

A Sustainable Monetary Framework for an Independent Scotland

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1. Introduction

On Thursday the 18th of September 2014 the Scottish people will go to the polls to make an historic decision: should they or should they not remain in the United Kingdom? Even if the Scottish people vote that they should remain in the UK this issue is unlikely to evaporate. As we will see in what follows, the Scottish economy needs to be completely restructured moving into the future and the only way that the Scottish government can undertake this restructuring is to gain greater economic sovereignty.

The future, however, is fraught with dangers. Since the early 1980s and the discovery of the North Sea Oil the Scottish economy has become dangerously reliant on oil and gas revenues. While Scotland is quite wealthy even without these revenues, these revenues have become a key pillar in the stabilisation of the Scottish macroeconomy. The amount that the Scottish government currently spends is inherently tied up with the amount of tax revenues that it gains from these revenues. Likewise, the amount that Scotland imports is inherently tied up with oil and gas exports.

Oil and gas revenues are, unfortunately, rather volatile in that they are subject to substantial price and quantity fluctuations. As we shall see in what follows, such fluctuations could potentially generate instability in the macroeconomy if the monetary system is not structured in such a way as to cope with them. In Section 2 we will explore to what extent these fluctuations could damage the stability of the Scottish economy while in Section 3 we will examine the FCWG's macroeconomic stability report in light of these findings. Finally, in Section 4 we will lay out a new macroeconomic framework that will seek to mitigate the risk associated with moving toward greater economic sovereignty.

We can only hope that those making the decisions in Scotland will pay some attention to this report. The tragic crisis in the Eurozone that began in 2008 and is still with us today has shown us the disastrous consequences of economic policy that is not based on robust and flexible institutions. Let us try to learn from recent history and ensure that something similar does not befall Scotland in the coming years.

2. A Macroeconomic Overview of the Scottish Economy

Introduction

In this section we will give an overview of the Scottish macroeconomy. In doing so we will face substantial challenges as the data available is somewhat limited. In order to do this we will have to extrapolate some of the data based on simple accounting identities.

Faced with these challenges we can nevertheless get a broad view of what are the likely challenges that would face a newly independent Scotland from the point-of-view of the country's overall macroeconomic structure. In doing so we will be able to establish in the next section how these challenges may be affected by the choice of currency regime. Finally, in Section 4 of this paper we will design a monetary framework that takes into account these challenges.

Overview

It has been well noted elsewhere that Scotland is a very wealthy country. According to the Fiscal Commission Working Group's (FCWG) First Report the Gross Value Added (GVA) per capita is 99% of the UK average and is the highest in the UK outside London and the south-east even if we exclude oil and gas revenues. The report also notes that the economy is some 20% larger if we include oil and gas revenues (FCWG 2013, p37). Despite this, however, the Scottish economy has lagged behind most other advanced Western countries in terms of economic growth over the past 30 years.

Advocates of Scottish independence have pointed to the fact that Scotland has not had access to a full range of fiscal policy levers and that this may account for this lack of economic performance of the past 30 years (Scottish Government 2013). In what follows we are not concerned with evaluating why the Scottish economy has underperformed in the past 30 years. Instead we wish to evaluate the structure of the Scottish macroeconomy in order to try to highlight any areas of weakness that might cause instability should Scotland gain independence and not have a sufficiently robust macroeconomic framework in place.

Scotland's Sectoral Balances

The 'sectoral financial balances' model is a powerful tool that can highlight potential structural imbalances in the macroeconomy. The sectoral financial balances approach was used by the late

British economist and famous forecaster Wynne Godley to make forecasts about the US and UK economies which warned that there was an unsustainable build-up in private sector debt in the years leading up to 2008 (Godley 1999). Today it has found favour with prominent economists such as Martin Wolf at the Financial Times and Jan Hatzius, Chief Economist at Goldman Sachs.

The sectoral balances framework is based on the rearrangement of simple and well known identities. The identities that we use are two of the basic approaches to national income and they are as follows:

$$1.1 \ Y = C + I + G + (X - M)$$

$$1.2 \ Y = C + S + T$$

Equation 1.1 represents total income/GDP, Y , from the perspective of aggregate expenditure while equation 1.2 represents total income/GDP from the perspective of aggregate income. Substituting the two equations into one another, cancelling out the consumption variable, C , and rearranging we get:

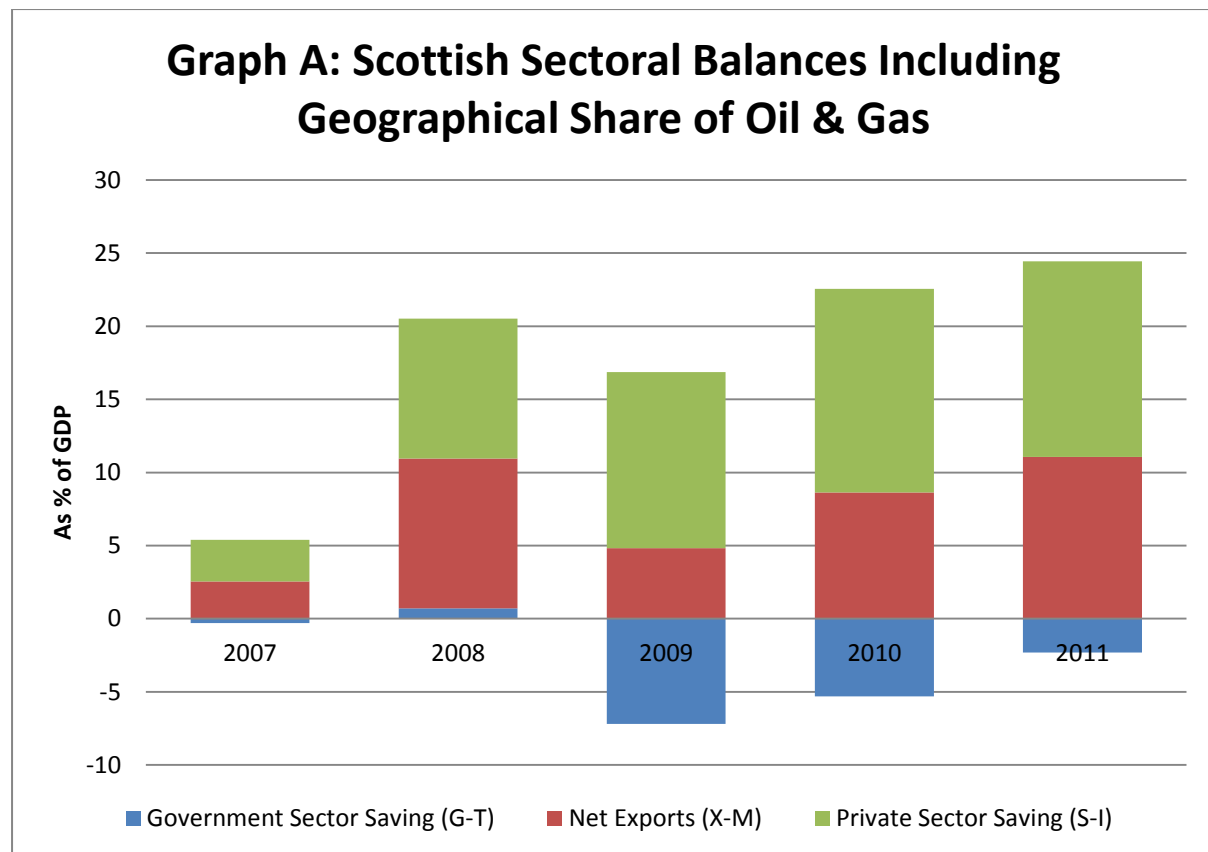
$$1.3 \ (S - I) = (G - T) + (X - M)$$

This is the sectoral balances equation. It states that total private savings, S , minus private investment, I , must equal the public sector deficit (government spending, G , minus taxes, T) plus net exports (exports, X , minus imports, M). Or, as Godley put it:

