

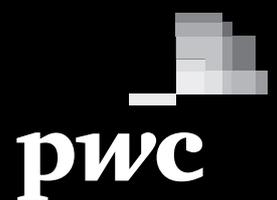


University of  
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Business  
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# Fraser of Allander Institute **Economic Commentary**

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## Notes to contributors

The editors welcome contributions to the Economic Perspectives section. Material submitted should be of interest to a predominately Scottish readership and written in a style intelligible to a non-specialist audience. Contributions should be submitted to Cliff Lockyer [c.j.lockyer@strath.ac.uk](mailto:c.j.lockyer@strath.ac.uk)

Articles accepted for publication should be supplied electronically and conform to the guidelines available from Isobel Sheppard [fraser@strath.ac.uk](mailto:fraser@strath.ac.uk)

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# Outlook and appraisal

## Overview

In the June Commentary we stressed that the Scottish economy was threatened with stagnation as the rate of recovery slows. This threat is even more real today than it was then. Growth has continued to weaken in the global economy and is weaker in the UK and Scottish economies too. The UK economy has effectively stagnated over the last year, growing by only 0.5%. In Scotland growth was flat between April and June and business surveys suggest continuing weakness in the third quarter. The UK has recovered more strongly than Scotland, by nearly 3% compared to around 1% to 2% in Scotland, even though the recovery is weak overall. There is little comfort in the latest GDP data for both Scotland and the UK. This is underlined by the latest US real GDP figures which reveal an annualised growth rate of 2.5% for the third quarter of this year. Growth in the US is still weak by the standards of previous recoveries and insufficient to make much of a dent in the high levels of unemployment. Yet, it is notable that with the latest quarter's results, GDP in the US economy moved back above its pre-recession peak output, whereas the UK and Scotland are still - in the second quarter - 5% and 4%, respectively, below their pre-recession GDP. It will not go unnoticed that, unlike the UK, the US has only recently adopted an austerity programme, which has yet to kick in. We therefore welcome the Bank of England's decision to undertake a further expansion of the money stock through quantitative easing and note that there is still scope for some fiscal easing without damaging our fiscal credibility in the long-term.

Added to this are the consequences of the problems in the Eurozone which are affecting business confidence and if there is a disorderly Greek default will have damaging consequences for Scottish exports, investment and household spending as bank

lending contracts further. The problems become much greater if there is a prospect of an Italian default, which, if it occurred, would probably throw the world economy into a recession as big, if not bigger than the Great Recession that started in 2008. On a gloomy note we consider that there is not a high probability that the Eurozone problems will be quickly resolved. Even if some headway is made in creating a sustainable financing mechanism for those member countries that are finding it difficult to fund their sovereign bonds at reasonable rates, such as the ECB becoming a full lender of last resort like any other central bank, there is still the issue of adjustment to deal with if the problems are not to recur. Peripheral member countries need to improve (lower) their prices and costs relative to Germany on a sustained basis. Being members of a currency union precludes own currency devaluation so the periphery must adjust by a relative internal deflation of wages and prices of significant proportions. We are not sanguine that this can be achieved without a higher level of inflation in the EZ core - Germany especially - being tolerated and that looks unlikely. The future of the present Eurozone looks bleak.

Against this background we are forecasting GDP growth of 0.4% this year, and 0.9% in 2012 compared to our June forecast of 0.8% and 1.5%, respectively. Our research on previous forecast errors – see the paper by Grant Allan – suggests the lower and upper bounds for growth in 2011 are expected to be 0.1% and 0.7% and for 2012, 0.4% and 1.4%. Forecasts for the UK have also been reduced by independent forecasters, reflecting the weakening in the UK and global economies. So, overall, we are projecting weaker growth than previously and continuing weaker recovery than the UK.

In the labour market we note the strong contribution of part-time employment to the recent recovery in jobs. On our central forecast, net jobs grow by 0.2% in 2011, 0.4% in 2012 and 0.7% in 2013. By end 2013 total employee jobs are forecast to be

2,324,000 around 80,000 fewer than at the end of 2008 but up by 60,000 from the end of 2009, and up by 30,000 from the end of 2010. By sector, the largest absolute growth in job numbers is forecast for the production sectors in 2011 (2,400 against 2,250), but in services in 2012 (4,950 against 3,400 in production) and 2013 (9,350 against 6,100). Few jobs are created in construction or in agriculture over the forecast horizon. Unemployment, on the preferred ILO measure is forecast to rise to 8.3%, or 219,800 by the end of this year, rising further to 234,800 or 8.9% by the end of 2012. After that, the numbers unemployed will fall only slightly to 231,550 by the end 2013 but the rate stays the same at 8.9%.

### Recent GDP performance

The latest quarterly growth data from the Scottish government for the second quarter 2011 reveal that GDP grew by 0.1%, the same as in the UK. Hence, growth was largely flat between April and June in both Scotland and the UK and weaker than in the first quarter where growth is now estimated to have been 0.2% - see Figure 1.

Over the year to the second quarter GDP growth was weaker in Scotland with net output growing by 1.1% compared to 1.5% in the UK.

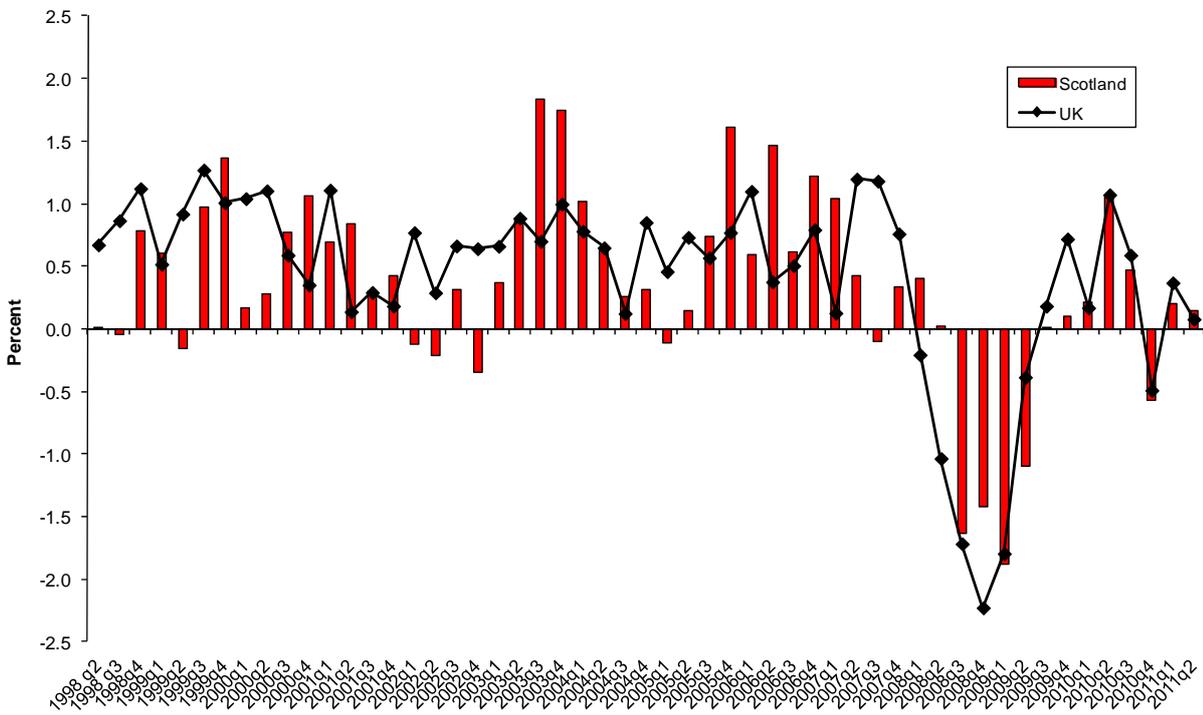
There was a boost to Scottish growth from a strong performance of Electricity, Gas Supply, with growth of just over 15% compared to a fall of -1.7% in the sector in the UK. But the sector only contributes about 2% to overall GVA. Both the major Services sector (73% of the economy) and Construction (8% of the economy) were weaker in Scotland compared to their UK counterparts in the quarter see Figures 2 and 3.

Services grew by 0.1% in Scotland but by 0.2% in the UK, while Construction contracted by -2.3% in Scotland but grew by 1.1% in the UK. Over the year, Service sector growth was weaker in Scotland at 0.1% compared to growth of 1% in UK Services. In contrast, Construction performance was stronger in Scotland with growth of 11.8% compared to 7.3% in the UK.

