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Patrizio Lecca, Peter McGregor, Kim Swales
Department of Economics
University of Strathclyde

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1 Introduction

The Referendum on Scottish independence held on the 18th September, 2014, resulted in a significant majority vote (55% as against 45%) in favour of "no". Accordingly, Scotland will remain a member of the U.K. for the foreseeable future.[1] However, further changes in the Scottish fiscal system are inevitable. Firstly, some tax changes are already in the pipeline (for April 2015 and 2016) as a consequence of the provisions of the Scotland Act 2012. Secondly, all of the UK leaders of the main unionist parties committed, in the latter stages of the referendum campaign, to transferring significant additional powers to the Scottish Parliament in the event of a majority no vote.[2] Lord Smith of Kelvin Chairs a Commission charged with rapidly generating a proposal for a new devolution settlement for Scotland.[3]

In Section 2 we briefly review the tax powers introduced by the Scotland Act 2012 and discuss those that seem likely to be proposed by the Smith Commission. We consider each of these changes in turn and seek to identify those that have the potential to exert significant macroeconomic or system-wide effects on the Scottish economy. In Section 3 we provide a first attempt to analyse the likely consequences of changes in those taxes that will be devolved, or could be devolved post-Smith Commission, and that could exert a significant system-wide impact on the Scottish economy. While there has been extensive debate around the issue of which powers should be devolved, there has been much less consideration of the likely impact that any new powers would have.

We then reflect, in Section 4, on the wider lessons of our analysis for two key aspects of the debate on further devolution of fiscal powers: the link between Scottish economic activity and Scottish Government revenues; fairness, well-being and inequality in Scotland. Section 5 presents our conclusions and outlines the further research that would enable us better to understand Scotland's future fiscal choices and their likely consequences.

2. Future fiscal powers for the Scottish Parliament

We begin by reviewing the changes that are due to be implemented in April 2015 and 2016 and then consider the additional powers that seem likely to be proposed by the Smith Commission.[4]

[1] In fact, Alex Salmond judged that "foreseeable future" would be a generation. Since the referendum others have expressed different views, in particular, that this would be a matter for the Scottish people to decide. Clearly a vote on EU membership in 2017 would be likely to stimulate pressure for another Independence Referendum if the UK voted to leave.
[2] Post Referendum the Prime Minister David Cameron has sought to link this to the wider UK constitutional issues.
[3] Lord Smith is due to submit his report on November 30th. The recommendations will be his, although these will, of course, be informed by input from the main political parties and others.
[4] O'Donnell (2013) sets out some guiding principles for fiscal policy and constitutional change.

Tax Changes in the Scotland Act 2012

The Scottish Land and Buildings Transactions Tax (LBTT) and the Scottish Landfill Tax both come into effect in April 2015. The former will replace the UK Stamp Duty Land Tax by a progressive tax that avoids the distortions created by the slab tax, in which tax liabilities increase sharply as property values exceeded certain thresholds. It is the first Scottish tax in 300 years. While this seems a more efficient and, given its progressivity (and tougher tax avoidance provisions), a fairer tax, its introduction on a revenue-neutral basis makes it inevitable that reducing the burden on lower property values, as the Scottish Government intends, will increase the tax burden on higher valued properties.[5] The Scottish Landfill Tax will replace its UK counterpart, and has the attraction of covering illegal landfilling and providing greater incentives to stimulate community action. While both changes are welcome, each accounts for a very modest proportion of total tax revenue in Scotland, and so is unlikely to have any meaningful macroeconomic impact.

By far the most significant changes are those proposed to income taxation, which are due to come into effect in April 2016 and which account for 23% of total Scottish tax revenues. The objective of the devolved tax powers is to make the Scottish Government (SG) have greater responsibility for its own expenditure decisions, with the share of revenues being raised in Scotland rising from 15% to around 27%. Of course, this change will also incentivise the SG to pursue growth stimulating policies, and provides taxpayers with an incentive to vote accordingly. Currently, the rates of income tax in the UK are 20p (basic rate), 40p (higher rate) and 45p (highest rate.) The proposal is that default tax rates for Scotland will be reduced by 10p in the pound, so that the basic, higher and highest default rates would be 10p, 30p and 35p. The Scottish Parliament is then required to set a Scottish Rate of Income Tax (SRIT) (in lock step, so that all rates move by the same percentage points), which would be added to the default rates. So if the Scottish Parliament were to set a SRIT of 10% the rates of income tax in Scotland would again be equal to those in the Rest-of-the UK (RUK).

The Block Grant Adjustment (BGA) is the method by which the block grant will be adjusted following the implementation of any tax changes. The chosen approach for the SRIT is the indexed deduction (ID) method, in which a base year adjustment is based on expected tax revenues so that revenues of the Scottish Government would be maintained with a SRIT of 10% (if actual revenues were equal to those expected). Subsequently, SG tax revenues will be indexed to comparable UK tax receipts. This at least partially insulates the SG's revenues from UK-wide changes, including recession and UK tax changes, since these impact on UK wide revenues too (and there would be no BGA if Scotland and RUK were not differentially impacted by the change). However, Scottish-specific changes that result in higher revenues will result in a BGA that grows less rapidly than tax revenues, providing an incentive to the Scottish Government to adopt growth-promoting policies.[6]

[5] The Scottish Government introduced the rates and bands for the LBTT in its draft budget statement on 9 October, 2014. This will also have regional impacts within Scotland, and there are other considerations that transactions taxes raise more generally. See e.g. Gibb (2013).
[6] Other methods of BGA were considered including own base deduction, in which the block grant effectively offsets the impact of any Scottish tax change. See e.g. Holtham (2009) and Bell (2013) for a fuller discussion.

Likely tax and welfare changes under "DevoSmith"

As we already note, while we know that the additional powers to be transferred to the Scottish Parliament are to be "significant", we do not yet know precisely what they are. We do, however, know what each of the five main Scottish parties are proposing. Liberal Democrats, Labour and the Conservative parties' proposals for further devolution were all published in the run-up to the Scottish Referendum. The SNP Government and the Greens very recently set out their own plans for additional fiscal powers for the Scottish Parliament.

These plans, perhaps especially those of the parties aligned with the winning "Better Together" campaign would seem to allow us to make an educated guess as to the likely form that "DevoSmith" will take. However, given concerns about the consequences of being judged not to have gone "far enough" in their efforts to satisfy the Scottish electorate that genuinely significant powers are indeed to be transferred, we clearly need to consider the pro-independence parties' more radical proposals for reform given their involvement in the Smith process.[7] This view is reinforced by the Sewel Convention, which implies that any proposals for constitutional change would normally have to be agreed by the Scottish Parliament prior to being legislated on by Westminster. The SNP government are pushing for full fiscal autonomy, "DevoMax", whereby defence, foreign affairs and macroeconomic policy (or at least monetary policy) would continue to be reserved, but all other matters, including all taxes and the welfare system, would be fully devolved.[8] The Green Party's proposals are radical, in that their default position is to devolve unless there is compelling reasons not to do so, but the proposals are not detailed and there are some differences of emphasis, for example in their opposition to devolving corporation tax.[9]

The "DevoMore" (IPPR) and "DevoPlus" (Reform Scotland) proposals were followed by the Liberal Democrat, Labour and Conservative Parties' plans for further devolution. With the exception of Labour, the proposals effectively support complete devolution of income tax in Scotland, which accounts for 23% of total tax revenue, so that there would no longer be a shared tax base.[10] Labour's proposals would effectively change the Scotland Act provision to set default tax rates 15p below current UK rates, and allow variation (upwards) in the highest rate of tax, so that some impact on the extent of progressivity is also possible. Further income tax devolution under "DevoSmith" therefore looks inevitable, and seems likely to go beyond Labour's original proposals to avoid claims of a "minimalist" approach.

VAT accounts for the next highest share of tax revenues in Scotland (20%), but EU Law is judged to prevent the devolution of this tax. However, DevoMore (with some support from the Conservatives and Lib Dems) suggest the assignment of some share of VAT revenues to the Scottish Government, again on the grounds that this will provide incentives to pursue growth-generating policies, although it simultaneously increases the risk that the Scottish Government's revenues will differ from those expected

[7] Lord Smith is quoted in the Sun newspaper, 10 October 2014, as saying: "This won't be a lowest common denominator deal. It will be an agreement for substantial devolution of powers." In terms of the proposals currently in the public domain, the least radical – certainly on tax - are those of the Labour Party. It seems likely therefore that these will be seen as setting the lower bound to Lord Smith's proposals.
[8] However, this would raise other macroeconomic issues that we do not consider in full here.
[9] Goudie (2014) proposes a series of "tests" to evaluate proposals for constitutional change.
[10] This typically does not apply to taxes on unearned income, and the Conservatives and Liberal Democrats advocate Westminster retains control of personal allowances.

