

Levy Economics Institute of Bard College

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# ***Public Policy Brief***

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No. 134, 2014

## **A SUSTAINABLE MONETARY FRAMEWORK FOR AN INDEPENDENT SCOTLAND**

PHILIP PILKINGTON

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## Preface

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This September, voters in Scotland will decide whether to break away from the United Kingdom. If supporters of independence carry the day, pivotal choices that affect the scope of Scotland's economic sovereignty and its future relationship to the UK will need to be made, particularly with respect to the question of its currency. As the disaster in the eurozone makes clear, it is essential to get these arrangements right.

In this policy brief, Philip Pilkington outlines a monetary framework designed to meet the macroeconomic challenges that would be faced by a newly separate Scotland. His conclusion: while it would be in Scotland's best interests to continue using the sterling in the short run, making the transition to issuing its own currency would place the country on a more stable economic footing in the long run.

Pilkington's analysis underscores the role of oil and gas revenues in Scotland's macroeconomic stability. Although it is a wealthy country, its trade and government budget balances are buttressed by its share of North Sea oil and gas. Fluctuations in oil prices or productive capacity can thus produce considerable short-term macroeconomic imbalances in Scotland. This is the background against which Pilkington lays out his two-phase, postindependence transition plan.

A 2013 report commissioned by the Scottish government that examined these issues warned that introducing a new currency could create uncertainty surrounding outstanding credit contracts denominated in sterling. On this point, Pilkington concurs that maintaining the sterling is the proper (short-term) course of action. However, he notes that during this early phase the country would find itself in a tenuous position, similar to that of a country in the eurozone periphery. If, due to volatility in oil revenues, the Scottish government's budget balance were to deteriorate in relation to the UK's, Scotland would be at risk of a sovereign debt crisis, with ever-rising interest rates, or at the mercy of whatever conditions the UK government might impose should it choose to intervene in a rescue effort. We have seen how this played out in the eurozone periphery—and it is a fate Scotland would do well to avoid. The challenge in this first phase, then, is to prevent a eurozone-style crisis while outstanding debts are serviced and redenominated. Pilkington's stopgap solution is the introduction of “tax-backed bonds,” a financial innovation

he has proposed in previous Levy Institute publications. These are financial instruments that could be used to pay tax liabilities to the Scottish government, should the government default.

Ultimately, Pilkington would have Scotland transition away from the sterling to issue its own, freely floating currency. Fiscal freedom and exchange rate flexibility, he argues, would ensure that the Scottish government would not face a sovereign debt crisis—as the government could always make payments on debt denominated in its own currency, while its central bank would be able to stabilize interest rates—and allow Scotland to devalue in the face of unemployment caused by a deteriorating trade balance.

The central challenge in this second phase is the uncertainty that would be created by the introduction of the new currency. Pilkington recommends a gradual transition involving a “dual currency” period. The new Scottish currency would initially be issued by local government in limited amounts. To establish demand for the currency, local government would be required to accept it in payment of taxes, and acceptance of the new currency as a means of payment could be facilitated by requiring businesses to display prices in both currencies. Eventually, the transition away from the sterling would require government to make all payments and receive all taxes in the new Scottish currency.

The design flaws evident in the euro project ought to be foremost in policymakers' minds as they consider Scotland's potential future. An independent Scotland that commits to using the sterling as anything more than a transitional arrangement would find itself with a framework similar to that of a eurozone member-state, featuring a separation of fiscal policy from a sovereign currency. If the flaw in the euro project is that its union is unfinished, the mistake in eschewing a new currency if voters choose independence would lay in not dissolving the union completely enough. In both cases, it is the resulting separation between fiscal and monetary sovereignty that has led, or will lead, to a monetary framework that is neither “robust” nor “sustainable,” in Pilkington's terms.

As always, I welcome your comments.