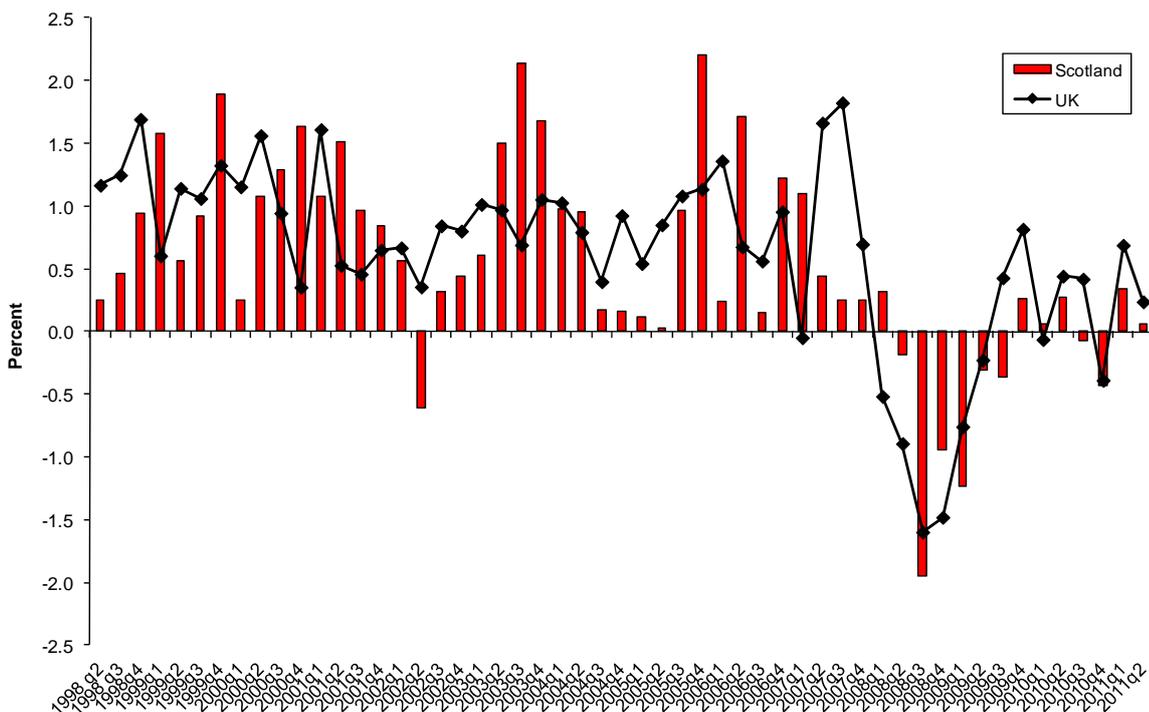
In the latest quarter, manufacturing grew by 0.2% in both Scotland and the UK, a bit better than the economy overall but still relatively weak growth - see Figure 4. Over the year, manufacturing output has grown by around 2% in Scotland but with growth of nearly 5%, the sector has grown more strongly in the UK.

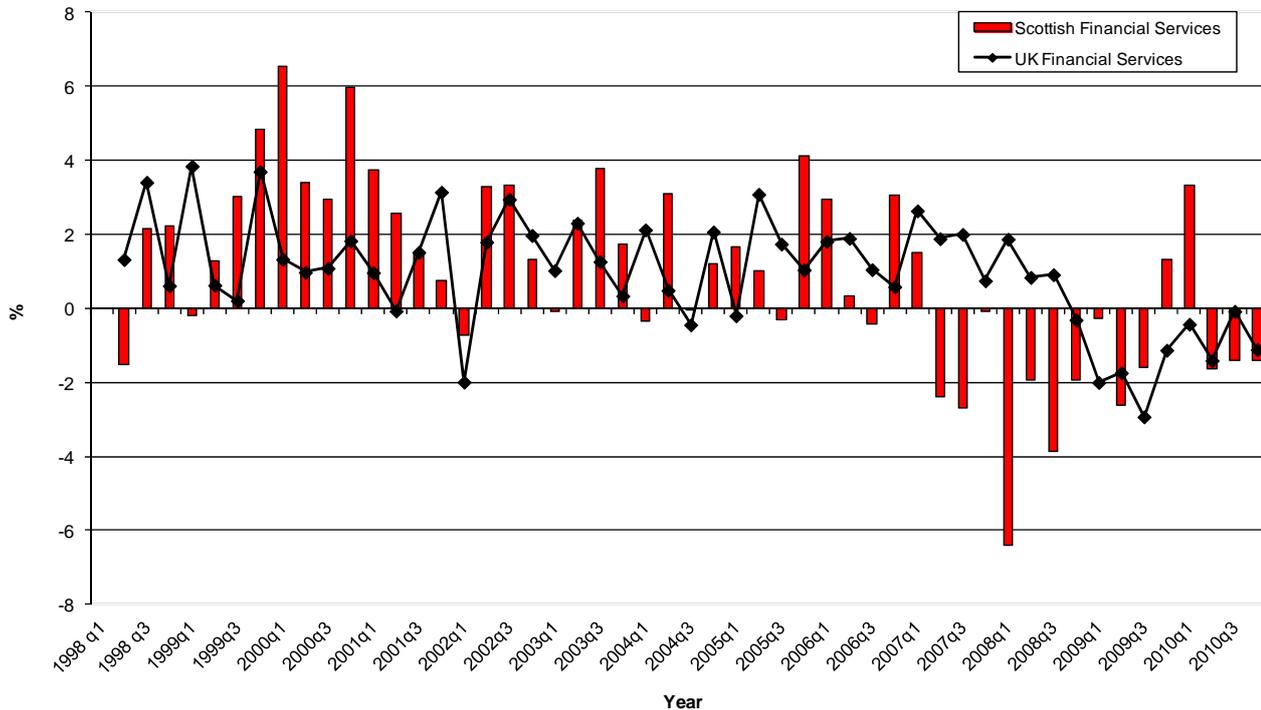
When the latest data are looked at over the period since the start of the recession the challenge facing the Scottish

**Figure 1: Scottish and UK Quarterly GDP Growth, 1998q2 to 2011q2**



**Figure 2: Scottish and UK Services GVA Growth at constant basic prices 1998q2 to 2011q2**



**Figure 3: Scottish and UK Financial Services GVA Growth at constant basic prices 1998q2 to 2010q4**

economy is clear. Scottish GDP is still more than 4% below where it was just before the recession started - see Figure 5. The UK economy is nearly 5% below from where it started. However, the depth of the recession was greater and sharper in the UK, with GDP falling by just over 7%, whereas in Scotland the drop was a little under 6%. But the UK has come back more strongly than Scotland, by nearly 3% compared to around 1% to 2% in Scotland, even though the recovery is weak overall. There is little comfort in the latest GDP data for both Scotland and the UK. This is underlined by the latest US real GDP figures which reveal an annualised growth rate of 2.5% for the third quarter of this year. Growth in the US is still weak by the standards of previous recoveries and insufficient to make much of a dent in the high levels of unemployment. Yet, it is notable that with the latest quarter's results, GDP in the US economy moved back above its pre-recession peak output, whereas the UK and Scotland are still - in the second quarter - 5% and 4%, respectively, below their pre-recession GDP. It will not go unnoticed that, unlike the UK, the US has only recently adopted an austerity programme, which has yet to kick in.

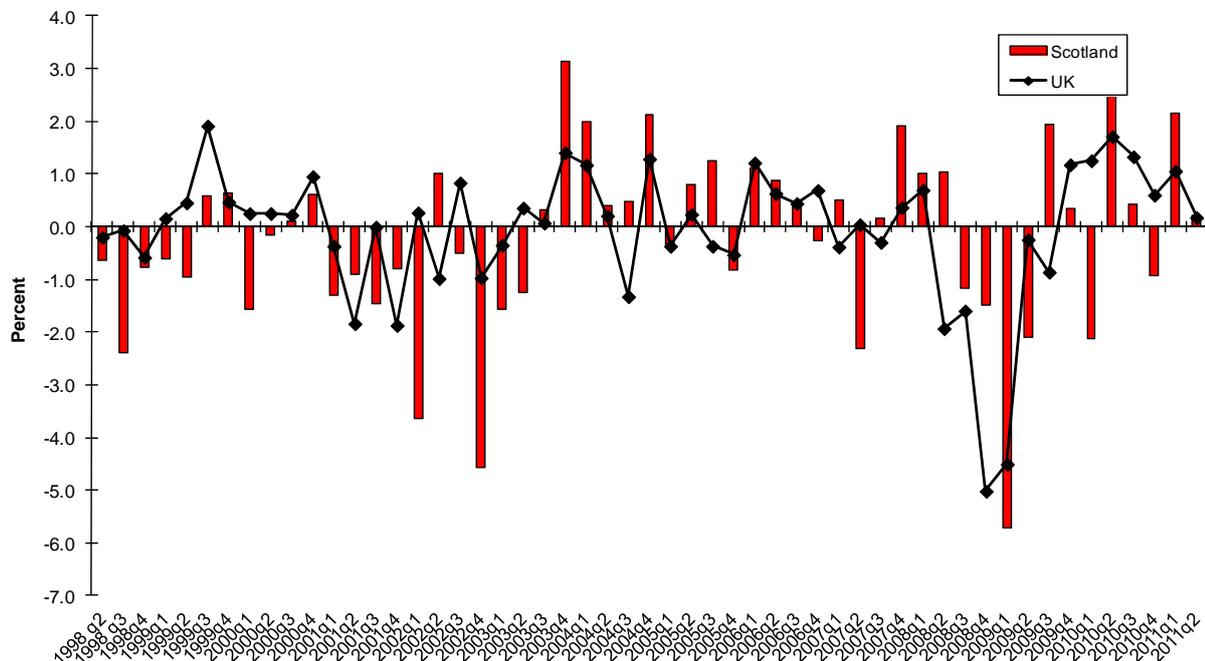
While in the second quarter Scottish GDP was 4% below its pre-recession peak, GDP is further below where it would have been if the recession had not occurred and the economy continued to grow at trend. Figure 6 provides the results of applying trend growth of 0.5% per quarter to the pre-recession peak. This suggests that Scottish GDP was 10.4% below where it would have been with no recession. However, we cannot be sure that the recession may not

have destroyed capacity, so, for example, there may be financial service activities that will never return. Assuming that lost capacity is 2% of GDP - i.e. one third of the percentage drop in GDP due to the recession - we then apply the 0.5% quarterly trend rate, which leads to an 'output gap' of 8.5% by 2011Q2. A worst case scenario where the trend rate of growth is lower at 0.4% per quarter as well as a once and for all permanent loss of output leads to an output gap estimate of 7.3% by 2011q2.

What this analysis suggests is that the economy is much worse off than suggested by the current growth rate and by the extent to which GDP is below the pre-recession peak. Moreover, if the trend projection is anywhere near accurate it also suggests that the amount of spare capacity is large and there is much room for growth and therefore a demand stimulus without inflationary fears.

We can get a deeper understanding of the strength of the recovery in Scotland, absolutely and compared to the UK, by looking at the real GDP performance of the principal sectors since the beginning of the recession.