(and required to meet target expenditure levels). The Scottish Government's DevoMax proposals envisage full assignment of Scottish revenues from VAT to the Scottish Parliament.

None of the parties, other than backers of DevoMax, are currently arguing for the devolution of National Insurance Contributions (18% of Scottish tax revenues), although if these revenues are ultimately linked to income tax, as some have suggested, this is likely to change.[11] The conventional argument against, that these are linked to fundamental benefits of the UK union, is less compelling than it once was. The IFS view that significant constitutional change could, and perhaps should, lead to reform of the overall tax system would presumably also lead to the integration of NI within the income tax system.

The supporters of the DevoMax proposal are the only ones to advocate devolution of (onshore) corporation tax (6% of Scottish tax revenues) to complement and underpin economic development, which is currently a devolved matter. However, there is considerable opposition from the other interest groups and political parties on the grounds of likely unproductive tax competition with RUK. However, again limited powers and assignment of a share of tax revenues (advocated by the Lib Dems, and noted as a possibility by the Greens) would strengthen the link between Scottish tax revenues and public expenditures.

Devolution of alcohol and tobacco duties (each of which accounts for just over 2% of total Scottish tax revenues) is argued to be appropriate given the devolution of responsibilities for health, but is regarded as impractical given that these are production taxes, and that differential tax rates could stimulate cross-border avoidance activity. The SNP's proposals would assign all the revenue from these taxes to the Scottish Parliament. The devolution of Air Passenger Duty (APD) is supported by all, other than the Labour Party, which is concerned about possible tax competition and an adverse environmental impact. (This is already devolved to the Northern Ireland Assembly.)

Land value taxation and Land site taxation are already devolved under the Scotland Act 2012, but these are small taxes that are unlikely to have system-wide ramifications.

Devolution of taxation of North Sea Oil and Gas is only advocated by the Government's DevoMax proposals. All the pro-union parties recommend that these taxes remain reserved to Westminster (although the Liberal Democrats advocate the development of an oil fund when circumstances allow, to be used for the benefit of the UK as a whole).

In terms of the welfare system, the SNP Government/ DevoMax position is that the entire system should be devolved. The Green Party's position is more guarded, though aspects of welfare should be devolved except where there is a compelling case for not doing so (and they note pensions as a possible example of such a benefit). The Labour Party recommends devolution of the *Attendance Allowance*, given its link to social and health services that are already devolved, and the Conservatives argue that it should be "considered" for devolution. Given the support from other parties it seems likely that this will be devolved. The Labour Party also advocates devolving *Housing Benefit*, a change that it intends to use to abolish the "Bedroom Tax". The Conservatives' position is again more guarded, and while favouring devolution in principle, they express concern about the complication (and expense) of devolving one element of the

[11] In fact, the analysis of changes in NI contributions would closely follow that of income tax changes in Section 3. There has been some discussion of devolving employers NI contributions and Northern Ireland has a separate NI Fund.

new Universal Credit. There will, nonetheless, clearly be considerable pressure to devolve Housing Benefit, given the existing responsibilities of the Scottish Government.

Devolution of *Jobcentre Plus and the Work Programme*, is supported by both the Labour Party and the Liberal Democrats although the former envisage a partnership between Local Authorities and the Scottish Government to ensure service delivery reflects local labour market conditions. Again, given the position of the other parties, there is likely to be considerable pressure for devolution. In terms of other benefits, including *Supplementary Benefit* there appears to be rather greater disagreement among the political parties, with the Conservatives seeing a case for allowing the Scottish Parliament to supplement welfare benefits set at UK level, whereas the Liberal Democrats, for example, favouring such powers being reserved at UK (ultimately federal) level. Beyond *Attendance Allowance*, *Housing Benefit* and *Jobcentre Plus and the Work Programme*, it seems unlikely that a consensus could be built within the Smith Commission for radical further devolution.

There are, of course, many other differences between the parties, but the one that would be most likely to have a significant economic impact relate to immigration. The Scottish Government's version of DevoMax would allow a differentiated immigration system, and the Green Party takes a similar view. However, none of the pro-Union parties support this, so it seems unlikely to feature in DevoSmith.

Bell and Eisner (2014) compare the extent of devolution that would be implied by the alternative proposals for Scotland with that in other countries. DevoMax and DevoMore allow higher levels of devolution than all other European countries[12], despite the fact that indicators for other UK regions, of course, suggest a radically different degree of autonomy: an already asymmetric system would be become even more markedly so. However, such asymmetry could allow interesting assessment of the "laboratory" argument in favour of fiscal federalism: that permitting innovation in policy setting in devolved regions may serve to reveal better policies that can be emulated by others (or problematic policies that can be avoided by others).

Borrowing

Under the Scotland Act, 2012, the Scottish Government will be able to borrow up to £2.2 billion to finance capital investment via the National Loans Fund, commercial loans and, since February 2014, by issuing its own bonds. Both the Scottish Government DevoMax and the Green Party advocate much wider borrowing powers. The greater the degree of devolution of tax powers and, in particular, the closer Scottish public expenditures are tied to Scottish-specific tax revenues, the more important borrowing powers become. This would be especially important if Scotland was particularly badly hit by recession: restriction to balanced budget fiscal policy changes could prove problematic, as is apparent from the experience of US States who are subject to such restrictions. The link between the extent of tax devolution and of borrowing powers is something that the Smith Commission should consider, although it seems unlikely that there could be agreement on *very* substantial further devolution of borrowing powers, given restrictions on UK fiscal policy.

[12] Basque and Navarra regions are exceptions in that they effectively have "DevoMax".

The potential impacts of "DevoSmith"

There is clearly considerable uncertainty about what DevoSmith will look like in detail. It seems virtually certain that significant further income tax powers will be devolved – and it is quite possible that it could be devolved in its entirety. Devolution of VAT seems precluded, though some assignment of tax revenues may be realistic. It seems unlikely that corporation tax would be devolved, but SNP and the Greens argue for this and again some part of the revenues could be assigned, even if the tax is not fully devolved.

Despite the uncertainty about which precise powers are likely to be devolved, there has at least been fairly extensive public discussion around this issue. However, there has been – perhaps surprisingly – much less discussion about what a future Scottish Government should actually do with any new devolved powers. Past experience suggests that Scottish Governments might be reluctant to use their new powers. Over much of its lifetime the Scottish Parliament has had the power to vary the basic rate of income tax up or down by 3p in the pound. However, successive administrations chose not to use the Scottish Variable Rate – indeed committed publicly to *not* using it - and it ultimately fell into disuse due to a failure to continue to pay for the maintenance of the tax base. Furthermore, none of the parties in the referendum debate made pledges radically to alter the mix of taxes and expenditures. (The only party which committed to tax changes was the SNP, and it committed to tax *reductions*: in corporation tax and Air Passenger Duty, on the basis that these changes were likely ultimately to be self-funding by boosting economic activity. Similarly, the SNP made commitments to benefits, but to *maintaining* or *enhancing* them, though in the case of childcare this was again argued to be self-funding.) Of course, the Scotland Act will *require* the Scottish Parliament to set a SRIT: so that inaction on income tax is no longer an option. However, the SG always has the choice to act so as to maintain parity with RUK income tax rates.

In this paper we begin to explore the likely consequences of the Scottish Government both possessing *and choosing to activate* changes in a variety of taxes that are likely to exert a macroeconomic impact. Since we do not yet know the details of the "DevoSmith" settlement, we focus on broad brush impacts, to illustrate the kinds of considerations that would need to be taken into account by future Scottish Governments when formulating their fiscal policies. Furthermore, given our current state of knowledge, the precise detail of any settlement is less important than the general principles of tax and expenditure devolution.

While it seems likely that the Scottish Government will have considerable additional freedom to choose the levels of taxes and expenditures, it would be wise to anticipate the likely consequences of such changes. Scotland will remain a small, highly open economy, with given the continued integration of Scottish and RUK labour and capital markets. Policy choices will inevitably be constrained by their anticipated (and actual) impacts.

Nevertheless, under DevoSmith there is likely to be considerable scope to alter the levels of both government expenditure and taxes. This is not, of course, a technical economic matter, but involves a fundamental political choice about the nature of the society in which Scottish voters wish to live. For example, major tax and expenditure increases would shift Scotland in the direction of the Nordic countries, which are often reputed to be regarded by Scots as an example that is perhaps worth emulating. (However, no parties argued this explicitly in the Referendum debate, and the SNP seemed to argue for a version of a “Scandi-lite” model that involved lower tax rates and increased expenditures.) Significant reductions in tax rates and expenditures, on the other hand, would move us in the direction of the Baltic economies. Keating and Harvey (2014) characterise this as a choice between *social investment* and *market liberal* strategies, noting the attraction of the former in the Scottish context. In the social investment strategy “public expenditure is seen as a contribution to the productive economy rather than a drain on it”. However, this presumably does depend on the precise nature of public expenditure and how it is valued by residents of the host economy, aspects we begin to explore below.

