}) \frac{a_0}{T_0^E} a_0 \)

Since \( T_i^E \) is assumed proportional to \( \theta^i \), it follows that \( F^S_i - \hat{E}_i^S \) is of the general form given in equation (3).


Notation is as in Annex 1.

Equation (4) in reference (1) gives a good approximation to relative per capita expenditure under adjusted Holtham as

\[ \hat{R}_i = R_i - \left(\frac{a_0}{T_0^E}\right)(\frac{p_0}{p_0^S}) \left(\frac{T_i^E}{T_0^E}\right)(1 - \left(\frac{\lambda}{\phi}\right)^i) \]

The first term in brackets in this equation is the ratio of initial tax revenues between Scotland and England, and the second term in brackets is the ratio of English to Scottish population, so the product of these two terms will be approximately 1; and the third term in brackets is the share of “devolved” expenditure in England funded by devolved taxes, which is approximately 0.5
in Scotland, and is likely to be broadly similar in England. So the ratio of per capita expenditure is given by an equation of the form of formula (4) in the main body of the paper, in which the constant K is approximately 0.5.
Finance Committee

Scottish Fiscal Commission Bill

Submission from Professor Ronald MacDonald

Professor Ronald MacDonald
Adam Smith Business School
University of Glasgow

My written evidence to the committee is a response to the questions raised by the Committee in:

The committee's questions are in bold below.

there is a need for independent forecasts in addition to the Scottish Government official forecasts?
the Commission should have the capacity and resources to make its own forecasts even if its role is to assess the official forecasts?
the Scottish Government forecasts should be subject to sensitivity analysis carried out by the Commission?
the Commission should be able to develop its own forecasting methods and analytical capacity in order to provide a benchmark set of projections?

It is an important principle that the Fiscal Commission (FC) is able to produce an independent set of forecasts for the new devolution powers embodied in Smith (2015) and it may be that an evolutionary approach will prove an optimal way forward on this. For example, in the initial phase of the FC's work, it may prove optimal for it to act as an independent scrutineer of SG forecasts. Moving forward the FC could then move to a system where they produce their own forecasting model and forecasts. I say this because if it is assumed that the model used by Scottish Government is based on best current practice, and assuming the model is relatively tractable which it is likely to be given current data limitations, the model that the FC produced would likely be very similar to that used by SG. If this is the case it would therefore seem more efficient, at least initially, to allow the FC to run their own counterfactuals based on the SG model. (This would also have the advantage that it would give those appointed by the FC to undertake their own modeling/ forecasting to set up a model and refine it so that it could produce accurate forecasts). As the role of the FC evolves it would be best for it to take on the forecasting role,
perhaps exclusively so, as is the case of the OBR. So in the longer run the SG role in forecasting could be tapered out and left to the FC.

Given my response to the first point, the FC should indeed have the potential capacity and potential resources to make independent forecasts, although I do not think that the resources required would be large given that a full blown macro-econometric model would not be needed or, indeed, could initially be produced given data limitations. The FC would of course need to have access to all relevant data sources.

Following on from this, a sensitivity analysis would be crucially important given that small changes in assumptions can often have a big impact on forecasts and the potential to create a large forecasting error (which of course could have costly implications for public services).

Yes, the Commission should have the capacity to develop its own forecasting methods/analytical to provide benchmarks although as noted above this may be part of an evolutionary approach.

- the Commission should exert significant influence over the forecasts at the same time as providing an assessment of their reasonableness?
- the Commission should have a role throughout the year in scrutinizing the Scottish Government’s work in developing models and methodologies to produce its forecasts?
- the Commission should carry out its assessment of the Scottish Government forecasts either before or after publication?
- the Commission should be required to send a copy of its report on its assessment of the forecasts to Ministers prior to publication and, if so, how far in advance?

I think the influence and assessment of reasonableness should be kept separate. It is one thing for the Commission to give its comments to SG, and more widely to the public, but another to force the SG forecasting team into making changes to their forecasts if the latter group are convinced that they are correct. To address this issue, and if the FC are to use the SG model for its own forecasts at least initially, it should be allowed to ask the SG forecasting team to run other counterfactuals based on alternative assumptions (provided by the FC). These functions should be kept separate.

If a small team were to be funded for the FC’s independent scrutiny of the SG’s forecasts, and if the modeling framework used by the SG was approved of by the FC, then it would make sense for the Commission to have an ongoing role throughout the year in scrutinizing the SG’s work on developing
the underlying model and methodology, this particularly so if the two stage strategy mentioned above were to be adopted.

Given the importance of forecasts for future planning I think the FC should carry out its assessment of SG forecasts at the same time. Clearly if the FC’s assessment / alternative forecasting were to be done ex post there would always be a danger that differences between its assessment / forecasting were a function of timing.

I would support sending a report to Ministers as courtesy prior to publication, perhaps when the SG forecasts are in Press, which perhaps would be a week before publication.

- the Commission should have a wider role in assessing the sustainability of Scotland’s public finances such as adherence to fiscal rules and, if so, should the Bill be amended now to reflect this?
- the Bill should be amended to include assessment of mechanisms for adjusting the block grant?
- there should be a legislative requirement for the Scottish Government to prepare a charter for budget responsibility and the Commission should have a role in assessing adherence to the charter?

It would make sense for an independent body to assess the sustainability of Scotland’s public finances and adherence to any fiscal rules devised, especially with the on going further devolution of fiscal powers and a revised and beefed up fiscal Commission would seem ideally suited to take on this role. So, yes, I believe the Bill should be amended to take on board such a change.

A bloc grant element is going to be essential for any form of fiscal devolution short of full fiscal autonomy, the latter in my view only being consistent with political independence. I also believe we should move away from the Barnett bloc grant element which is not transparent and to many seems unfair, to a new bloc grant system perhaps based on a new needs assessment. Since there would need to be mechanisms, such as some form of indexation (which the committee has previously noted may well be controversial) in place to adjust the grant in moving forward it would make sense that the Bill was amended to include assessment of such mechanisms and how they work in practice.

Having a Charter for budget responsibility would seem to make sense especially since that is now set out explicitly for the UK as a whole and there have been issues raised about how devolved policies in Scotland may differ from those in the UK as a whole.
is the right of access in the Bill robust enough?

is there a need to include a requirement for a MoU on the face of the Bill?

what principles should underpin the working arrangements between the Commission and the Scottish Government and other relevant public bodies?

the process and timings for the Commission’s engagement with the Scottish Government and how this should be set out in the MoU?

the process and timings for the Commission’s engagement with HMRC and the OBR and how this should be set out in the MoU?

Overall the right of access in the bill does seem robust enough although I suppose a quibble could be raised over the use of the term ‘reasonableness’. What happens if a request is deemed ‘unreasonable’? There doesn’t appear to be any arbitration mechanism in the current legislation if a dispute about what is reasonable were to arise. As is noted elsewhere, the production of a solid and comprehensive data-base for the Scottish economy is still work in progress (Paras 175-177 of http://www.scottish.parliament.uk/S4_FinanceCommittee/Reports/fir15-12w.pdf). It is not clear to me that the current right of access would allow the FC to access such preliminary data, some of which may not be published. I think the FC should have the right of access to such data and of course any other data produced by civil servants.

Given the potential importance of the FC work for Scotland’s public finances, I think it is important that there is a written understanding of the agreement between the SG and the FC. I would therefore support the inclusion of a MoU on the face of the Bill.

I would give priority to independence, transparency and openness in the working relationship between the FC, SG and other public bodies. A spirit of cooperation would also I think be important by which I mean a real willingness to cooperate for the benefit of the greater public good rather than cooperation based on an overly legalistic and formulaic framework. In that regard the FC should be seen as a group that is designed to enhance the decision making process and be a positive benefit to SG rather than as a body that offers criticism for criticisms sake.

One of the key issues that have been identified as a problem with current interactions between the two governments is that they are ad hoc and relatively informal, leading to a lack of transparency and accountability and clearly this has to be avoided in setting up new arrangements. There should be a set calendar for each year for meetings, both between FC and SG and the FC and other bodies, such as the OBR. Most likely the timing of these
meetings would coincide with the SGs production of forecasts although if the FC does have a further enhanced role with respect to fiscal rules, meetings for these would have to be factored in as well.

- the proposed appointment and removal procedures are adequate for ensuring the independence of Commission Members?
- Ministers should determine the period of office of each Member or should it be specified in the Bill?
- appointments should be for one fixed term or should there be an option for a further term?
- should the Commission determine its own staffing arrangements on the basis of terms and conditions of employment agreed firstly with Ministers?

Overall the proposed appointment and removal procedures are adequate, although I think there should perhaps be a clause ruling out members transferring from a body such as the Council of Economic advisors straight to the FC without any lag in service. Without such a lag, and irrespective of how independent such members turn out to be, such a move will always raise a question in the public eye of how independent they actually are.

I would support having the period of office specified in the Bill and I see nothing that should preclude someone serving for two terms in office particularly if they are deemed to have made an especially helpful contribution in their first term in office (as I understand it other similar bodies such as the Bank of England Monetary Committee and OBR allow for the option of a further term of office). The cycle of period of office should differ from the political cycle.

- the overall costs set out in the FM; 
- the number of staff; 
- the remuneration and assumed time commitment of Commission members; 
- the likely costs of expanding the Commission’s role to include an assessment of key aspects of Scotland’s fiscal framework such as the Scottish Government’s adherence to fiscal rules.

For stability and other reasons it is important that funding is in place for a fixed period, which I believe the Cabinet Secretary has indicated will be the case, and this will not coincide with the political cycle. The overall cost set out in the FM, and the number of staff and remuneration / time commitment, seem to me reasonable for the initial tasks of the FC, but are clearly going to be inadequate for the extended potential roles for the Commission in both the direction of producing their own forecasts and as overseers of any fiscal rules introduced. I think it would be beneficial to attract someone on secondment
from a UK or European forecasting unit in the initial stages of the modeling to oversee the development of the forecasting model and the cost of such a person, who would likely be relatively senior in position, would have to be factored into the costing.
FINANCE COMMITTEE CALL FOR EVIDENCE

SCOTTISH FISCAL COMMISSION BILL

SUBMISSION FROM AUDIT SCOTLAND

1. Audit Scotland is the independent public sector audit agency undertaking the external audit of the majority of public sector bodies in Scotland. We do this on behalf of the Auditor General for Scotland (for the NHS and central government) and the Accounts Commission (for local government).

2. The Finance Committee has requested views on the Scottish Fiscal Commission Bill. Audit Scotland welcomes the opportunity to comment. We also provided evidence to the Committee’s inquiry into proposals for an independent fiscal body in early 2014, and responded to the Scottish Government’s consultation on the draft bill in September 2015.

3. Audit Scotland, the Auditor General for Scotland and the Accounts Commission have all been set up in ways that establish their independence from the Parliament and the Government in the selection of audit work to be undertaken, the conduct of the work and reporting the results in public. We believe that this independence is essential to the creation and maintenance of long term public confidence in our work and the same considerations should apply to the Scottish Fiscal Commission.

Overall comments

4. Our report on Preparations for the implementation of the Scotland Act 2012\(^1\) in December 2014 commented that “The Scottish Fiscal Commission is an important part of the scrutiny process and it is essential that it remains independent of the Scottish Government and has the capacity and budget to fulfil its role.”

5. Overall the proposals in the Bill appear to provide a significant degree of independence for the Scottish Fiscal Commission. This could be further increased by moving the balance of influence on appointments and financing further towards the Parliament.

6. The proposals in the Bill provide for a number of individual functions for the Scottish Fiscal Commission. We consider that it is also important that the Commission is able to provide an overall commentary bringing together the

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results of each of its individual assessments and commenting on their overall effect.

7. The Bill provides for the initial statutory functions of the Commission and provides a mechanism for future expansion to reflect the proposals in the 2015 Scotland Bill. It is important that the Commission’s remit is sufficiently wide to cover all of the key areas of fiscal estimation within future Scottish budgets. We suggest that assessing the mechanisms for applying the Barnett formula, adjusting the block grant and achieving the “no detriment” principle may be important additional areas for the Scottish Fiscal Commission to be involved in.

**Forecasting tax revenues**

8. Fiscal institutions such as the Scottish Fiscal Commission provide independent assurance on forecasts and estimates which Parliament and Government use. The remit of such bodies is for Parliament to determine, but its operation should conform to best practice guidance. We consider that the OECD principles\(^2\) provide a very useful reference point for the principles to be adopted by the Scottish Fiscal Commission.

9. A primary role for the Scottish Fiscal Commission is to provide independent, comprehensive, timely, high quality professional information and advice to both the Parliament and the Government to enable them to fulfil their functions in setting tax levels and budgets. This will involve producing forward looking reports on the sustainability of public finances. Information on past performance will also help decision making and accountability and build confidence in Scotland’s ability to manage its finances in the new environment. The Commission requires the capacity and resources to undertake this work in the manner that it considers most appropriate.

10. Effective scrutiny of budget proposals will require information on the sensitivity of variations in proposals on income or expenditure. The Scottish Fiscal Commission will be well placed to conduct such analysis or report views on the Government’s own analysis.

**Role of the SFC prior to the publication of the Scottish Government forecasts**

11. The Scottish Fiscal Commission should have the ability to produce reports at its own initiative and also to respond to requests from parliamentary committees and the Scottish Government. It should have access to all information held by

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\(^2\) [http://www.oecd.org/gov/budgeting/recommendation-on-principles-for-independent-fiscal-institutions.htm](http://www.oecd.org/gov/budgeting/recommendation-on-principles-for-independent-fiscal-institutions.htm)
government that it needs for its work and have the power to publish its reports and underlying analysis at no cost to users.

12. This is likely to require the Commission to engage with the Scottish Government throughout the year about its methodologies and to report on these in public as it considers appropriate. This would enable the Commission to help the Government to improve its approach over time, while at the same time protecting its independence.

Additional functions

13. If the Commission is to provide independent assessments of Scottish Government forecasts that will help Parliament in its scrutiny of budgets, then it is important that the Commission’s remit is sufficiently wide that it covers all of the key areas of fiscal estimation within the budget.