Dimitri B. Papadimitriou, *President*  
June 2014

## 1. Introduction

On Thursday, September 18, 2014, the Scottish people will go to the polls to make a historic decision: should they or should they not remain in the United Kingdom? Even if the majority votes to remain in the UK, this issue is unlikely to evaporate. As we shall 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 North Sea oil, the Scottish economy has become dangerously reliant on oil and gas revenues. While Scotland is quite wealthy even without these revenues, they have become a key pillar in the stabilization of the Scottish macroeconomy. The amount that the 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. 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 macroeconomic stability report of the Scottish government's Fiscal Commission Working Group (FCWG) 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 policy brief. 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

Providing an overview of the Scottish macroeconomy presents substantial challenges, as the available data are 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 the likely challenges that a newly independent Scotland would face from the standpoint 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, while in section 4 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 FCWG report, the gross value added (GVA) per capita is 99 percent of the UK average—the highest in the UK outside London and the southeast even if we exclude oil and gas revenues. The report also notes that the economy is some 20 percent larger if we include oil and gas revenues (FCWG 2013, 37). 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 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 the lack of economic performance (Scottish Government 2013). In what follows, we are not concerned with evaluating why the Scottish economy has underperformed for the past 30 years. Instead, we wish to evaluate the structure of the Scottish macroeconomy in order 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 balances approach was used by the late British economist, forecaster, and Levy Institute Distinguished Scholar Wynne Godley to make forecasts about the US and UK economies that warned of an unsustainable buildup in private sector debt in the years leading up to 2008 (Godley 1999). Today, it has found favor 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 accounting, and they are as follows:

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

$$Y = C + S + T$$

The first equation represents total income / GDP ( $Y$ ) from the perspective of aggregate expenditure, while the second represents total income / GDP from the perspective of aggregate income. Substituting the two equations into each other, canceling out the consumption variable ( $C$ ), and rearranging, we get:

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

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. (Godley 1999, 4)

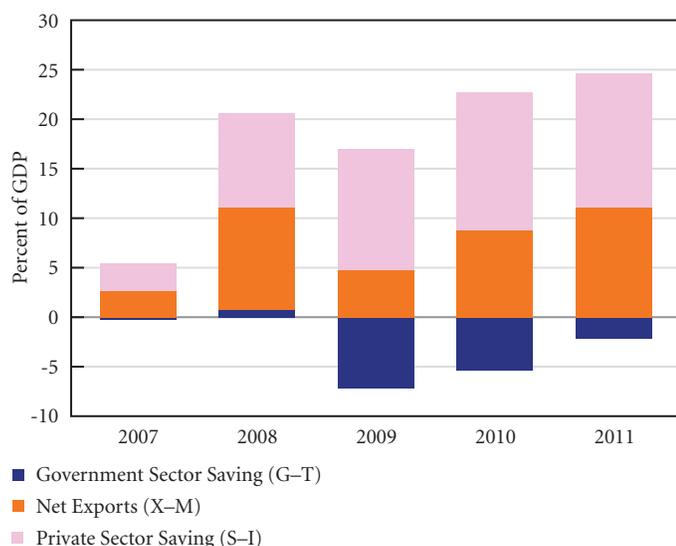
Using data from the National Income and Product Accounts (NIPA), we can generate numbers for each of the variables listed. We can then examine the resulting graph in order to determine if there may be “unsustainable processes” potentially at work.

Figure 1 lays out the sectoral balances for the Scottish economy, including the geographical share of oil and gas.<sup>1</sup> These balances give us a picture of a healthy and well-balanced macro-economy. 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 exclude oil and gas revenues, as we can see in Figure 2. When oil and gas revenues are removed the current account falls into extremely negative territory and the government budget balances begin 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.