While no mainstream political party in Scotland has yet committed itself to radical shifts in the levels of public expenditure and taxation in either direction, DevoSmith seems likely to create the potential for it, and it is interesting to explore what the likely impacts might be. It is expected that DevoSmith would impose a significant constraint in terms of the Scottish Government’s ability to vary the aggregate fiscal stance, although some extension of borrowing powers seems likely. However, the Scottish Government will be free to pursue balanced-budget fiscal changes that do not impact on the overall fiscal stance (as reflected in the Scottish deficit- and debt-to-GDP ratios). While this means that revenues and expenditures have to move in the same direction, there would be scope for significant shifts in the levels of both and in either direction, since under DevoSmith there is likely to be considerable discretion over tax and expenditure choices.

To indicate the kind of considerations that a future Scottish Government is likely to have to weigh when anticipating the use of their new fiscal powers, we conduct a number of illustrative fiscal policy simulations in the next Section of the paper. These relate to the power to alter income tax rates, which will almost certainly be extended significantly by the Smith commission, and the ability to change corporation tax rates, which seems unlikely to win sufficient support from within the Smith Commission, but continues to be advocated by some.

Considerable uncertainty also surrounds the devolution of welfare benefits, but no parties have advocated radical changes in these benefits should they in fact be devolved. It is conceivable that some possible changes would have system-wide economic impacts, but none has been advocated, except for the SNP Government’s proposals on child care (which we discuss further below) and the devolution of those benefits seems very unlikely to secure support within the Smith Commission. We therefore simplify our analyses by abstracting from any radical changes in benefits, and focus on the potential impacts of (balanced budget) tax changes that are not used to alter the level of welfare benefits. We also abstract from major changes in the extent of borrowing permitted by the Scottish Government and consider, again for simplicity, only balanced-budget fiscal changes.

3. Scottish fiscal choices under “DevoSmith”

We now investigate the likely economic impact of a range of fiscal policy changes that may become feasible as a consequence of the post-Referendum devolution settlement. While borrowing powers are inevitable given the Scotland Act (2012), and may be further augmented by the Smith Commission, we abstract from them here. Instead we focus on possible “balanced budget” fiscal policy changes, so that any changes in government expenditures must be matched by equal changes in tax revenues over the relevant time interval.[13]

We consider two balanced budget fiscal expansions that may be available under DevoSmith. Firstly, we consider the impact of a balanced budget increase in income tax. For simplicity, we consider the likely effects of changing Scotland's variable rate of income tax. This allows us to abstract from the complexities of the Scottish Rate of Income Tax (SRIT) and associated block grant adjustment.[14] Exactly the same qualitative considerations will, however, apply to increases in SRIT given the Indexed Deduction mechanism for adjusting the block grant and the assumed unchanged RUK tax base in all our analyses.[15]

Secondly, we analyse the impact of a balanced budget reduction in corporation tax. While it seems unlikely that this will in fact be devolved, it would be under DevoMax, which will be supported by some of those contributing to the Smith Commission, including, of course, the SNP Government, and so we consider its possible consequences here.

We explore these policy changes by simulating AMOS, a computable general equilibrium model of the Scottish economy (e.g. Harrigan et al, 1991). This is effectively a multi-sectoral, small, open, region variant of the Layard, Nickell and Jackman (1991) model of imperfect competition in which all agents have perfect foresight and investment and consumption decisions are determined through a process of intertemporal optimisation. The small, open region assumption allows us to treat all external prices and the RUK economy as exogenous.[16]

Given the outcome of the referendum we know that policy changes will be conducted under a continuing UK monetary union. Accordingly, we assume a permanently fixed exchange rate throughout our analysis. For simplicity we also assume a continuing fully integrated financial market. AMOS is a flexible modelling framework which has been widely used for policy analysis. In this paper we adopt the variant of the model presented in Lecca *et al*. (2012a; 2014a), where model details can be found. The model is calibrated using a Scottish-specific Social Accounting Matrix (SAM) for the year 2009.[17]

3.1 Changes in the Scottish variable rate of income tax

According to the 2009 HM Treasury Budget estimate, the amount of revenue that the Scottish tax office would be able to collect for a three pence rise in the Scottish variable tax rate would be approximately £1.05 billion of additional revenue. This corresponds to a rise in the average income tax rate of 4.9%. Accordingly, we simulate a 4.9% rise in the local income tax rate with the revenues being recycled to increase public government consumption.

[13] Strictly, the changes assume the recycling of revenues from the imposition of the tax. No account is taking of the possible induced changes in other devolved tax revenues. This may be significant if other taxes are in fact devolved or revenues assigned.
[14] We have conducted some initial simulations around SRIT variation and will write these up in due course.
[15] In all of the simulations conducted in this paper the RUK economy is taken to be exogenous.
[16] For an explicitly interregional extension see e.g. Gilmartin *et al* (2013).
[17] This is based on the latest available input-output table for Scotland at the time this model was developed. Input-output tables are published with a substantial lag. However, economic structure does not change rapidly, so this is unlikely to have a substantial impact on our results.

We consider three scenarios which differ in terms of assumptions made about the use and impact of the recycled revenues. In the first simulation, government expenditure is simply treated as current expenditure, which is assumed to have no direct beneficial supply-side effects. (Examples might be spending on parks or library services.) This is the conventional type of balanced budget fiscal expansion. However, where workers bargain over take-home pay, the rise in income tax does have adverse supply-side effects as they seek to restore their after tax wage by pushing up wage claims and reducing competitiveness.

In the second case, public expenditure again does not generate a direct beneficial supply side effect, but it does so indirectly because of the actions of potential migrants and through wage bargaining behaviour. In this case we assume that government expenditure is valued by residents and migrants. Public spending creates an amenity, whose value is reflected in migrants' decisions to move and in unions' bargaining behaviour. The idea here is similar to the notion of a "social wage", in which unions moderate their wage claims in response to a hike in taxes provided these generate improved public services that their members genuinely value. (See e.g., Lecca *et al*, 2014a.)

While in the first and second scenarios tax revenues fund government current expenditure, in the third they fund government capital spending. In the third scenario then the increase in government expenditure financed by the SVR has explicit beneficial supply-side effects. This reflects the fact that in this case the additional revenue is recycled into public investment in infrastructure that increases the stock of public capital and, in turn, increases productivity in all sectors.

The focus of the present paper is primarily on the long run over which migration flows, driven by real wage and unemployment differentials between Scotland and RUK, and capital stock adjustments, driven by expected profitability, are complete. Accordingly, we begin by reporting the new steady-state equilibrium obtained as a result of a balanced budget fiscal expansion. These results are reported as percentage changes from base year values in Table 1.[18] We subsequently briefly consider the adjustment process to the new long-run equilibrium.

In the first and second columns of Table 1 we focus on the case of an income tax-funded expansion in public current consumption that has no direct supply-side effects. The first column of Table 1 reports the results for the current default version of our model of the Scottish economy. In this case a balanced budget expansion of government expenditure financed by income taxation has a negative impact on GDP and employment, which fall by 1.71% and 1.65% from their base year values respectively.

There is a beneficial impact on aggregate demand because the stimulus to public expenditure is greater than the contractionary impact of lower (more import-intensive) consumption expenditure. Government expenditure increases by 2.98% while household consumption falls by 1.15%. However, the positive net effect on demand is more than offset by the adverse competitiveness effects of the rise in income taxation as labour pushes up wages to restore their real take home wage. Nominal and real wages rise by 3.68% and 2.55% respectively. The rise in the real wage generates an increase in the price of commodities reflected here in the *cpi* which in turn reduces exports to the RUK and ROW. The initial decline in real

[18] The results are dependent to a degree on the values of certain key parameters of the model. This is discussed, and sensitivity analyses are reported in Lecca *et al* (2014,a,b).

wages and rise in the unemployment rate drive out-migration until the equilibrium is restored with lower population, but real wage and unemployment rates returning to their initial values.

Table 1 The long-run impacts of changes in the Scottish variable rate of income tax.

	Scottish Variable rate		
	Default	Social Wage	Public capital
Chang in income tax rate	4.90	4.90	4.90
GDP	-1.71	0.49	2.80
Consumer Price Index	1.11	0.00	-2.64
Unemployment Rate	0.00	0.00	0.00
Total Employment	-1.65	0.77	0.14
Nominal Wage	3.68	0.00	-0.16
Nominal Wage after Tax	1.11	-2.48	-2.64
Real Gross Wage	2.55	0.00	2.55
Real Wage after Tax	0.00	-2.48	0.00
User Cost of Capital	1.04	0.00	-2.53
Population	-1.65	0.77	0.14
Households Consumption	-1.15	-1.01	0.36
Gov Consumption	2.98	4.07	-
Investment by Origin	-1.94	0.02	3.92
Public investment	-	-	68.68
RUK. Export	-1.69	0.00	5.24
ROW Export	-1.63	0.00	4.78

In fact, the negative impact of a balanced budget fiscal expansion is not inevitable. In theory, the impact could go either way, since it reflects the net outcome of two countervailing forces: the stimulus to aggregate demand on the one hand and the adverse competitiveness effects on the other. (Lecca et al, 2014). However, as far as the Scottish results are concerned the adverse competitiveness effects predominate, an outcome that reflects the highly open nature of the Scottish economy.