The intuition that underlies this rearrangement of the numbers is that public deficits and balance of payments surpluses create income and financial assets for the private sector whereas budget surpluses and balance of payments deficits withdraw income and destroy financial assets. This method of presenting the figures makes the way financial assets and income are created for the private sector quite transparent. (ibid, p4)

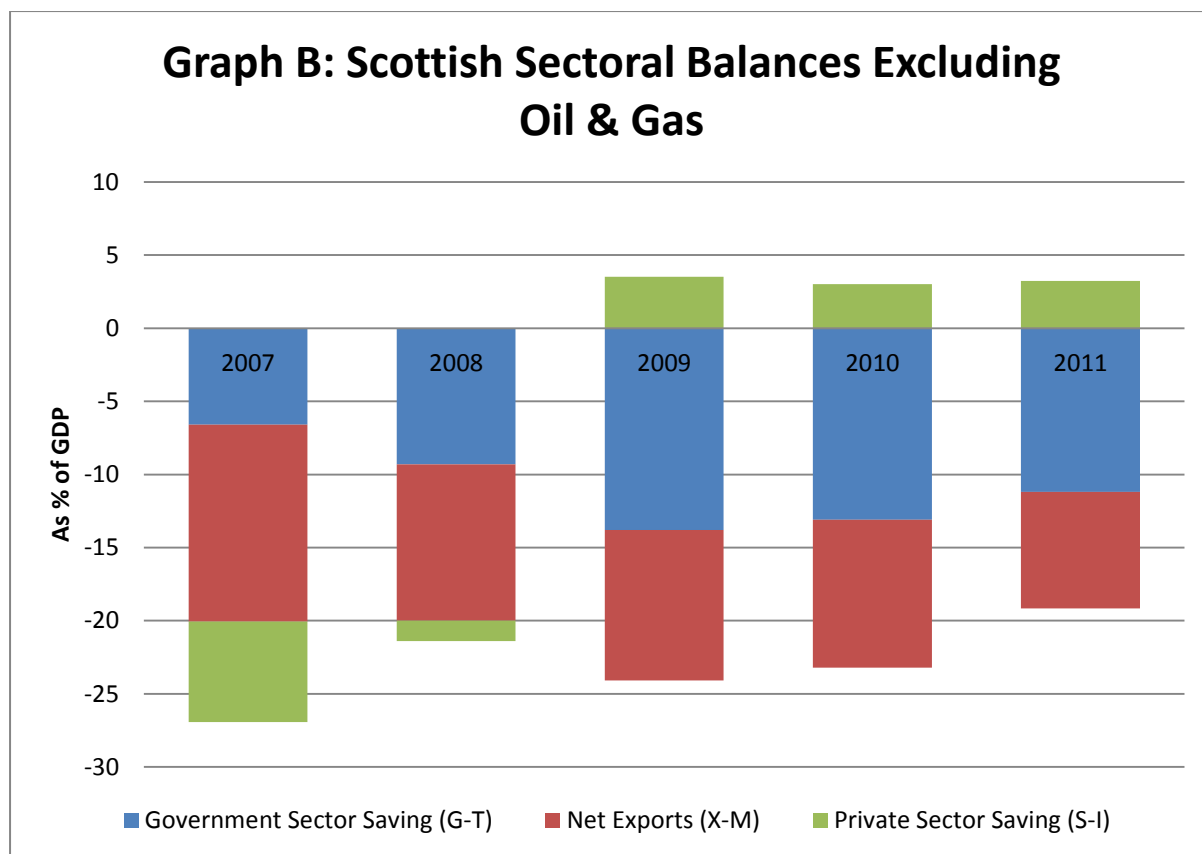
Using data from the National Income and Product Accounts we can generate numbers for each of the variables listed. We can then examine the resulting graph in order to determine if there may be an 'unsustainable processes' potentially at work. Graph A below lays out the sectoral balances for the Scottish economy including the geographical share of oil and gas¹.

¹ All data is taken from the Scottish governments' statistics office. Trade data in the NIPA accounts is supplemented by an experimental series on oil and gas exports published by the office in February of this 2014.



The Scottish balances give us a picture of a healthy and well-balanced macroeconomy. Private sector savings are buttressed by large current account surpluses. Meanwhile the government deficits that we see after the 2008 economic crisis are far smaller than those seen in most advanced industrial economies in the same period. Nor do we detect any tendency for private sector savings to go negative – which would be a key indicator of financial sector fragilities such as those that were seen in many advanced industrial economies prior to the 2008 crisis.

The picture changes drastically, however, if we remove oil and gas revenues. In Graph B below we lay out the sectoral balances of Scotland with the oil and gas revenues removed.



When oil and gas revenues are removed the current account falls into extremely negative territory and the government budget balances begins to register substantial deficits – reflective of the diminished tax revenues relative to spending outlays. Private sector saving also manifests a strong tendency to enter negative territory which may indicate the possibility for serious financial fragility.

What these graphs tell us is that it would be extremely hazardous for Scotland to consider gaining greater fiscal independence without access to their geographical share of oil and gas. If they attempted to do so they would leave the country open to either a sovereign debt crisis – if they were to keep the Sterling – or a currency crisis – if they were to issue their own currency.

The risk of sovereign debt crisis would arise if Scotland maintained a foreign currency, the Sterling, and continued to run substantial government deficits. The situation would resemble what happened to the peripheral countries in Europe in that investors would drive up interest rates on government securities and the decision whether to intervene would ultimately rest with the Bank of England who would likely demand substantial austerity programs from the Scottish government.

The risk of a currency crisis would arise if Scotland launched its own currency. In such a scenario Scotland would be able to fund its government deficits by having the newly sovereign Scottish central bank purchase government debt. Foreign investors, however, would be confronted with substantial current account deficits and would likely engage in a speculative attack on the new Scottish currency. This could lead to a currency crisis and substantial inflation.

