

Public sector debt, borrowing, taxation and fiscal rules

**Evidence presented to Scottish Parliament's Finance
Committee**

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The National Institute of Economic and Social Research (NIESR) is grateful for the opportunity to present evidence to the Scottish Parliament’s Finance Committee on public sector debt, borrowing, taxation and fiscal rules. NIESR has often stated that some key issues for the referendum, such as currency options, cannot be fully understood without taking account of the likely balance sheet of an independent Scotland. This paper briefly summarises some findings and ongoing research on the economics of Scottish independence funded by the Economic and Social Research Council.

1. Assets and debt

In the event of Scottish independence, public sector assets and liabilities of the existing UK would be divided between the two sovereign states. Two critical issues are likely to be: (a) the basis for the division; and (b) the assets and liabilities to be divided. Despite the fluidity of international borders, history offers surprisingly few precedents. Two examples of ‘friendly’ campaigns which offer some guidance are the separation of Czechoslovakia in 1993 and the vote against Quebec’s independence from Canada in 1995 (see [Armstrong & Ebell, 2014b](#)). So far as general principles can be drawn, fixed assets are divided on the basis of physical location while non-physical assets and liabilities are divided on some basis of ‘fairness’ of which two main measures are a population and ability to pay.

The best register of UK public sector assets and liabilities is the Whole Government Accounts (WGA) published by HM Treasury (2013) which are the consolidated accounts of all audited public sector entities. A summary is presented in Table 1 below. The total asset figure of £1,268bn (the sum of physical assets plus other assets and equity investments) is quoted in the Scottish Government’s White Paper (2013a) as the ‘net’ assets to be shared if Scotland becomes independent.³ As a consolidation of public sector entities, this includes the Bank of England’s balance sheet.⁴ If fixed assets are divided by location, the Net Asset Register published by HM Government (2007) provides a thorough guide and valuation to a limited number of fixed assets. The latest Register based on valuations in 2005 shows UK net assets of £337bn. Scotland’s department buildings alone are valued at £23bn (which includes the Scottish Executive, its Agencies, public corporations, NHS buildings etc).

Table 1: UK Whole Government Accounts 2011-12 (£bn)

Liabilities		Assets	
Net public service pensions	1,008	Physical assets	745
Government financing	966	Other assets and equity investments	523
Other liabilities and provisions	641	Net liability	1,347
Total	2,615	Total	2,615

Source: HM Treasury (2013).

The WGA exclude natural resources, in particular the remaining North Sea oil and gas fields, which would be keenly contested in negotiations. Maritime experts expect that the oil and gas fields will be allocated by location with the median line the most likely boundary. On this basis, an independent Scotland could receive up to 84% of tax revenues from the remaining reserves.⁵ The amounts involved are uncertain and disputed. According to the Office of Budget Responsibility (2013) (OBR) central forecast, the total tax yield between 2018-19 and 2040-41 is estimated at £56bn. If an independent is awarded a geographic share of the oil and gas fields, the tax yield would be around £50bn in cash terms.⁶ This benefit to Scotland is mirrored by a tax loss to the continuing UK.

³ Scottish Government (2013a) pp 30, 341 and 554. ‘Net’ refers to net of depreciation.

⁴ The gilts held as assets by the Asset Purchase Facility (subsidiary of the Bank of England) cannot be netted against government debt because they are ultimately funded by a liquid liability of banks’ reserve accounts.

⁵ HM Revenue and Customs estimate a geographic share of taxes to be equivalent to 79% of total revenues.

⁶ The OBR presents a range of estimates based on different prices and production. The geographic share depends on output from fields hence the approximation. Cash terms implies no discounting of future income.

Since the Union was created, all citizens of the UK have benefited to a greater or lesser extent from the services and investments provided by the state. If Scotland becomes independent, the new Scottish state is likely to be required to compensate the continuing UK state for being relieved of (i.e. no longer obliged to pay) its share of outstanding UK public debt at the time of independence. This compensation is not straightforward and raises at least three important questions.

- Which measure of existing UK public debt is appropriate?
- How would the public sector debt be divided?
- How would an independent Scotland compensate the UK?

The amount of debt to be shared depends on which definition of debt is used. The WGA net liabilities of £1,347bn measure includes fixed assets and known future obligations and therefore is conceptually the most coherent measure of the UK's obligations. It is the counterpart to the Public Sector Net Debt (PSND) used by governments to frame fiscal rules. The approximate difference is that the former includes public sector pensions liabilities and public sector fixed assets. This does not mean that the UK issues this amount of debt on financial markets; many of the liabilities are not due to be paid until some date in the future. Yet when deciding at which price to buy government bonds, broader exposures such as pension liabilities and contingent claims are likely to be considered.