The importance of attitudes towards public spending and taxation

However, it transpires that the public's attitudes towards public expenditure and taxation are very important, to the extent that they can alter the sign of the balanced-budget multiplier (Lecca et al, 2014a). In particular, if unions in effect bargain over a "social wage", in which the increase in public services arising from a balanced budget fiscal expansion are valued as much as the reduction in private consumption expenditures, the impact on the economy becomes positive.[19] This is apparent from the results reported in the second column of Table 1. In this case, since the social wage is unchanged, the adverse

[19] A key feature of the Nordic model, at least in its early form, was the tripartite system that characterised wage bargaining. Government, employers and strong, centralised unions bargained over wages (Keating and Harvey, 2014).

competitiveness effects associated with bargaining over real take home pay are eliminated, so that there is no upward pressure on the nominal wage. In this case we obtain a conventional Keynesian balanced budget multiplier result (albeit for the case with variable population and capital stocks), in which output and employment expand and there is no change in the nominal wage or prices. In fact, we observe an increase in GDP (0.49%) and employment (0.77%) and the negative competitiveness effects are completely eliminated, so that there are no changes in nominal wages, relative prices or exports.

Of course, once attitudes to public spending are acknowledged as potentially significant, the question of varying attitudes to different components of public expenditure arises. There is some evidence from the US, for example, that net in-migration responds positively to education and health spending, but is negatively related to welfare spending.[20] Evidence from UK surveys of public attitudes seems to support this differential response to elements of spending. So it is not simply public spending *per se* that matters, but also its composition. We turn next to a consideration of further aspect of the composition of government spending that seems to matter.

It is perhaps worth noting, however, that UK-wide national bargaining currently remains important in Scotland, certainly for some sectors. This effectively creates an element of nominal wage inflexibility here as the UK wage is bargained at the UK level, and so is broadly fixed from a Scottish perspective. This, or indeed any other source of Scottish nominal wage inflexibility, of course also makes it more likely that a fiscal expansion would have positive effects since this inhibits (in the limit prevents) the adverse competitiveness effects of the tax rise. However, it seems likely that UK-wide bargaining mechanisms would increasingly come under strain if a Scottish Government does indeed choose to pursue a distinctive income tax policy from that in RUK.

The importance of the "supply side" impacts of public spending

At present, the Scottish Government does not have full discretion concerning the allocation of the Scottish budget between current and investment expenditure (Commission on Scottish Devolution, 2009). The composition of the Scottish budget is effectively determined by UK Government decisions. According to GERS figures (2008 and 2013), for the year 2008-2009 11% of the budget was allocated to public capital expenditure while the rest is made up of current purchases of goods and services. This share falls to 9% of the total budget for the period 2012-2013. Under DevoSmith, the Scottish Government may be free to choose the distribution between the two categories of expenditure, in these circumstances, an increase in the share of capital spending seems likely.

Recall that our default model assumes that the increase in government expenditure has no direct supply side effects. It could be used, for example, for public provision of a park or improvement in other local amenities. However, it transpires that if public expenditure does have beneficial supply-side effects then the prospects of a positive economic impact from a balanced budget fiscal expansion are again enhanced, provided that spending is also "import-lite".

[20] There is also some evidence, however, that short-distance moves for low income households are positively linked to welfare benefits.

The most obvious source of a beneficial supply-side impact is public capital expenditure, for example on infrastructure, which impacts directly on the economy's productive capacity. This acts at least to moderate and possibly even offset any adverse competitiveness effect and so potentially avoid the crowding out effects on private resources, even if bargaining is over net take home pay rather than the social wage (Lecca et al, 2014b). In fact, this is the outcome that we observe in the third column of Table 1.

The additional tax revenue increases public investment and, in turn, the stock of public capital available in the economy. The services of the public capital stock are treated as an unpaid factor whose services are enjoyed to the same degree by all production sectors. The results suggest that the negative competitiveness effects of a rise in income tax rate are more than fully offset by the positive supply-side impacts of an increase in the public capital stock. There is in this case a significant increase in GDP, by 2.8% from its base year value. Employment and consumption increase by 0.14% and 0.36% respectively. The supply side stimulus coming from an increase in the stock of public capital is of a sufficient scale in this case that competitiveness actually improves overall, despite bargaining and migration being focused on the post-tax real wage. The fall in the nominal wage has beneficial effects on competitiveness, and there is an increase in exports to RUK and ROW in this case by 5.74% and 4.78% respectively.

However, this result is not inevitable, since again the end result is the net effect of countervailing forces. In particular the net outcome depends crucially on the productivity of the infrastructure: if this is modest in scale the negative competitiveness effects would again predominate (Lecca et al, 2014b).

While public capital expenditure is the most obvious example of public expenditure that we would expect to have a beneficial impact on the supply side of the economy, it is by no means the only one. Many elements of what is currently classified as "current" government expenditure are, in effect, investments in human capital. Spending on education is one example, where we would expect productivity to be stimulated directly as a consequence of public spending, potentially with significant economy-wide impacts (e.g. Hermannsson *et al*, 2014). However, elements of health and other public spending may be similarly regarded.

Adjustment paths

The dynamics of adjustment to the long-run equilibria discussed above are summarised in Figures 1 and 2. Figure 1 shows the adjustment path of GDP. In our default, conventional model GDP falls immediately and gradually adjusts to its long-run level. In contrast in the social wage case GDP increases immediately and reaches the new long-run level quickly: in this case relative prices do not change and so adjustment is very rapid. When the tax rise is used to fund capital expenditure GDP falls for a very considerable period with the adverse supply effects dominating in the short run, but ultimately rises very significantly. Policy makers with a short time horizon could easily misjudge the policy impact in this case.

Figure 2 shows what is happening to the take home real wage in each of these cases. In the default case the real wage falls initially in response to the tax hike, but gradually returns to its initial level. In the "social wage" case the social wage is maintained, but because of the increase in government expenditures which are valued, this allows a permanent reduction in the real take home wage. When spending is on infrastructure, the real take home wage falls significantly initially, but recovers rapidly and indeed overshoots its long-run equilibrium level before converging on that (zero change).

Figure 1 GDP Impacts of Balanced Budget Fiscal Expansions

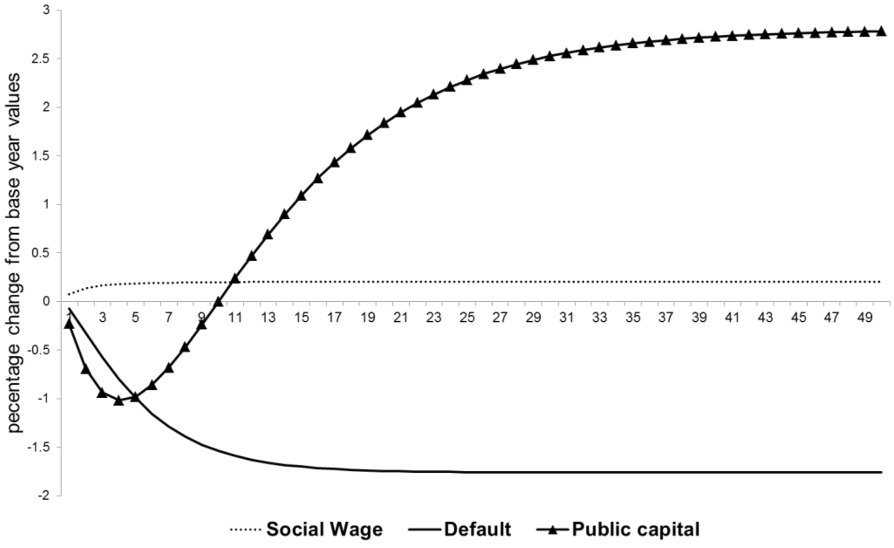
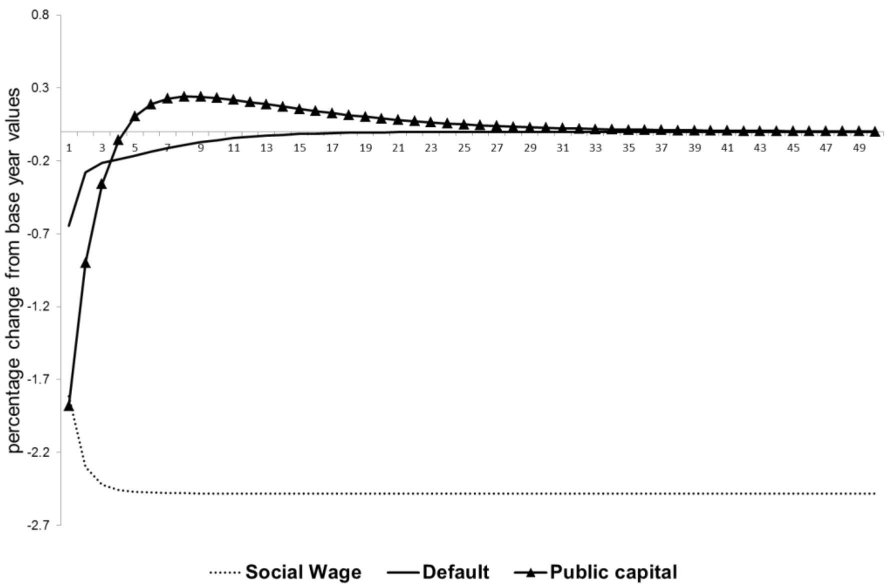