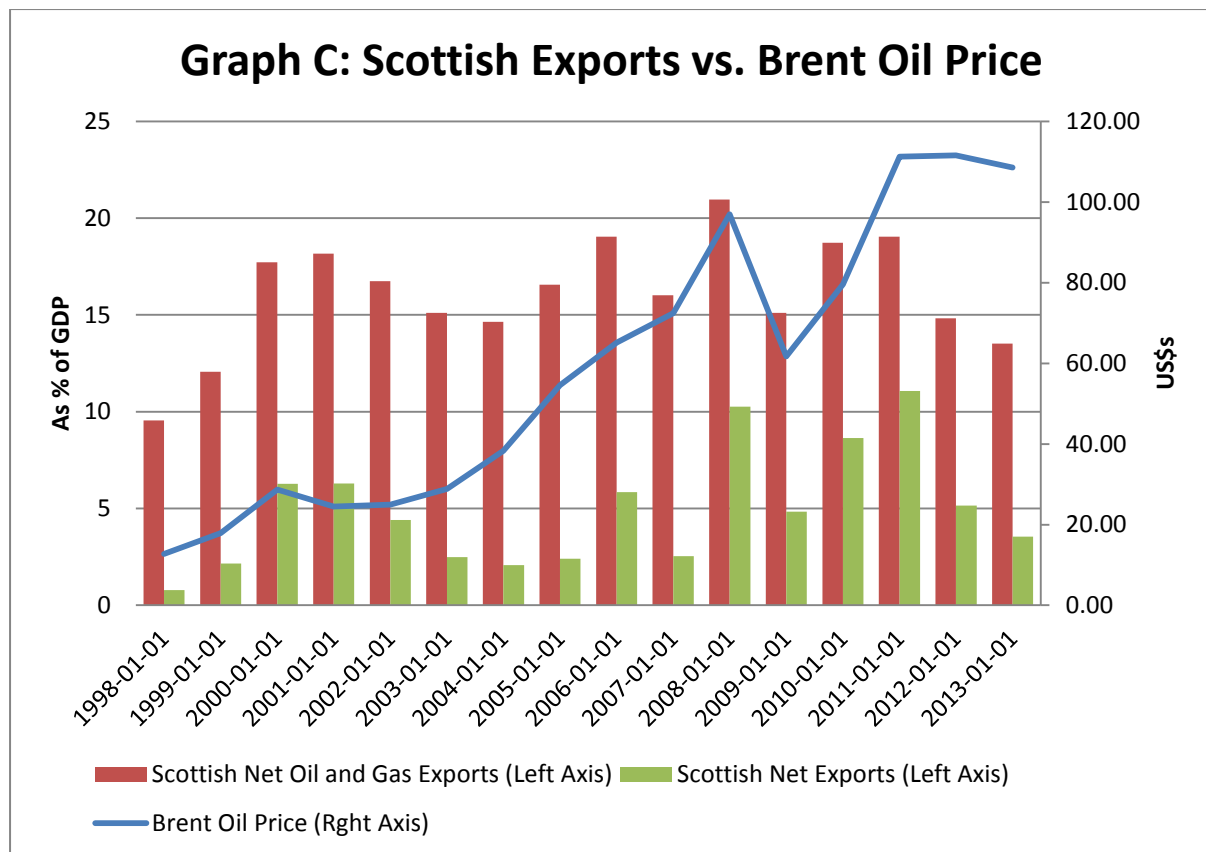
Unfortunately, these problems remain even if we assume that Scotland would not attempt to gain fiscal sovereignty without access to their geographical share of oil and gas – i.e. in the case of a ‘balanced’ macroeconomy as shown in Graph A. This is because the price of oil and gas may be subject to substantial fluctuations. Likewise the quantity sold, due to either supply and demand fluctuations, may vary significantly. We now turn to examine just how volatile oil and gas revenues may be and consider how such volatility may put the Scottish macroeconomy at risk if it did not have a sufficiently robust and flexible macroeconomic framework in place.

Volatility in Scottish Oil and Gas Revenues

As we have seen in the previous section, oil and gas revenues buttress Scotland’s macroeconomy. If they were to disappear this would have substantial effects on the structure of the Scottish economy, turning it from a robust, healthy economy into a debt-laden, impoverished economy. While fluctuations in the revenues obtained from oil and gas would not have as drastic an effect as the complete disappearance of these revenues they may lead to short-term imbalances in the Scottish macroeconomy. We will explore the effects these short-term imbalances might have in the next section and we will argue that their existence poses considerable problems with regards to the optimism inherent in the FCWG’s report. Here, however, we will merely seek to briefly elaborate on how sensitive the Scottish macroeconomy is to fluctuations in oil and gas revenues.

In Graph C below we chart the Brent oil price against Scottish net exports and Scottish net oil and gas exports, both measured as a percentage of Scottish GDP². This chart allows us to get an idea of the effect that net oil and gas imports have on the overall balance of Scottish trade while at the same time accounting for the effect that changes in the oil price have on both of these variables.

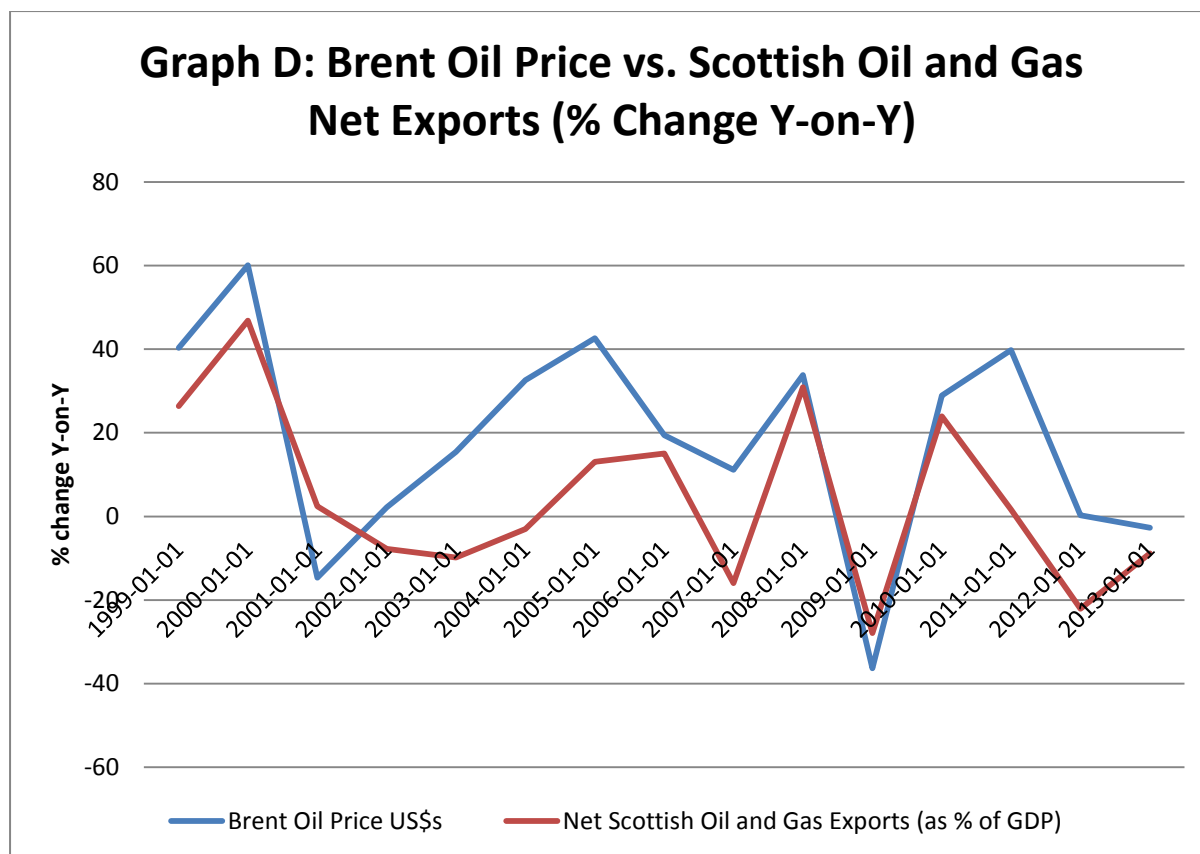
² Export data is taken from the Scottish government’s statistics database. While the Brent oil price is taken from the Federal Reserve Bank of St. Louis’ extensive statistics database.



The picture is rather striking. As we can see Scottish net exports closely track net oil and gas exports while both follow the Brent oil price. As the Brent oil price accelerates net exports as a percentage of GDP also increase. These are driven by net oil and gas exports. The causality thus runs as such:

1.4 Oil Price Fluctuation => Fluctuation in Net Oil and Gas Exports => Fluctuation in Net Exports

We can get an even clearer view of how important these effects are if we calculate the percentage year-on-year change in the oil prices and graph this alongside the percentage year-on-year change in net oil and gas exports. We can see this relationship in Graph D below.



As we can see the correlation is extremely close. Not only does this suggest that the Scottish trade balance is extremely sensitive to changes in the oil price³ but it also suggests that in the past 15 years the Scottish macroeconomy has been extremely reliant on rising oil prices to maintain its trade surplus.