Figure 7 charts the recession and recovery in the Service sector in Scotland and the UK. Services account for 73% of total Scottish value added or GDP. The figure shows that UK services had a steeper recession than Scottish services with GVA falling by -5.35%, while GVA in Scottish services fell by -4.89% during the recession. However, recovery from recession has been much stronger in UK services. By the second quarter of this year, UK services were -2.88% below

**Figure 4: Scottish and UK Manufacturing GVA Growth at constant basic prices 1998q2 to 2011q2**

the pre-recession peak, whereas Scottish services were -4.42% below. What this suggests, and what the figure shows, is that there has been hardly any recovery in Scottish services at all. After the drop in services GVA in the recession it has stagnated thereafter for nearly two years and can be described as "bumping along the bottom".

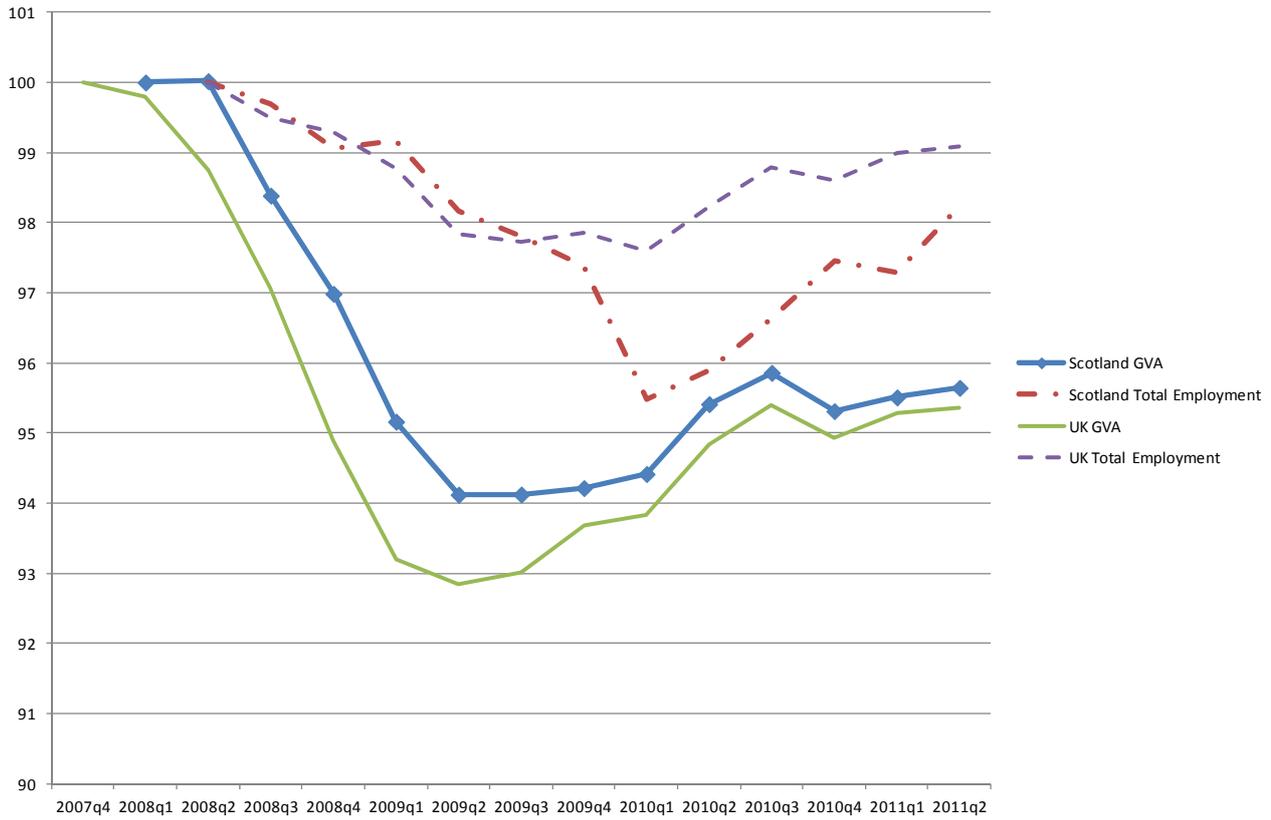
The explanation for this stagnation is because services depend much more on local domestic demand than sectors such as manufacturing. It is now well known that household consumption in the UK was badly affected during and after the recession. This was the consequence of the legacy of high levels of household borrowing for mortgages and personal credit that was a contributory factor in the credit crunch and subsequent collapse of demand. Moreover, as is revealed in the discussion of the household spending data in the Forecasts of the Scottish Economy section in this Commentary below, income growth in Scotland is slightly weaker than in the UK as a whole which along with consequences of the debt overhang is likely to account for the overall weakness in Scottish household spending and hence service sector growth.

The financial services and business services sectors taken together account for 26% of overall Scottish GDP and 29% in the UK. Figure 8 charts the recession and recovery in this combined sector in Scotland and the UK. What is evident from the chart is that the recession in this sector was much greater in Scotland than in the UK, and this might in part

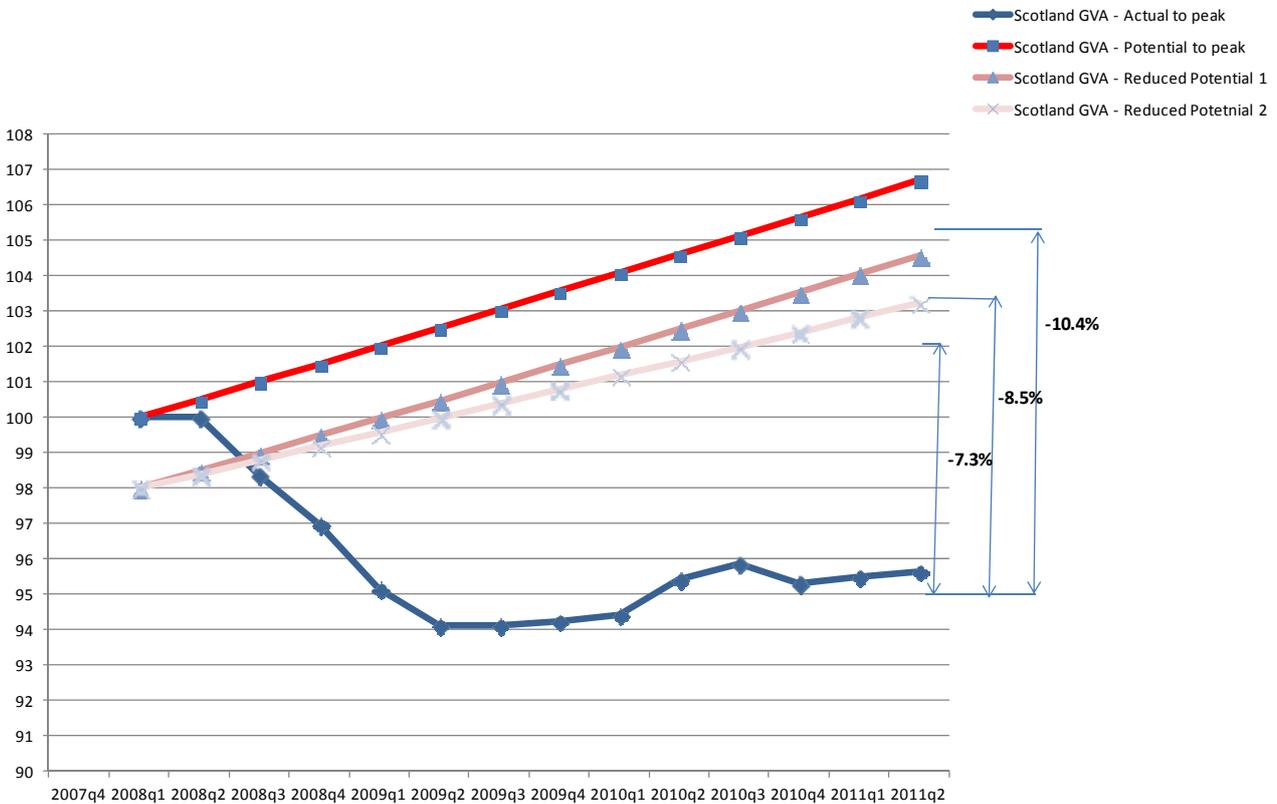
reflect the greater incidence in Scotland of the banking problems that precipitated the credit crunch and recession. It is also clear from the chart that there has been hardly any recovery from recession in the sector. UK business and financial services have contracted further and GVA in the sector stands more than 7% below the pre-recession peak. In Scotland, while there has been some recovery in the sector during the last two years it is marginal with GVA now standing less than 11% below the pre-recession peak.