Figure 2 Real Wage Impacts of Balanced Budget Fiscal Expansions



3.2 Scottish-specific changes in the rate of corporation tax

We consider it unlikely that "DevoSmith" will include the power for the Scottish Government to set corporation tax rates unilaterally. However, it is strongly supported by some groups who will engage in the Smith Commission, notably the SNP Government, and so we consider the possible effects of this here, under an assumption that the any change in rates is negotiated with the UK Government – along the lines that had been considered for devolution to Northern Ireland.[21]

Table 2 Long-run impacts of corporation tax changes

	Corporation tax	
	Recycle: Income Tax	Recycle:Gov. Exp.
Income tax rate	2.33	0.00
GDP	-0.33	0.56
Consumer Price Index	0.17	-0.36
Unemployment Rate	0.00	0.00
Total Employment	-0.62	0.25
Nominal Wage	1.36	-0.36
Nominal Wage after Tax	0.17	-0.36
Real Gross Wage	1.19	0.00
Real Wage after Tax	0.00	0.00
User Cost of Capital	0.13	-0.37
Population	-0.62	0.25
Households Consumption	-0.47	0.13
Gov Consumption	-	-1.22
Investment by Origin	0.17	1.16
Public investment	-	-
RUK. Export	-0.06	0.76
ROW Export	-0.17	0.62

The change in corporation tax we consider is the proposal by the Scottish Government, to implement a balanced-budget reduction in corporation tax rates from 23% to 20%. We abstract from the possible complication of transfer pricing and HQ movement that could add to the positive/ mitigate any negative effects of the tax. The results of our model suggest that a reduction in corporation tax financed by a corresponding increase in the rate of income tax generate negative effects on the economy in the long-run, as inspection of the first column of results in Table 2 confirms. GDP, employment and consumption all fall below their base year values. The positive effects generated by a reduction in the corporation tax rate are reflected in an increase in private investment of 0.17% from its base year value. A reduction in corporation tax lowers the cost of capital which stimulates investment demand, as capital is substituted for labour in production. However, in this case the positive change in investment is more than offset by the adverse effects of an increase in the average rate of income tax of 2.33% which reduces private

[21] Of course, this was considered a special case, reflecting the shared border with the Republic of Ireland, which has a much lower rate of corporation tax.

consumption by 0.47%. Furthermore, the rise in income tax puts upward pressure on wages, as workers seek to restore their real consumption wage, increasing the prices of commodities and offsetting the potential beneficial competitiveness effects of a lower cost of capital. Accordingly, RUK and ROW exports fall by 0.06% and 0.17% respectively.

However, a rather different long-run impact occurs when the revenues from corporation tax are recycled through government expenditure. In this case the negative adverse effect of an increase in income tax rate disappears and is replaced by a fall in current government expenditure which is required to finance the reduction in the corporation tax. However in these circumstances, the positive effects obtained by a reduced capital cost are such as to overwhelm the negative impact on aggregate demand caused by a fall of 1.22% in government consumption. Accordingly, public expenditure increases by 1.16 which, together with the improvement in competitiveness due to a reduction in commodity prices that stimulates exports, produces an increase in GDP, employment and consumption of 0.56%, 0.25% and 0.13% respectively.

Notice that in the second simulation the social wage will actually be falling, since government expenditure is falling. If we were to allow for restoration of the social wage through a hike in nominal wages, the adverse competitiveness effects would predominate.

In this simulation we have not allowed for any additional stimulus that might arise through greater FDI. In our results the requirement of a balanced budget results in a reduction in Government expenditure as tax revenues fall. However, government expenditure could actually increase if a stimulus to FDI is allowed for, so that there is a possibility of the change ultimately becoming "self-funding" (as the SNP Government has claimed).[22] This outcome was used in evidence by the Scottish Government (2011) and its source is Lecca *et al* (2012b). Of course, such a beneficial outcome would be reinforced if in this case bargaining was in terms of the social wage, because government expenditure rises.

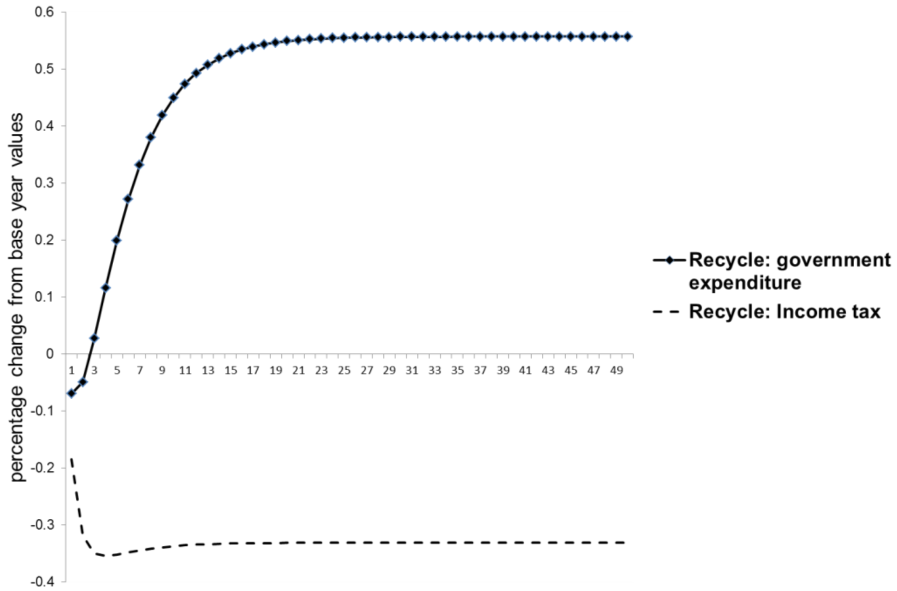
Recall that this analysis assumes no retaliation since the assumption is a negotiated reduction in the corporation tax rate. Retaliation would undoubtedly reduce the benefits of the change. On the other hand no technology spillover effects from FDI were included, nor were possible endogenous growth effects, both of which would reinforce the positive effects of the corporation tax cut.

Adjustment paths

The adjustment paths for GDP for both corporation tax simulations are presented in Figure 3. In both cases GDP falls initially, but more so in the income tax recycling case. In the case where government expenditure is cut, adjustment quickly becomes positive and rise to its new long-run equilibrium. Where income taxes are raised to finance the reduction in corporation tax, GDP falls significantly, and does not recover.

[22] Darby *et al* (2014) provide an analysis which suggests that a small peripheral region like Scotland might gain from reducing corporation tax even when there is retaliation since the latter will be only partial given that other regions retain their advantages of size and centrality.

Figure 3 GDP Impacts of Balanced Budget Corporation Tax Cut



4. Other aspects of "DevoSmith": fiscal responsibility and the link between economic growth and tax revenues; social union, "fairness" and well-being.

Two related features of the Referendum debate that seemed significant were: fiscal responsibility and the link between economic growth and tax revenues, which the SNP Government argued was a major advantage of independence; and the emphasis on social aspects and the idea that Scots may prefer to have a more equitable and fairer society than that legislated by Westminster Governments. It seems likely that these themes will continue to play a part in the Smith Commission's considerations - and not simply because the SNP and the Green Party are likely to continue to stress them. Of course, independence *per se* is not, in fact, a necessary condition to allow the Scottish Government greater influence in these areas. A greater degree of fiscal autonomy could ensure some link between economic growth and tax revenues, while also allowing enhanced impact on equity and well-being in Scotland.

It is interesting to consider what powers would be required to allow the Scottish Government to have a "significant" influence over these issues, since this seems likely to impact on public attitudes to DevoSmith. Furthermore, we seek to inform our discussion of these issues by drawing on the lessons of the simulations we have discussed above, as well as other relevant considerations.