The reason for this is that oil price increases only have a once-off effect on total net exports while GDP tends to grow every year. Thus for oil and gas exports to ensure that the trade balance as measured by a percentage of GDP stays in surplus these same oil and gas exports must continue to grow year-on-year. If Scotland is relying on price rather than quantity increases for this growth in oil and gas revenues then it will require that the oil price should climb continuously. If the oil price declines, or fails to increase – as we have seen in the past three years – then the trade balance will deteriorate. This is precisely what we have seen in Scotland, particularly in the last three years. If Scottish GDP continues to grow and oil prices remain flat or decline we would expect the balance of payments to deteriorate in the coming years. We will explore the implications of this in the next section.

³ When we ran an OLS regression on *net* oil and gas exports (i.e. oil and gas exports - imports) versus the Brent oil price we got an R-squared value of 0.796 thus indicating that net oil and gas exports in these years are mainly explained in terms of price increases. We also regressed *total* oil and gas exports on the Brent oil price and got an R-squared of 0.908. Again, this indicates that price fluctuations are the main explanatory variable when explaining Scotland's oil and gas exports.

When we regressed the change in net oil and gas exports as a percentage of GDP on the change in the Brent oil price the R-squared fell to 0.613. This is not surprising given that we cannot expect GDP to be well explained by the fluctuations in the Brent oil price. All regressions were statistically significant within a 1% margin.

Conclusion

Scotland is a wealthy country even if their geographical share of oil and gas is not taken into account. The manner in which their economy is structured, however, especially as it relates to the government budget and the trade balance, is almost completely dependent upon oil and gas revenues. These revenues, in turn, are highly reliant on oil prices.

If oil and gas prices do not rise as Scottish GDP grows in the coming years there is strong evidence to suggest that the trade balance and the government budget balance will be subject to strong fluctuations. In the next section we will consider the implications of these fluctuations. While in the fourth section we will formulate a macroeconomic framework that is robust and flexible enough to cope with such fluctuations.

3. Evaluation of the Monetary Framework Proposed by the FCWG

Introduction

In this section we will evaluate the monetary framework laid out in the Fiscal Commission Working Group's First Report entitled *Macroeconomic Framework* (FCWG 2013). We shall take the framework laid out in this document as a base case for two reasons. First of all, this is the clearest and best articulated monetary framework that currently exists. Secondly, although the Scottish government is not tied into the FCWG's monetary framework should the Scottish public vote in favour of independence since the report was commissioned by the Scottish government we assume that it will be the basis of any future debates surrounding the issue.

Key Arguments

When evaluating the report from the perspective of potential monetary frameworks for an independent Scotland, the most important finding in the report is that Scotland should maintain the Sterling immediately after gaining independence. The report notes that while Scotland is a large enough economy to maintain its own currency and while this option would give an independent Scotland substantially more economic sovereignty, nevertheless in the short-term it is probably in the best interest of Scotland to maintain the Sterling (ibid p123).

The key arguments that the report makes in this regard are as follows:

- (a) the UK is an integrated trade bloc and retaining a single currency would ensure exchange rate stability and promote trade;
- (b) tied to this, a Scottish currency with a fluctuating exchange rate could cause problems for Scottish businesses that currently rely on UK-wide supply chains;
- (c) Scotland and the UK meet the criteria for being an Optimal Currency Area due to a shared language and similar wage and prices structures;
- (d) both economic performance and the business cycle are broadly aligned in Scotland and the UK;
- (e) moving to a Scottish currency would expose debtors and creditors to significant uncertainty regarding the value of the contracts currently held in Sterling.

The report does not explicitly state whether these conditions are about the desirability of a currency union between Scotland and the UK or merely its viability. It is, in fact, only the first two conditions that say anything about the desirability of a currency union between Scotland and the UK. We will now examine each of the above conditions in some detail. Some of these will require more detail than others due to both their relative importance and their implicit assumptions.

Trade

The first two considerations are tied to trade and rest on the assumption that Scotland issuing its own currency may result in a loss of trade with the rest of the UK. The reasons that this may be supposed to occur are due to exchange rate volatility and transaction costs. The studies on these phenomena, however, have been quite mixed. Recent studies have indicated that many of the previous studies that found exchange rate volatility and transaction costs to have a significant impact on trade may have been due to aggregation bias – specifically, not taking into account the geographical distances of various countries from one another (Broda & Romalis 2011) and the fact that advanced economies have substantial financial systems that allow exporters and importers to mitigate risk (Héricourt & Poncet 2012).

These more recent studies find that while exchange rate volatility and transaction costs may depress trade this is likely to be far more of an issue in developing countries that are geographically far from their trading partners than it is to be the case in developed countries that are geographically near their trading partners. Since Scotland is geographically conjoined with the UK and since both countries have extremely well developed financial systems it is likely that the effects exchange rate volatility and transaction costs might have on trade should Scotland adopt a single currency would be minimal in comparison to other countries. On balance the benefits for Scottish exporters from a flexible exchange rate would far outweigh the costs imposed upon them by exchange rate volatility and transaction costs. When examined from this angle it is probably in Scotland's trading interests not to maintain a currency union.

Before moving on we should note that the final three points given by the FCWG report, however, do not indicate whether a monetary union between Scotland and the UK is desirable, only whether it is viable. They should thus be examined only on this basis.

Optimal Currency Area

While it is indisputable that Scotland and the UK meet the criteria for an Optimal Currency Area (OCA) this does not necessarily make the case that they should enter into a currency union. Many countries around the world could be said to have the criteria necessary to enter into an OCA with one another but this does not mean that they should. There may be very good reasons why these countries are better off having a greater rather than a lesser amount of monetary sovereignty. In short, the fact that Scotland and the UK meet the criteria for an OCA says nothing about whether they should or should not enter into a monetary union. Whether this is the case is wholly contingent on other factors.

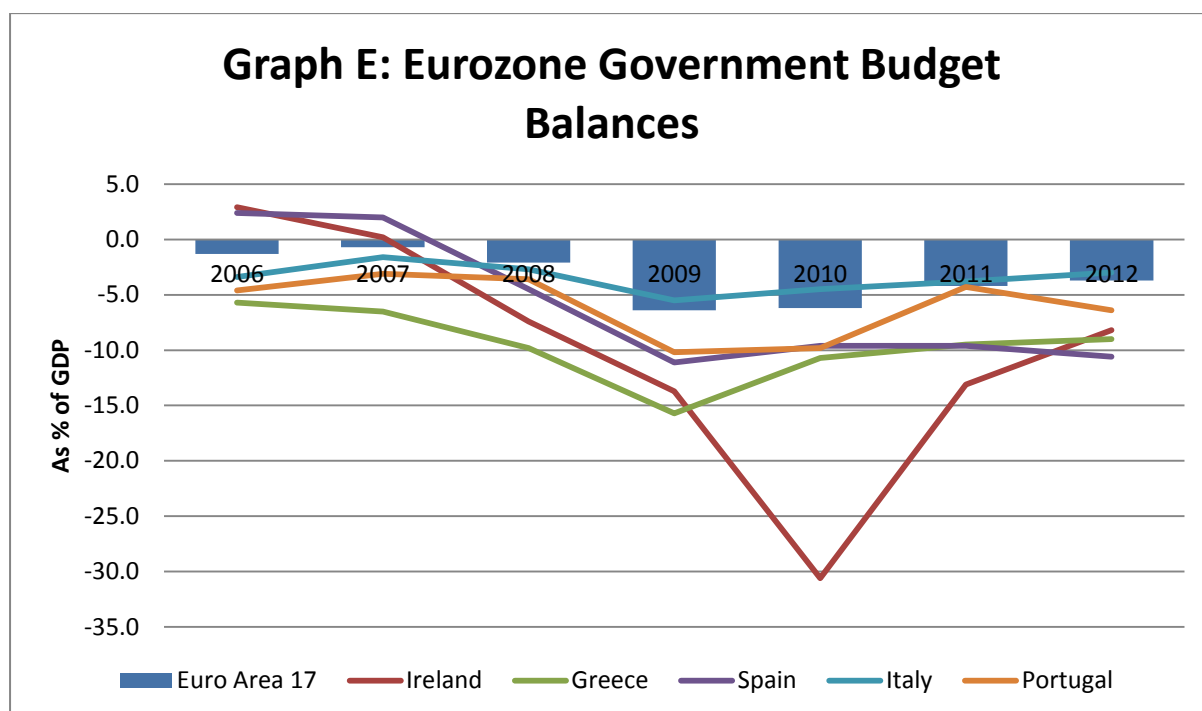
The Business Cycle and the Budget Balance