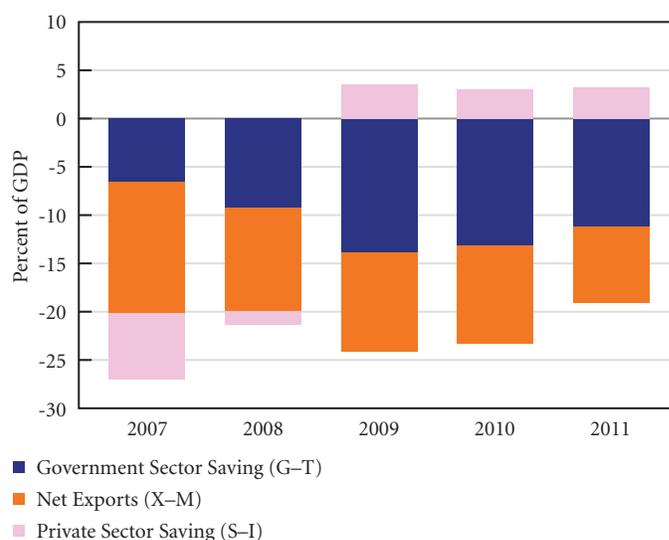
What these graphs tell us is that it would be extremely hazardous for Scotland to consider gaining greater fiscal independence

**Figure 1 Scottish Sectoral Balances, including Geographical Share of Oil and Gas, 2007–11**



Source: Scottish Government Statistics Office, NIPA

**Figure 2 Scottish Sectoral Balances, excluding Oil and Gas, 2007–11**



Source: Scottish Government Statistics Office

without access to its geographical share of oil and gas. Attempting to do so would leave the country open to either a sovereign debt crisis (if it were to keep the sterling) or a currency crisis (if it were to issue its own currency).

The risk of a sovereign debt crisis would arise if an independent Scotland maintained a foreign currency, the British pound 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—which would likely demand substantial austerity measures from the Scottish government.

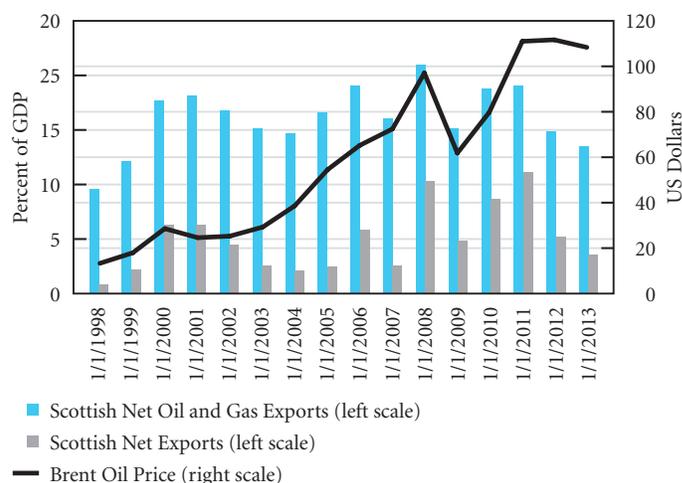
The risk of a currency crisis would arise if Scotland launched its own currency. In such a scenario, Scotland would be able to fund its government deficits by having the newly sovereign Scottish central bank purchase government debt. Foreign investors, however, would be confronted with substantial current 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 its geographical share of oil and gas—that is, in the case of a “balanced” macroeconomy as shown in Figure 1. This is because the price of oil and gas may be subject to substantial fluctuations. Likewise, the quantity sold, due to fluctuations in either supply or demand, may vary significantly. We now turn to examine just how volatile Scotland’s oil and gas revenues may be, and consider how such volatility might put the Scottish macroeconomy at risk if a sufficiently robust and flexible macroeconomic framework were not in place.

### Volatility in Scottish Oil and Gas Revenues

As we saw in the previous section, oil and gas revenues buttress Scotland’s macroeconomy. If they were to disappear, the impact on the structure of the Scottish economy would be substantial, turning it from a robust, healthy economy into a debt-laden, impoverished one. 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 could lead to short-term imbalances in the Scottish macroeconomy. We will explore the effects these short-term imbalances might have in the next section, where we will argue that their existence poses considerable

**Figure 3 Scottish Exports vs. Brent Oil Price, 1998–2013**



Sources: Scottish Government Statistics Office; Federal Reserve Bank of St. Louis

problems with regard to the optimism inherent in the FCWG’s report. Here, however, we will seek merely to briefly elaborate on how sensitive the Scottish macroeconomy is to fluctuations in oil and gas revenues.