4.1 Economic growth and tax revenues

Under the current fiscal arrangements, where the Barnett formula governs the block grant distribution to the devolved administrations, the fiscal benefits from any increase in the growth of the Scottish economy go to Westminster, irrespective of the source of growth. Equally, however, the impact of slower growth in the Scottish economy is mitigated by the fact that its ability to spend does not decline automatically as its contribution to UK tax revenues declines (and some key elements of welfare benefits – funded by Westminster- operate counter-cyclically). The argument is that this reduces the incentive for voters to vote for, and the devolved Scottish Government to implement, strategies for increased economic growth. Furthermore, the current system limits the fiscal responsibility of the Scottish Government since it is unable – and does not require - to raise the revenue to fund its own expenditures.

Income taxation. As we have seen, all the unionist parties, and other independent bodies, now recommend varying (but significant) degrees of devolution of tax powers beyond those already in the pipeline, although most emphasis is on income taxation. However, these proposals typically involve some adjustments to the block grant to reflect the anticipated / actual revenue from the subset of taxes that are devolved. These adjustments could, in the limit, eliminate the growth incentive of devolved tax revenues, and the risk to the devolved Scottish Government of varying tax rates.[23] In fact, however, if the chosen method for block grant adjustment under the Scotland Act 2012 is maintained,[24] there will be enhanced incentives to "grow the economy" (and equally greater exposure to revenue risk).[25]

Of course, this mechanism is embodied within our analysis of balanced budget tax changes in Section 3 above: the Scottish Government feels the full effects of the consequences of any tax changes that it makes. If tax revenues decline as a consequence of its decisions then so too must its expenditures (and vice versa). Recall that in our default model, in the long-run the hike in income tax rate did allow an increase in government spending, but the resultant stimulus to demand was dominated by the adverse competitiveness effects and so the economy actually contracted: the balanced-budget multiplier is negative. If workers bargain over the social wage, the adverse competitiveness effects are neutralised and the hike in taxes allows a much bigger increase in expenditures as economic activity, and hence tax revenues, rise. Allowing for the supply-side stimulus of public capital investment also allows a stimulus to economic activity and higher private investment than is possible when the income tax hike is used to finance current government expenditure. Overall, it is clear that the system-wide consequences of tax and expenditure change depend importantly on public attitudes to public expenditure as against taxation, and on the composition of government expenditure.

Corporation tax. Clearly, the devolution of corporation tax (or even the assignment of a share of revenues) would enhance the link between tax revenues and economic activity in Scotland. Our own analysis suggests the use/ source of the revenues matters for the system-wide impact of such tax changes. And, of course, there is no guarantee of the reported outcomes: they do depend again on countervailing forces, and in practice depend on the relative sizes of key mechanisms. Furthermore, the only positive outcome of a cut in corporation tax reported here (without transfer pricing or an additional FDI impact) in fact involves a cut in the social wage, and if this is what workers in fact focus on in the wage bargaining process, the positive result would ultimately be offset by increasing wage claims and reduced competitiveness.

Other devolved taxes also add to the link between tax revenues (e.g. LBTT) and economic activity in Scotland, but these are very modest in scale.

[23] This would be the case under the "own base adjustment" method of adjusting the block grant for greater devolved taxes.
[24] This is the ID method discussed in the introduction.
[25] See Holtham (2010). Increased devolution of taxes necessarily increases revenue risk.

Overall, the stronger the link between tax revenues and Scottish economic activity, the greater will be the incentive to adopt growth-stimulating policies. However, of course, there is a risk that revenues may fluctuate and be insufficient to allow desired spending. There is little doubt that this benefit - and associated risk - of greater tax devolution will be a feature of DevoSmith. The SNP Government chose to emphasise the potential positive dimension, particularly in respect of corporation tax changes (which we examined above) and child support provision (see below), but this is a potential downside to the revenue-activity link.[26]

Assignment of some tax revenues

Tax rates need not be devolved in their entirety to establish a link between tax revenues raised in Scotland and economic activity here, and some have proposed the assignment of Scottish shares of tax revenues to the Scottish Government to further enhance this link. For example, Reform Scotland's DevoMore proposals include such a proposal for VAT revenues and the same argument could apply to corporation tax revenues.[27] Of course, this would simultaneously increase revenue risk: would revenues to the Scottish Government be stable enough to maintain stability in the provision of public services? We discuss below aspects of the interregional linkages of tax bases created by the block grant adjustment.

Interregional interdependence, long-term pressures on Scottish public finances and the case for policy coordination between central and devolved Governments

Here, we focus almost exclusively on the likely impact of DevoSmith on Scotland and the Scottish economy. However, Scotland and the RUK economies are inextricably interlinked, with common financial and labour markets as well as extensive trade flows. While our analysis so far recognises the openness of the Scottish economy (especially with respect to the RUK economy, but also ROW), we have not explicitly considered the impact of interdependence. Developments in the RUK economy impact on Scotland and vice versa, though the precise nature of this interdependence is a function of both the relative scales of the two economies and their distinctive structures.

In fact the proposed block grant adjustment method, ID, makes Scottish public finances continue to be dependent upon the economy, and tax base, of the UK as a whole (of which Scotland represents less than 10% on any measure of aggregate economic activity). Interregional interdependence of the Scottish public finances is likely to be quite explicitly built into the new arrangements, and the growth in the Scottish *relative to* the RUK tax base looks to be a crucial issue to be addressed by the Smith Commission. Nonetheless, the weight of the block grant in governing Scottish public finances will be weakened, as therefore will the dependence on the UK economy as a whole.

The IFS (2014) projections provide a useful context for an initial consideration of the longer term pressures on Scotland's public finances. IFS identify two negative long-term pressures on Scotland's public finances relative to RUK. Firstly, that Scotland's population is projected to age more rapidly than that of RUK, and so funding pressures are likely to be greater here as pressures on expenditure increase while the working

[26] The "growth incentive" argument implies that a devolved Scottish Government should be less concerned about economic growth than its UK counterpart. This is an idea for which there appears to be little supporting evidence.

[27] Naturally, tax assignment carries informational costs, just like devolution of taxes.

population declines. Secondly, that North Sea Oil revenues are likely to decline through time as reserves become exhausted.

While the continuation of the union provides some insulation against these developments, the prospect of greater tax devolution ensures that differential Scotland and RUK developments in working population would reduce the Scottish block grant at the margin, as the Scottish tax base would fall relative to the RUK's (and ID does not insulate against such differential experience, though it does against UK-wide developments)[28]. However, while Barnett, which is population-based, has acted so as to maintain differential public expenditure per head, we strongly suspect that the current allocation significantly exceeds needs. Accordingly, while Barnett precludes the kind of response to an ageing population that a needs-based system would generate, Scotland's preferential current position provides a significant buffer.

While instructive, the mechanistic nature of the IFS's projections should be kept in mind. In particular, these projections do not allow for possible Scottish Government action to use economic growth to improve the deficit- (and implicit debt)-to-GDP ratios. Governments do have the *potential*, at least, to "grow their way out of trouble", but this is not fully reflected in the IFS analysis. However, it now seems less likely that Scotland will be able to address the issue through adoption of distinctive immigration policies though that could, in principle, be the subject of negotiation (and slightly differentiated policies have been experimented with in the past). Of course, the key issue here is whether a Scottish Government under DevoSmith can in fact grow the Scottish economy more rapidly than before. The evidence on the link between the degree of fiscal decentralisation and growth is not clear cut (Roy, 2006).

The long-term decline in tax revenues from North Sea Oil represents a challenge for the UK economy as a whole, since the maintenance of the union embodies a sharing of the risks associated with this, since there seems little prospect of an agreement to devolve NSO tax revenues. However, the SNP Government does propose this, and there could conceivably be some compromise over partial revenue assignment. However, the eventual decline of economic activity associated with NSO operations will have a disproportionate impact on the Scottish economy that is likely to generate, other things being equal, a further negative impact on its tax base. So long-term pressures on the Scottish budget are still likely to be present under devolution unless Scotland attracts a disproportionate share of in-migrants, or it finds other ways to stimulate its tax base. On the other hand the continuing commitment to Barnett ensures that there will be a significant buffer against such developments.

The degree of integration of the Scottish and RUK economies implies that there are likely to be significant interregional spillover and feedback effects (e.g. Gilmartin *et al*, 2013). In these circumstances it is perfectly possible that UK welfare as a whole could be enhanced by coordination of policies between Scottish and Westminster Governments, when significant powers are devolved. One issue is whether the existing institutional structures could ever deliver "optimal" coordinated policies in these circumstances.

4.2 Fairness, well-being and the nature of Scottish society

[28] Furthermore ID may not be the chosen method of adjusting the block grant for all taxes.

A key feature of the referendum was considerable discussion of the nature of Scottish society, and in particular whether Scots really desired a more equitable and fairer society. One issue is whether, if this is a genuine desire of the Scottish people, a devolution settlement is able to provide policies that could exert a significant influence on equity or fairness, at least in principle.