The fact that both economic performance and the business cycle are aligned in Scotland and the UK is an absolutely key component of the FCWG's report and it is because of this that they can argue in favour of the long-run viability of a currency union between the two countries. The FCWG report makes clear that this is an absolute pre-requisite for a successful monetary union when it states:

[A] monetary union means that there will be one interest rate and exchange rate for the entire economic union. This requires broad alignment of business cycles (close enough to enable fiscal policy to smooth any divergences) and similar economic structures so that changes to the common monetary policy have similar effects across the monetary union. (FCWG 2013, p125)

Lessons From the Eurozone Crisis

Towards the end of the report the FCWG note that in the Euro Area the business cycle was not broadly aligned between members (ibid pp197-198). This was a key reason why the Eurozone crisis occurred. When the recession of 2007-2008 hit it affected the economies of the different Euro Area countries in vastly different ways. Graph E below shows the evolution of government budget across the Eurozone during that recession⁴.



As can be seen from the chart with the exception of Italy the government budget deficits of the peripheral countries far outstripped the Eurozone average. The reason for this was because the business cycle in each of these countries widely diverged from each other in terms of significance. The peripheral countries in the European currency union experienced much more violent macroeconomic shocks than the core countries and this was reflected in the fact that their budget balances went much more sharply into deficit.

⁴ Data for Graph E taken from Eurostat.

This divergence then had substantial implications for how the European authorities responded. As the peripheral country deficits opened up, populations in the core countries began to see their neighbours as being profligate and their elected representatives began to insist on penalising and counterproductive austerity measures. Meanwhile the monetary authorities in the European Central Bank (ECB), presumably themselves under substantial political pressure, initially refused to intervene to stabilise either the financial systems or the government debts of various Eurozone members. This situation has resulted in economic turmoil, political upheaval and sluggish growth across Europe.

We can only assume that had the macroeconomic shock been felt equally across the Eurozone after the recession the policy responses would have been substantially different. In such a case it is far more likely that the various members of the currency union would have worked together as they would have seen themselves as all being in a similar situation. But the fact that the shock was concentrated in some of the member states led to a sort of factionalism among the European elite which proved and continues to prove extremely destructive for both the European economy and its political establishment.

This example clearly highlights why a currency union should only be undertaken between countries that experience the business cycle in broadly the same way. If it is undertaken between countries whose budget balances respond very differently to macroeconomic shocks then there is a strong possibility that political relations will become frayed and solutions to common problems will not be forthcoming. The authors of the FCWG report provide convincing evidence that Scotland and the UK experience the business cycle in a sufficiently similar fashion to assure unity of macroeconomic policy goals (ibid pp130-131) but in doing so they overlooks an extremely important consideration that had been laid out earlier in the report: namely, the sensitivity of the Scottish government budget balance to changes in oil revenue. It is to this that we now turn.

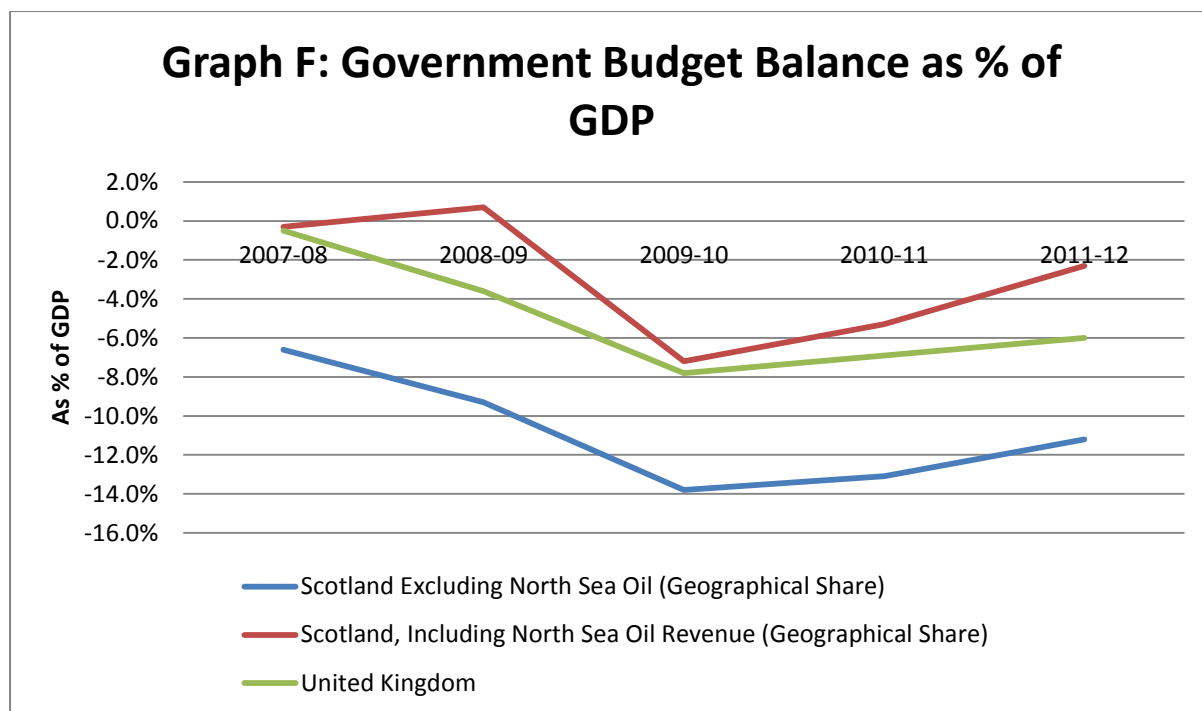
Scotland's Budget Balance and North Sea Oil Revenues

The authors FCWG report clearly note that North Sea oil revenues make up a substantial component of total Scottish revenue when they write:

In 2010/11, Scotland's geographical share of North Sea revenue, was equivalent to 15% of total Scottish tax revenue... A key long term challenge for Scotland under independence would be to manage both the volatility of these revenues and to ensure that as North Sea tax receipts decline, Scotland is able to grow its tax base to fund public spending from non-oil tax revenue. (ibid p157)

Despite the fact that they recognise not only the volatility of these revenues but also the fact that they will decline as North Sea oil output declines they nevertheless do not seem to take this into account when considering possible shocks to Scotland's budget balance if they were to enter a currency union with the UK. If the potential for shocks to oil revenue are taken into account the potential divergence between the fiscal positions of both nations becomes far more open to uncertainty. Graph F below charts the Scottish net fiscal balance as a percent of GDP inclusive and exclusive of North Sea oil revenues against the UK net fiscal balance as a percent of GDP⁵. This can be examined in conjunction with Graphs A and B in the previous section to consider the effects that oil and gas revenue fluctuations might have on the Scottish government budget balance.

⁵ Data from Graph F taken from GERS.



As can be seen from the above chart, and in keeping with what we saw in Section 2 of this report, it is only by including North Sea oil revenues that Scotland's budget balance is able to keep in line with that of the UK. Without the North Sea oil revenue there would be a divergence between the budget balances of the two countries that would be as dramatic as what we saw in the Eurozone in recent years. Of course, North Sea oil revenues are not going to simply disappear in the coming years but nevertheless we must consider two broad points.