The UK government hopes that rapid growth of exports and investment will underpin the recovery from the Great Recession. Exports and investment must grow appreciably to offset weakness in household spending, labouring under a debt overhang and squeezed disposable income, and weakness in government spending, due to fiscal consolidation. Exports are mainly of manufactured goods. So, while manufacturing directly contributes only about 12% to GDP in Scotland and 10% in the UK as a whole it is expected to play a crucial role in the recovery. Stronger manufacturing export growth will contribute to GDP growth directly but also indirectly through an increased demand for service sector inputs and from the spending of higher earned incomes. We noted above the comparatively weak recent growth in manufacturing in both Scotland and the UK and the weaker growth in Scotland over the year. Figure 9 charts the recession and recovery in the manufacturing sector in Scotland and the UK. The very large falls in manufacturing output in both Scotland and the UK are

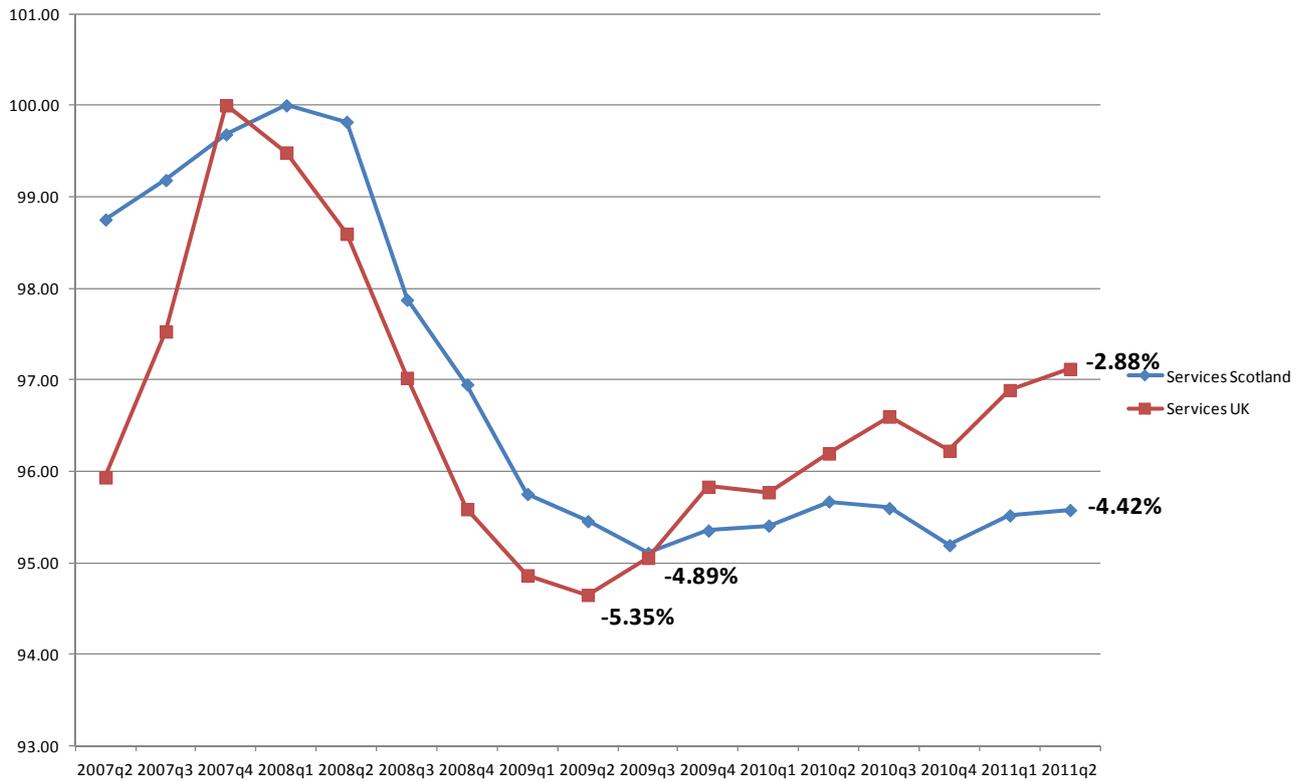
**Figure 5: GVA and Jobs in Recession and Recovery: Scotland and UK**



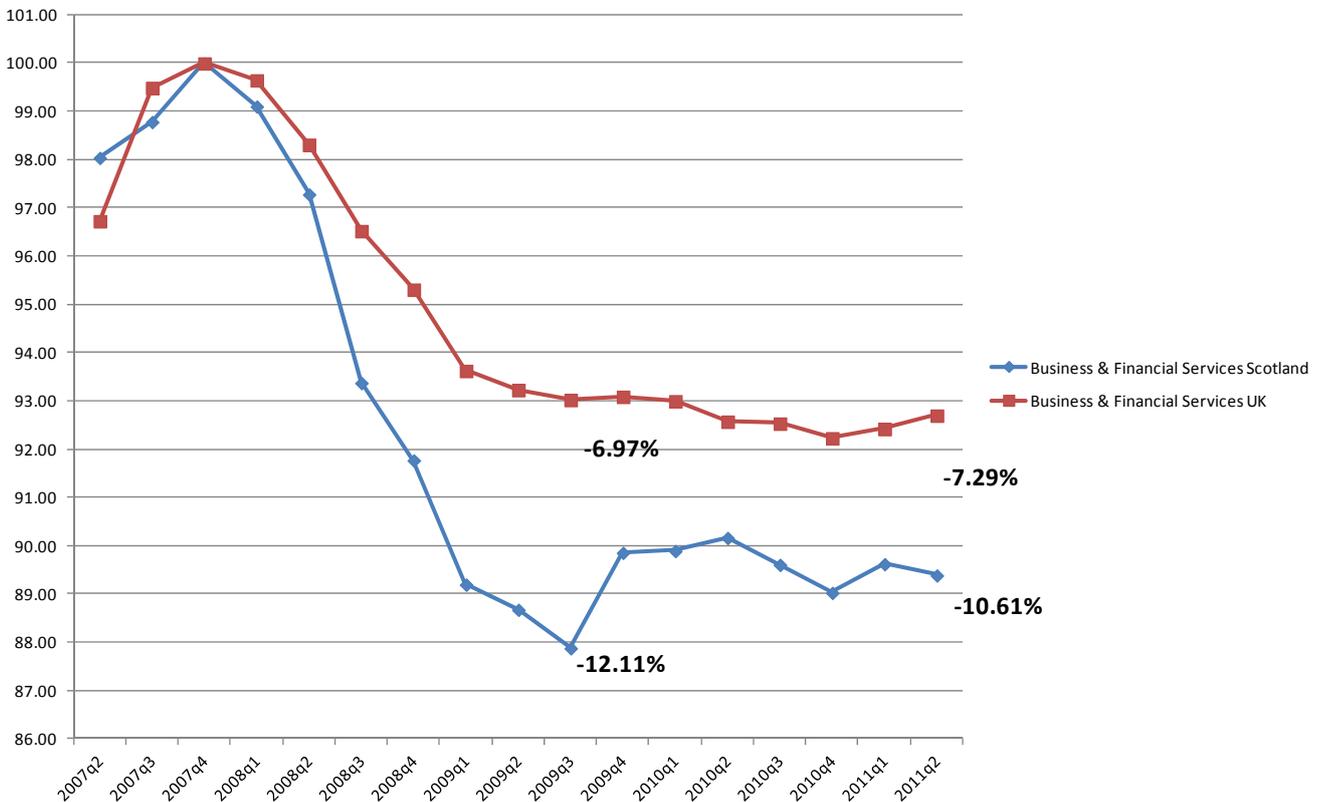
**Figure 6: Scottish 'Output Gap' under different assumptions**

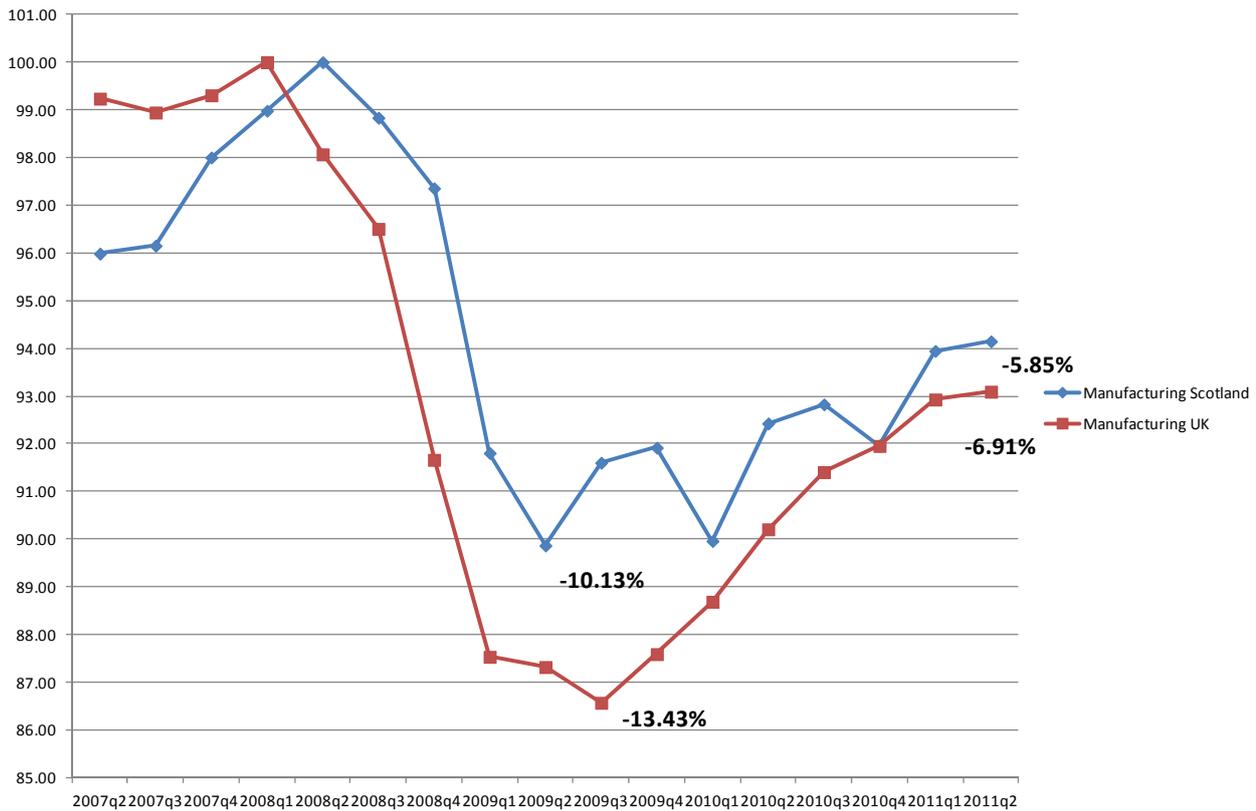


**Figure 7: The Service Sector: Recession and Recovery in Scotland and UK**



**Figure 8: Business & Financial Services: Recession and Recovery in Scotland and UK**



**Figure 9: Manufacturing: Recession and Recovery in Scotland and UK**

clearly evident. Moreover, the drop in output was much greater in the UK, at over -13%, than in Scotland, at a little above -10%. However, it is also evident that UK manufacturing has recovered more rapidly than Scottish manufacturing. By the second quarter of this year UK manufacturing GVA was just under 6% below its pre-recession peak, while UK manufacturing was just under 7% below its pre-recession peak. So, by the second quarter UK manufacturing had recovered nearly 50% (48.5%) of the GVA lost in the recession, while Scottish manufacturing had recovered just over 40% (42.3%). The recovery is weak in both UK and Scottish manufacturing but the challenge confronting Scottish manufacturing is clearly evident, given the weakness of Scottish household demand and the lack of recovery in the Scottish service sector.