14. The proposed statutory functions in the Bill appear to cover the principal areas of fiscal estimation based on existing powers, but it is not clear that the Commission will have the ability to comment on the overall effect of the combined forecasts. It is also important that the Commission should have the ability to bring together its views of the individual components to provide an overall assessment of the combined estimations within the budget. In the event that all the individual components were within acceptable ranges but were all towards one end of the ranges the Commission would then be able to bring such information to the attention of Parliament.

15. One of the proposed future functions of the Commission set out in the Scottish Government’s consultation on the draft bill was the assessment of the mechanisms for adjusting the block grant. Given that mechanisms are required to be in place under the existing Scotland Act 2012 fiscal devolution arrangements, it may be appropriate to incorporate this function in the current Bill. It was not clear from the consultation paper whether an assessment of mechanisms for adjusting the block grant would include the operation of the Barnett formula. We suggest that this should be explicitly included in the remit of the Commission.

16. The Smith Commission made a number of proposals about “no detriment” when fiscal changes are made by the UK or Scottish Governments. This is likely to be difficult to implement in practice, and the Commission could play a useful role in reporting on the mechanisms for achieving no detriment.

17. A medium term budgetary framework is important in order to show the medium term effect of policy and budgetary decisions and to demonstrate the sustainability of public finances. The Commission could consider any such
framework prepared by the Government, reporting views on the robustness of the framework and the extent to which key aspects are being adhered to.

18. Possible additional objectives could include providing economic reports for Scotland where existing UK information is not disaggregated or where there is good reason, in the view of the SFC, to use different assumptions from those adopted by either the OBR or Scottish Government. The SFC could be required to co-operate with the equivalent UK body and we consider it should be required to publish explanations where it uses different assumptions.

Rights of access to information

19. In accordance with the OECD principles the Scottish Fiscal Commission should have the power to produce reports at its own initiative, have access to all information held by government that it needs for its work and have the power to publish its reports and underlying analysis.

20. In our view the provisions of the Bill provide sufficient rights of access to devolved bodies based on current fiscal arrangements that reflect the provisions of the 2012 Scotland Act. While it may be helpful for the parties involved to set out detailed working arrangements in a memorandum of understanding there is no requirement to provide for this directly in the legislation. Clearly any such arrangement should not have the effect of limiting the Commission’s right of access in practice.

21. A memorandum of understanding is likely to be helpful in providing an agreed framework for the Commission’s engagement with relevant UK Government bodies, particularly the OBR.

Appointment of members and staff

22. The Bill’s proposal that members of the Commission are appointed for a single term with no reappointment appears appropriate. The Bill proposes that appointments would be made by Scottish Ministers with the approval of Parliament. This approach ensures that both Government and Parliament are content with the proposed appointments. It may increase the public perception of independence further if the members of the Commission were appointed by Parliament with the agreement of Ministers.

23. The Scottish Government’s consultation on the draft bill made reference to the appointment period being no longer than five years. This restriction does not appear in the Bill, which provides only that “A member is appointed for such period as the Scottish Ministers may determine”. The OECD principles make the point that if appointment terms are independent of the electoral cycle this will
help reinforce the public perception of independence. In our view it is important to enshrine this principle directly in the legislation.

Resources

24. It is important that the Scottish Fiscal Commission has sufficient staff and budget to carry out its role effectively. The independence and impartiality of the Commission would be enhanced if it were funded through the Scottish Parliament’s budget rather than the Scottish Government’s budget.

Further information

25. We hope that you find our comments helpful. Should you require any further information please contact Mark Taylor, Assistant Director, 110 George Street, Edinburgh EH2 4LH or e-mail mtaylor@audit-scotland.gov.uk.
Finance Committee

27th Meeting 2015 (Session 4), Wednesday 4 November 2015

Pre-Budget scrutiny of Scottish Rate of Income Tax

1. The Committee has agreed as part of its pre-budget scrutiny of the Scottish rate of Income Tax to examine possible behavioural responses to changes in income tax rates. The Committee’s adviser has provided a briefing on the impact of sub-national income tax rates on migration and this is attached. The Financial Scrutiny Unit has published a briefing on income tax in Scotland and this is also attached. It includes some analysis of behavioural responses to income tax changes.

2. At its meeting on 4 November the Committee will take evidence from Professor David Bell who has provided a briefing and this is also attached.

Clerk to the Committee

October 2015
The impact of sub-national income tax rates on migration

1. In evidence regarding the Scottish Rate of Income Tax (SRIT) presented to the Finance Committee, there have been differences of opinion regarding the extent, if at all, to which differences between income tax rates in Scotland and the rest of the UK would give rise to in- or out-migration. This paper reviews some of the evidence for tax driven migration in other countries where sub-national governments have power to set income tax rates.

2. One European Country with significant taxing power at the sub-national level is Switzerland. The other two countries considered are the USA and Canada. There are significant difficulties in obtaining evidence of tax driven migration as there are so many other factors bearing on a decision to migrate. Instances where there is a new and significant tax differential between sub-national territories, which is likely to have a degree of permanence, and which is not associated with economic shocks also driving migration, are not commonplace. This limits the opportunities for evidence based studies as multiple instances are necessary to tease out the influence of factors other than income tax rates on patterns of migration.

3. Obtaining relevant data on a regional basis is also an issue for researchers and many studies focus on differences between the tax revenue that would be generated in the absence of a behavioural response and that actually generated. While this provides a measure of *elasticity* in economic terms it does not distinguish the impact of migration from other responses such as migration of income, tax planning, tax avoidance and evasion. Public records generally do not record information relevant to an individual's migration history along with individual's tax and income data. Most studies, I have reviewed, which have something to say about personal income-tax driven migration are principally focussed on other questions of public policy such as welfare, business generation or other taxes such as corporate income or sales taxes.

Switzerland

4. In a 2014 paper, Anouk Bertier of SPICE surveyed the evidence for tax-induced migration in Switzerland. While there is a federal income tax in Switzerland, it is at relatively low rates and Cantons and Communities have considerable taxing powers including the right to tax income. She reports that two studies she consulted found evidence of high-income taxpayers taking level of taxation into account in choosing their place of residence while one found little such evidence. Using

1 Anouk Bertier, SPICE paper 14/14, 5 February 2014, p. 23
aggregate data and econometric modelling, Feld and Kirchgassner found that tax induced migration was highest amongst the self-employed and lower amongst the retired and the employed, a conclusion that makes sense where the retired have lower levels of income and higher tax exemptions (the usual case in Switzerland) and employees would generally have to resign and find another job in order to migrate. Liebig and Sousa-Poza, using census data, found evidence that the young and the more educated were influenced by tax rates to a greater extent than other groups when migrating to a new area. Likewise, young persons were more likely to migrate out of Communities with rising tax rates. While for many groups the impact of tax rates appeared statistically insignificant, they considered their conclusion that a 1% change in higher tax rate leads to out-migration of 33 of 1,000 young Swiss college graduates robust.

5. Both these studies were limited in the time periods covered by the non-availability of relevant data over longer and more recent periods. The first covered Cantons and Communities while the second looked only at Communities. While the use of census data in the second study provided information on individuals, their education level, citizenship and visa status and other information, it did not provide information on income which had to be estimated from wage and income surveys. Together, while illustrating the difficulties in obtaining hard evidence that differential income tax rates at the sub-national level influence migration decisions, these studies suggest that the different levels of income tax charged in different localities have some influence on migration decisions and particularly so for the self employed, high earners and youngsters with high earning potential.

USA

6. One concern expressed by a number of witnesses before the Committee is that devolution of tax and spending powers to the nations of the UK will lead to tax competition and a race to the bottom where all will lose. Before looking at tax and migration between US States, I refer to a recent paper which looked at the question: does diversity in sub-national fiscal systems increase social welfare? Garcia-Mila, McGuire and Oates chose the US as the subject for study in attempting to answer this question because of the high proportion of tax and spending powers in the hands of the States and local government compared to most other nations. There is significant diversity in the US in the use of a mix of income taxes, sales taxes and property taxes at the State and local authority level and diversity in the provision of public services. There is undoubtedly competition between authorities, and influence on migration as a result, but the diversity has been remarkably stable and has even tended to increase somewhat. This

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illustrates that diversity, once established, can be stable and need not lead to convergence towards the lowest common denominator.

7. One factor mentioned by a number of commentators, regardless of the country of study, is the potential offsetting of the impact of tax differentials on migration by the levels of public spending. Thus McGuire and Reuben⁵, in a study of the impact of a self-imposed revenue ceiling in Colorado, review the literature and find ambiguity in the impact of lower taxes on interregional business location. Some studies have found it significant while others have not. They refer to an early influential study by Helms,⁶ amongst others, which found that how spending is correspondingly reduced matters. Thus tax cuts leading to reduced spending on services which impact on business, such as education, may have an offsetting effect on business location and economic growth. This ties in with the commentators on migration in Switzerland and Canada who found a range of factors, other than tax, influencing migration, one of which is the provision of services, support and infrastructure by the local government.

8. Saez, Slemrod and Giertz,⁷ in a paper looking at the elasticity of taxable income with respect to marginal tax rates, note a finding in a number of empirical studies that behavioural response to changes in marginal rates is concentrated at the top of the income distribution. This is significant because in the US in 2006 the top quintile of tax filers paid 86.3% of all individual income taxes and the top percentile paid 39.1%. In the UK by comparison, the top 1% of taxpayers were forecast to pay 27.5% in 2015-16.⁸

9. Elasticity, the difference between actual tax revenue and what would be expected if there were no behavioural response, takes account of migration in response to tax differentials but also all other behavioural responses, such as exchanging income for leisure, moving or altering sources of income, avoiding and evading tax. Thus, Saez, Slemrod and Giertz note the sharp increase in top individual incomes after a significant reduction in US personal income tax versus corporate income tax rates in 1986, which was recorded in a number of studies. This resulted from a restructuring of businesses so that the profits fell liable to personal income tax rather than corporate income tax.⁹ The forestalling effect, to bring forward income into 1992, before the introduction of Bill Clinton’s promised 1993 tax increases was also

⁸ HMRC, UK Income Tax Liabilities Statistics, 22 May 2015, p. 15
⁹ Saez, Slemrod and Giertz (2009), pp. 8-10.
Similar significant forestalling took place in the UK before the introduction of the 50% additional rate of income tax in 2010-11 and the opposite effect on its return to 45% in 2013-14. Specifically, incomes in the UK in 2009-10 were estimated to have increased by £16-18 billion in total with significant temporary reductions in income in subsequent years.\(^\text{11}\)

10. Saez, Slemrod and Giertz find support for this sensitivity of reported incomes at the higher end of the income scale in, for example, a UK study by Brewer and others\(^\text{12}\) covering 1962 to 2003 which found an elasticity of around 0.5% in the top 1% of incomes. This means that, if the net-of-tax rate increases by 1%, reported incomes will increase by 0.5% and vice-versa. This paper also showed that the proportion of foreigners at the top of the UK distribution increased much more quickly than the proportion in middle of upper groups, suggesting that differential tax rates in Europe was driving migration of top income groups to the lower taxed UK.\(^\text{13}\) They find further evidence of such international migration of top earners in papers linking migration of top earners from Canada to the US to tax differentials between the two countries\(^\text{14}\) and similarly from New Zealand to Australia and the UK.\(^\text{15}\)

11. A recent paper by Bruce, Liu and Murray considers the impact of State tax policies on entrepreneurship. \(^\text{16}\) While the focus is on entrepreneurial businesses rather than individuals and the potentially influencing factors are not confined to income taxes, they make some observations on the influence of income taxes on inter-regional migration of individuals. Their data shows that the most mobile entrepreneurs have been the highest income ones.\(^\text{17}\) However, they report that the plurality of relevant factors mean that most recent studies have been inconclusive on the impact of tax on entrepreneurial activity, stating, "As with the PIT (personal income tax) rate, the net impact of the CIT (corporate income tax rate) on entrepreneurial performance is fundamentally ambiguous."\(^\text{18}\) Their general conclusion is that States wishing to foster entrepreneurship should focus on

\(^{10}\) ibid. p.11


\(^{13}\) Saez, Slemrod and Giertz (2009), p. 50


\(^{17}\) ibid., p. 815

\(^{18}\) ibid., p. 820-1
creating a stronger business climate and economic growth rather than on tax policies.\textsuperscript{19}

**Canada**

12. In Canada, the Federal Government and Provinces share the right to tax personal incomes. With the exception of Quebec, the provincial governments use the same tax base as the Federal Government and have agreements under which the Federal Government collects the provincial income tax for them. Quebec defines its own tax base and collects the tax itself. In 2009, 39.6\% of the total Canadian income tax revenue accrued to the sub-national governments. In 2013, provincial rates for high earners varied from a low of 10\% in Alberta to a high of 25.75\% in Quebec. Outside Quebec, the highest federal bracket is taxed at 29\% but in Quebec an abatement drops this to 24.2\%. The combined Federal/Provincial rate is lowest in Alberta at 39\% and highest in Nova Scotia at 50\%. Prior to tax year 2000/2001, the system was one of "tax on tax" as the provincial tax was calculated as a percentage of a measure of federal taxes. Similar to SRIT, therefore, Canadian provinces could not apply progressivity in taxing income as they were limited to one percentage applicable to the "Basic Federal Tax". Now the system is closer to the Smith proposals with the Provinces setting their own rates and brackets on a Federally defined income base.\textsuperscript{20}

13. Milligan and Smart, in a 2013 paper, find evidence of a strong behavioural response to high tax rates in the top one percent, and an even stronger one in the top tenth of one percent, than in the rest of the population. They attribute this to "a financial rather than real response mechanism" commenting on the ready access of the wealthy to skilled tax planning and financial advice. In a study based on 10 provinces for 24 years, they estimated an elasticity of 0.644 for the top 1\% and of 1.414 for the top 0.1\%. While the elasticity in the top 1\% is significantly higher than other studies in the literature, for example, Saez, Slemrod and Giertz\textsuperscript{21} suggest 0.12 to 0.4 as the range of best available estimates, it is close to the 0.62 estimated by the Department of Finance.\textsuperscript{22} They offer three explanations for their differing results, the provincial data they use is a better basis than that used in much of the literature, elasticities relate to a particular tax base and are not necessarily comparable across jurisdictions and the ease with which