The amount of market debt that an independent Scotland would be likely to assume is some share of the government's net financial liabilities. The PSND is a narrow measure of financial liabilities (government bills and gilts and National Savings debt) minus liquid assets (foreign exchange reserves and cash deposits) measured on a cash basis (so without accruals). A broader measure more often used internationally is Gross Debt or Maastricht defined debt which does not allow for the netting-off of liquid assets or the exclusion of debts issued by other public bodies. Table 2 shows all three measures in of indebtedness in absolute amounts and as a share of GDP using the OBR projections.

Table 2: Alternative measures of UK public sector debt

	2011-12		2013-14		2015-16	
	£bn	% GDP	£bn	% GDP	£bn	% GDP
WGA (Net liabilities)	1,347	87	NA	NA	NA	NA
PSND	1,104	72	1,258	75	1,439	79
Maastricht definition	1,312	85	1,512	90	1,701	93

Source: OBR (2014) and HM Treasury (2013)

The division of UK debts is likely to be keenly negotiated. On a population basis, an independent Scotland would be responsible for 8.4% of the outstanding debt. The resulting gross and net debt burdens for Scotland are summarized in Table 3 below. Scotland's initial gross debt to GDP ratio would be 86% or £143bn, while the PSND measure would be 73%. The Scottish Government has suggested another approach based on what they call a 'historic' share since 1980.⁷ The key issues are whether starting in 1980 is reasonable and an ex post calculation is justified. Another option is 'ability to pay'; on this basis since an independent Scotland would have a higher per-capita GDP including North Sea oil, it would take on a greater share of public debt.

Table 3: Hypothetical debt burdens for an independent Scotland 2015/16

	Measure	Total debt	Independent Scotland	
		£bn	£bn	Debt/GDP%
Baseline	Maastricht	1,701	143	86%
	PSND	1,439	121	73%

Source: OBR (2014) and authors' own calculations

⁷ See Scottish Government (2013a).

2. Borrowing

The precise means of transferring the debt is of great importance. In a technical note, HM Treasury (2014) re-iterated its full responsibility for the issued stock of UK government debt. This ruled out sharing out the outstanding debt in some way, which we have argued would constitute a technical default. This leaves two options for the Scottish Government to compensate the UK (see [Armstrong & Ebell, 2013b](#) and [2014](#)). In the first option, Scotland pays the full amount at independence, which we call a 'clean break'. One would need to take the maturity of the debt into account. A simple back of the envelope calculation, taking the duration of UK public debt at 8.5 and the 4.1% as the discount factor (average yield on 10 year UK gilts since 2000) reduces the present value of a population share of gross debt to £102bn. 'Clean break' implies the Scottish government pays the UK government £102bn in cash in 2016/17.

The second option, alluded to in the White Paper, is that an independent Scottish government would commit to paying its share of interest and principal payments as and when they fall due.⁸ This we call the 'IOU' option. This proposal was first suggested by the Fiscal Commission Working Group (2013a) which suggests the payments are made in line with the current UK yield curve. For example, if the UK's debt stock included £1bn in five year gilts, and Scotland were responsible for 8.4% of the UK's debt, then Scotland would pay the semi-annual interest on the £84mn of five year gilts and repay the £84mn of principal at the end of the five years.

Assuming that an independent Scotland takes responsibility for a population share of public debt, the two options have great significance for the amount and timing of Scottish debt issuance. Under the 'clean break' option Scotland would need to issue £102bn of new Scottish government bonds in 2016/17. Under the 'IOU option' it would issue only a share of the maturing debt, plus the interest on the IOU. According to the WGA £224bn of the UK market debt is due within one year. This implies a first year payment to the rest of the UK of around £23bn (repayment plus the IOU interest, say at the UK borrowing cost rate).⁹ Of course the size of the fiscal deficit would also have to be added to both issuance amounts. The Scottish government estimates that a separate Scotland deficit in 2012/13 was £12.1bn (including tax revenues from a geographic share of North Sea oil and gas).¹⁰

We have published an analysis of the expected cost of ten year Scottish government debt compared to UK public debt (see [Armstrong & Ebell, 2013a](#)). Our analysis shows that an independent Scottish government would be likely to pay between 0.72% and 1.65% higher interest rates for borrowing at ten year maturity. The analysis shows that the most important factor driving this spread is the liquidity of the market which reflects how easily investors can buy and sell without impacting market prices. This reflects that an independent Scotland would be a much smaller bond market than the UK gilts market. In recent evidence to the Scottish Parliament Professor Hughes Hallett raised two issues about our methodology which we have addressed here (see [Armstrong & Ebell \(2014c\)](#)).