Finally, Figure 10 charts the recession and recovery in the construction sector in Scotland and the UK. The drop in output in the recession was sizable and at just above -18% broadly the same in Scotland and the UK. The figure reveals that construction recovered more quickly from recession in Scotland than in the UK, and we noted above that construction performance has been stronger in Scotland over the past year. This will offer comfort to the Scottish government that its decision to front-load capital investment last year may have had a positive outcome on construction output. However, we are not convinced that the timing of the upsurge fits with the outlay of additional government capital investment. An alternative, albeit anecdotal, view is that the boost to Scottish construction in 2010 came from projects in

the pipeline that were held back or the start-date postponed because of the recession. Whatever, the explanation for the upsurge, the downturn again in the sector over the last three quarters must be a cause for concern.

### The labour market

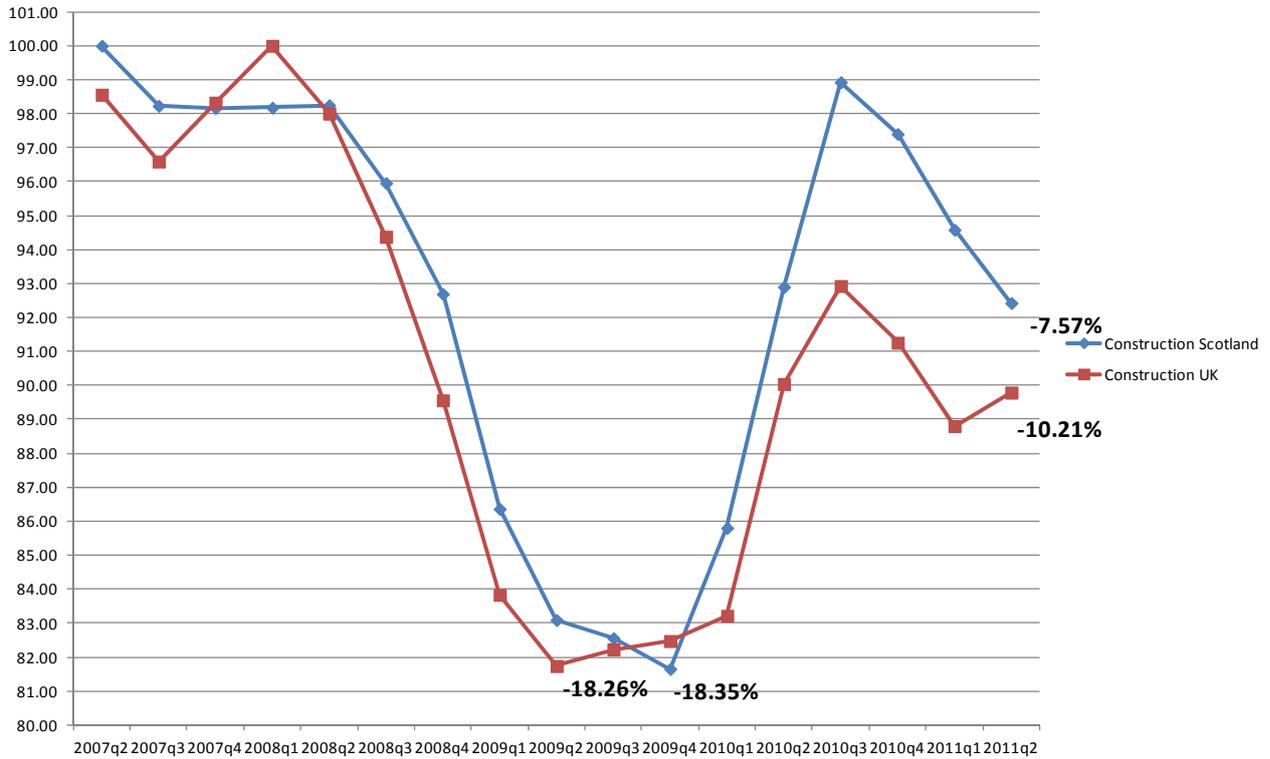
The latest labour market data for Scotland show falling employment in the latest quarter (-24,000) and rising employment over the year (+20,000) - see *Overview of the Labour Market* section below. Unemployment rose by 7,000 in the quarter but has fallen by 17,000 over the year. The Scottish unemployment rate now stands higher at 7.9% but remains below the UK unemployment rate of 8.1%. In addition, the rate of employment of the population aged between 16 and 64 fell to 71.2% but is still above the UK employment rate of 70.4%.

These data have, quite reasonably, been interpreted as indicating that the Scottish labour market continues to be robust both absolutely and relative to the UK, despite the latest evidence of weakening. However, we must be careful about the conclusions that we draw from these data.

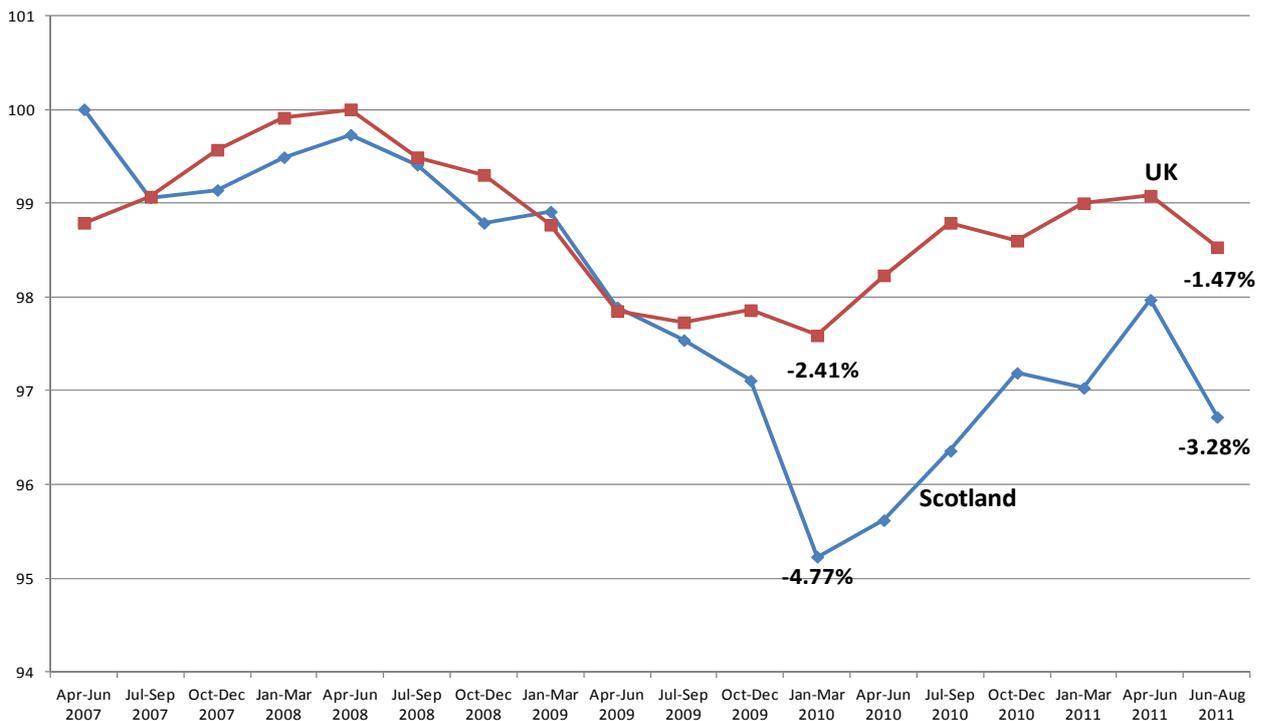
First, total UK **employment** is currently about 1.5% below its pre-recession peak while total Scottish employment is more than 3% below its pre-recession peak - see Figure 11.

Secondly, strong growth in jobs in Scotland of 70,000 between the first quarter of 2010 and the first quarter of this year masks the fact that Scotland endured a large shake-out

**Figure 10: Construction: Recession and Recovery in Scotland and UK**



**Figure 11: Employment in UK and Scotland relative to Apr-June 2007 Scottish peak and Apr-June 2008 UK peak**



of nearly 50,000 jobs between the 2009q4 and 2010q1. This was probably an over-reaction by Scottish employers so there might have been an element of catch up last year as employers sought to establish a proper balance between jobs and output. Alternatively, there is a parallel with the rapid surge in GVA in construction which rose in the first three quarters of 2010 with the rise in jobs coming plausibly one quarter later in the second, third and fourth quarters. So, if the job surge was due to the rapid increase in construction activity, this leaves open the question whether it was the Scottish government's decision to front-load capital investment that caused it. As we noted above it is not clear to us that the timing fits and there are other candidate explanations for the upsurge in construction activity. What cannot be denied, however, is the evidence that the Scottish labour market shed -4.77% of its jobs in the recession while the UK shed only -2.41% and job levels are still more than 3% below the pre-recession peak in Scotland but only 1.5% below in the UK.

Thirdly, one must also look at the movement within the overall jobs total, particularly what is happening to jobs in the both the private and public sectors. The public sector jobs figures released in September show that public sector employment in Scotland fell by 25,200 in the year to the second quarter of 2011, while there were 57,700 more jobs in the private sector over the period. The performance of the private sector job creation is clearly going to be of crucial importance to the future jobs prospects of the Scottish labour market as fiscal consolidation bites.