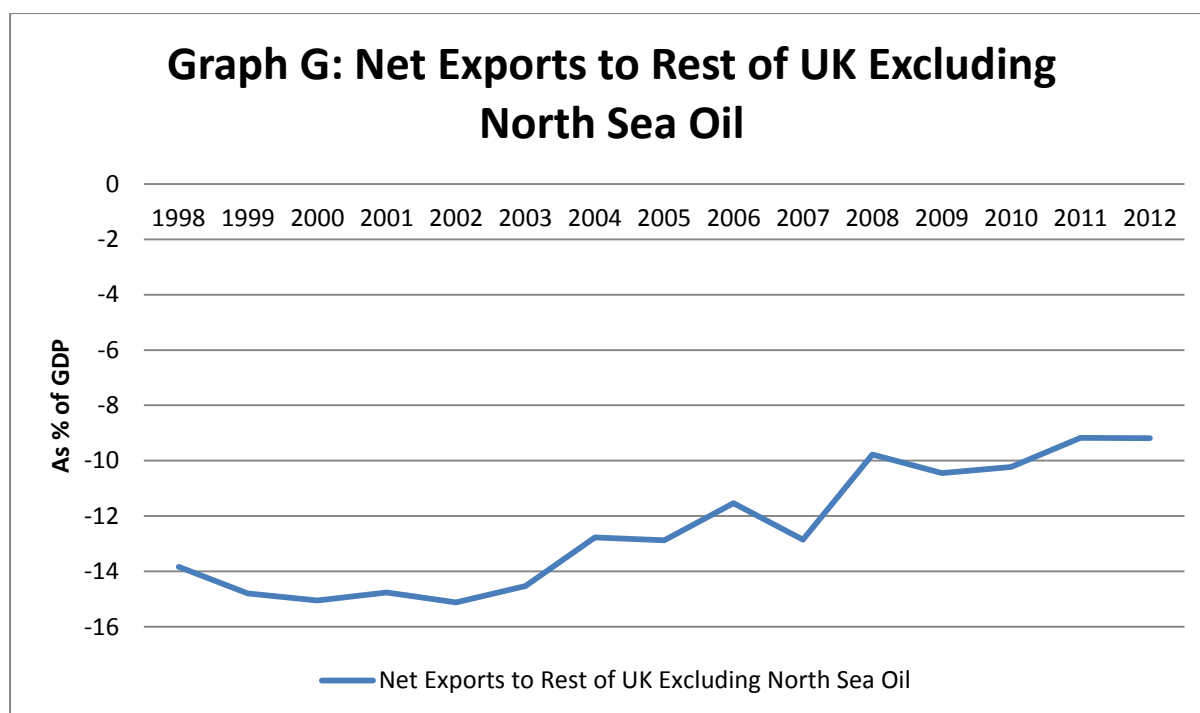
First of all, the oil market is subject to substantial price fluctuations together with fluctuations in productive capacity. As we saw in Section 2, if there were any large negative price shocks or negative productive shocks to the oil market in the coming years this could lead to a substantial deterioration of the Scottish budget balance vis-à-vis that of the UK via a decrease in tax revenues. Secondly, as the FCWG report notes, North Sea oil is a scarce commodity and exploration of new fields will be subject to diminishing returns in the coming years. In order to continue to keep its budget balance in line with the UK, Scotland will have to ensure that other sectors pick up the slack. The FCWG makes a convincing case that Scotland will be able to make this transition but we should nevertheless recognise that this is not absolutely certain. For this reason the government should prepare as best it can for any future contingencies.

If the Scottish budget balance were to deteriorate significantly vis-à-vis the UK's budget balance it is impossible to predict what the political outcomes would be. It is likely, however, that unless there were mechanisms in place to promote stable macroeconomic policies without the need for *ad hoc* policy intervention political tensions would rise and provoke policymakers to push for destructive policy prescriptions. This is the key lesson that we must take from the crisis in the Eurozone that has played out in the last few years. It is for this reason that in Section 4 we will outline a long-term plan for a monetary framework that will insulate Scotland from any and all of these contingencies.

Effects of a Scottish Currency on Borrowing and Lending

The authors of the FCWG have clearly pointed out that were Scotland to issue its own currency this would place creditors and debtors who currently hold assets and liabilities denominated in Sterling in a position of substantial uncertainty. Because we do not know the exchange rate between a Scottish currency and the Sterling in advance the status of any contract taken out in the latter would not be known and this could have enormous implications for the working of the credit system. While it might be argued that we can forecast the future exchange rate of a Scottish currency based on models derived from a Purchasing Power Parity argument these models have fared poorly in the past as we have known since the extensive study by Meese and Rogoff which showed that these models were matched by a simple random walk model thus showing that modelling exchange rates is deeply problematic and will likely produce spurious results (Meese & Rogoff 1983).

In the event that Scotland did decide to issue its own currency one solution to this problem might be for the new currency to be pegged at par value to the Sterling. As shown in Section 2, if we include the geographical share of North Sea oil Scotland runs a substantial trade surplus with the rest of the UK. This would mean that should Scotland issue their own currency and peg it to the Sterling they would be able to accumulate sufficient Sterling reserves to maintain the peg. If we do not include North Sea oil exports to the rest of the UK, however, we find that Scotland runs a substantial trade deficit with the rest of the UK. We can see this in Graph G below⁶ which can be examined together with Graphs A and B in Section 2; if we do not include North Sea oil exports the trade deficit with the rest of the UK is extremely large.



This raises the same problem that we encountered in relation to the Scottish government budget balance: fluctuations in the price or quantity of oil sold by Scotland will have dramatic effects on key macroeconomic variables. In this case such fluctuations would have a dramatic effect on total net

⁶ Data for Graph G is from the SNAPS National Income accounts.

exports to the UK. If Scotland were trying to maintain a currency peg to the Sterling and the price or quantity of oil being sold abroad fluctuated significantly this could mean that the amount of foreign currency reserves being accumulated could fall substantially. This, in turn, could lead to a speculative attack on the new currency and a subsequent currency crisis.

In the next section we will lay out an alternative scheme that will seek to mitigate any uncertainty surrounding credit contracts in the short-term while avoiding the potential long-term problems of maintaining either the Sterling or a currency peg to the Sterling.

Conclusion

In the preceding section we have outlined the key aspects of the FCWG report as they relate to establishing a sustainable monetary framework for Scotland. We found that the key reasons put forward as to why Scotland should maintain a currency union with the rest of the UK in long-run, namely to avoid exchange rate fluctuations and transaction costs, were not as important as the authors of the report claimed. We also found that even though Scotland and the UK do meet the criteria of an Optimal Currency Union this said nothing about whether it is in the best interest of Scotland to remain in said currency union.

When we examined the long-term implications of Scotland remaining in the currency union we found that if there were any significant negative fluctuations in the price or quantity of North Sea oil being extracted and sold this could have extremely deleterious effects on the government budget balance of Scotland. Such effects would cause Scotland to run substantial budget deficits in comparison to the rest of the UK and, taking the Eurozone as our example, we showed that this could lead to substantial political and macroeconomic instability.

Finally, our examination of the problems raised by outstanding credit contracts in the event that Scotland decided to issue its own currency vindicated the findings of the FCWG report. In the short-run any transition to an independent currency would raise serious problems for lenders and borrowers who hold assets and liabilities in Sterling. We also showed, however, that should Scotland peg its new currency to the Sterling identical problems would arise as we saw in the case maintaining the Sterling: if the value of North Sea oil exports fluctuated significantly this could undermine the peg and lead to a currency crisis.