\textsuperscript{19} ibid., p. 834
\textsuperscript{20} This outline of the Canadian personal income tax system is taken from Milligan, K. and Smart, M., (2014) *Taxation of top incomes in Canada*, NBER Working Paper No. 20489, September 2014, pp. 3&4
\textsuperscript{22} Department of Finance, (2010) *The response of individuals to changes in marginal income tax rates*, Part 2 in *Tax Expenditures and Evaluations 2010*
income can be switched between provinces would suggest higher elasticity than at the federal level.\textsuperscript{23}

14. An interesting point noted by Milligan and Smart is that the federal grant system in Canada offsets to some extent the behavioural consequences of raising tax rates. A decline in a province's income tax base due to behavioural response results in an increase in equalisation entitlements of similar amounts some three to five years later. They speculate that this has encouraged the relatively high rate of provincial taxation in Canada. Consistent with this, four of the five provinces that have raised their top tax rates since 2010 are equalisation recipients, the exception being British Columbia, compared to only two of the five provinces that held their tax rates constant.\textsuperscript{24}

15. In 2012, Day and Winer published a book on \textit{Interregional Migration and Public Policy in Canada}\textsuperscript{25} and tax rates are one of the policies they identify as influencing migration. They provide a tabular survey of previous empirical studies on fiscally\textsuperscript{26} induced migration in Canada.\textsuperscript{27} Of the studies commenting specifically on income tax rates, a 1984 study by MacNevin found clear evidence of taxes influencing migration, while the link with government expenditure was less clear. Higher taxes in the province of origin increased out-migration while higher taxes in other provinces reduced out-migration.\textsuperscript{28} In a 1992 study, Day found that tax, among other variables, had a significant impact on migration through its effect on net wages.\textsuperscript{29} Bennaroch and Grant used information on the migration of physicians in a 2004 study. Among various other physician-specific factors, they found after tax income having a positive effect on in-migration but differentials in tax rates as such did not seem to have a significant impact on a physician's decision to move.\textsuperscript{30} Based on the "tax on tax" system in place before 2000/01, Day and Winer's modelling finds that interprovincial migration is generally sensitive to changes in provincial

\textsuperscript{23} Milligan, K. and Smart, M., (2013) \textit{Provincial Taxation of High Incomes: What are the Impacts on Equity and Tax Revenue?}, CLSRN-IRPP Conference, Ottawa, 24-25 February 3013, pp. 9&10
\textsuperscript{24} Ibid., p. 17
\textsuperscript{26} \textit{Fiscal} is used here in the broad sense and is not confined to tax matters - the most studied variable is unemployment insurance
\textsuperscript{27} Ibid., Table 3.1, pp. 75-82
\textsuperscript{28} MacNevin, A.S., (1984) \textit{Fiscal Integration and Subcentral Public Sector Inducements to Canadian Interprovincial Migration}, Unpublished Ph.D. dissertation, McMaster University
income tax rates just as it is to wage changes. In effect, what is influential is after-tax income.\textsuperscript{31}

16. Day and Winer's work leads them to a clear conclusion that high taxation discourages in-migration. They note that there have been few studies where the impact of taxation has been examined independently of labour income. If one accepts that it is disposable or after-tax income that matters, they consider that the evidence in the literature becomes much clearer. Where tax changes are expected to be as permanent as changes in wages, they will have the same effect and the literature is clear on the impact of wages on migration. In conclusion, they suggest that the literature of the last few decades provides definite results regarding the impact of unemployment insurance and individual taxation on migration within Canada. Social assistance, public services and grants also appear to influence migration in some measure but the quantitative effects are not well established.\textsuperscript{32}

\textbf{Conclusion}

17. The evidence from Switzerland suggests that the self-employed and the young, mobile and well educated are those most likely to take tax rates into account when locating. While the very diversity of the US States and the differing mix of taxes used makes it difficult to separate out the impact of personal income taxes on migration, the propensity of high income and entrepreneurial individuals to reduce reported income in response to tax increases is clear. In such an environment, out-migration is one of the likely ways of reducing income reported to a tax jurisdiction which raises its tax rates. In Canada, the sharing of the income tax base between the Federal and Provincial Governments is not dissimilar from the incoming SRIT and the more radical Smith proposals. Hence the evidence linking inter-provincial migration to income tax rate differentials is of particular relevance to Scotland.

18. The studies make it clear that many factors other than tax influence migration, some of them relating to policies of the sub-national governments concerned and others not. Personal views on the relative weight that individuals will give to income tax rates vis-a-vis these other factors may account for the differing views of those giving evidence to the Committee. I believe that experience in Switzerland, the US and Canada gives us good reason to expect that relative changes in rates of income tax between Scotland and the rest of the UK, provided the differences are expected to persist, will have an effect on the migration decisions of high-income individuals. One Swiss study\textsuperscript{33} based on census data detected a similar impact on young, well-educated individuals who anticipate rising earnings. Given the proportion of

\textsuperscript{31} Day and Winer (2012), p. 203
\textsuperscript{32} Ibid., p. 261
\textsuperscript{33} Liebig, T. and Sousa-Poza, A. (2006)
income tax in Scotland paid by high-earning individuals\textsuperscript{34} and the importance to Scotland's future of retaining and attracting talent, these migration effects are of potential significance in future income tax rate setting.

Acknowledgment: My thanks to Professor David Heald of the University of Aberdeen for significant help in locating relevant studies.

Gavin McEwen
26 October 2015

\textsuperscript{34} Prof. D Heald in written evidence to the Committee on 5 November 2014 reported that in 2011-12, out of a total of 2.64 million Scottish taxpayers, 217,000 with incomes above £50,000 paid 44.41\% of total tax and 42,000 with incomes above £100,000 paid 22.55\% of total tax.
This briefing analyses the available statistical data on income tax in Scotland and discusses what progress has been made on the implementation of SRIT.

The Scotland Act (2012) introduces a Scottish rate of income tax (SRIT) which will apply to the non-savings and non-dividend income of Scottish taxpayers from 1 April 2016, i.e. income from employment, self-employment, pensions and rental income. The UK Government will deduct 10 pence in the pound from the basic, higher and additional rates of income tax. The Scottish Parliament will then have the power to levy a Scottish rate that will apply equally across these three main tax bands.

The Scotland Bill 2015-16 gives the Scottish Parliament the power to set the rates of income tax and the thresholds (without limits) at which these are paid for the non-savings and non-dividend income of Scottish taxpayers.
EXECUTIVE SUMMARY

- Scotland Act (2012):
  - Introduces the Scottish Rate of Income Tax from April 2016
  - Applies to non-savings and non-dividend (NSND) income i.e income from earnings
  - Power to vary SRIT uniformly at the basic, higher and additional rate
  - Adjustment to the block grant using the Holtham Indexation method after a two or three year transition period (details under negotiation)

- Scotland Bill 2015-16:
  - Devolves income tax on NSND income
  - Power to set the rates and bands (without limits) including a zero rate of tax
  - No power over Personal Allowance
  - Adjustment to the block grant under negotiation

- Taxpayers in Scotland in 2015-16:
  - 2.52 million (8.5% of UK taxpayers)
  - 82.9% of taxpayers are charged at the basic rate, 14.8% at the higher rate, 0.7% at the additional rate (17,000 people)
  - Smaller proportion of lowest income and highest income taxpayers in Scotland compared to the UK as a whole

- Income tax in Scotland:
  - Mean taxable income and mean income tax revenue remain lower than in the UK as a whole in 2015-16
  - Total income tax revenue: £11,410 million in 2013-14
  - NSND income tax revenue: £10,911 million in 2013-14, equal to 95.6% of total income tax)

- SRIT revenue:
  - £4,258 million in 2013-14
  - Equal to 39.0% of NSND income tax revenue
  - Equal to 37.3% of total income tax revenue in Scotland

- Setting SRIT:
  - Rate for 2016-17 set to be announced in the Scottish Draft Budget
  - Setting SRIT above 10p will make income tax “less progressive”
  - Setting SRIT below 10p will make income tax “more progressive”

- Behavioural responses:
  - Tend to be carried out, if at all, by the highest income taxpayers
  - Very difficult to predict with an impact that is difficult to estimate
  - Likely to be influenced by the divergence between:
    - Scottish income tax and income tax in the rest of the UK
    - Scottish income tax on earnings and UK tax on dividends and on savings interest
INTRODUCTION

This briefing summarises the most recent data available on income taxpayers, taxable income and income tax revenue in Scotland. It also discusses the implementation of SRIT and models the potential effect of illustrative changes in SRIT.

SPICe published a briefing on The Scottish rate of income tax and additional rate taxpayers (Berthier 2014) which looked at the characteristics of additional rate taxpayers in Scotland, the effect of changing SRIT on tax revenues including the potential behavioural response of additional rate taxpayers.

The Scotland Act 2012 introduces the power for the Scottish Parliament to set a Scottish Rate of Income Tax (SRIT) from April 2016. The UK Government will deduct 10 pence in the pound at the basic, higher and additional rates of income tax on the non-savings and non-dividend (NSND) income for Scottish taxpayers, i.e. income from employment, self-employment, pensions and rental income. The Scottish Parliament will then set SRIT which will apply equally to these three rates. Scottish taxpayers will thus pay a “UK income tax” (to the value of 10p in the pound less than taxpayers in the rest of the UK) plus SRIT. Thus if SRIT is set at 10p, income tax will remain the same for Scottish taxpayers as in the rest of the UK.

Scottish taxpayers are defined in relation to their place of residence. Scottish taxpayers will still pay all their income tax to HM Revenue and Customs (HMRC) and will be identified by their tax code. The revenue from SRIT will accrue to the Scottish Government and the Scottish block grant will be decreased to reflect this loss of revenue by HM Treasury.

SRIT will supersede the existing tax varying power, the Scottish Variable Rate (SVR) set out in the Scotland Act 1998 which gave the Scottish Parliament the power to vary up to 3 pence in the pound at the basic rate of income tax. This power was never used.

The Scotland Bill 2015-16 includes provisions for the Scottish Parliament to set the rates of income tax and the band thresholds on the NSND income of Scottish taxpayers. The Parliament will not have the power to change the personal allowance threshold but will be able to introduce a zero pence rate which could effectively increase the personal allowance threshold. It will not be able to introduce different rates for different types of income (for example it cannot create a separate income tax rate for pension income). The devolution of income tax will supersede SRIT. The block grant will have to be adjusted to reflect the devolution of income tax. Negotiations on this matter are currently under way between the Scottish and UK Governments in the context of agreeing Scotland’s fiscal framework. The official forum for these discussions is the Joint Exchequer Committee which met most recently on 9 October 2015 (UK Government 2015a).

INCOME TAX

BACKGROUND

UK income tax is a levy imposed on individuals that varies with the taxable income of the taxpayer. Income tax is divided into graduated rates and is progressive, that is to say high income individuals have a higher rate of tax than lower-income individuals. Progressive taxes aim to achieve “a more equal distribution of income after than before taxation” (OECD 2013).

There are three types of income for income tax purposes:
UK income tax rates are marginal tax rates. The marginal tax is the percentage taken from the next pound of taxable income and is applied to income within each applicable tax bracket. For example the additional rate of income tax is charged only on taxable income above the threshold of £150,000. The UK has three main rates of income tax: basic, higher and additional. Taxpayers receive a Personal Allowance for an amount of income they receive without being charged on it. Personal Allowance tapers off for incomes over £100,000 at a rate of £1 for every £2, so the allowance is zero for income £121,200 or above (UK Government 2015b).

Table 1 shows the standard Personal Allowance1 and income tax rates for 2015-16 to 2017-18.

### Table 1 UK income tax bands and rates, 2015-16 to 2017-18

<table>
<thead>
<tr>
<th></th>
<th>2015-16</th>
<th>2016-17</th>
<th>2017-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Personal Allowance</td>
<td>£10,600</td>
<td>£11,000</td>
<td>£11,200</td>
</tr>
<tr>
<td>Basic rate 20%</td>
<td>£0 to £31,785</td>
<td>£0 to £32,000</td>
<td>£0 to £32,400</td>
</tr>
<tr>
<td>Higher rate 40%</td>
<td>£31,786 to £150,000</td>
<td>£32,001 to £150,000</td>
<td>£32,401 to £150,000</td>
</tr>
<tr>
<td>Additional rate 45%</td>
<td>Over £150,000</td>
<td>Over £150,000</td>
<td>Over £150,000</td>
</tr>
</tbody>
</table>

Source: UK Government 2015b, 2015c

The higher rate threshold (i.e. the threshold at which people with standard Personal Allowance start paying the higher rate) is £42,385 in 2015-16, £43,000 in 2016-17 and £43,600 in 2017-18 (HMRC 2015c). The UK Government has pledged to increase the higher rate income threshold to £50,000 by the end of this parliament (UK Government 2015d).

In addition to Personal Allowance, taxpayers may be entitled to other reliefs and allowances that can reduce their tax bill.

Savings and dividends are taxed at different rates. Table 2 shows UK dividend tax rates in 2015-16.

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1 Personal allowance may be bigger for people born before 6 April 1938, people receiving Blind Person’s Allowance.
### Table 2 Dividend tax rates, 2015-16

<table>
<thead>
<tr>
<th>Rate</th>
<th>Basic rate (and non-taxpayers)</th>
<th>Higher rate</th>
<th>Additional rate</th>
<th>Additional rate – dividends paid before April 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>25%</td>
<td>30.56%</td>
<td>36.11%</td>
</tr>
</tbody>
</table>

UK Government 2015e

The 2015 Summer Budget proposes to remove the Dividend Tax Credit and replace it with a new tax-free Dividend Allowance of £5,000 a year for all taxpayers from April 2016. It also set new rates shown in Table 3.