Finally, we need to bring in a fourth factor when considering the state of the Scottish labour market. This is that one should not judge the state of the labour market by job creation alone but by the creation of jobs in relation to available labour reserves. Working population has been rising in Scotland by a little more than 100,000 since the start of the recession. When that is taken into account we see - Figure 12 - that the total employment-working population ratio is still more than -5.5% below its pre-recession peak while the ratio fell by -6.35% from peak to the trough of the recession.

These figures do not indicate a tight labour market but one that is still suffering from a severe lack of demand, nearly four years after the start of the recession. Moreover, job creation in Scotland appears to be more biased towards part-time working than in the UK, so relatively less labour services may be being demanded than is apparent from the simple job numbers. The numbers of full time workers in Scotland has declined by 120,000 since the pre-recession peak, whilst part time employment, in contrast, fell by only 7,000 during the recession then recovered quickly to be 40,000 higher between April 2010 - March 2011 than the pre-recession peak. When expressed in terms of full time equivalents the recent stronger Scottish employment growth is much more muted.

Another labour market issue that should not be forgotten is the degree of inequality between participants and areas that appear to have worsened in the recession and the limited recovery. The 18-24 year old age group has been badly hit with its employment rate dropping from 68.1% between April 2007 and March 2008, to 61.7% between April 2010 and March 2011. During the past year the deterioration in job losses amongst young people - 18-24 - has continued. In addition, the employment rate for men has fallen by more than that for women except in the 50 - 64 age group. North Ayrshire and Glasgow continue to suffer high unemployment rates of 12.1% and 11.2%, respectively, compared to the national average of 7.9%, almost twice the rates that existed before the recession. Inactivity rates were also high in the two areas, as well as Eilean Siar, at 29.8%, 29.4% and 31.4%, respectively, compared to the national average of 22.9%

Overall, it appears that the growth of private sector output remains weak and insufficient to offset the effects of fiscal consolidation to produce falling or stable unemployment. The growth of part-time employment appears to be masking a decline in full-time employment. Levels of inequality in the labour market are worsening particularly to the disadvantage of young workers and areas such as North Ayrshire, Glasgow and Eilean Siar. The latest data are consistent with our expectation that we should expect unemployment in Scotland to begin to rise again.

### **Persistent macro-economic policy myths**

There are several myths that have gained currency with key policymakers, and opinion formers across the world that are seriously limiting appropriate policy responses to the aftermath of the Great Recession and the Eurozone crisis.

#### **General**

*Myth 1: Reducing government budget deficits and debt levels - "fiscal consolidation" - will enhance growth - "expansionary austerity"*

This is the obverse of the view that high levels of government borrowing and rising debt will lead to higher interest rates, yields on long-term (10 year) bonds, thereby slowing growth and risking higher inflation. While there may be some truth in this view if the economy is close to full-employment it is definitely not the case when there is a large degree of spare capacity and unemployment is high. In this situation any consequences for the interest rate and its effect on demand will be more than outweighed by the countervailing change in aggregate demand due to the net change in government spending. So, cutting government spending may lower interest rates to some degree as well as input costs, including wages, for the private sector. Some boost to demand may come from that. But it will be more than outweighed by the loss of output and jobs caused by the cut back in government spending.



the monetary base has not led to growth in the broader definition of money (M4) which includes bank deposits, the continuing weakness of bank lending, low levels of 'core' inflation - wage growth is no more than 2% - as opposed to 'headline' inflation and weak inflation expectations would appear to offer support for these points.<sup>4</sup>

## Eurozone

*Myth 3: Large government budget deficits and high levels of sovereign debt are the result of government profligacy.*

The Eurozone (EZ) crisis is the most significant for the world economy since the events of late 2008 following the collapse of Lehmans. Yet, much media discussion and the pronouncements of the ECB, and key member governments such as Germany<sup>5</sup> and France seek to source the crisis to the irresponsible 'local' behaviour of the governments of peripheral countries such as Greece, Ireland, Portugal, Spain and Italy. The implication is that if such governments begin to behave responsibly then after some adjustment the problems of the EZ will be resolved. Nothing could be further from the truth. The problems of the EZ are largely 'systemic' although the behaviour of some governments and private sector agents in individual countries such as Greece has not helped. Kash Mansor<sup>6</sup> demonstrates that the explanation is more 'systemic' than 'local'. The creation of the EZ made it more attractive for investors in the rest of Europe to buy assets in the peripheral countries, where there were, on the face of it, significant investment opportunities. Governments in the periphery were able to borrow at near German rates because the financial markets believed, and were implicitly led to believe by the ECB and Germany and France, that peripheral country sovereign bonds had the backing of the EZ authorities. This led to significant flows of capital from the centre to the periphery and a crisis was precipitated when these flows suddenly stopped.

The evidence for this is in the data presented by Mansor and in his words " The factor that crisis countries have in common is that, without exception, they ran the largest current account deficits in the EZ during the period 2000-2007. The relationship between budget deficits and crisis is much weaker; some of the crisis countries had significant average surpluses (e.g. Spain and Ireland) during the years leading up to the crisis, while some of the EZ countries with large fiscal deficits (e.g. France and Germany) did not experience crisis. This is one piece of evidence that a surge in capital flows, not budget deficits, may have been what laid the groundwork for the crisis." Moreover, " ... the capital flow bonanzas in evidence ... were directly the result of the adoption of the euro by the peripheral EZ countries, which made it easier for capital in the core EZ countries to find investment opportunities in the periphery."<sup>7</sup>

Several of the periphery countries such as Greece, Portugal and Spain have real efficiency and competitiveness

problems, which makes it difficult for them in a monetary union, led by Germany, that has high levels of productivity growth. One saving grace might have been if these investment flows had facilitated an economic adjustment in the periphery sufficient to raise their productivity and competitiveness towards German levels. The evidence shows that the capital flows were associated with investment spending rising in the periphery countries (with the exception of Portugal), and for consumption to fall. So, no evidence of local irresponsibility there. However, the capital flows in addition tended to fuel rising domestic prices in the periphery, hence a rising real exchange rate and deteriorating competitiveness, which improved little relative to Germany.

*Myth 4: "fiscal and structural reforms" in the periphery will solve the current problems of the Eurozone .*

This seems to be the view of the ECB and the core EZ states, Germany and France. There are two issues that need to be addressed: financing and adjustment of the peripheral states with high and unsustainable debt levels. The model of financing adopted by the EZ is to use the EFSF with leveraged funding up to 1,000bn Euros, bank recapitalisation and where necessary, as in the Greek case, debt relief: a 50% write-down of Greek debt is on offer. The financing package relies to a large extent on private sector support: voluntary debt write-downs and voluntary bank recapitalisation, as well as hoped for financial support for the EFSF from China. In addition, the peripheral economies are expected to make significant structural adjustments: budget deficit reductions and steps taken to improve the competitiveness of their economies through, effectively, internal devaluation of wages, prices and cost reductions relative to the EZ core.

There is little likelihood that these measures will solve the problems of the EZ. On financing, while the scale of support on offer might be sufficient to support Greece it is unlikely to be sufficient to support Italy because the scale of its indebtedness and its refunding requirements is so much greater. The only real solution to the financing problem is for the ECB to take on the true role of a central bank, which is not simply aiming for price stability but also acting as lender of last resort. If ECB acted as a lender of last resort it would start to buy individual sovereign bonds where there was a market shortfall. This is what the Bank of England would do in the UK or the Fed in the US. However, to fulfil this function would require the ECB to print Euros and hence increase the money stock. Given German sensitivities over inflation this is unlikely to happen and so the EZ crisis will continue until eventual breakup and reconstitution in some new form with perhaps a core Germany, France, Holland, Belgium, Luxembourg monetary union.

Added to this is the question of adjustment. The overriding goal of the ECB and the core countries of the EZ is that the burden of adjustment must be borne by the current account

deficit countries in the periphery. But to secure adjustment in the absence of individual national currencies requires internal devaluation: price and wage reductions relative to the core. This is almost impossible to secure. Countries such as Ireland and Latvia which might be described as the poster boys of internal devaluation have hardly achieved any real internal reduction in wages and prices. We can say with some certainty that Germany and the ECB need to accept that current account surplus countries within the EZ are part of the problem. They must adjust too. They can adjust by allowing an expansion of domestic demand sufficient to promote a rise in domestic inflation to 3% to 4%. If that happens then it will be easier for the periphery to adjust through a much less stringent internal devaluation. If that does not occur there is little hope for the survival of the EZ as presently constituted.

## UK

### *Myth 5: Fiscal austerity is necessary to secure business and financial market confidence.*

A special case of Myth 1. Here we have the belief, frequently articulated by the UK government, that fiscal consolidation will not only free up private sector resources for growth but is necessary to encourage financial markets to accept lower interest rates - yields - on government bonds and hence borrowing. Lower bond rates make the debt easier to fund, make it more sustainable, and require less diversion of public spending to fund it. The coalition government's view is that current low yields on UK 10 year bonds represent a vote of confidence in the UK government's fiscal austerity policy. Hence, austerity was necessary even when the UK economy was relatively depressed. The alternative view is that stabilisation and reduction of debt levels through reduced structural budget deficits is necessary within a medium term fiscal framework. On this view, a fiscal stimulus may be required in the short-term to boost aggregate demand and protect tax revenues, with deficit reduction and reduced debt levels occurring in the medium term when the economy has more normal levels of aggregate demand.

What the evidence seems to show is that low UK government 10 year bond yields are more a reflection of expectations by the financial markets of low growth, and hence a flight from 'risk assets' such as equities into less risky assets such as UK, US and German sovereign debt. Neither the US nor Germany has put in place austerity measures on the scale of the UK government.