The "social union"

The Conservative, Labour and Liberal Democrat parties all, in effect, emphasise the importance of maintaining the social union of the UK, maintaining (at least the potential for) comparable quality public services and core welfare benefits such as unemployment benefits and pensions across the UK, although the argument was put most explicitly by Labour. Indeed maintenance of the union was Labour's rationale for its more limited proposals on the devolution of income taxes and welfare benefits. However, not all were convinced – including Conservatives and Social Democrats -that acceptance of the argument for a continuing social union implied quite the limitations on devolved powers that Labour judged to be appropriate.

It is clear that the devolution of income taxes, even to the comparatively limited degree advocated by Labour – and indeed already implied by the new income tax powers that come into force in April 2016 (as a consequence of the Scotland Act 2012) – are likely to allow considerable additional choice over the nature of Scottish society, in particular over the levels of public spending and taxation. This would be further reinforced if National Insurance was also to be devolved as adoption of DevoMax would imply. We first consider the extent to which the DevoSmith settlement is likely to allow genuine choices over the nature and fairness of Scottish society. We then consider the likely devolution of elements of the welfare system, and its likely impact on equity and social justice.

Devolution of tax powers and the levels of taxes and public spending

Income taxation. Our discussion of the likely impact of devolved tax powers is, of course, an important element of this. Firstly, as we have seen, it will be possible to adjust the levels of income tax and expenditure together to move in direction of the Scandinavian model, even if new powers are limited to those advocated by the Labour Party. Keating and Harvey (2014) characterise this as a choice between the social investment model and the market liberal model, with the Baltic model lying at the other end of the spectrum.

Of course, the Scottish Government would need to anticipate the possible reactions to any change in policy, by residents of: Scotland, RUK including the Westminster Government, and ROW. Our analyses highlight some of the key issues that the Scottish Government will need to consider. In particular, do the Scottish people really want a move to higher taxes and public spending to the extent that they are willing to pay for this in the form of lower take home pay? This is important for the net impact of a balanced budget increase in taxes and spending. Our analysis suggests that it is likely that this will depend on: public attitudes to taxes and public spending and in particular, whether workers bargain over a social wage rather than their private take home wage. This in turn seems likely to depend on the nature of the public spending that incremental tax revenues are used to finance.

If bargaining is over a net of tax take home wage, public capital spending is more likely to generate a positive macroeconomic impact than current expenditures, since the latter are not valued by workers in such circumstances. Such an argument would also apply to aspects of health and education spending that are effectively investments in human capital and so would be expected to be associated with direct beneficial supply-side effects. Furthermore, these elements of public spending seem more likely to elicit a social wage response than additional spending on welfare benefits, and are likely to contribute to societal "well-being". However, the supply-side impacts associated with government capital spending, as is apparent from our simulations, can take a long period of time to deliver: so that the economic benefits may not accrue during the lifetime of the Government that implements them. Accordingly, when current expenditures are valued through a social wage, capital expenditure may well be at a disadvantage precisely because of the time distribution of its effects.

Accordingly, while the structure of the Scottish economy, especially the extent of its openness (since this governs the strength of competitiveness effects of tax changes), is important in governing the impact of choices over the levels of taxation and public spending, so too are public attitudes and sentiment. A Scottish Government might be able to influence these attitudes by emphasising the kind of society it wishes to create, and by carefully focussing its expenditure plans. However, plans to enhance Scottish economic growth could, at least in principle, conflict with plans to reduce the extent of inequality, although of course, others argue that there is no such trade off. We turn next to consider inequality.

However, it is worth reiterating at this point that none of the major parties has committed itself to making use of the new devolved tax powers. Of course, it seems likely that the Scottish Government will be required to set a Scottish Rate of Income Tax from April 2016 (as under the provisions of the Scotland Act), but this could be chosen so as simply to maintain parity with RUK. The Scottish Parliament has, since its establishment, had the power to vary the standard rate of income tax by up to 3 pence in the pound, but successive administrations have chosen not to use it. There has been a revealed preference to maintain parity of income tax rates with the UK as a whole, and no party has yet committed itself to changing that. (SNP policies did not involve moving in the direction of Scandinavia, but rather envisaged a *reduction* in taxes, notably corporation tax, and an increase in benefits, in the form of childcare provision.)

Furthermore, the scale of the tax and expenditure changes required to emulate the Nordic model would be considerably in excess of those we simulated in the preceding section of the paper. Clearly the bigger the tax and expenditure changes the greater would be the pressure on take home pay, and this could increase the difficulty of persuading the Scottish electorate to value the corresponding change in the "social wage" sufficiently. So for example, adjusting the average tax rate to reflect a 5p, 10p and 15p rise would, according to our simulations, be associated with a roughly 4%, 8% and 12% reduction in real take home wages under a social wage model.

A Scottish Government could conceivably argue that changing income tax bands, and having higher rates bite at lower nominal income levels, could be justified given income levels which are regarded as middle income, with far fewer very high income earners than in the UK as a whole, and the (probably) lower cost of living in Scotland. However, none of the parties have adopted such a position, and nor are there regional consumer price indices available that would allow a systematic comparison of relative living standards. To facilitate rational decision making post-Smith, the Scottish Government ought to commit to producing a Scottish-specific consumer price index.

Other taxes. It is perhaps surprising that the SNP Government had advocated a reduction in the tax on capital, while emphasising the desirability of a fairer, more equitable society. However, as we have seen, under some circumstances this could stimulate economic activity, which could allow scope for greater equity, though this would by no means be guaranteed. However, if the impact on the social wage is taken into account, it is difficult to see a case for corporation tax reductions based on our analysis, although FDI effects could alter that result.

The new housing sales tax (to replace stamp duty) was introduced in a much more progressive manner than would seem possible in the UK, where a London-dominated debate around taxing a £2 million pound house seems reasonable in some sense, rather than being in the absolute highest bracket of even the Edinburgh housing market.

Devolution of tax progressivity, well-being and inequality

We would expect a shift to a higher tax/ higher spend economy in the direction of the Scandinavian model to reduce inequality, if that is part of the motivation for pursuing such a change, although again the extent of this would depend on the precise use of expenditures as well as the exact nature of the tax changes.

However, one of the key mechanisms for tacking inequality is the extent of *progressivity* of the tax system in general and the income tax system in particular. The Labour Party's proposals impose limits on the extent to which a Scottish Government would be able to influence this (allowing it to be increased but not decreased), although all of the other parties' proposals would break the "lock step" nature of the Scotland Act's provisions entirely, and would devolve the power to make the Scottish income tax system more (or less) progressive.

While our own analysis relates to the adjustment of an "average" tax rate, we can nevertheless use our results to inform a discussion of the key issues that any Scottish Government contemplating a more progressive income tax system would need to take into account. Firstly, we know that higher income individuals bear a disproportionate burden in terms of the share of total income tax that they pay (Bell, 2013). Of course, this is a natural consequence of progressivity, but the extent to which this is true is a factor that should be taken into account. Secondly, higher income individuals tend to be more mobile, and the worry is that differential progressivity in the Scottish and RUK tax systems may lead to net out-migration of these individuals and a reducing tax base. Against this, social wage and public investment arguments can again provide a countervailing force, but the marginal cost of adopting a social wage approach in the face of greater progressivity of the tax system would be significantly higher for members of high income groups, and so the net effect would likely be higher net out-migration (lower in-migration) of those in this income group.

While the same broad considerations apply to changes in the progressivity of the income tax system, as to changes in average tax rates, there is reason for greater caution given the extent of the dependence of total Scottish income tax revenues on higher income households, who are likely to be more geographically mobile. One of the principles of fiscal federalism is to avoid, if possible, taxing mobile factors of production - and high income individuals are typically more mobile than others.

Devolution of the welfare system

As we have seen, in terms of welfare changes, there is again a wide spectrum of proposals, from the DevoMax proposal to devolve responsibility for the welfare system in its entirety to the most modest proposals (in this case probably those of the Liberal Democrats). All parties that have expressed a view on the matter are in favour of devolving the *Attendance Allowance*, given its link to health and social care, which are already devolved. Similarly, all are in favour of devolving *Housing Benefit*, at least in principle, although the Conservatives have noted the complication that it is an element of the new Universal Credit. All parties are also in favour of devolution of responsibility for the *Jobcentre Plus and the Work Programme*, although there are some differences in the detail. Again the Green Party's proposals are radical suggesting that all aspects of the welfare system be devolved except where a convincing case for reserving to Westminster can be made, which they suggest is likely to be the case only for pensions. While some may consider a more generous benefits system to be an essential characteristic of a "fairer" society, it is not something that is embedded in any of the proposals for enhanced devolution. However, it seems unlikely that agreement within the Smith Commission on devolving anything beyond the benefits mentioned above.