### Table 3 Summer Budget 2015 proposals for dividend tax rates above the Allowance, 2016-17

<table>
<thead>
<tr>
<th>Rate</th>
<th>Basic rate</th>
<th>Higher rate</th>
<th>Additional rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.5%</td>
<td>32.5%</td>
<td>38.1%</td>
</tr>
</tbody>
</table>

Source: UK Government 2015d

Savings are currently automatically taxed at 20% (UK Government 2015b). People on low incomes may be able to get tax-free interest or some of the tax back. Higher or additional rate taxpayers need to pay more tax (UK Government 2015b). From 6 April 2016 the UK Government will introduce an allowance to remove tax on up to £1,000 of savings income for basic rate taxpayers and up to £500 for higher rate taxpayers. Additional rate taxpayers will not receive an allowance (UK Government 2015f). Automatic deduction of 20% income tax by banks and building societies on non-ISA savings will cease from the same date (UK Government 2015b).

Savings and dividend income is taxed as the highest part of a person’s total income and dividend income is taken as the highest part of the combined amount if a person has both savings and dividend income. Therefore the first slice of a person’s income comprises earnings, pensions, taxable social security payments, trading profits and income from property. The next slice is savings income and dividend income is the top slice (HMRC 2015a).

The marginal tax is different from the average tax rate, which is the ratio of income tax liability to total income, where income is measured before deductions, reliefs and allowances. Deductions, allowances and tax credits vary across individuals leading to differences in individual average tax rates over and above differences in individual incomes.

Figure 1 shows the average rate of tax by income range for 2015-16 in the UK. The average rate of tax across all ranges is 17.2%
A progressive tax is one where the average rate of tax rises as income rises. As shown in Figure 1, income tax is progressive. For example, the average tax rate for people with a taxable income between £10,600 and £15,000 in 2015-16 is 3.1% while for taxable incomes between £100,000 and £150,000 is almost ten times that, at 30.0%.

The overall average income tax rate in the UK is 17.2% in 2015-16, down from 17.4% in 2012-13 (HMRC 2015b). Over this period, average tax rates have fallen in all the income brackets and most markedly for those income groups below £30,000. This is mainly due to increases in Personal Allowance which have a bigger impact on lower income groups. Thus their impact on average tax rates becomes progressively smaller as income rises (HMRC 2015c), with no impact at all for those earning over £121,200 as they have no Personal Allowance.

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**Taxes and tax rates**

- **Marginal tax rate**: Percentage of tax taken from the next pound of taxable income above a pre-defined income threshold. There are three main marginal tax rates: basic, higher and additional.

- **Average tax rate**: Ratio of income tax liability to total income (measured before deductions, reliefs and allowances).

- **Progressive tax**: A tax for which the average rate rises as income rises.

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**TAXPAYERS**

In 2015-16² there were an estimated 29.7 million income taxpayers in the UK and 2.52 million taxpayers in Scotland (HMRC 2015b), equal to 8.5% of all taxpayers in the UK. In comparison, the UK population mid-2014 (latest data available) was 64.6 million and Scotland’s population was 5.35 million, equal to 8.3% of the total UK population (ONS 2015).

Table 4 shows the number and percentage of taxpayers by marginal tax rate in Scotland and the UK.

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² Projected estimates based upon the 2012-13 Survey of Personal Incomes using economic assumptions consistent with the OBR’s March 2015 economic and fiscal outlook.
Table 4 Number of taxpayers (thousands) by marginal tax rate, Scotland and UK, 2015-16

<table>
<thead>
<tr>
<th>Rate</th>
<th>Scotland</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savers rate</td>
<td>41</td>
<td>691</td>
</tr>
<tr>
<td>Basic rate</td>
<td>2,090</td>
<td>24,000</td>
</tr>
<tr>
<td>Higher rate</td>
<td>372</td>
<td>4,650</td>
</tr>
<tr>
<td>Additional rate</td>
<td>17</td>
<td>332</td>
</tr>
<tr>
<td>All taxpayers</td>
<td>2,520</td>
<td>29,700</td>
</tr>
</tbody>
</table>

Source: HMRC 2015b

Figure 2 shows taxpayers by marginal tax rate as a share of total taxpayers in Scotland and the UK in 2015-16.

Figure 2 Number of taxpayers by marginal income tax rate as share of total taxpayers (%), Scotland and UK, 2015-16

The vast majority of taxpayers are basic rate taxpayers (82.9% in Scotland compared to 80.8% in the UK as a whole). Higher rate taxpayers account for 14.8% of taxpayers in Scotland (15.7% in the UK as a whole) and additional rate taxpayers account for only 0.7% of taxpayers in Scotland. This is markedly lower than the UK as a whole where 1.1% of taxpayers are additional rate taxpayers.

In order to understand in more detail what accounts for the differences highlighted in Figure 2, Figure 3 shows taxpayers by income bracket as a share of total taxpayer numbers in 2012-13 (most recent data available at this level of breakdown).

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3 Taxpayers at the “savers rate” in 2015-16 are those who pay no tax on their savings interests (if their taxable income is less than £15,600) or who qualify for a refund on some of the tax on their savings interest (if taxable income is less than £15,600 when savings interest is not included) (UK Government 2015g).

4 Projected estimates based upon the 2012-13 Survey of Personal Incomes using economic assumptions consistent with the OBR’s March 2015 economic and fiscal outlook (HMRC 2015b).
In 2012-13, Scotland had a lower percentage of taxpayers at both the lowest and the highest values on the income scale compared to the UK as a whole. Scotland also had proportionately more people with taxable incomes between £15,000 and £50,000.

Concerning additional rate taxpayers, the main difference between Scotland and the UK concerned taxpayers whose incomes were over £200,000: 0.3% of taxpayers in Scotland had incomes between £150,000 and £200,000 (close to the UK share at 0.4%) but 0.3% of taxpayers in Scotland also had incomes above £200,000 while twice that share (0.6%) of taxpayers in the UK as a whole had incomes above £200,000.

Figure 4 shows the annual change in taxpayer numbers in Scotland from 2013-14 to 2015-16. It shows that the number of basic rate taxpayers has been decreasing and the number of higher rate taxpayers and additional rate taxpayers has been increasing. This is likely to be mainly a result of changes to Personal Allowance and the higher rate threshold rather than changes in income. However, the additional rate threshold remained the same throughout and additional rate taxpayers do not benefit from Personal Allowance so their increased number is caused to rising incomes at the top end.
The number of higher rate and additional rate taxpayers has been increasing but at a diminishing rate between 2013-14 and 2015-16. The number of basic rate taxpayers decreased sharply in 2013-14 (-5.4%) whereas it decreased by 0.5% in both 2014-15 and 2015-16. This big decrease in 2013-14 may be due to the sharp rise in Personal Allowance in 2013-14 as shown in Table 5.

Table 5 Personal allowances and annual percentage change, 2012-13 to 2015-16

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Personal Allowance</td>
<td>8,105</td>
<td>9,440</td>
<td>10,000</td>
<td>10,600</td>
</tr>
<tr>
<td>% change</td>
<td>8.4%</td>
<td>16.5%</td>
<td>5.9%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

Source: UK Government 2015h, SPICe calculations

As a result of the trends shown in Figure 4, the number of basic rate taxpayers is decreasing as a share of total taxpayers while the number of higher rate taxpayers and additional rate taxpayers as a share of total taxpayers is increasing. This implies that higher and additional rate taxpayers have contributed proportionally more to income tax from 2012-13 to 2015-16 in the UK as a whole.5

TAXABLE INCOME AND INCOME TAX REVENUE

General information

Table 6 shows total taxable income (the “tax base”) and income tax revenue6 in 2012-13 (latest data available) in the UK and Scotland.

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5 Income tax revenue and income tax by marginal tax rate (i.e. basic, higher and additional rate taxpayers) in Scotland is not published annually by HMRC or publicly available.

6 Revenue is measured in liabilities, not receipts unless otherwise specified.
Table 6 Total taxable income and total income tax revenue, UK and Scotland, 2012-13

<table>
<thead>
<tr>
<th></th>
<th>Total taxable income (£m)</th>
<th>Total income tax revenue (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td>72,100</td>
<td>11,300</td>
</tr>
<tr>
<td>UK</td>
<td>904,000</td>
<td>157,000</td>
</tr>
</tbody>
</table>

Source: HMRC 2015d

In 2012-13 income tax represented a higher share of total taxable income in the UK (17.4%) as a whole than in Scotland (15.7%) i.e. average tax rates are higher in the UK as a whole than in Scotland.

Table 7 shows mean total income and mean income tax in the UK and Scotland in 2012-13 (latest data available).

Table 7 Mean taxable income and mean income tax revenue, UK and Scotland, 2012-13

<table>
<thead>
<tr>
<th></th>
<th>Mean income (£)</th>
<th>Mean income tax (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td>27,800</td>
<td>4,380</td>
</tr>
<tr>
<td>UK</td>
<td>29,600</td>
<td>5,140</td>
</tr>
</tbody>
</table>

Source: HMRC 2015d

Mean income in Scotland in 2012-13 was £27,800. This was 6.1% lower than in the UK as a whole. Mean tax liabilities in Scotland were £4,380 or 15% lower than in the UK as a whole.

Table 8 shows income tax revenue by marginal rate of tax in Scotland in 2012-13 (only year available).

Table 8 Income tax revenue (£ million), Scotland, 2012-13

<table>
<thead>
<tr>
<th>Taxpayers marginal rate</th>
<th>Basic rate</th>
<th>Higher rate</th>
<th>Additional rate</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic rate</td>
<td>5,440</td>
<td>1,950</td>
<td>90</td>
<td>7,480</td>
<td>66.2%</td>
</tr>
<tr>
<td>Higher rate</td>
<td>-</td>
<td>2,390</td>
<td>603</td>
<td>2,990</td>
<td>26.5%</td>
</tr>
<tr>
<td>Additional rate</td>
<td>-</td>
<td>-</td>
<td>874</td>
<td>870</td>
<td>7.7%</td>
</tr>
<tr>
<td>Total tax</td>
<td>5,440</td>
<td>4,330</td>
<td>1,570</td>
<td>11,300</td>
<td>100.0%</td>
</tr>
<tr>
<td>%</td>
<td>48.1%</td>
<td>38.3%</td>
<td>13.9%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: HMRC 2015e

In 2012-13 basic rate taxpayers in Scotland paid 48.1% of total income tax revenue, higher rate taxpayers paid 38.3% and additional rate taxpayers paid 13.9% of total income tax. Tax revenue charged at the basic rate accounted for 66.2% of total income tax revenue in Scotland, tax charged at the higher rate accounted for 26.5% and tax charged at the additional rate accounted for 7.7%.

Income tax revenue by income bracket

The distribution of income tax revenue by income bracket is different in Scotland from the UK as a whole. Figure 5 shows the percentage of tax paid by each income bracket in Scotland and the UK as a whole in 2012-13 (latest data available).
In 2012-13, taxpayers with incomes between £30,000 and £50,000 paid the single largest share of income tax (26.1% in Scotland and 21.7% in the UK as a whole). Taxpayers with incomes over £200,000 paid 20.1% of total UK income tax whereas in Scotland they only paid 10.5% of total income tax.

Figure 6 shows income tax in Scotland by income bracket as a percentage of income tax in the UK as a whole in 2012-13 (latest data available). For example, 3.8% of income tax revenue paid by taxpayers with incomes above £200,000 in the UK was paid by taxpayers in Scotland.
Scotland’s population share of the UK in 2012-13 stood at 8.3% (ONS 2013, 2014). For income brackets below £8,105 and above £50,000, the Scottish share of UK income tax is below Scotland’s population share of the UK. Only 3.8% of income tax revenue on incomes over £200,000 are paid in Scotland, significantly less than Scotland’s population share of the UK as a whole.

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注释7 Scotland’s population share of the UK is worked out for the tax year 2012-13 i.e. taking 75% of mid-2012 and 25% of mid-2013 population estimates (ONS 2013, 2014).
Income tax revenue by source of income

Figure 7 shows the breakdown in income tax revenue by source of income in Scotland and the UK in 2012-13 (latest data available).

Figure 7 Share of income by income type (%), Scotland and UK, 2012-13

In 2012-2013, the biggest share of income came from employment earnings (72.6% in Scotland and 73.7% in the UK as a whole). Scotland had a lower share of total income coming from self-employment income (7.0% compared to 10.1% in the UK as a whole) and a higher share of total income coming from pension income (14.3% compared to 8.7% in the UK as a whole). This may be due to demographic differences between Scotland and the UK as a whole.

Table 9 shows income tax revenue by income source in the UK in 2015-16. These figures are not available for Scotland.

Table 9 Income tax revenue after allowances given as income tax reduction, by income source (£ million), UK, 2015-16

<table>
<thead>
<tr>
<th>Income Source</th>
<th>Amount (£ million)</th>
<th>%</th>
<th>Savings</th>
<th>%</th>
<th>Dividends</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings</td>
<td>155,500</td>
<td>90.9%</td>
<td>2,324</td>
<td>1.4%</td>
<td>13,190</td>
<td>7.7%</td>
<td>171,014</td>
<td></td>
</tr>
</tbody>
</table>

Source: HMRC 2015b, SPICe calculations

In 2015-16, earnings made up 90.9% of total income tax revenue (after allowances given as income tax reduction) in the UK, savings made up 1.4% and dividends made up 7.7%.

INCOME TAX RECEIPTS

Table 10 shows income tax receipts in Scotland and the UK from 1990-00 to 2014-15. Income tax receipts were £163.11 billion in 2014-15 in the UK as a whole and £11.97 billion in Scotland in 2014-15.