In the next section we will outline a monetary framework that will insulate Scotland from both of these problems. The goal is to address both the long-run problems associated with maintaining a currency union with the rest of the UK while mitigating against any short-term risks associated with issuing a new currency. In doing so, we will outline a monetary framework that is truly fit for purpose.

4. A Robust and Sustainable Monetary Framework for an Independent Scotland

Introduction

In Section 3 we evaluated the monetary framework proposed by the FCWG. We saw that there was a strong case that an independent Scotland should maintain the Sterling in the short-term but that they should transition away from the Sterling in the long-term. The key reasons for this are that in the short-term the uncertainties surrounding credit arrangements and exchange rates require that an independent Scotland should maintain the Sterling, whereas in the long-term the need for a substantial degree of fiscal freedom and a flexible exchange rate require that an independent Scotland should aim to transition to a single currency.

In this section we will lay out a clear proposal that will allow an independent Scotland to navigate such a path. For the short-term we will provide a framework in which Scotland can remain in the currency union while avoiding the problems that many countries in the Eurozone have faced. For the long-term we will provide a framework through which an independent Scotland can gradually transition to a separate currency with a minimum of uncertainty.

A Third Way

In establishing a viable monetary framework for an independent Scotland the key considerations are those of sustainability and robustness. The framework must be sustainable insofar as it is not reliant on short-term fixes and it must be robust insofar as any unexpected economic shocks can be easily absorbed. As we showed in the last section the sustainability and robustness of a monetary framework for Scotland diverges in the short and the long-term. In the short-term the most sustainable and robust monetary framework is that which allows for outstanding debts that are denominated in Sterling to be serviced in a currency that is at par with Sterling. In the long-term, however, the most sustainable and robust monetary framework is that which can avoid major economic shocks that lead to degradations in the government fiscal balance.

The following proposal will work on the assumption that even though there is a divergence between the short-term and the long-term in terms of sustainability and robustness an independent Scotland can nevertheless manage this so long as they are willing to adhere to a two-phase transition plan. In the first phase of this plan the key goal will be to maintain the value of the currency used in Scotland at par with the Sterling to ensure that outstanding debts can be serviced. There are two ways of achieving this.

The first involves keeping the Sterling as a currency in the short-term while introducing innovative new financial instruments that ensure that government debts will be serviced without intervention by the central bank even in the case of a serious and unexpected degradation in the government fiscal balance. The second option is for Scotland to launch its own currency and maintain a fixed

exchange rate peg to the Sterling. As we shall see, however, this option brings with it problems of its own.

The second phase of the transition plan will be to gradually move Scotland onto a separate, freely floating currency. If Scotland were to issue its own currency pegged to the Sterling this would simply involve removing the peg gradually. Since, however, we will argue that launching a new currency immediately and initiating a peg is fraught with problems we will advocate that Scotland maintains the Sterling in the short-term. The best means to launch a separate currency while eliminating uncertainty will be to maintain a limited dual currency model in the first years of independence. In this system the Sterling will remain the main currency in use in Scotland but a separate currency will be issued in limited amounts at a local government level. This will allow the new currency to gain a stable value vis-à-vis the Sterling and will allow for a gradual transition to the new currency that will eliminate uncertainty.

Phase I: A Viable Short-Term Monetary Framework

In the short-term the key issue for Scotland will be ensuring that outstanding debts denominated in Sterling can be serviced. If Scotland were to issue its own currency and the value of this currency were to fall vis-à-vis the Sterling those who currently hold Sterling-denominated debt would find making the repayments extremely difficult. The Scottish government would also encounter substantial difficulties making repayments of their outstanding government debt. This can lead to a vicious circle where the higher debt repayments lead to further devaluation of the currency which leads to higher debt repayments. The end result can be substantial inflation or outright default. In extreme cases, such as in Weimar Germany after WWI, it can even lead to hyperinflation, although such a case is almost unheard of today.

One means of avoiding this is for Scotland to issue its own currency, establish an independent central bank and have the central bank peg the currency to the Sterling. In order to do this the central bank would be required to maintain ample Sterling reserves which could be used to buy up the new currency in the event that its price might fall. In order to accumulate these reserves Scotland would have to run trade surpluses with the rest of the UK. In Section 2 of the present paper we have seen that when oil and gas are included, Scotland does indeed run substantial trade surpluses today and has for many years. We have also seen, however, that these trade surpluses are reliant on oil exports to the rest of the UK. As we have shown in Sections 2 and 3, if the value of oil exports were to fall due to an unexpected shock Scotland would run large trade deficits. If Scotland were trying to maintain a peg to the Sterling and such a shock occurred they would be unable to maintain the peg in the face of trade deficits and market speculation, the peg would break and the currency would crash. In such a case we could see many negative results: bankruptcy, inflation etc.

The other means of avoiding a negative outcome with regards to the repayment of debts would be for Scotland to keep the Sterling in the short-term. While this is a better approach it has problems of its own. If Scotland were to maintain the Sterling and a shock occurred that reduced oil exports there would be no negative consequences for the exchange rate between Scotland and the rest of the UK. Thus there would be no serious negative consequences for debtors and there would be no inflation. As we showed in Sections 2 and 3, however, such a reduction in the value of oil exports

would lead to a substantial fall in tax revenue and the government fiscal deficit would increase. In such a scenario if the Bank of England were not willing to guarantee to purchase Scottish government debt in the secondary market the result would be an increase in interest rates and a sovereign debt crisis as we saw in the Eurozone in recent years. The Scottish government would then have to engage in self-defeating austerity programs and unemployment would increase enormously. Political tensions between Scotland and the rest of the UK would also become a serious issue.

In order to ensure that this does not happen there are two options available. The first, and simplest, is for the Scottish government to obtain a guarantee from the Bank of England that should such a scenario occur the Bank will be legally obligated to support the Scottish sovereign debt market. While this is an extremely simple solution recent events in the Eurozone suggest that central banks are reticent to play this role and Scotland will likely have considerable difficulty extracting such a guarantee. The other option is for Scotland to issue an innovative new financial instrument called tax-backed bonds (see: Mosler & Pilkington 2012 and Pilkington 2013).

Tax-backed bonds are a new financial innovation that allows countries in a currency union to assure creditors of the viability of their government debt without recourse to central bank funding. Tax-backed bonds are similar to normal government debt except they contain a clause that states that should the government not be able to meet its debt obligations creditors can use the expired bond to pay taxes within the country. This means that creditors will always be sure that the bonds are 'money good' and so will not seek higher interest rates in the event that the issuance of such bonds increases due to an unexpected shock.

In one of the paper establishing the viability of tax-backed bonds the present author noted that they would be extremely well-suited to the needs of an independent Scotland.

It has also recently become clear that tax-backed bonds might be applicable to problems faced outside of the Eurozone. Recently, commentators responding to proposed plans by the Scottish National Party to achieve Scottish independence have stressed the fact that if they were to keep the sterling as their currency they would potentially be subject to the same fiscal constraints as Eurozone member countries. Thus, in the case of a serious recession and a large increase in the budget deficit, Scotland would face the possibility of a European-style fiscal crisis, and would have to comply with whatever dictates the Bank of England, or possibly even the British government, made in order to have the central bank suppress yields. We propose, however, that the Scottish government could instead keep the sterling and issue tax-backed bonds. In this way, they would retain all the political and economic advantages of the sterling while at the same time preserving their fiscal sovereignty and avoiding any potential sovereign debt crises that might arise in the future. (Pilkington 2013, p4)

With tax-backed bonds in place Scotland would be in the position to maintain the Sterling without the political and economic risks associated with a currency union. They could maintain such a currency union while they establish their own currency on a limited basis and could gradually transition away from the union as the new currency established a stable value and debts were redenominated in this new currency. We now turn to this aspect of the proposal.