Some changes in benefits could have significant system-wide effects on the Scottish economy, but few have argued for sufficiently radical change in terms of benefits provision. One exception is the Scottish Government's (2013) White Paper, which contains a major proposal for pre-school education that it believes would be "self-funding". The idea is that improvement in child care provision would stimulate economic activity through an increase in the participation rate of mothers. Claims that this scheme could be self-funding have been challenged on the basis of the likely insufficient scale of the response from the group who would be affected by such a change, but we have not yet attempted a formal analysis through economic modelling.[29]

Bell, Comerford and Eisner (2014) provide an analysis of the impact on household income inequality in Scotland using a micro-simulation model of household taxes and benefits. They explore the marginal impact of varying council and income taxation that are both currently devolved and that could be under enhanced devolution. The abolition of council tax funded by (lock-step) increases in income tax has comparatively limited impact on inequality. As the authors note, if Westminster continues to control the degree of progressivity of the tax system, redistribution effectively remains a reserved power.

5. Conclusions

Scotland currently has high levels of government expenditure per head and significant devolved powers over the distribution of public spending. The Barnett formula, whose application in practice has had the effect of maintaining a beneficial settlement for Scotland in terms of public spending shares, will continue to apply given the assurances of all the main pro-union parties during the closing stages of the Referendum debate. Despite plans for further devolution of tax powers, and an associated increase in the percentage

[29] Of course, if such a change could be demonstrated to be self-funding it should have been implemented already by the Westminster Government.

of public spending that will be financed by Scottish tax revenues, the Barnett formula will remain a significant determinant of the funds available for public expenditure in Scotland.

This greater fiscal responsibility of enhanced devolution of tax powers will simultaneously strengthen the link between Scottish economic activity and the Scottish Government's budget, and lead to an enhancement of the Scottish Parliament's ability to deal with financial matters. This increases the incentive to the Scottish Government (and electorate) to promote growth-stimulating policies, but also increases the downside risk of fluctuations in tax revenues and public spending.

The DevoSmith settlement will certainly allow the Scottish Parliament considerable choice over the general *levels* of taxation and government spending. The Government will be able to choose to move the economy to higher taxes and higher spend in the direction of the Scandinavian social investment model or, less likely, to the low tax/ low spend Baltic model. Our analysis suggests that the structure of the Scottish economy provides something of a challenge in that the degree of openness of the Scottish economy makes it particularly sensitive to any changes in competitiveness induced by hikes in taxation. However, such effects can be countered if the public spending has significant supply-side impacts (e.g. through infrastructure investment), although these impacts typically take a long-time to build up and therefore may not be valued appropriately by a Government that has a comparatively short lifespan. The adverse competitiveness effects of higher taxation can also be countered if the Scottish public can be persuaded of the importance of its *social* wage (not just take home pay) and the Scottish Government correctly identifies the types of public expenditures that are regarded as important to the social wage, most likely health and education spending. However, what evidence there is suggests that welfare spending is unlikely to figure large (or at all) in the social wage, which is potentially problematic if a Scottish Government were to engage in a balanced budget fiscal expansion to fund such expenditure.

This greater devolution of income taxation therefore does provide real choices over the type of society that the Scottish people want, and a higher tax and spend economy is likely to be a more equal one (although the extent to which greater equality is achieved is dependent upon the precise composition of both tax revenues and expenditures). However, it is less clear how much scope the DevoSmith settlement is likely to give to the Scottish Government to change the degree of *progressivity* of income taxation, a major potential mechanism through which inequality may be tackled. However, it seems very likely that there will be some – and perhaps complete – relaxation of the "lock step" nature of the Scotland Act's provisions, given that an element of this is envisaged even within the Labour Party's proposals, which are the least radical. Furthermore, it seems unlikely that a "minimalist" additional devolution package based very largely on the Labour Party's original tax proposals would be widely seen as satisfying the promises for "home rule" made in the latter stages of the Referendum campaign.

However, the concerns that surround the likely consequences of a hike in average income tax rates (discussed in the preceding paragraphs) apply with much greater force to varying the degree of progressivity of the income tax system, given the dependence of the overall income tax base on high income earners who enjoy higher geographic mobility. Of course, the same mitigating factors apply, but with less force given, for example, the higher marginal cost to this group of maintaining or enhancing the social - at the expense of the private – wage. Of course, the problem would be accentuated by an attempt to move very substantially in the direction of the Scandinavian economies since substantial cuts in real take home pay would be required under the “social wage” model. In this sense, at least, there may be a real trade-off between the desire to incentivise growth and the expressed desire for a more equal society.

However, equality and well-being, as is clear from our earlier discussion, depend on the distribution of spending as well as taxation. Education and health, for example, typically feature in indicators of aggregate well-being, and these are already under the control of the Scottish Government (although aggregate spending capacity will continue, in part, to reflect the block grant), but the greatest beneficiaries of such expenditures are certainly not the poorest. Elements of the welfare system also seem likely to be devolved, but central parts of this are likely to continue to be reserved given the importance attributed by all the pro-union parties to the social union and the idea of certain shared key rights to benefits (such as state pensions).

A number of extensions of our analysis would seem useful. Firstly, we intend to extend our more formal analysis to the DevoSmith proposals once they are known. An attempt to provide a comprehensive analysis of their potential economic impact would seem helpful to inform coherent policy development and evaluation. Secondly, we have so far mainly considered the operation of taxes in isolation – albeit with balanced budget adjustments in expenditures of different kinds – and it would be useful to explore the likely consequences of alternative packages/ combinations of policy changes, with a view to maximising the beneficial impacts on the economy.

Thirdly, we have focussed here on the use of balanced-budget changes in *non-welfare* expenditures. There is perhaps a perception that a “fairer” society may require higher expenditures on welfare, and in subsequent work it would be interesting to explore the impact of tax-financed welfare changes, although it seems likely that the social wage concept may be less compelling for such changes. Fourthly, the Scottish Parliament seems likely to be given additional borrowing powers, so that our focus on exclusively balanced-budget fiscal changes is likely to prove unduly restrictive. If DevoSmith does indeed endorse significantly enhanced borrowing powers, it would be essential to explore the impact of deficit-financed fiscal changes on the Scottish economy used, for example, to fund infrastructure investment or further investment in health and education.

Fifthly, we have focussed in this paper almost exclusively on the likely effects of further devolution on the Scottish economy. Of course, our analysis is impacted by the extent of integration of the Scottish and RUK economies, but we have made no attempt here to model the *interdependence* of these economies. Yet this will prove crucial to a full analysis of Scottish, and indeed Westminster, policies. The interdependence is apparent simply from inspection of the extent of integration of goods markets, reflected in the scale of interregional trade flows, and in common labour and financial markets.[30] However, the particular block grant adjustment mechanism adopted to date ensures that the Scottish public budget is likely to continue to depend importantly on the time path of the RUK tax base, as well as Scotland’s, and there are long-term pressures towards divergence that are challenging for Scotland. A full interregional analysis of policy, including the prospects for coordination of policy between the central and devolved Governments is a matter of some urgency given the timescale set for devolution proposals to be agreed.

[30] Explicit analysis of disturbances in an interregional model of Scotland and RUK confirms this e.g. Gilmartin *et al*, 2013.

Finally, the new focus on UK-wide constitutional issues resulting from the Scottish Referendum debate suggests the desirability of extending our analysis to the other nation/regions of the UK (and perhaps to sub-regions of England). The immediate challenge that this extension raises is the availability of appropriate quality data: while the Scottish Government has led on the provision of own-region data, others have achieved less (no doubt in part because of resource limitations). If we are to live in a quasi-federalist UK with a regionally differentiated tax system, we need to consider the appropriate provision of data to facilitate informed decision making, such as, for example, regional-specific consumer price indices that will allow interregional comparisons of real living standards. In this context the initial focus on the Scottish case will still prove valuable as it, in effect, provides a "laboratory" in which innovative policies can be explored and, depending on the outcome, be emulated or avoided by other devolved authorities.

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Strathclyde International Public Policy Institute,
Fraser of Allander Institute,
Department of Economics,
University of Strathclyde

and

Scottish Centre for Constitutional Change

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About the authors:

Peter McGregor is Director of the International Public Policy Institute and a previous Head of the Economics Department, Strathclyde Business School, University of Strathclyde.

Kim Swales is Emeritus Professor, Department of Economics, University of Strathclyde.

Patrizio Lecca is a Research Associate, Department of Economics, University of Strathclyde.

Contact details:

Patrizio Lecca
Fraser of Allander Institute
University of Strathclyde Business School
patrizio.lecca@strath.ac.uk

Peter G McGregor
Director of the Strathclyde International Public Policy Institute
University of Strathclyde
p.mcgregor@strath.ac.uk

Kim Swales
Department of Economics
University of Strathclyde Business School
j.k.swales@strath.ac.uk

International Public Policy Institute (IPPI)
McCance Building, Room 4.26
University of Strathclyde
16 Richmond Street
Glasgow G1 1XQ

t: +44 (0) 141 548 3865
e: ippi-info@strath.ac.uk

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