---

8 This is NSND income.
### Table 10 Income tax receipts, 1999-00 to 2014-15, UK and Scotland

<table>
<thead>
<tr>
<th>Year</th>
<th>UK</th>
<th>Scotland</th>
<th>Scotland as % of UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999-00</td>
<td>93,910</td>
<td>6,611</td>
<td>7.04%</td>
</tr>
<tr>
<td>2000-01</td>
<td>105,177</td>
<td>7,299</td>
<td>6.94%</td>
</tr>
<tr>
<td>2001-02</td>
<td>107,994</td>
<td>7,700</td>
<td>7.13%</td>
</tr>
<tr>
<td>2002-03</td>
<td>109,506</td>
<td>7,873</td>
<td>7.19%</td>
</tr>
<tr>
<td>2003-04</td>
<td>117,917</td>
<td>8,631</td>
<td>7.32%</td>
</tr>
<tr>
<td>2004-05</td>
<td>127,294</td>
<td>9,203</td>
<td>7.23%</td>
</tr>
<tr>
<td>2005-06</td>
<td>134,916</td>
<td>9,808</td>
<td>7.27%</td>
</tr>
<tr>
<td>2006-07</td>
<td>147,712</td>
<td>10,931</td>
<td>7.40%</td>
</tr>
<tr>
<td>2007-08</td>
<td>151,738</td>
<td>11,213</td>
<td>7.39%</td>
</tr>
<tr>
<td>2008-09</td>
<td>153,442</td>
<td>11,293</td>
<td>7.36%</td>
</tr>
<tr>
<td>2009-10</td>
<td>144,881</td>
<td>10,605</td>
<td>7.32%</td>
</tr>
<tr>
<td>2010-11</td>
<td>153,491</td>
<td>11,266</td>
<td>7.34%</td>
</tr>
<tr>
<td>2011-12</td>
<td>150,939</td>
<td>11,079</td>
<td>7.34%</td>
</tr>
<tr>
<td>2012-13</td>
<td>152,030</td>
<td>11,159</td>
<td>7.34%</td>
</tr>
<tr>
<td>2013-14</td>
<td>156,898</td>
<td>11,516</td>
<td>7.34%</td>
</tr>
<tr>
<td>2014-15</td>
<td>163,109</td>
<td>11,972</td>
<td>7.34%</td>
</tr>
</tbody>
</table>

Source: HMRC 2015f, SPICe calculations

Figure 8 shows the annual change in income tax receipts in Scotland and the UK between 2000-01 and 2014-15.

**Figure 8 Annual percentage change in income tax receipts, Scotland and UK, 2000-01 to 2013-14**

From 2000-01 to 2014-15 income tax receipts increased on average slightly more in Scotland (4.1%) than in the UK as a whole (3.8%). Receipts have also been more volatile in Scotland than in the UK as a whole over that period. Since 2007-08 income tax receipts in Scotland and the UK as a whole have moved closely in line with one another and the annual change has been identical in Scotland and the UK as a whole since 2011-12.

### SCOTTISH RATE OF INCOME TAX

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9 As measured by standard deviation: 4.7% in Scotland and 4.5% in the UK as a whole (SPICe calculations).
The Scotland Act 2012 provides for the basic, higher and additional UK income tax rates on the NSND income of Scottish taxpayers to be reduced by 10 pence. The Scottish Parliament will then levy SRIT which will apply equally to all these rates. It will not have the power to vary the bands. As shown in Figure 9, if SRIT is set at 10p, Scottish taxpayers will be charged the same tax rates as those in the rest of the UK.

If SRIT is set at 11p, the basic rate in Scotland will be 21p, the higher rate will be 41p and the additional rate will be 46p. If SRIT is set at 0, the basic rate will be halved to 10p, the higher rate will be decreased to 30p and the additional rate to 35p.

The rest of the income tax structure will remain a reserved matter such as Personal Allowance, thresholds and taxes on savings and dividends. Income tax revenue will continue be collected by HMRC. SRIT will need to be set every year by the Scottish Parliament for only one tax year and for the whole of that year. The Scotland Act 2012 requires that a Scottish Rate Resolution be made before the start of the tax year – i.e., by 5 April at the latest – to provide the statutory basis for the collection of receipts from the start of the tax year. SRIT may not be set more than 12 months before the start of that year (Berthier et al. 2014).

Scottish taxpayers are defined in relation to their place of residence in the course of a tax year. Section 25 of the Scotland Act 2012 sets out the definition of a Scottish taxpayer. The following conditions have to be met in order for an individual to be a Scottish taxpayer:

- They must be UK resident for tax purposes – an individual who is not UK tax resident cannot be a Scottish taxpayer.
- If they have one place of residence and this is in Scotland, they are a Scottish taxpayer.
- If they have more than one place of residence in the UK they will need to determine which of these has been their main place of residence for the longest period in a tax year - if this is in Scotland, they are a Scottish taxpayer.

Scottish taxpayer status applies for a whole tax year. MSPs, MPs representing a constituency in Scotland and Members of the European Parliament (MEPs) representing Scotland will be automatically treated as Scottish taxpayers, irrespective of where their residence is or of where they spend the most days in the UK.
HMRC will identify Scottish taxpayers based around address information held in HMRC’s systems. HMRC has “carried out exercises to compare this against third part data held elsewhere” e.g. the Post Office in order to assess the accuracy of the data it holds (Scottish Parliament 2015). It concluded that about 98% of the taxpayers for whom it holds Scottish addresses are correctly identified as likely to be Scottish taxpayers (Scottish Parliament 2015).

HMRC published draft technical guidance on Scottish taxpayer status in June 2015 (HMRC 2015g) and launched a consultation that closed in July 2015. HMRC aim to publish a wider range of general guidance and advisory products for taxpayers later in 2015 (Scottish Parliament 2015).

REVENUE FROM SRIT

Scottish Government estimates

The Scottish Government has estimated the revenue that would have been raised from SRIT at 10p from 2009-10 to 2013-14 as shown in Table 11.

Table 11 Total income tax, NSND income tax and SRIT, Scotland, 2009-10 to 2013-14

<table>
<thead>
<tr>
<th></th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Income tax</td>
<td>10,300</td>
<td>10,611</td>
<td>10,780</td>
<td>10,856</td>
<td>11,410</td>
</tr>
<tr>
<td>NSND income Tax</td>
<td>10,124</td>
<td>10,392</td>
<td>10,584</td>
<td>10,714</td>
<td>10,911</td>
</tr>
<tr>
<td>SRIT</td>
<td>4,330</td>
<td>4,427</td>
<td>4,267</td>
<td>4,273</td>
<td>4,258</td>
</tr>
</tbody>
</table>

Source: Scottish Government 2015a

In 2013-14 NSND income accounted for 95.6% of total income tax in Scotland and was made up of (see Figure 11):

- SRIT which accounted for 39.0% of NSND income tax and 37.3% of total income tax.
- Remaining (non-SRIT) NSND income which accounted for 58.3% of total income tax.

Figure 10 Income tax revenue, Scotland, 2013-14

Figure 11 shows the annual percentage change in total income tax, NSND income tax and SRIT in Scotland between 2010-11 and 2013-14. It shows that annual changes are higher for total income tax than they are for SRIT.
Between 2010-11 total income tax on average increased by 2.6%, NSND income tax increased by 1.9% but SRIT decreased by 0.4%. SRIT was the most volatile of the three taxes. The different trends highlighted in Figure 11 are due to two factors:

- The share of taxpayers by marginal tax rate is different for each of the three taxes.
- These three taxes include different types of income which can change separately from one another.

### Income tax forecasts in Scotland

Table 12 shows the forecast of NSND income tax revenue in the UK as a whole between 2012-13 and 2020-21 while Table 12 shows the forecast for SRIT revenue in Scotland (at 10p) over the same period.

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**Figure 11 Annual change in total income tax, NSND income tax, SRIT, Scotland, 2010-11 to 2013-14**

![Graph showing annual change in total income tax, NSND income tax, and SRIT, Scotland, 2010-11 to 2013-14.](source: SPICe calculations based on Scottish Government 2015a)

---

10. Between 2010-11 and 2013-14 the standard deviation was 1.9% for total income tax, 0.6% for NSND income tax and 2.4% for SRIT (SPICe calculations).


12. Assuming SRIT is set at 10p, suppose a Scottish higher rate taxpayer pays £40 in income tax on earnings over a given period (£10 in SRIT and £30 in UK income tax). In addition they pay £10 in tax on dividends over that same period, so in total they pay £50 in income tax. Assume the tax they pay on earnings doubles to £80 (£20 in SRIT and £60 in UK income tax) but their dividend tax remains the same so they now pay £90 in income tax. SRIT has increased by 100%, NSND income tax has increased by 100% but total income tax has only increased from £50 to £90 (an 80% increase).
Table 12 Income tax forecast for NSND income tax revenue, £billion, UK, 2012-13 to 2020-21

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income tax revenue on NSND income</td>
<td>147.2</td>
<td>153.3</td>
<td>160.5</td>
<td>171.7</td>
<td>182.0</td>
<td>191.8</td>
<td>203.7</td>
<td>217.6</td>
</tr>
<tr>
<td>% change</td>
<td>4.1%</td>
<td>4.7%</td>
<td>7.0%</td>
<td>6.0%</td>
<td>5.4%</td>
<td>6.2%</td>
<td>6.8%</td>
<td></td>
</tr>
</tbody>
</table>

Source: OBR 2015

Table 13 SRIT tax revenue forecast (at 10p), £ million, Scotland, 2013-14 to 2020-21

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SRIT revenue</td>
<td>4,240</td>
<td>4,415</td>
<td>4,590</td>
<td>4,868</td>
<td>5,147</td>
<td>5,431</td>
<td>5,781</td>
<td>6,187</td>
</tr>
<tr>
<td>% change</td>
<td>4.1%</td>
<td>4.0%</td>
<td>6.1%</td>
<td>5.7%</td>
<td>5.5%</td>
<td>6.4%</td>
<td>7.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: OBR 2015

Although SRIT as a percentage of total NSND income tax in the UK is expected to remain stable from 2013-14 to 2020-21 at 2.88-2.92%, there are differences in the annual variations of SRIT and UK NSND income tax. Figure 14 shows the annual change in estimated SRIT revenues (at 10p) compared to the annual change in UK tax revenue on NSND income from 2014-15 to 2020-21.

Figure 12 Annual change (%) in income tax on NSND income in the UK as a whole and SRIT, 2013-14 to 2020-21

Source: SPICe calculations based on OBR 2015
How could this affect the block grant? Illustrative example

After SRIT gets introduced, the revenue from SRIT will accrue to the Scottish Government. The Scottish block grant will be decreased to reflect this loss of revenue by HM Treasury. During a two or three year transition period (Scottish Parliament 2015) following the introduction of SRIT, the annual deduction to the block grant will exactly offset the tax revenue generated for that year (Scottish Parliament 2015). In other words, the net effect of levying SRIT at 10p in the pound and the block grant adjustment will be zero (Scottish Government 2015b). Subsequently the block grant adjustment is set to be indexed according to the “Holtham method” (Scottish Government 2015b) – this method indexes the annual change in the block grant adjustment to the annual change in the NSND income tax base in the UK (or the rest of the UK).

- Let us use income tax on NSND income tax revenue in the UK as a proxy for NSND taxable income in the UK.

- Let us take the forecast for SRIT revenue for 2016-17 as the base year when the indexation mechanism starts being applied and see what the difference in the Scottish budget is by 2020-21 if we uprate the block grant deduction annually by the percentage change in NSND income tax revenue in the UK as a whole.

| Table 14 SRIT revenue and block grant deduction, 2016-17 and 2020-21 |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                             | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | Cumulative total |
| SRIT revenue                | 4,868   | 5,147   | 5,431   | 5,781   | 6,187   | 27,414          |
| Block grant deduction       | 4,868   | 5,160   | 5,438   | 5,775   | 6,169   | 27,410          |
| Difference                  | 0       | -13     | -7      | 6       | 18       | 4               |

- Table 14 shows that if the deduction to the block grant was indexed to UK NSND income tax revenue, there would be a loss to the Scottish budget of £13m and £7m respectively in 2017-18 and 2018-19. However, the Scottish budget would be bigger than it otherwise would have been by £6m and £18m respectively in 2019-20 and 2020-21. The cumulative difference between SRIT revenue and the deduction to the block grant after 5 years would be £4m i.e. the sum of SRIT revenue over 5 years would be £4m higher than the sum of the annual deductions to the block grant over those 5 years.

IMPLEMENTING SRIT

Cost of implementation

The Scottish Government is currently meeting all start-up and running costs of SRIT (Scottish Government 2015c). The total cost of implementing SRIT is estimated to be between £30m and £35m (down from previous estimates of £35m to £4m) (UK Government 2015i). This is made up of £10m to £15m on IT costs and £20m on non-IT costs (UK Government 2015i). This remains the current estimate (Scottish Parliament 2015).

HMRC has invoiced the Scottish Government:
- £1,018,713 for costs in 2013-14 associated with the project and implementation programme (UK Government 2014)
- £1,178,707 for costs in 2014-15 associated with the project and implementation programme (UK Government 2015i)
Total costs for 2014-15 are estimated to be £2.1m (UK Government 2015i). In November 2010, annual running costs for SRIT were originally estimated at £4.2m. However, HMRC notes (Scottish Parliament 2015):

“HMRC has always anticipated that, if the Scottish and UK rates diverge, there will be an increase in running costs. The customer insight research supported this, by clarifying that Scottish taxpayer customers would be more likely to call HMRC if the Scottish rates were higher than the UK rates and as set out above a divergence in the rates would increase the amount of compliance activity required. If the SRIT is set at 10%, the running costs are estimated to be £2m-£2.5m. If the rate is set at a figure other than 10%, the figure is estimated to be £5.5m-£6m. These figures do not include costs arising from the long-term solution for [Relief at Source] pension schemes, which will be implemented in 2018-19, as the details of this solution are still under development.”

HMRC implementation

HMRC is confident that it will be ready for the implementation of SRIT in April 2016 – it states that good progress has been made in relation to amending IT systems and work is underway concerning changes to the PAYE system (Scottish Parliament 2015). HMRC does not anticipate a significant change for employers as a result of the introduction of SRIT. However, it has been carrying out a programme of communications activity for employers. In addition, guidance for customers is expected to be published in autumn 2015 (Scottish Parliament 2015).