Under either repayment option an independent Scotland would have a high debt burden (although lower than the rest of the UK).¹¹ We have pointed out many times in our research (for example [Armstrong & Ebell, 2014d](#)) that the amount of public debt is central to the currency options facing an independent Scotland. In particular, the combination of a high debt burden while using the currency controlled by another country limits the room for manoeuvre in the event of an adverse economic shock. A higher level of debt simply adds to the vulnerability of a currency union. And the cost of financial distress typically far outweighs the cost of any lower transaction costs.

⁸ Scottish Government (2013a) pp 73 and 76.

⁹ The UK government is likely to expect a premium on the interest rates on the IOU to reflect the higher yield expected on Scottish government debt. This will be observable from the first bonds issued.

¹⁰ See Scottish Government (2013b).

¹¹ See our earlier references for why the UK's tax burden rises with Scottish independence.

NIESR has proposed a practical solution to partially mitigate the debt problem if Scotland becomes independent (see [Armstrong & Ebell \(2013a\)](#)). We propose a debt-for-oil swap which would leave both sovereign nations better-off: the idea actually offers a real 'free-lunch'. The tax revenue from North Sea oil is highly volatile. This volatility is more easily managed by a larger economy as the revenue variations would simply be a smaller share of total tax revenue. If both sides could agree the expected value of remaining reserves, perhaps by third-party verification, an independent Scotland could accept a slight discount to no longer have the volatility which would be a slight gain to the rest of the UK. The greater the uncertainty over the oil tax yield and the higher the initial level of debt, then the greater economic case for the swap. Put another way, unless the risk adjusted return on investing the funds is higher than the interest rate, not doing the swap would cost money.

A final issue to consider with regard to borrowing relates to regulation of the financial sector. Banks are often major buyers of their government's debt because it is categorised as zero risk weighted and can be included in their liquidity buffers. They can also typically be swapped with a small haircut in liquidity operations. This raises again the question of which currency arrangement an independent Scotland would choose and whether they would seek to join a banking union (either in Europe or with the rest of the UK). Since a union with the rest of the UK would be the more obvious choice, the question becomes how the Bank of England interprets Scottish government bonds. These issues will be presented in a forthcoming paper (Armstrong & McCarthy, 2014).

3. Taxation

In our research we have not focussed on particular taxes, or commented on the short term outlook for the fiscal deficit, with the exception of the volatility of oil revenues and the implications for the currency regime (see [Armstrong & Ebell \(2014c\)](#)). However, we have carried out a ten year fiscal simulation on the overall stance of fiscal policy to assess the implications for currency options. As we assume in all our work that an independent Scotland would join the EU at the earliest opportunity we consider reaching the Maastricht debt ceiling criteria of 60% government debt to GDP ratio as a reasonable illustrative target. For a newly independent country, this seems to be a reasonable consolidation plan to create some fiscal slack as insurance against unforeseen shocks.

To achieve this consolidation plan we assume that the UK public debt is divided on a population basis and follow the Scottish government's convention of looking at fiscal accounts on the basis of a geographic and population share of hydrocarbons (see [Armstrong & Ebell \(2013a\)](#)). This matters for two reasons. First, Scotland's initial debt burden is substantially lower if calculated as a ratio of GDP including a geographic share of oil. Second, while it is reasonable to disagree about how quickly output of hydrocarbons will decline, there is clearly a finite amount of reserves. As a result, the growth of GDP including a geographic share of oil will be lower than GDP including a population share of oil. Another way to put this is to achieve the same rate of headline GDP growth requires the non-oil GDP to grow faster. We ignore many factors such as differences in demographic profiles, and the feedback mechanism between fiscal tightening and demand.

Table 4: Primary Surpluses to Achieve 60% Gross Debt / GDP Ratio

	Real GDP Growth Rates					
Horizon	-2%	-1%	0	1%	2%	3%
4 years	10.1%	9.3 %	8.5 %	7.7 %	7.0 %	6.2 %
6 years	7.9 %	7.1 %	6.3 %	5.6 %	4.8 %	4.1 %
8 years	6.8 %	6.0 %	5.3 %	4.5 %	3.7 %	3.0 %
10 years	6.2 %	5.4 %	4.6 %	3.9 %	3.1 %	2.4 %

Source: [Armstrong & Ebell \(2013a\)](#)

To pin-down the degree of fiscal adjustment we assume that inflation is 2% in line with the Bank of England's target and the initial interest rate is 4.8% based on the estimates for Scotland's sovereign

spread and the average UK bond yield at the time we published our work. As the fiscal consolidation is underway and the deficits narrow and debt burden eventually falls the interest rate spread narrows resulting in lower borrowing costs. Although these lower borrowing costs do not reduce the debt service on Scotland's initial debt levels (the stock), they do reduce the rate at which Scotland would be able to borrow in times of stress (the flow). Table 4 summarises the primary fiscal balances necessary to reach the target of a 60% debt ratio.