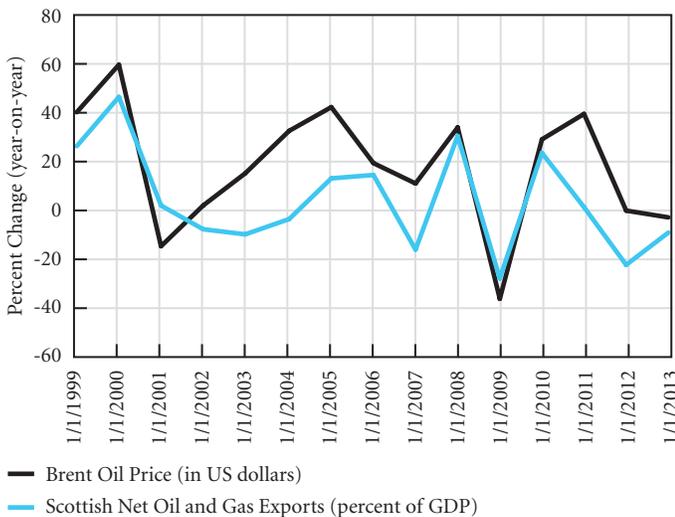
In Figure 3, we chart the Brent oil price against Scottish net exports and Scottish net oil and gas exports, both measured as a percentage of Scottish GDP.<sup>2</sup> This graph allows us to get an idea of the effect that net oil and gas imports have on the overall balance of Scottish trade, while at the same time accounting for the effect that changes in the oil price have on both of these variables.

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 increases are driven by net oil and gas exports. The causality thus runs as follows:

$$\text{Oil Price Fluctuation} \Rightarrow \text{Fluctuation in Net Oil and Gas Exports} \\ \Rightarrow \text{Fluctuation in Net Exports}$$

We 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 chart this alongside the percentage year-on-year change in net oil and gas exports. This relationship is shown in Figure 4. 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 price,<sup>3</sup> but it also suggests that in

**Figure 4 Brent Oil Price vs. Scottish Oil and Gas Net Exports (percent change, year-on-year), 1999–2013**



Sources: Scottish Government Statistics Office; Federal Reserve Bank of St. Louis

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 have only a once-off effect on total net exports, while GDP tends to grow every year. Thus, in order for oil and gas exports to ensure that the trade balance (as measured as 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, then the price must climb continuously. If the oil price declines, or fails to increase, 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.

### Conclusion

Scotland is a wealthy country even if its geographical share of oil and gas is not taken into account. However, the manner in which the Scottish economy is structured, 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, there is strong evidence to suggest that the trade balance and the

government budget balance will be subject to strong fluctuations in coming years. In the next section we will consider the implications of these fluctuations, while in section 4 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

In this section we will evaluate the monetary framework laid out in the FCWG’s 2013 report. We shall take the FCWG framework as a base case for two reasons. First of all, this is the clearest and best articulated monetary framework that currently exists. Second, although the Scottish government is not tied to the FCWG’s monetary framework, we assume, since the government commissioned the report, that it will be the basis of any future debates surrounding the issue should the Scottish public vote in favor of independence.

#### 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, it is probably in the country’s best interest to maintain the sterling in the short term (FCWG 2013, 123).

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

1. The UK is an integrated trade bloc, and retaining a single currency would ensure exchange rate stability and promote trade.
2. 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.
3. Scotland and the UK meet the criteria for being an optimal currency area due to a shared language and similar wage and prices structures.
4. Both economic performance and the business cycle are broadly aligned in Scotland and the UK.

5. 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 speak to the desirability of a currency union between Scotland and the UK or merely to its viability. It is, in fact, only the first two conditions that say anything about the desirability of such a union. We will now examine each of the above conditions in more or less detail, depending on their relative importance and implicit assumptions.

### *Trade*

The first two conditions 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, for reasons of 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 skewed by aggregation bias—specifically, not taking into account the geographical distances between various countries (Broda and Romalis 2011), and the fact that advanced economies have substantial financial systems that allow exporters and importers to mitigate risk (Héricourt and Poncet 2012).