Phase II: A Viable Long-Term Monetary Framework

In the long-term it is in Scotland's interest to establish and maintain its own currency. As we saw in Section 3, the key objection to this was that separate currencies might inhibit trade. The empirical evidence on this, however, seems to indicate that such an effect may be minimal (Broda & Romalis 2011). Thus in the long-term Scotland would be far better placed if it had its own currency and that this currency should freely float on the foreign exchange markets. Having its own freely floating currency would ensure that the country would never experience a sovereign debt crisis as its central bank would be able to stabilise interest rates by buying sovereign debt in the secondary market as part of its monetary policy (see: Wray 1998). It would also ensure that should the trade balance ever deteriorate substantially the currency could be devalued to alleviate the unemployment caused. As we have already noted, the lessons learned in the Eurozone in recent years strongly suggest that countries that aspire to having independent fiscal policies should maintain their own currencies.

The key problems that Scotland will face when issuing its own currency are (a) the uncertainty with regards to the initial exchange rate and (b) establishing institutional arrangements that allow the currency to be accepted as a means of payment. In order to overcome these difficulties we advocate that Scotland issue its new currency gradually. In order to do so they should begin paying local government workers some percentage of their salaries in the new currency. A provisional number for the starting figure may be around 15% of their salaries. While the new currency would be allowed to freely float the salaries would nevertheless be indexed to the Sterling. If, for example, the new currency lost 10% of its value vis-à-vis the Sterling then the Scottish government would have to increase the amount being paid to local government workers in the new currency by the same amount. In this way the government would ensure that these workers' salaries do not increase and decrease based on fluctuations in the new currency.

In order to generate instantaneous demand for the new currency local governments would also be obliged to accept it in the payment of taxes. In this way, even if the local government workers could not initially use the new currency to purchase goods and services in private businesses they could simply use the portion of their salary paid in the new currency to extinguish their tax liabilities at the end of the year. Private businesses, however, would quickly come to see that the new currency had real value insofar as it could be used to pay taxes and would soon accept the new currency as a means of payment. This process could be greatly accelerated if the Scottish government mandated that private businesses had to display prices in both Sterling and the new currency. It would be further accelerated if the Scottish government mandated that banks within Scotland had to accommodate the new means of payment.

Once the currency began to enter the payments system in the economy it would also begin to gain a stable market value. This stable market value would then signal to the Scottish government the relative strength of their currency. Based on this benchmark the Scottish government could speed up or slow down the amount of new currency circulating by mandating local governments to increase or decrease the amount of local government workers salaries being paid in the new currency. Other benefits could then be compensated in the new currency – such as state pensions, tax rebates and welfare payments.

Initially the new currency could be issued by the Scottish central bank with no debt-backing and distributed to local governments according to a plan set out by the Scottish government. As the issuance increased, however, the Scottish government may decide that they should sell bonds prior to the issuance of more currency. In such a case either the central bank could issue the bonds directly or the Scottish government could issue them alongside the Sterling-denominated tax-backed bonds laid out in Phase I of this proposal. In either scenario the bonds could be sold to raise either Sterling reserves or quantities of the new currency but would only make repayments in the new currency.

After a period we anticipate that this dual currency framework would stabilise and when the Scottish government deemed it safe they could gradually move off the Sterling completely and transition to the new currency. They would do this by making all their payments and receiving all their tax revenue in the new currency only. As the Bank of England ceded its role as the issuer of the currency of Scotland the newly empowered Bank of Scotland would begin to undertake all the functions now undertaken by the Bank of England, such as the setting of monetary policy and the maintenance of system-wide liquidity. Monetary operations could gradually move away from using Sterling-denominated bonds to remove reserves from the banking system and toward using bonds denominated in the new currency.

Alternatively, the Bank of Scotland could simply pay Interest on Reserves (IoR) in order to hit its monetary policy target. This innovative new approach has already been undertaken with great success by the Bank of England and the Federal Reserve (SF Fed 2013). This would also eliminate the need for the Scottish government to issue sovereign debt altogether. Some economists, however, may feel that this option would eliminate constraints on the Scottish government to engage in deficit spending and might lead to inflation. While these considerations may be ill-founded given that in all monetary regimes with an independent central bank that aims at a monetary interest rate target governments are not financially constrained, if this is a serious issue for policymakers government debt can easily be issued to ensure that the Scottish monetary regime is of a kind that economists have long been familiar with.

Conclusion

In this section we have laid out a two-phase proposal that will ensure an independent Scotland can establish a monetary framework that is robust in both the short-term and the long-term. In order to succeed at this we suggest that they maintain the Sterling in the short-term while transitioning to a new currency in the long-term using a sophisticated dual currency framework that utilises local government spending and taxation to introduce the new currency and establish its value. In order to avoid the potential pitfalls of maintaining the Sterling in the short-term we have suggested that the Scottish government either obtains a guarantee from the Bank of England that they will stabilise government debt markets in the case of an unforeseen shock or, if such support is not forthcoming, we have recommended that the Scottish government issue an innovative new security: the tax-backed bond.

Taking this approach we are confident that Scotland can establish a monetary regime that meets the two criteria laid out at the beginning of this section: namely, sustainability and robustness. With

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such a monetary framework in place Scotland will have amply flexibility with regards to its fiscal policies and will be able to weather many crises that cause havoc in full currency unions. The lessons of the Eurozone crisis as it has played out in the past few years should be front and centre in any policymakers mind when contemplating the viability of monetary regimes. The approach laid out above takes these lessons to heart and seeks to establish a monetary framework that will not fall prey to the policy blunders of the past.

5. Summing Up

In this report we have examined all the relevant aspects of the Scottish economic situation as the country moves towards elections over their independence later this year. In the Section 2 we saw that, while Scotland is an extremely wealthy country, the stability of its macroeconomy is heavily dependent on oil and gas revenues. These revenues are subject to substantial price and quantity fluctuations and these fluctuations may lead to short-term imbalances in the Scottish government budget and trade balances. These imbalances may lead to a wide range of problems for Scotland if an adequately flexible macroeconomic framework is not in place to deal with them.

In Section 3 we examined the FCWG's macroeconomic report. We saw that the FCWG was likely overstating the case that Scotland should maintain the Sterling. In reality, Scotland would be better off adopting its own currency in the long-term. We also noted that if Scotland were to maintain the Sterling it may not be able to deal with the potential imbalances caused by fluctuations in oil and gas revenues that we outlined in Section 2. Finally, we noted that the FCWG report was entirely correct in highlighting the potential problems that adopting a new currency might raise for debtors whose debt is denominated in Sterling.

In Section 4 we outlined a completely new approach to Scottish economic independence. We advocated a combination of long-term and short-term measures. We stated that Scotland should keep the Sterling in the short-term to deal with the issue raised by the FCWG with regards to debtors but should put in place a new financial innovation called tax-backed bonds to mitigate the potential for fiscal crisis in the case of short-term oil and gas revenue fluctuations. We then advocated that Scotland should begin to issue its own currency at a local level immediately after it had gained independence. This could be done by a combination of measure; most notably: issuing the currency gradually to local state workers while indexing their salaries to the Sterling; accepting the new currency for the payment of taxes; and mandating that businesses price items in both the Sterling and the new currency.

In conclusion, Scotland is a wealthy country. In order to maintain this wealth the country must transition away from their dependence on oil and gas revenues. While it is outside of the scope of the present paper, in order to do this Scotland requires greater fiscal and monetary sovereignty. But such greater fiscal and monetary sovereignty should not come at the expense of macroeconomic stability. Scotland can make the transition while avoiding such instability but only if they are willing to construct a viable macroeconomic structure for the transition.

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