Assuming that economic growth is a constant 2% per year and the consolidation is over ten years, the average primary fiscal surplus (including oil) must be 3.1% in each year. This implies a substantial fiscal tightening. Scotland's primary deficit in the fiscal year 2012-13 was 5.5% of GDP when oil tax revenues are divided on a geographic basis implying a fiscal tightening of 8.4% of GDP. According to the OBR (2014), under present UK Government policies the primary balance will be a surplus of 0.5% of GDP in 2016-17 from a deficit of 4.7% of GDP in 2012-13, which implies a fiscal tightening of 5.2%. Making some significant assumptions, such as assuming the percentage point current difference between the UK and the estimated Scottish deficit (based on geographic oil) is constant and ignoring possible cyclical differences, a newly independent Scotland would need to engage in more than 3% additional fiscal tightening over and above what the UK Government is already proposing.

There are risks to see this simulation on both sides. Taxation from oil has been less than expected and so may recover in future years. The fiscal consolidation is likely to have a negative impact on real GDP growth, at least in the short run. Assuming a 2.0% rate of real GDP growth against a backdrop of an immediate and permanent fiscal tightening of over 8% may be optimistic. Moreover, we assume that the contribution of oil and gas to Scottish GDP would be maintained at its 2000-2012 average level, rather than decreasing as expected by the OBR. In order to achieve a 2% growth rate with a declining oil and gas sector, the non-oil economy would actually have to grow at more than 2% annually. Finally, we are also assuming that the required tightening would be immediate, rather than being spread out over multiple years in relatively small steps. The slower the adjustment to the required surplus, the greater the total amount of tightening required.

4. Fiscal rules

NIESR presented evidence to the Finance Committee in December 2013 on the possible role of an independent Fiscal Commission for Scotland. Our joint submission lead by Professor David Bell is available on the Committee's website. The evidence was supportive of the idea, but emphasised the importance that the Commission's members are physically located and statutorily independent from other government departments. The principles for the design of appropriate internal fiscal deficit and debt burden rules are well established. Understanding the impact of specifications of fiscal rules for the Scottish economy requires a full macroeconomic model. NIESR is developing a model for Scotland under the ESRC Fellowship (see [Hurst, Liadze & Lisenkova, 2014](#)) which will be available to Higher Education institutions.

One aspect of fiscal rules which we are currently investigating addresses whether fiscal constraints can replace a political union to ensure fiscal responsibility for a monetary union (see Armstrong & Ebell, 2014e).¹² There appears to be a shared view on both sides of the independence debate that fiscal constraints may be desirable to achieve fiscal responsibility. Statements mirror those for the Euro zone, despite the failings of earlier rules. It is more difficult to find reasoned arguments why they are such a vital part of a currency or a banking union. We find that the merits of fiscal constraints depend, in part, on the relative size of the countries involved. We argue that, contrary to the current consensus view, fiscal constraints may be unnecessary and even be counter-productive when the two sovereign countries involved are different enough in size.

¹² The expected publication date is 7th May, 2014.

The standard argument in favour of fiscal constraints in a monetary union is that each country has an incentive to borrow above a level desirable for the union. This arises when the monetary authority sets policy by committee in the interests of all members, while fiscal policy is chosen by each government independently. The monetary authority recognizes that inflation is harmful for real output, but helpful for reducing real debt repayments. More indebted countries prefer higher inflation so an increase in debt in one member country will cause the monetary authority to loosen policy across the union. Over borrowing arises because governments neglect the harmful spill-over effects of higher inflation to other union member. Fiscal constraints are an attempt to avoid this outcome by limiting borrowing.

The argument does not necessarily follow when the countries are asymmetrically sized. If the larger country dominates monetary policy (it has a large majority on the policy committee or the smaller country 'dollarizes') then monetary conditions will reflect only its economic imperatives and respond only to its borrowing choices. The smaller country's choice of borrowing has no impact on the larger country, so the inflationary externality of the small country onto the large country is eliminated. At the same time, however, the small country must simply accept the monetary policy set by the larger country. This amplifies the inflation externality of the large country onto the smaller country. The smaller country might wish to impose fiscal constraints on the larger country, but it is not clear why the larger country would be willing to accept these.

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