These more recent studies find that while exchange rate volatility and transaction costs may depress trade, this is likely to be much more of an issue in developing countries that are geographically far from their trading partners than it is 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, should Scotland adopt a single currency, the effects of exchange rate volatility and transaction costs on trade would be minimal in comparison to other countries. For Scottish exporters, the benefits from a flexible exchange rate would, on balance, 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 emphasize that the final three points in the FCWG report 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 meet the OCA criteria, but there may be very good reasons why these countries are better off having a greater rather than a lesser degree of monetary sovereignty. In short, the fact that Scotland and the UK meet these criteria says nothing about whether or not they should 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 the authors can argue in favor of the long-run viability of a currency union between the two countries. The report makes clear that this is an absolute prerequisite for a successful monetary union:

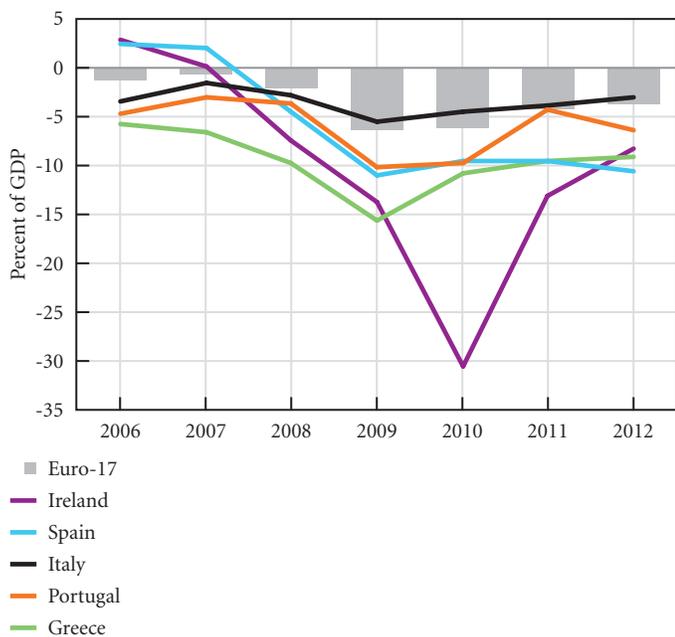
A monetary union means that there will be one interest rate and exchange rate for the entire economic union. This requires broad alignment of business cycles (close enough to enable fiscal policy to smooth any divergences) and similar economic structures so that changes to the common monetary policy have similar effects across the monetary union. (FCWG 2013, 125)

### *Lessons from the Eurozone Crisis*

Toward the end of its report, the FCWG (2013, 197–98) notes that in the euro area the business cycle was not broadly aligned between members. This was a key reason why the eurozone crisis occurred. When the recession of 2007–08 hit, it affected the economies of the different euro-area countries in vastly different ways. Figure 5 shows the evolution of government budget balances across the eurozone during that recession.

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. This was because the business cycles in these countries widely diverged from one another 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.

**Figure 5 Eurozone Government Budget Balances, 2006–12**



Source: Eurostat

This divergence had substantial implications for how the European authorities responded. As deficits in the peripheral countries opened up, populations in the core countries began to see their neighbors as being profligate, and their elected representatives began to insist on punitive and counterproductive austerity measures in the periphery. Meanwhile, the monetary authorities at the European Central Bank (ECB), presumably under substantial political pressure themselves, initially refused to intervene to stabilize either the financial systems or the government debts of various eurozone members. This situation 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 that 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 (FCWG 2013, 130–31), but in doing so they overlook 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.

