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

\[
\frac{\text{population in England in year } t}{\text{population in England in year } t - 1} = \frac{\text{population in Scotland in year } t}{\text{population in Scotland in year } t - 1}
\]

\( \phi \) = 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

\[
a + b\left(\frac{\theta}{\lambda}\right)^t - c\theta^t(1 - \phi^t)
\]

, where \( b \) and \( c \) 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

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

(2)

Since \( \lambda > 1 \), this formula will be dominated by the \( -c\theta^t \) 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
\[ A + B\theta^i + C\theta^i - D\left(\frac{\theta}{\lambda}\right)^i + E\left(\frac{\theta}{\phi}\right)^i \], 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 \( t \)

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

(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) $E_{t+1} = E_t + \theta$ (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 $\lambda \ge 1$: (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 $T_t$ 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

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

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 $a_t = \frac{T_t}{T_0} a_0$, 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
$$E^S_i = E^S_0 + \left( \frac{\theta}{\lambda} \right)^i \lambda^k \left( \frac{\theta-1}{\theta-\lambda} \right) E_0 \frac{p^S_0}{p_0}.$$  

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

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

It follows that

$$\dot{E}^S_i = E^S_i - a_i + T^S_i = E^S_0 + \left( \frac{\theta}{\lambda} \right)^i \lambda^k \left( \frac{\theta-1}{\theta-\lambda} \right) E_0 \frac{p^S_0}{p_0} - T^E_i \left( \frac{a_0}{T_0} \right)[1 - \phi^i].$$

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

“Fiscal autonomy”

Let $N^{S_i}$ be non-devolved taxes in year $t$, and suppose that $N^{S_i}$ grows at rate $\rho$.

Let $F^{S_i}$ be public expenditure in Scotland under fiscal autonomy.

Then $F^{S_i} = N^{S_i} + T^S_i$.

Therefore $F^{S_i} - \dot{E}^S_i = N^{S_i} - E^S_i + a_i$, since the $T^S_i$ terms cancel out,

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

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

$$a_i = \frac{\bar{t}^E_i}{T_0} \left( 1 + \phi^{-1} \right) \frac{a_0}{T^E_0} a_0.$$  

Hence

$$F^{S_i} - \dot{E}^S_i = \rho^i N^S_0 - E^S_0 + (1 - \left( \frac{\theta}{\lambda} \right)^i) \lambda^k \left( \frac{\theta-1}{\theta-\lambda} \right) E_0 \frac{p^S_0}{p_0} +$$

$$\frac{T^E_i}{T_0} \left( 1 + \phi^{-1} \right) \frac{a_0}{T^E_0} a_0.$$  

Since $T^E_i$ is assumed proportional to $\theta^i$, it follows that $F^{S_i} - \dot{E}^S_i$ 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

$$\bar{R}_i = R_i - \left( \frac{a_0}{T^E_0} \right) \frac{p^S_0}{p_0} \left( \frac{T^E_i}{p^S_0} \right) \left( 1 - \left( \frac{\lambda}{\phi} \right)^i \right).$$  

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.