Public knowledge of SRIT

HMRC (2015h) carried out a survey of Scottish taxpayers from a range of different locations in Scotland and on the border with England, with different incomes and professions. Key findings include:

- Among individuals, awareness of the forthcoming change to SRIT was low (only 1 in 85 participants knew about it).
- It was common for participants to express surprise that they hadn’t been aware that a major change to income tax was happening.
- Awareness among employers and payroll agents was mixed with large organisations tending to be more aware than SMEs and payroll agents tending to be very aware. Equally pension providers had a high level of understanding of SRIT.
- Taxpayers are more likely to want more information or clarification about how SRIT will impact them if the tax rates are set higher than the rest of UK (rUK) rate (58% compared to 40% who said they would want more information if SRIT was lower).
- Most individuals thought that they would not have to do anything about the Scottish Rate of Income Tax and did not anticipate having to contact HMRC about the Scottish Rate of Income Tax.
- Taxpayers would like to receive a letter notifying telling them about SRIT either before September 2015 (20%) or in January 2016 (24%).

HMRC plans to write to taxpayers for whom they hold a Scottish address in December 2015 to inform them that they will be treated as a Scottish taxpayer and advise them of how to report a change of address (Scottish Parliament 2015).
CHANGING SRIT

Regressive or progressive?

A progressive income tax implies that high income individuals have a higher rate of tax than lower-income individuals, in other words the average rate of tax rises as income rises. As shown in Figure 1, income tax in the UK is progressive, that is to say higher income individuals have a higher rate of tax than lower-income individuals.

SRIT applies uniformly across all the tax bands i.e. all taxpayers pay the same percentage of their income in SRIT. In this sense it can be considered that SRIT in isolation is not progressive as it does not rise as incomes rise. For example if SRIT is set at 10p, an individual with a taxable income of £20,000 pays 10% of their income or £2,000 in SRIT. An individual with a taxable income of £200,000 also pays 10% in SRIT or £20,000 in SRIT. However as SRIT is not paid separately from the rest of income tax this has no practical consequences for taxpayers or for post-tax income distribution as it does not change the progressive nature of total income tax revenue.

Changes to SRIT will apply uniformly across all the main tax bands. If the Scottish Parliament changes SRIT up or down, income tax will still be progressive: high income individuals will still have a higher rate of tax than lower-income individuals. For example if SRIT is set at 5p, the basic rate will be 15p, the higher rate will be 35p and the additional rate will be 40p as shown in Figure 15.

Figure 13 Setting SRIT at 5p

Because SRIT can only vary uniformly across all the bands, changing SRIT will have a bigger impact on basic rate taxpayers than higher and additional rate taxpayers. For example setting SRIT at 5p would mean the basic rate goes down to 15p (a 25% decrease), the higher rate goes down to 35p (a 12.5% decrease) and the additional rate goes down to 40p (a 11.1% decrease). These are the effects on marginal tax rates.

The effect on the average rate of tax of individual taxpayers would be different. If SRIT is set at 5p, income tax for basic rate taxpayers would be reduced by 25% because that is the basic rate is the only rate at which they pay tax. For a higher rate taxpayer, the tax they pay at the basic rate would be reduced by 25% but the tax they pay at the higher rate would only be reduced by...
12.5% - the effect on total tax they pay would depend on what percentage of their taxable income they pay at different rates but would be less than 25% in any case.

The bigger the difference between each marginal rate, the more progressive income tax is. Currently the higher rate is 100% higher than the basic rate and the additional rate is 125% higher than the basic rate. Changing SRIT will change the progressivity of SRIT as shown in Table 15.

**Table 15 Effect of different rates of SRIT on the progressivity of income tax**

<table>
<thead>
<tr>
<th>SRIT at 5p</th>
<th>Basic rate</th>
<th>Higher rate</th>
<th>Additional rate</th>
<th>How much higher is higher rate compared to basic?</th>
<th>How much higher is additional rate compared to basic?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>35</td>
<td>40</td>
<td>133.3%</td>
<td>166.7%</td>
</tr>
<tr>
<td>SRIT at 10p</td>
<td>20</td>
<td>40</td>
<td>45</td>
<td>100.0%</td>
<td>125.0%</td>
</tr>
<tr>
<td>SRIT at 15p</td>
<td>25</td>
<td>45</td>
<td>50</td>
<td>80.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Any level of SRIT in excess of 10p will in effect make income tax “less progressive”. For example, setting SRIT at 15p will mean the higher rate of income tax is only 80.0% higher than the basic rate (45p versus 25p) and the additional rate is only 100.0% higher than the basic rate (50p versus 25p). Conversely, setting SRIT below 10p will make income tax “more progressive” e.g. setting SRIT at 5p will mean the higher rate is 133.3% higher than the basic rate (35p versus 15p) and the additional rate is 166.7% higher than the basic rate (40p versus 15p). It is important to note however that no change to SRIT can make income tax regressive as this would require that the marginal income tax rates decrease as income goes up.

**Taxpayer response to a tax change**

Changing tax rates has a number of revenue effects:
- The mechanical or pre-behavioural effect which is the direct impact on tax revenues and is proportional to the change in tax rate.
- Behavioural effects which refer to the range of different responses that taxpayers can engage in following a change in tax
- Indirect effects such as the impact on investment

A reduction in tax is generally expected to encourage economic activity and willingness to comply with the tax system while an increase in tax may lead to less investment in the country and an increased impetus to engage in activities that decrease taxable income (Berthier 2014).

Figure 14 shows the different behavioural responses that taxpayers may have in response to a tax change.
There are two main types of labour supply responses. Firstly, a reduction in the number of hours people work or the amount of effort they put into work can have two effects that partially offset each other:

- **Income effect**: this arises because a change in tax rates leads to a proportional change in disposable income for a given amount of work. For example, if tax rates are reduced, the individual has more disposable income and may respond by working less.

- **Substitution effect**: this arises because, for example, a tax reduction means that for every additional hour of work the individual gets a higher disposable income, so more to spend per hour of work on food, clothing, holidays, etc. Sacrificing leisure for work has become more worthwhile so people may respond by working more.

Secondly, taxpayers can change whether or not they participate in the workforce through retirement (either advanced or delayed); deciding to seek a job if they are not employed; staying in a job or leaving the workforce if they are employed; staying in, leaving or returning to education or training; taking leave from work or extending leave (e.g. maternity leave).

In addition to the labour supply effect, the “wage effect” must also be considered. For example, if income tax in Scotland becomes lower than in the rest of the UK (rUK), people in rUK may demand higher wages to compensate for the fact that they end up with lower disposable incomes. This may be particularly true for workers in rUK in the same company who could compare their income with their counterparts in Scotland. These wage effects could cause companies to shift employment between jurisdictions, which would affect the regional distribution of GDP.

Other responses include:

- **Tax planning:**
Forestalling i.e. bringing income forward in anticipation of a higher tax rate. This can have a significant one-off impact on tax revenue and is particularly relevant for owner-directors of companies.

- Incorporating and receiving a dividend rather than a salary
- Converting income to capital gains e.g. taxpayers with investment income can shift their asset portfolios towards assets that give returns in the form of capital gains rather than income
- Taking compensation for labour services in forms that are untaxed or subject to lower tax rates (e.g. company cars, child care, stock options)
- Transferring income between spouses
- Increasing pension contributions
- Increasing donations to charities

- Tax avoidance
- Tax evasion

The extent to which taxpayers change their behaviour in response to a change in tax rates is captured by the concept of “taxable income elasticity”.

### Taxable income elasticity (TIE)

TIE estimates the percentage change in total taxable incomes in response to a one per cent change in the net-of-tax rate (the proportion of each additional pound earned received by the individual after tax, also known as the marginal retention rate (HMRC 2012)). TIE does not have a unit.

For example, if the marginal income tax rate is 50%, the net-of-tax-rate is 50% as people get to keep 50p of each pound received after tax. If the tax rate increases from 50% to 50.5%, the net-of-tax rate goes from 50% to 49.5%. This is a 0.5 percentage point decrease, (equal to 1% of 50%). In other words the net-of-tax rate fell by 1%. If TIE was 0.4, this reduction in the income tax rate is expected to lead to a 0.4% fall in taxable income.

Although many empirical studies have looked at the effect of fiscal changes in various countries and smaller jurisdictions (e.g. regions, cities), “there are no convincing estimates of the long-run elasticity or reported taxable income to changes in the marginal tax rate” (Saez et al. 2009). This is because it is hard to isolate the behavioural reasons behind changes in taxable income from other factors such as the overall economic situation and the TIEs that are based on empirical studies are dependent on many factors specific to the case study.

Most studies focus on high income taxpayers and have concluded that high income taxpayers have the highest behavioural responses in response to tax changes with TIEs ranging from 0.12 to 0.4. Low income taxpayers have absent or low behavioural responses to tax changes e.g. TIE estimate for low income earners range from 0.18 to 0.28 and from 0.1 to 0.26 for middle income earners (Berthier 2014).

In 2010 the Independent Commission on Funding & Finance for Wales Fairness and accountability: a new funding settlement for Wales estimated TIEs for taxpayers in Wales in the event of income tax devolution in Wales. It estimated a TIE of 0.25 for basic rate taxpayers and 0.5 for higher rate taxpayers, noting a certain number of factors that would contribute to high TIEs including the high number of people living within 50 miles of the border between the two countries and the high number of daily commuters between the two countries.

In 2012 HMRC estimated the effect of the introduction of the 50p additional rate in 2010-11 (previously the higher rate for incomes over £37,400 was 40p) (HMRC 2015). TIEs ranged from 0.14 to 0.81 with the most likely estimate at 0.48. The UK Government selected a TIE of 0.45 for additional rate taxpayers. These values attempted to exclude forestalling as a response
because it has a one-off effect on declared income. HMRC concluded that the additional rate of income tax was a highly distortional form of taxation and had led to a substantial amount of forestalling: around £16 billion to £18 billion of income is estimated to have been brought forward to 2009-10 to avoid the introduction of the additional rate of tax. Between 2009-10 and 2010-11 the taxable income of taxpayers earning over £200,000 decreased by 27.9% in the UK as a whole and by 38.9% in Scotland (Berthier 2014). This may indicate a higher behavioural response from additional rate taxpayers in Scotland compared to the UK as a whole.

HMRC estimated that reducing the additional rate from 50p to 45p could reduce revenues by about £3.5 billion in 2015-16 (HMRC 2012). However, once behavioural effects were included, the loss was only £100 million by 2015-16. These results used a TIE of 0.45 for additional rate taxpayers. The IFS (2014) note that using TIEs of 0.35 and 0.55 which are within the range of uncertainty leads to an estimate that reducing the 50p rate to 45p in 2013-14 could lead to a loss of revenue of £700 million or an increase in revenue of £600 million.

Based on a range of empirical studies, Berthier (2014) concluded that changing SRIT may have the following effects:

- Changes to labour supply are likely to be small and at the margin.
- Physical migration is likely to be higher for the highest income taxpayers. Additional rate taxpayers, such as those who work in either rUK or Scotland and live in the other and those who have second homes in Scotland or rUK, may find ways to migrate across the fiscal border between Scotland and rUK “on paper”. The extent to which paper migration is likely to occur will depend on HMRC’s efficiency in identifying and monitoring “Scottish” and other taxpayers.
- Tax planning in the form of forestalling is a likely response in relation to a change in the SRIT. However, tax can only be brought forward or delayed once in relation to a change in the SRIT and so this is a one-off effect. Given that SRIT applies only to NSND income, tax planning in the form of shifting income from one taxable form to another is also likely to occur. In addition, a change in SRIT may also result in greater or lesser levels of incorporation. All of these responses would have an impact on overall tax revenues.

Overall, studies show that those with high incomes are more responsive than those with lower incomes; the self-employed are more responsive than wage earners; and women are more responsive than men (Berthier 2014).

**Estimates**

In its report Direct effects of illustrative tax changes (HMRC 2015i), HMRC estimated the effect of changing to the basic rate of income tax for total taxable income in Scotland by 1p as shown in Table 16. This includes HMRC’s estimates of potential behavioural responses (although changes to the basic rate are assumed to provoke minimal behavioural responses if any).

**Table 16 Direct effects on NSND income tax of changing the basic rate of income tax in Scotland by 1p (£ million)**

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>345</td>
<td>390</td>
<td>400</td>
</tr>
</tbody>
</table>

Source: HMRC 2015i

SPICe has modelled the effect of illustrative changes to SRIT for 2014-15.
The results are summarised in Table 17. SPICe used TIEs of 0.05 for basic rate taxpayers, 0.15 for higher rate taxpayers and 0.35 for additional rate taxpayers. These are consistent with the academic literature which provides a broad range of TIEs. Examples include:

- 0.18 to 0.28 for low income earners (Gruber & Saez 2002)
- 0.1 to 0.26 for middle income earners (Gruber & Saez 2002)
- 0.12 to 0.4 for the highest income earners (Saez et al. 2009) with 0.4 considered to be a reliable estimate for high income earners (Giertz 2005)
- 0.06 for all income taxpayers (Kleven & Schultz, 2011)
- 0.17 at the median family income (Devereux 2004)

The SPICe model uses lower TIEs than those discussed in the academic literature because the latter focuses on TIEs for total income. TIEs on NSND income are expected to be lower than TIEs for total income. This is because dividends and savings interest are easier to shift (e.g. forestalling) than earnings.

These TIEs do not reflect specific assumptions about how Scottish taxpayers may react to a change in SRIT, they are simply consistent with the academic literature and the type of income under consideration.