### *Myth 6: Britain's current weak current growth performance is a consequence of the Eurozone crisis*

There is a sense from some of the comments of UK government ministers to recent UK growth figures that the crisis in the Eurozone is being blamed for the current weakness of UK growth. While it is certainly the case that the crisis is affecting confidence and may be leading to a

reluctance to invest by some companies in the UK, the reason for a loss of confidence is that the crisis portends the risk of sovereign default, contagion to other sovereigns, bank runs, bank failures, and a drop in aggregate demand and GDP. If and when any of those events occur then the harmful impact on the global economy, including the UK, will be dramatic. But in the meantime the explanation for weaker UK growth largely rests at home: the continuing consequence of the debt overhang for household spending, low expectations of growth by firms leading to weak investment, insufficient pickup in net exports and the impact of the sizable fiscal consolidation. It is revealing that the US while experiencing a weak recovery from the Great Recession nevertheless returned to its pre-recession peak level of GDP in the third quarter of this year. The UK, in contrast, is still 4% below its pre-recession peak although the UK's unemployment rate is slightly lower at 8.1% compared to 9.1% in the US.

## Forecasts

### *Background*

The weakness of the global economy continued into the third quarter although there were some brighter spots. First, the US economy grew by 0.6%, or an annual rate of 2.5%. This is still weak growth for a recovery phase but it was better than expected and, as noted above, it took US real GDP back to its pre-recession peak. But the US economy is still not creating enough jobs to reduce its unemployment rate which is still at the high level of 9.1%. Secondly, the UK reported real GDP growth of 0.5% in the third quarter which was above the anticipated 0.3%. However, the special factors that temporarily reduced growth: the Royal wedding; two bank holidays; and the effects on supply of the Japanese Tsunami, have now unwound, so that the ONS recommends that the two quarters should be taken together. On that basis growth averaged 0.3% in the two quarters, with real GDP largely stagnant over the past year rising by only 0.5% over the year to the third quarter.

While the recent poor performance of UK GDP is due to weak domestic demand, the problems of the Eurozone (EZ) are likely to diminish future growth prospects even further. The 25 basis point cut in the ECB funds rate is very welcome but this reverses what was clearly an ECB policy error in raising the rate by the same amount in July. For most advanced economies on most key indicators, such as GDP, jobs and wage incomes, the recovery is worse than the average from previous recessions - see the FRED - Federal Reserve of St Louis - database.<sup>8</sup> This supports the Reinhart Rogoff (2010) research findings that economies subject to a recession precipitated by financial and banking crises in particular experience a very weak recovery.<sup>9</sup>

The latest forecasts from the London-based NIESR - The National Institute for Economic and Social Research suggest continuing weakness in UK GDP growth for the next eighteen months at least, with growth of 0.9% this year and 0.8% in 2012. They noted in their October GDP

estimate release that this recovery will be the weakest of any since the end of the First World War and that includes the 1930s Depression. Against that background, we welcome the decision by the Monetary Policy Committee(MPC) of the Bank of England in October to begin a further programme of "Quantitative Easing" by increasing the purchase of, largely, government bonds with long-term maturities (more than 3 years) by £75 billion to £275 billion. But with the difficulties confronting monetary

policy when interest rates are close to zero in getting carry through to nominal GDP, we still believe there is scope for more fiscal easing. This view is held by NIESR too, who in publishing their latest forecasts argue " .. it remains our view that in the short-term fiscal policy is too tight and a modest loosening would improve prospects for output and employment with little or no negative effect on fiscal credibility."<sup>10</sup>

**Table 1: Forecast Scottish GVA Growth, 2011-2013**

GVA Growth (% per annum)	2011	2012	2013
<b>Central forecast</b>	<b>0.4</b>	<b>0.9</b>	<b>1.6</b>
<i>June forecast</i>	<i>0.8</i>	<i>1.5</i>	<i>1.9</i>
UK median independent last 3 months (October)	1.0	1.5	na
Mean Absolute Error % points	+/- 0.296	+/- 0.492	na

Scotland cannot help being touched by weak household spending in the rest of the UK as well as the deteriorating conditions in the EZ. For example, more than half of Scotland's exports outside the UK are to EU economies mostly within the EZ.

Domestically, wage income growth has been weaker in Scotland than the UK, but UK income growth slowed in 2011 possibly moving the two more into line - see discussion of SNAP data in Scottish Economy Forecasts section below. Household spending fell by more in the UK during the recession, 6.5% compared to a fall of 4.5% in Scotland - a fall of 5% in the UK over the same period. Perhaps as a result, the UK savings rate stayed above the Scottish savings rate until the end of last year when the Scottish rate moved above the UK rate. We do not have data for much of 2011, nor do we know whether the Scottish data may be revised in the light of revisions to the UK data published on October 25th, so we don't know for certain whether there was an absolute and/or relative weakening in Scottish household expenditure. What is beyond doubt is that household spending in both Scotland and UK remains very weak, along with investment and exports.

Some light on the performance of the Scottish economy in the third quarter can be shed from survey data - see Review of Business Surveys section below. The third quarter surveys of output, jobs and retail spending broadly suggest a slowdown in activity with the expectation of a further slowdown and perhaps a complete halt to the recovery in the winter months. The Scottish Engineering Review is something of an exception, retaining a positive outlook but even here firms responding to the survey reported rising uncertainty. Overall, we consider that the demand for Scottish goods and services both currently and in the near term has weakened since we published the last Commentary in June.

### GVA Forecasts

For our latest GVA forecasts we adopt a new presentational procedure. Since 2008 we have presented a high and low forecast as well as the central forecast. This was done in recognition of the high degree of uncertainty confronting the economy at the time and since. However, following recent work in the Institute reviewing the accuracy of FAI forecasts - see Grant Allan's paper later in this Commentary - we are now able to use the estimated forecast errors to establish the likely range that the true first estimate of the growth of Scottish GVA will lie between.

Table 1 presents our forecasts for Scottish GVA - GDP at basic prices - for 2011 to 2013. The forecasts are presented in more detail in the Forecasts of the Scottish Economy section of this Commentary below.

Table 1 shows that we have revised downwards our forecast for all years. The lower forecasts reflect a weakening in household spending and export growth particularly compared with the position in June. The OBR forecasts for the UK are now out of date since they were produced in March and almost certainly will be revised downwards this month. Our forecasts are therefore compared with the median of latest independent forecasts for the UK in 2011, 2012 that are published by the UK Treasury. We are now forecasting growth of 0.4% in 2011, and 0.9% in 2012 compared to our June forecast of 0.8% and 1.5%, respectively. Given our previous forecast errors the lower and upper bounds for growth in 2011 are expected to be 0.1% and 0.7% and for 2012, 0.4% and 1.4%. Forecasts for the UK have also been reduced by independent forecasters, reflecting the weakening in the UK and global economies. So, overall, we are projecting weaker growth than previously and continuing weaker recovery than the UK.

**Table 2: Forecast Scottish Net Jobs Growth in Three Scenarios, 2011-2013**

	2011	2012	2013
Upper	11,150	18,850	41,100
<i>June forecast</i>	36,317	41,882	60,675
<b>Central</b>	<b>4,900</b>	<b>8,750</b>	<b>16,200</b>
<i>June forecast</i>	20,600	18,548	39,849
Lower	-1,550	-1,350	-9,250
<i>June forecast</i>	9,621	2,661	21,431

**Table 3: ILO unemployment rate and claimant count rate measures of unemployment under each of the three forecast scenarios**

	2011	2012	2013
<i>ILO unemployment</i>			
Rate (ILO un/TEA 16+)	<b>8.3%</b>	<b>8.9%</b>	<b>8.9%</b>
Numbers	<b>219,800</b>	<b>234,200</b>	<b>231,550</b>
<i>Claimant count</i>			
Rate (CC/CC+total job)	5.4%	6.0%	5.9%
Numbers	149,500	166,300	164,400

We expect that production and manufacturing output will continue to be the main sectoral drivers of growth, with Production forecast to grow by 1.2% this year compared to service sector and construction growth of 0.2% which are largely flat-lining. In 2012, production continues to be the main sectoral driver of growth with growth of 2.2%. Stronger growth is projected for services and construction of 0.6% apiece but the two sectors remain comparatively weak. It is not until 2013 that we see much pick-up in growth. GDP is forecast to rise by 1.6%, still about 0.4% points below historic trend, while production growth rises to 3.7%, service sector growth moves up to 1.1% and the growth of construction GVA reaches 1%.

### *Employment forecasts*

Table 2 presents our forecasts for net employee jobs for the 3 years 2011 to 2013 in terms of a central and upper and lower forecasts.

Table 2 indicates that our year-end employee jobs forecast are much reduced from the forecasts presented in the June Commentary. The lower forecasts reflect data revisions, revised productivity estimates and the impact of a weakening economy. On the central forecast, net jobs grow by 0.2% in 2011, 0.4% in 2012 and 0.7% in 2013. By end 2013 total employee jobs are forecast to be 2,324,000 around 80,000 fewer than at the end of 2008 but up by 60,000 from the end of 2009, and up by 30,000 from the end of 2010. By sector, the largest absolute growth in job numbers is forecast for the production sectors, in 2011(2,400 against 2,250) but in services in 2012 (4,950 against 3,400 in production) and 2013 (9,350 against 6,100). Few jobs are created in construction or in agriculture over the forecast horizon.

### *Unemployment forecasts*

The key unemployment forecasts are summarised in Table 3 below.

The ILO rate is our preferred measure since it identifies those workers who are out of a job and are looking for work, whereas the claimant count simply records the unemployed who are in receipt of unemployment benefit. Unemployment is projected to rise further compared to our June forecast as GVA growth and job creation weakens. The recovery of Scottish GDP is expected to continue to be weaker and at a rate below that which is required - from the estimated Okun relationship - to stabilise unemployment. Hence unemployment is projected to rise even with positive output growth. Unemployment in Scotland this year is forecast to rise to 8.3%, or 219,800 by the end of this year, rising further to 234,200 or 8.9% by the end of 2012. After that, the numbers unemployed will fall only slightly to 231,550 by the end 2013 but the rate stays the same at 8.9%. However, as previous quarters have demonstrated there is considerable uncertainty around the unemployment forecast due to the extent to which output change maps into job change, changes in working population and independent variations in activity rates.