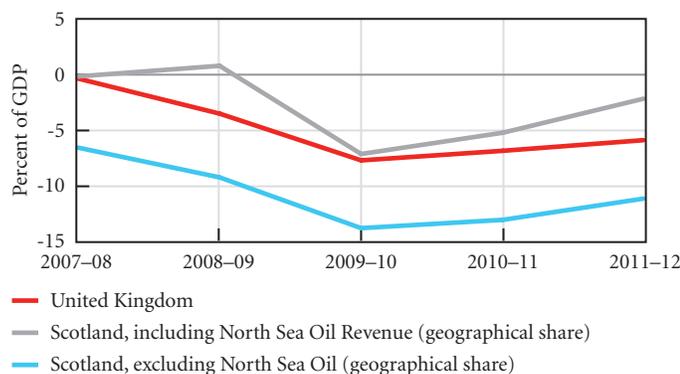
#### *Scotland's Budget Balance and North Sea Oil Revenues*

The authors of the 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. (FCWG 2013, 157)

Despite recognizing both the volatility of these revenues and the fact that they will decline as North Sea oil output declines, the report's authors nevertheless do not seem to take this into account when considering possible shocks to Scotland's budget balance should the country enter a currency union with the UK. If the potential for shocks to oil revenues is taken into account, the potential divergence between the fiscal positions of both nations becomes far more open to uncertainty. Figure 6 charts the Scottish net fiscal balance as a percentage of GDP, inclusive and exclusive of North Sea oil revenues, against the UK net fiscal balance as a percentage of GDP. This can be examined in conjunction with Figures 1 and 2 in order to consider the effects that oil and gas revenue fluctuations might have on the Scottish government budget balance.

**Figure 6 Government Budget Balance as a Percentage of GDP, 2007–12**



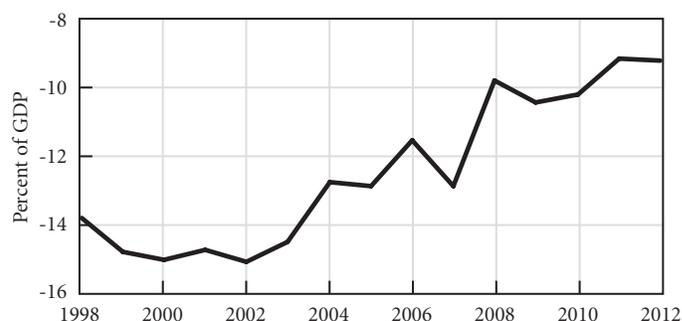
Source: Government Expenditure and Revenue Scotland

As can be seen from Figure 6, and in keeping with what we saw in section 2 above, 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 have seen in the eurozone in recent years. Of course, North Sea oil revenues are not going to simply disappear in the coming years, but we must nevertheless 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, any large negative price shocks or negative productive shocks to the oil market could lead to a substantial deterioration of the Scottish budget balance vis-à-vis that of the UK, via a decrease in tax revenues. Second, as the FCWG report notes, North Sea oil is a scarce commodity, and exploration of new fields will be subject to diminishing returns. In order to continue to keep its budget balance in line with that of 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 recognize that this is not absolutely certain. For this reason, the government should prepare as best it can for any future contingencies.

If Scotland’s budget balance were to deteriorate significantly vis-à-vis the UK’s, 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 interventions, political tensions would rise and provoke policymakers to push for

**Figure 7 Net Exports to Rest of UK, excluding North Sea Oil, 1998–2012**



Source: Scottish National Accounts Project, NIPA

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*

As the FCWG report points out, if Scotland were to issue its own currency, creditors and debtors who currently hold assets and liabilities denominated in sterling would find themselves in a position of substantial uncertainty. Because we do not know the exchange rate between any future Scottish currency and the sterling, the status of any contract taken out in the latter cannot be known in advance, and this could have enormous implications for the working of the credit system.<sup>4</sup>