Table 17 Impact of a change in SRIT on SRIT revenues (includes behavioural responses)

<table>
<thead>
<tr>
<th>SRIT</th>
<th>Direct (mechanical) impact on SRIT revenues</th>
<th>SRIT revenues before taking into account behavioural response of taxpayers</th>
<th>Indirect (behavioural) impact on SRIT revenues</th>
<th>Post-behavioural SRIT revenues</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>5p</td>
<td>-2,191.5</td>
<td>2,191.5</td>
<td>22.8</td>
<td>2,214.3</td>
<td>-49.5%</td>
</tr>
<tr>
<td>6p</td>
<td>-1,753.2</td>
<td>2,629.8</td>
<td>21.8</td>
<td>2,651.6</td>
<td>-39.5%</td>
</tr>
<tr>
<td>7p</td>
<td>-1,314.9</td>
<td>3,068.1</td>
<td>19.1</td>
<td>3,087.2</td>
<td>-29.6%</td>
</tr>
<tr>
<td>8p</td>
<td>-876.6</td>
<td>3,506.4</td>
<td>14.6</td>
<td>3,521.0</td>
<td>-19.7%</td>
</tr>
<tr>
<td>9p</td>
<td>-438.3</td>
<td>3,944.7</td>
<td>8.2</td>
<td>3,952.9</td>
<td>-9.8%</td>
</tr>
<tr>
<td>10p</td>
<td>-</td>
<td>4,383.0</td>
<td>-10.0</td>
<td>4,811.3</td>
<td>9.8%</td>
</tr>
<tr>
<td>11p</td>
<td>438.3</td>
<td>4,821.3</td>
<td>-10.0</td>
<td>4,811.3</td>
<td>9.8%</td>
</tr>
<tr>
<td>12p</td>
<td>876.6</td>
<td>5,259.6</td>
<td>-21.8</td>
<td>5,237.8</td>
<td>19.5%</td>
</tr>
<tr>
<td>13p</td>
<td>1,314.9</td>
<td>5,697.9</td>
<td>-35.5</td>
<td>5,662.4</td>
<td>29.2%</td>
</tr>
<tr>
<td>14p</td>
<td>1,753.2</td>
<td>6,136.2</td>
<td>-51.0</td>
<td>6,085.2</td>
<td>38.8%</td>
</tr>
<tr>
<td>15p</td>
<td>2,191.5</td>
<td>6,574.5</td>
<td>-68.3</td>
<td>6,506.2</td>
<td>48.4%</td>
</tr>
</tbody>
</table>

Source: SPICe calculations

Table 17 shows that behavioural responses would lead to slightly lower SRIT revenues than expected based on the purely mechanical effect of a change in rates e.g. setting SRIT at 15p would mechanically raise SRIT revenues by 50%, however once behavioural responses have
been taken into account revenues would only increase by 48.4%. Please note that these results are intended as illustrative examples only.

Behavioural responses that may occur as a result of changing SRIT will have an impact on all NSND income tax revenue, not just SRIT revenue. For example setting SRIT at 5p will, based on the TIEs described above, lead to an increase in SRIT revenues of £22.8m due to behavioural responses (this must be added to the mechanical effect of the change in rate to get total revenues). However, the effect of these behavioural changes on total NSND income tax revenue would be much greater (£230m). The Scottish budget in absolute terms would benefit less from a positive behavioural response but would also suffer less from a negative behavioural response following a change in SRIT than HM Treasury.

ADDITIONAL INFORMATION

- **UK Income Tax Liabilities Statistics, 2012-13 Survey of Personal Incomes, with projections to 2015-16, Tables 2.1 to 2.7 (HMRC 2015b):**
  - Released 22 May 2015, next release due January/February 2016, frequency of release: twice yearly, January/February and April/May.
  - The only table that has data on Scotland is Table 2.2: Number of individual income taxpayers by marginal rate, gender and age, by country and region, 1999-00 to 2015-16

- **Personal Incomes Statistics 2012-13, Tables 3.1-3.11 (HMRC 2015d):**
  - Released 30 January 2015, next release due January/February 2016, frequency of release: annually.
  - The only table that has data on Scotland is Table 3.11: Income and tax, by gender, region and country, 2012-13

- **Personal Income Statistics 2012-13, Tables 3.12-3.15a (HMRC 2015j):**
  - Released 27 February 2015, next release due February 2016, frequency of release: annually
  - The following tables have data on Scotland:
    - Table 3.12: Income and tax for individuals of pension age, by gender, region and country, 2012-13
    - Table 3.13: Income and tax by country and region, 2012-13
    - Table 3.13a: Income and tax by county and region, 2012-13 - Confidence Intervals
    - Table 3.14: Income and tax by borough and district or unitary authority, 2012-13
    - Table 3.14a: Income and tax by borough and district or unitary authority, 2012-13 - Confidence Intervals
    - Table 3.15: Income and tax by Parliamentary Constituency, 2012-13
    - Table 3.15a: Income and tax by Parliamentary Constituency, 2012-13 - Confidence Intervals

- **Direct effects of illustrative tax changes (HMRC 2015i):**
  - Released 8 July 2015, next release due after the Chancellors Autumn Statement Speech, frequency of release: at each Fiscal event
  - Includes the effect of a change in the basic rate in Scotland by 1p for 2016-17 to 2018-19
ANNEX

The tables in this annex illustrate that the proportional representation of different types of taxpayers and revenue raised at each tax band are different for earnings and for total income in the UK. Table 18 provides income tax revenue on earnings in the UK in 2015-16. This data is not available for Scotland.

**Table 18 Income tax revenue on earnings, £ million, UK, 2015-16**

<table>
<thead>
<tr>
<th></th>
<th>Basic rate taxpayers</th>
<th>Higher rate taxpayers</th>
<th>Additional rate taxpayers</th>
<th>All taxpayers</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic rate</strong></td>
<td>53,200</td>
<td>26,300</td>
<td>1,990</td>
<td>81,500</td>
<td>52.4%</td>
</tr>
<tr>
<td><strong>Higher rate</strong></td>
<td>.</td>
<td>33,600</td>
<td>13,800</td>
<td>47,400</td>
<td>30.5%</td>
</tr>
<tr>
<td><strong>Additional rate</strong></td>
<td>.</td>
<td>.</td>
<td>26,600</td>
<td>26,600</td>
<td>17.1%</td>
</tr>
<tr>
<td><strong>All rates</strong></td>
<td>53,200</td>
<td>59,900</td>
<td>42,390</td>
<td>155,500</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>% of total</strong></td>
<td>34.2%</td>
<td>38.5%</td>
<td>27.3%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: HMRC 2015b

Basic rate taxpayers paid 34.2% of income tax revenue on earnings in the UK in 2015-16, higher rate taxpayers paid 38.5% and additional rate taxpayers 27.3%. Tax charged at the basic rate accounted for 52.4% of income tax revenue on earnings, while tax charged at the higher rate accounted for 30.5% and tax charged at the additional rate accounted for 17.1%. Table 19 provides income tax revenue on total income in the UK in 2015-16.

**Table 19 Income tax revenue on total income, £ million, savings and dividends, 2015-16**

<table>
<thead>
<tr>
<th></th>
<th>Basic rate taxpayers</th>
<th>Higher rate taxpayers</th>
<th>Additional rate taxpayers</th>
<th>All taxpayers</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic rate</strong></td>
<td>54,188</td>
<td>27,944</td>
<td>2,035</td>
<td>84,965</td>
<td>49.7%</td>
</tr>
<tr>
<td><strong>Higher rate</strong></td>
<td>38,903</td>
<td>15,157</td>
<td>54,060</td>
<td></td>
<td>31.6%</td>
</tr>
<tr>
<td><strong>Additional rate</strong></td>
<td>.</td>
<td>.</td>
<td>31,989</td>
<td>31,989</td>
<td>18.7%</td>
</tr>
<tr>
<td><strong>All rates</strong></td>
<td>54,188</td>
<td>66,847</td>
<td>49,181</td>
<td>171,014</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>% of total</strong></td>
<td>31.7%</td>
<td>39.1%</td>
<td>28.8%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: HMRC 2015b

Basic rate taxpayers pay a smaller percentage of total income tax (31.7%) than they do income tax on earnings (34.2%) as they have a smaller portion of their income in savings and dividends compared to higher and additional rate taxpayers. Higher rate taxpayers and additional rate taxpayers pay a higher percentage of total income tax (39.1% and 28.8% respectively) than they do income tax on earnings (38.5% and 27.3% respectively).

While the percentages in Table 18 and 19 are likely to be different for Scotland, the trends will be similar i.e. basic rate taxpayers pay a greater share of tax on earnings than they do on total income while higher and additional rate taxpayers pay a greater share of tax on total income than they do on earnings.
SOURCES


HMRC (2015a) SAIM1090 - Savings and investment income: savings and dividend income is the highest part of total income, available at - http://www.hmrc.gov.uk/manuals/saimmanual/saim1090.htm


HMRC (2015e) Response to Freedom of Information Act 2000 request, 2 October 2015, ref. 2689/15


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Behavioural Responses to Changes in Income Tax Rates: What Will Happen in Scotland?

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Stirling Management School and
Centre on Constitutional Change

October 2015
1. **Introduction**

This paper discusses behavioural responses to changes in income tax rates. With Scotland about to take control of income tax bands and rates, this is now a relevant issue for the Scottish Parliament. We address a number of issues in the paper:

What kind of response might we expect when income tax rates change?

What responses have been observed in practice and how far are the lessons from this evidence applicable to Scotland?

We address these in turn.

2. **Responses to changes in income tax**

An increase in tax on labour income implies a reduction in workers real wages - the amount of goods and services that they can buy. In response to an increase in tax, workers could:

- ignore the cut in their real wage and continue to work as they did before
- reduce the labour they are willing to supply because taking time off is now less costly
- increase their working time or seek a more attractive job offer to maintain their real wage

Economists describe the responsiveness of work to changes in tax rates as the “elasticity of labour supply”. Precisely, the elasticity measures the percentage change in working time supplied for a small percentage change in real wages. There is no theoretical reason why any of the responses listed above should not happen. In the population, there are likely to be some workers who ignore the cut, some who increase their labour supply and some who reduce it. What matters as far as governments wishing to increase their tax revenues are concerned, is how these three groups balance out.

Thus, suppose that an increase in income tax cause real wages to fall by 1% and that, on average, workers reduce their hours by 0.5%. Then the value of the elasticity of labour supply is 0.5. This will mean that the government gathers less revenue than it might have expected had workers chosen not to reduce their labour supply. To anticipate some of the empirical results that we discuss subsequently, from now on we assume that tax increases have a negative effect on labour input.

Reducing their hours of work is not the only adjustment that workers might make. They could:

1. **Withdraw from the labour market altogether:**
   This could involve retiring or concentrating on other non-market activities – such as volunteering, caring or looking after children. This might cause an increase in payments of state benefits. Therefore, since most benefits will continue to be paid by DWP, withdrawal from the labour market could have implications for Scotland under the second “no detriment” principle as defined in the Smith Commission report.

2. **Migrate to a jurisdiction with lower tax rates:**
   This behaviour would only be rational if the returns to migration exceed the costs. These costs include the monetary, social and psychological costs associated with moving. Social and psychological costs include the effects of moving away from friends or family and other social networks.

   Note that these costs would also apply to migrants considering a move to Scotland. If Scotland is perceived, or expected, to be a high tax jurisdiction then the flow of migrants
into Scotland could be reduced if the higher tax rates in addition to the social and psychological costs deter immigrants. This would be potentially very damaging for the Scottish economy, but is extremely difficult to measure.

The benefits from migration will be realised over the remainder of the persons working life if the move is permanent. Thus migration tends to be concentrated among the young who can offset the costs of migration because they can realise the gains from migration – lower tax rates - over the remainder of their working life. Migration is also focused on high earners, for whom the fixed costs of moving are less significant. Increased emigration and/or reduced immigration will reduce economic activity in Scotland below what it would otherwise have been. Therefore there will also be a reduction in receipts from other taxes in Scotland, which would affect UK revenues. Whether this effect is relevant under the “no detriment” principle depends on whether the net migration flows are to the rest of the UK, which would result in offsetting increases in taxes there, with perhaps only a marginal effect on UK government revenues. On the other hand if increased taxes in Scotland increases emigration from the UK as a whole, then HMRC could argue that this action has reduced its revenues from national insurance, VAT, excise duties etc.

Finally, it is often whole households rather than individuals who migrate. Thus migrants often include children and partners. Given that migration tends to be concentrated in younger age groups, this can have a negative effect on demographic structure. This has been the recent experience of several Eastern European countries and was the historic experience of Scotland (During the period 1950-2000, Scotland experienced net emigration of around 900,000 (own estimates)).

3. **Continue to work the same number of hours, but reduce effort:**
   Workers have less incentive to seek advancement within their workplace. They continue to work the same number of hours but their contribution to firm output falls. This can only happen where worker output is not closely monitored. It would have the effect of reducing company profits.

4. **Bargain for higher wages:**
   This is what Picketty, Saez and Stantcheva (2013) refer to as “compensation bargaining”. This idea captures the notion that workers bargain to increase their wages when confronted by a tax increase. If successful, workers maintain their wages but again company profits are reduced. Many large companies have “equivalisation” schemes in place to ensure that workers are not disadvantaged by the local tax system when posted to a new jurisdiction. Nevertheless, reduced profits will act as a disincentive to companies extending their activities in high tax jurisdictions.

5. **Switch the way in which their income is accounted for:**
   Typically this would mean taking income as profits rather than earnings and would require the individual to be a sole proprietor, a partner or an incorporated business. This would mean that the worker could opt to be taxed on his/her profits rather than his/her earnings and thus take advantage of whichever rate of tax was lower. There are around 300,000 self-employed workers in Scotland. 330,000 small and medium-sized enterprises in Scotland with less than 50 employees. It is difficult to know how many of these individuals might be able to take advantage of income switching and also how many would benefit from so doing. Again,
there will be costs associated with switching and the procedure is likely to be most attractive
to the relatively well-rewarded. Note that this method of avoiding higher tax rates will not
have any other implications for the receipts of other taxes in Scotland of for overall
economic activity.

Responses to tax changes are not limited to income tax. All taxes reduce individuals’ ability to
consume goods and services. While this argument clearly applies to direct taxes (taxes on income), it
also applies to indirect taxes (taxes on goods and services). Reductions in income may cause
individuals to change their behaviour, which in turn may have adverse consequences for the
economy, such as lowering aggregate income and increasing unemployment.