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 its 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 its own currency and peg it to the sterling, it would be able to accumulate sufficient sterling reserves to maintain the peg. However, if we do not include North Sea oil exports to the rest of the UK, we find that Scotland runs a substantial trade deficit with the rest of the UK, as shown in Figure 7. 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 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, 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 seeks 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 outlined the key aspects of the FCWG report as they relate to establishing a sustainable monetary framework for Scotland. We found that the main reasons put forward as to why Scotland should maintain a currency union with the rest of the UK in the long run—namely, to avoid exchange rate fluctuations and transaction costs—are not as important as the authors of the report claim. We also found that even though Scotland and the UK do meet the criteria of an optimal currency union, this says 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 any significant negative fluctuations in the price or quantity of North Sea oil being extracted and sold could have extremely deleterious effects on the government budget balance. Such effects would cause Scotland to run substantial budget deficits in comparison to the rest of the UK, which could lead, as in the eurozone, 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 pegging a new currency to the sterling would give rise to the identical problem we saw in the case for maintaining the sterling; namely, that significant fluctuations in the value of North Sea oil exports 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 the long-run problems associated with maintaining a currency union with the rest of the UK while mitigating any short-run risks associated with issuing a new currency. In doing so, we will achieve an overarching framework that is truly fit for purpose.

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

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 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 would 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 could 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 its ability to easily absorb any unexpected economic shocks. As we showed in the previous section, the sustainability and robustness of a monetary framework for Scotland diverges in the short and long terms. In the short term, the most sustainable and robust monetary framework is that which allows for outstanding debts 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 works on the assumption that even though there is a divergence between the short and long runs in terms of sustainability and robustness, an independent Scotland could nevertheless manage this so long as it were willing to adhere to a two-phase transition plan. In the first phase of this plan the key goal would be to maintain the value of the currency used in Scotland at par with the sterling in order 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 can 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 proposed transition plan is 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 would be fraught with problems, we will advocate that Scotland maintain the sterling in the short term. The best means to launch a separate currency while eliminating uncertainty would be to maintain a limited dual-currency model in the first years of independence. In this system, the sterling would remain the principal currency, but a separate currency would be issued in limited amounts at the local government level. This would allow the new currency to gain a stable value vis-à-vis the sterling, and for a gradual transition to the new currency that would 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 payments on 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 World War I, 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 fell. In order to accumulate these reserves Scotland would have to run trade surpluses with the rest of the UK. As we saw in section 2 above, when oil and gas are included, Scotland does indeed run a substantial trade surplus 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. 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 and inflation among them.

The other means of avoiding a negative outcome with regard 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 saw 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 similar to that in the eurozone. 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 did 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 would 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 would likely have considerable difficulty extracting such a guarantee. The other option is for Scotland to issue an innovative new financial instrument called the tax-backed bond (see Mosler and Pilkington 2012; Pilkington 2013).

Tax-backed bonds are a 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; however, they contain a clause stating 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 papers 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, 4)

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. It could maintain such a currency union while establishing its own currency on a limited basis, and gradually transition away from the union as the new currency established a stable value and debts were redenominated. 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, however, seems to indicate that such an effect may be minimal (Broda and Romalis 2011). Thus, in the long term Scotland would be far better placed if it had its own currency, and 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 stabilize 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 currency.

The key problems that Scotland would face in issuing its own currency are (1) the uncertainty with regard to the initial exchange rate and (2) establishing institutional arrangements that would 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 it should begin paying local government workers some percentage of their salaries in the new currency—let’s say 15 percent as a provisional starting point. 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 percent 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 did 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 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 salaries paid in the new currency to meet 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, 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 its currency. Based on this benchmark, the Scottish government could speed up or slow down the amount of new currency circulating by mandating that local governments increase or decrease the amount that local government workers are 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 could decide that it 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 payments for goods and services in its new currency.

We anticipate that this dual currency framework would stabilize after a period, and, once the Scottish government deemed it safe, the country could gradually move off the sterling completely and transition to the new currency. It would do this by making all of its payments and receiving all of its tax revenue in the new currency. 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 of the functions now

undertaken by the Bank of England, such as setting monetary policy and maintaining 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 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 US Federal Reserve; see FRBSF 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. These considerations may be ill founded given that any government with a monetary regime featuring an independent central bank that aims at a monetary interest rate target is already financially unconstrained. But if this were a serious issue for policymakers, government debt could easily be issued in order to ensure that the Scottish monetary regime was of a kind that economists have long been familiar with—that is, one in which immediate funding needs are met through the issuance of government debt in the primary market, which is then purchased in the secondary market in order to stabilize the overnight interest rate.