Some taxes are introduced to deter what are seen as bad behaviours. A good example of this is the
recently introduced charge on carrier bags. However most taxes are taxes on good behaviours, such
as working. The hope is that they do not alter the good behaviours substantially, while
simultaneously raising as much revenue as possible so that government can fund its public services.

What key facts do we know about income taxpayers in Scotland?

Before we review the empirical evidence on the effects of varying income tax rates, it is worth
noting some important facts around how income tax payments are distributed across the Scottish
population. Because Scotland has a very unequal distribution of income, it follows that the amount
of income tax paid varies widely across taxpayers: some pay a lot; most pay very little.

This is best explained in Figure 1, which shows the proportion of total income tax paid by Scottish
taxpayers ordered from those with least income (0 on the horizontal scale) to those with most
income (0.99 on the horizontal scale). Reading from the horizontal scale and then from the vertical
scale shows that the poorest 60 per cent of Scottish income taxpayers pay only 10 per cent of
Scotland’s total income tax revenues. The poorest 90 percent of Scottish taxpayers contribute just
under 50 per cent of total income tax revenue.

Figure 1: Lorentz curve for Scottish taxpayers 2010-11

This means that the richest 10 per cent of taxpayers pay more than 50 percent of income tax
revenues. And the top 5 per cent of tax payers (those to the right of 0.95 in Figure 1) contribute 40
per cent of Scottish tax revenue. There are around 2.6 million taxpayers in Scotland – 5 per cent of these comprise around 130,000 people. Income tax will be the Scottish Government’s main future revenue source, but a large proportion of that revenue is dependent on a relatively small number of taxpayers. So how this group reacts to changes in tax rates will be very important for the health of the Scottish economy.

Our estimates suggest that there are around 11,000 additional rate taxpayers in Scotland (source: survey of personal incomes). This means that they comprise less than 0.5% of Scottish taxpayers. Therefore, since from Figure 1 the top 1% contribute around 20% of Scotland’s income tax revenues, this smaller group probably accounts for around 10% of total income tax receipts.

3. Empirical evidence

Whereas it is relatively easy to understand the basic concepts underlying behavioural responses to changes in income tax rates, constructing estimates of how populations will respond to changes in these rates is highly technical. There are also difficulties in knowing the extent to which lessons learned from other jurisdictions, or at other periods of time, can be transferred to Scotland’s current situation. A recent contribution by Manski (2012) suggested that economists should be cautious about making bold claims based on the, admittedly extensive, number of studies that have been undertaken to determine the tax elasticity of labour supply. However, he did argue that the evidence did clearly point to one conclusion, namely that “increasing tax rates usually reduces work effort.” Manski (2012). For Scotland, this would imply that the tax revenue likely to be raised from increased income tax rates would be less than a simple arithmetic projection would suggest.

Thus, the key question which this section addresses is how individual labour supply is affected by changes in income tax rates. Because of the importance of the very high earners in generating a disproportionate share of Scotland’s aggregate income tax revenues, we mainly focus on the top marginal rate, which in the UK is known as the “Additional Rate” and is currently set at 45%. This is not to say that other tax rates matter, but this rate will clearly come under the direct control of the Scottish Parliament. The rules around how tax credits are tapered (and subsequently universal credit) effectively set the income tax rate for lower income workers. These are important issues around participation in the labour market, but are not currently planned to come under the control of the Scottish Parliament and may anyway not have a massive effect on tax revenues.

Alan Manning (2015) investigates whether the introduction of the additional rate of income tax at 50% for those with income over £150,000 in 2010 generated the increased revenues that the Labour Government of the time expected. Only around 0.9% of UK taxpayers have taxable income in that range. This group pay 25% of total income tax revenues in the UK as a whole. Though their number is relatively small, it is substantially higher than the proportion of Scottish taxpayers who pay the additional rate.

Manning makes the following points:

- There is little evidence that high-paid employees work less in response to changes in tax rates. However, there is clear evidence that avoidance increases when tax rates rise. For example, high earners may choose to take income as profits rather than wages or they may seek to reallocate tax liabilities from one year to another.
- Increases in the additional rate of income tax have implications for other tax revenues. For example, VAT revenues are likely to fall as are national insurance receipts. Note that in the
Scottish case, this has implications for a strict interpretation of the second “no detriment” condition.

- Of all of the possible behavioural responses to increases in the additional rate, increased avoidance is most likely.
- The most important concept for the analysis of responses to changes in income tax is the “marginal effective tax rate” (METR). The METR measures the fraction of the output produced by worker which is claimed by government after taking account of all taxes. Table 1 shows the highest tax rate, the METR paid by the top 1% of earners and the average METR for selected countries in 2015. It is clear that the UK METR is around average for the group of countries selected (relatively low in European comparisons, but higher than the USA and Japan). The same is true for its average METR.

**Table 1: Top tax rates in selected countries 2013**

<table>
<thead>
<tr>
<th>Country</th>
<th>Highest tax rate</th>
<th>METR (top 1%)</th>
<th>METR (average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>45.00%</td>
<td>60.40%</td>
<td>49.10%</td>
</tr>
<tr>
<td>United States</td>
<td>46.30%</td>
<td>51.40%</td>
<td>44.70%</td>
</tr>
<tr>
<td>France</td>
<td>54.50%</td>
<td>69.20%</td>
<td>67.20%</td>
</tr>
<tr>
<td>Germany</td>
<td>47.50%</td>
<td>55.90%</td>
<td>66.60%</td>
</tr>
<tr>
<td>Denmark</td>
<td>56.20%</td>
<td>65.00%</td>
<td>53.80%</td>
</tr>
<tr>
<td>Sweden</td>
<td>56.70%</td>
<td>73.60%</td>
<td>58.40%</td>
</tr>
<tr>
<td>Japan</td>
<td>50.80%</td>
<td>53.90%</td>
<td>39.20%</td>
</tr>
</tbody>
</table>

Source: Manning 2015

- Table 2 below shows the average and marginal rates from personal taxation in the UK vary across different levels of taxable income (and different percentiles within the income distribution). Compared with Table 1, it excludes the effects of indirect taxes.

**Table 2: Average and Marginal Rates of Personal Tax for Selected Levels of Earnings**

<table>
<thead>
<tr>
<th>Taxable Income</th>
<th>Percentile</th>
<th>Marginal Rate</th>
<th>Average Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Income Tax</td>
<td>National Insurance</td>
</tr>
<tr>
<td>£22,004</td>
<td>50</td>
<td>20%</td>
<td>12%</td>
</tr>
<tr>
<td>£30,945</td>
<td>75</td>
<td>20%</td>
<td>12%</td>
</tr>
<tr>
<td>£48,250</td>
<td>90</td>
<td>40%</td>
<td>2%</td>
</tr>
<tr>
<td>£105,000</td>
<td>97</td>
<td>60%</td>
<td>2%</td>
</tr>
<tr>
<td>£122,000</td>
<td>99</td>
<td>40%</td>
<td>2%</td>
</tr>
<tr>
<td>£150,000</td>
<td>45%</td>
<td>2%</td>
<td>47%</td>
</tr>
<tr>
<td>£200,000</td>
<td>45%</td>
<td>2%</td>
<td>47%</td>
</tr>
<tr>
<td>£1,000,000</td>
<td>45%</td>
<td>2%</td>
<td>47%</td>
</tr>
</tbody>
</table>

This table shows that the highest rates of tax are payable on those earning between £100,000 and £120,000 per year. This is due to the withdrawal of the personal allowance at a rate of £1 for each extra £2 in earnings over that income band.

- Manning argues that one of the obvious indicators that there is behavioural response to the additional rate is the bunching of taxable income around the additional rate threshold. It is
clear that reported taxable income varies with income tax rate. The elasticity of response to tax rates depends on the type of worker and is highest for the self-employed. One recent estimate of this elasticity put its value at 0.46 (Brewer et al 2010).

- However, echoing the earlier quote from Manski, Manning argues 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.” (Manning 2015 P6).

Our estimates of the METR for Scottish income taxpayers at the University of Stirling are shown in Figure 2. These show how much net income changes for a £1 increase in gross income. We include both the employed and the self-employed. The underlying calculations take account of income tax, national insurance, and tax credits. The figure again ranks taxpayers from lowest income to highest income and divides them into groups of 5% (vigintiles). In Figure 3, we make the same calculations but aggregate from the individual to the household level. Whereas, changes in tax bands have an obvious effect on marginal tax rate increases at the individual level, the effects of income tax rates on households are much more complex. Some low income households face very high marginal rates of tax largely due to the effects of the withdrawal of tax credits. They may also be affected by the structure of the household and the ways in which its members’ incomes combine. Policymakers have to be aware that while tax policy is generally determined at the individual level, these have to be translated to the household level to understand their effects on family budgets and behaviour.

Figure 2: Marginal effective tax rates for Scottish taxpayers by income vigintile.
Tax shifting is a legal form of tax avoidance. It is likely to be marked when changes in tax rates are signalled in advance.

Manning concludes that increasing the top rate of tax from 45% to 50% would generate less than the expected £3.3 billion extra revenue if there was no behavioural response. Top taxpayers will not work any less hard, but they will seek ways to avoid paying tax.

Manning does not address the issue of a migration response to differences in tax rates. The most relevant current estimates come from Kleven et al. (2014). They look at a scheme introduced by the Danish government in 1991 which gave new immigrants with high earnings a preferential flat rate of income tax for three years. The scheme doubled the number of highly paid foreigners in Denmark relative to other foreigners who were slightly less well-paid. This implies a very large elasticity of migration with respect to the METR of between 1.5 and 2. This suggests that it can be desirable from the perspective of a single country to adopt preferential schemes for highly paid foreigners. Clearly that these will have negative spillover effects on other countries.

How far these findings can be applied in the Scottish context is difficult to assess. The evidence of its effects is both from another country and relates to tax cuts rather than to tax increases. Whether such a scheme might be feasible within the Scotland Bill 2015 is not clear.

Nevertheless, it does indicate that migration responses are potentially important and have to be considered when redesigning the personal tax structure, given that there are no substantial labour market barriers between Scotland and the rest of the UK.

However, in contrast, there is evidence that some countries have an extensive history of differences in personal income tax rates at subnational level. Figure 4 shows the top marginal rates of personal income tax in some US states and how these are allocated at the federal and state level.
Figure 4: Top Marginal Rates of Income Tax in US States

Source: Almendral and Vaillancourt (2011)

Whereas Massachusetts does not levy a state income tax, nearby Maine levies a rate of 8.5%. Clearly though states have to generate tax revenue, they do so using different tax mechanisms, which will create different incentives. Where these mechanisms involve mobile tax bases, this may create an incentive to seek a lower tax jurisdiction. However, there is no evidence at the international level that top tax rates have a detrimental effect on economic growth (Picketty et al. 2014). Indeed, Scandinavian countries have maintained significantly higher top marginal rates of tax than other developed countries for a considerable period without falling behind OECD growth rate averages.

Subnational governments can also differ in the progressiveness of their income tax structure. Figure 5 shows the difference in marginal tax rates at different levels of income (measured in Swiss francs) across Swiss Cantons.
Thus, the increase in the tax rate for those increasing their income from 50,000CHF to 200,000CHF would only be 4% in if they worked in Lucerne but almost 12% if they worked in Geneva. It appears that these significant differences in tax rate progression between cantons have not destabilised the Swiss economy.

Again, it is not clear how applicable this observation may be in relation to the future Scottish tax structure. Cultural acceptance of tax rate differences is probably country specific. HMRC, when assessing the Exchequer effects of the 50p additional rate of income tax, argued that “international labour mobility has increased in the last 15 to 20 years as both legal impediments and general migration costs have been reduced, which means the adverse affect of high rates of personal taxation on both inward and outward migration to the UK and tax revenues can be significant.” (HMRC 2012). Note that alongside the possibility that the structure of personal taxation may encourage emigration, part of the HMRC concern its possible deterrence of immigration, an issue which has received virtually no consideration in the literature largely because of the difficulty of identifying and collecting evidence from those who might have emigrated but chose not to because of the levels of personal taxation in the destination jurisdiction.

4. Conclusions

This paper has considered potential behavioural responses to changes in Scotland’s income tax structure. The focus has been on this tax because it is by far the most important of the new tax powers coming to the Scottish Parliament.

Changes to tax rates and tax bands can cause many kinds of behavioural change which will lead to differences between the revenues that might be expected in the absence of such change and those
which are actually collected. The larger this difference, the more potential problems there are for the Finance Ministry of the affected jurisdiction.

The worldwide evidence on behavioural responses to tax changes tends to agree only on the belief that higher income tax rates will lead to behaviours that have a negative effect on tax revenues. These include reducing labour supply, tax avoidance and migration. There is some evidence for each of these kinds of response, but their applicability to Scotland is difficult to judge.

Particularly important are the responses of high income earners who generate a disproportionate share of Scotland’s income tax revenues. There is certainly evidence of avoidance behaviour occurring as the additional rate was introduced and then changed.

There is also evidence from Denmark that high earners respond to tax incentives by changing their migration behaviour. If it is the case that the costs of migration have fallen in recent years, then there is a strong case for moving cautiously when considering changes to the higher rates of income tax in Scotland, even though there may be no evidence that they have a detrimental effect on rates of economic growth in the long run.
References


Annex One

The marginal effective tax rate (METR) is defined as 

\[ METR = 1 - \frac{(1 - \tau - \tau_{NI})}{(1 + \tau_{NIemp})(1 + \tau_{IND})} \]

where

\( \tau = \) the additional rate (45%)

\( \tau_{NI} = \) the national insurance rate payable on high incomes (2%)

\( \tau_{NIemp} = \) National Insurance employers' contribution (13.8%)

\( \tau_{IND} = \) indirect tax rate (15%) (combination of VAT and other duties)

The value of the METR is 59.5% which suggests that additional rate taxpayers pay around 60% of the last pound that they earn in tax.

\(^1\) Manning (2015) p 13