### *Conclusion*

In this section we have laid out a two-phase proposal that would ensure that an independent Scotland could establish a monetary framework that was robust in both the short and the long term. In order for this to succeed, we suggest that Scotland maintain the sterling in the short term while transitioning to a new currency in the long term, using a sophisticated dual-currency framework that would utilize 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, the Scottish government should either (1) obtain a guarantee from the Bank of England that it will stabilize government debt markets in the case of an unforeseen shock; or (2), if such support is not forthcoming, issue an innovative new security: the tax-backed bond.

We are confident that, taking this approach, an independent Scotland could establish a monetary regime that meets the two criteria laid out at the beginning of this section: namely, sustainability and robustness. With such a monetary framework in place, Scotland would have ample flexibility with regard to its fiscal

policies and be able to weather the many crises that can cause havoc in full currency unions. The lessons of the eurozone crisis should be front and center in any policymaker's mind when contemplating the viability of monetary regimes. The approach outlined 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 toward elections over their independence later this year. In 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 that 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, and found 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.

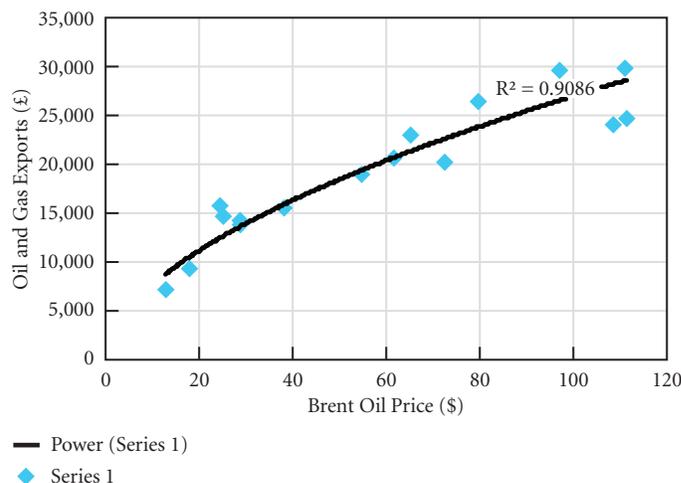
In section 4 we outlined a completely new approach to Scottish economic independence, advocating a combination of long-term and short-term measures. We stated that Scotland should keep the sterling in the short term to deal with the issue raised by the FCWG with regard to debtors but should put in place a new financial innovation called tax-backed bonds to mitigate the potential for fiscal crisis in the case of short-term fluctuations in oil and gas revenues. We then advocated that Scotland should begin issuing its own currency at a local level immediately after gaining independence. This could be done through a combination of measures; most notably, by 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, it must transition away from its dependence on oil and gas revenues. While it is outside the scope of this brief, Scotland requires greater fiscal and monetary sovereignty in order to do this. 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 it is willing to construct a viable macroeconomic structure for the transition.

### Notes

1. All data are taken from the Scottish Government Statistics Office database. Trade data in the NIPA accounts is supplemented by an experimental series on oil and gas exports published by the Statistics Office in February 2014.
2. Export data are taken from the Scottish National Accounts Project, while the Brent oil price is taken from the Federal Reserve Bank of St. Louis's extensive statistics database.
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 0.909 (Figure 8). Again, this indicates that price fluctuations are

**Figure 8 Total Scottish Oil and Gas Exports vs. Brent Oil Price**



Sources: Scottish National Accounts Project; Federal Reserve Bank of St. Louis; author's calculations

the main variable in any explanation of 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 percent margin.

4. It might be argued that we can forecast the future exchange rate of a Scottish currency using a model based on purchasing power parity (PPP). However, these models have fared poorly in the past. In an extensive study, Meese and Rogoff (1983) showed that PPP models did not perform any better than a simple random walk model, thus proving that modeling exchange rates is deeply problematic and likely to produce spurious results.

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