Brian Ashcroft  
4 November 2011

## Endnotes

<sup>1</sup>L. Ball, D. Leigh, and P. Loungani (2011) "Painful Medicine" , Finance and Development, September, page 22; and J. Guajardo, D. Leigh and A. Pescatori (2011) "Expansionary Austerity: New International Evidence" IMF Working Paper 11/158.

<sup>2</sup>L. Ball, D. Leigh, and P. Loungani (2011) op cit pp. 22-23.

<sup>3</sup>P. Krugman (2011) "Mr Keynes and the Moderns" Paper presented at the Cambridge conference commemorating the 75th anniversary of the publication of The General Theory of Employment, Interest, and Money, June.

<sup>4</sup>See A. Posen (2011) "How to do more" Speech given by Adam Posen, External Member of the MPC, Bank of England, September.

<sup>5</sup>Wolfgang Schauble, Germany's Finance Minister writing in the FT on 5 September 2011 " Whatever role the markets have played in catalysing the sovereign debt crisis, it is an undisputable fact that excessive state spending has led to unsustainable levels of debt and deficits that now threaten our economic welfare." cited by Kash Mansor (2011) " What Really Caused the Eurozone Crisis? (Part 1)" Street Light Blog, 22 September, <http://streetlightblog.blogspot.com/>

<sup>6</sup>Kash Mansor (2011) op cit

<sup>7</sup> Kash Mansor (2011) op cit

<sup>8</sup><http://research.stlouisfed.org/economy/>

<sup>9</sup>Reinhart, C. and K. Rogoff (2010), This Time is Different, Princeton

<sup>10</sup>[http://www.niesr.ac.uk/pdf/031111\\_83237.pdf](http://www.niesr.ac.uk/pdf/031111_83237.pdf)

# The Scottish economy

## Forecasts of the Scottish economy

### Introduction

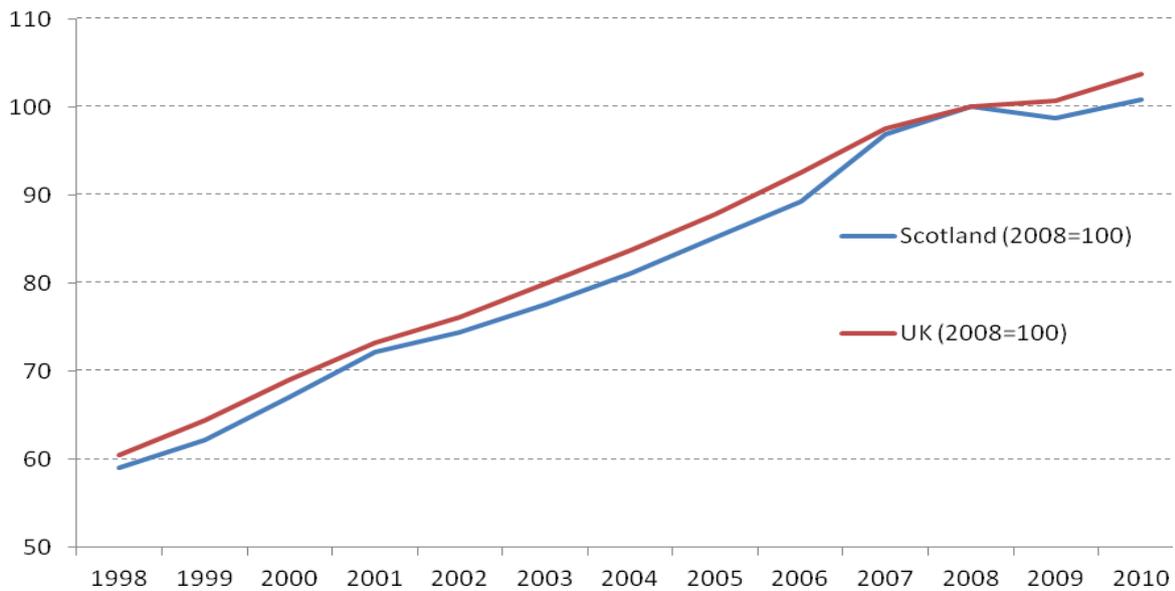
In summary, we revise down our forecast for Scottish GVA growth in 2011 from 0.8% to 0.4%. This is due to rapidly falling household consumption indices, suggesting (for the UK, and by implication Scotland) a rapid falling off in consumer confidence since the summer months and a worsening global (particularly Euro zone) economic environment which has seen unprecedented declines in business activity and confidence during the second half of 2011. Continued high inflation, driven by commodity and energy price increases and temporary factors from recent changes to the VAT regime, will squeeze household incomes. Incomes themselves are seeing slower growth as inflation expectations remain anchored in the medium term, meaning real reductions in household income. Indeed the Bank of England warn against downside risks to meeting their 2% inflation target over the medium term as persisting weak domestic and external demand. Indicators suggest that 2012 will be a more difficult trading year, and our forecast has been revised down from 1.5% to 0.9%.

### Monetary policy

The Bank of England's Monetary Policy Committee met on the 5th and 6th of October and took the view that UK inflation is likely to fall below its 2% target in the medium term as domestic and external conditions worsen, making a "compelling" case for a further round of asset purchases. The Bank's own work on the impact of "Quantitative Easing" (QE) had argued that this has had real effects, principally – but not solely – through the "portfolio balance" channel. This is the consequence of the Bank buying assets from non-bank financial institutions with newly created reserves which those institutions then reinvested in "riskier assets like corporate bonds and equities". This raises asset prices, lowering yields and borrowing costs, acting to stimulate spending (Joyce et al, 2011). Asset price increases also increase the net worth of asset holders, increasing their spending.

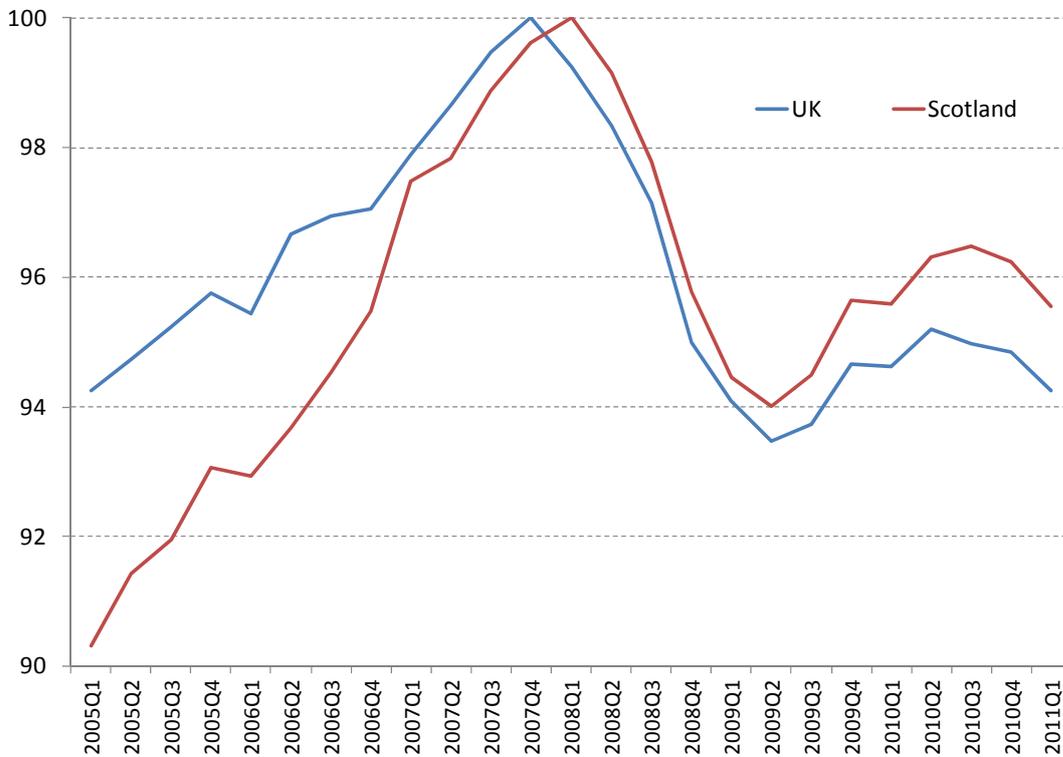
At its October meeting the Bank unanimously agreed to maintain interest rates at 0.5% and to expand the QE programme from £200 billion to £275 billion through the purchasing of gilts with maturities of more than 3 years.

**Figure A: Compensation of employees, Scotland and UK, 1998 to 2010**



**Note:** UK and Scottish household compensation of employees series' from Quarterly National Accounts (for the UK, published on 25th October 2011) and SNAP (for the Scottish figures, published on 15th September 2011) respectively.

**Figure B: Household real expenditure (peak=100), UK and Scotland**



**Note:** UK and Scottish household spending series from Quarterly National Accounts (for the UK, published on 25th October 2011) and SNAP (for the Scottish figures, published on 15th September 2011) respectively. Scottish figures given in current values converted to into real values using product deflators for components by UK consumption good series' and applied to Scottish consumption components.

## Fiscal policy

Since our forecast in June, the Scottish Government brought forward its Draft Budget for 2012-13, alongside spending plans to 2014-15. The headline policy announcements were the switching of £200 million from resource to capital spending, allowing capital projects (principally transport) across Scotland to be retained despite large reductions to the Scottish Government's capital budget. Spending on health, being protected against inflation, means that larger reductions in resource spending are required in other areas of the Scottish budget. In response to the budget, CPPR noted the larger than expected reductions in the resource budget for local government from central government, but that non-domestic rates will increase to offset this reduction. CPPR notes that local government's resource budgets will therefore become "increasingly dependent on Non Domestic Rates as opposed to grants, which makes it potentially more volatile". The level of realised efficiency savings will be crucial therefore in preventing real reductions in the quality or quantity of public services provided. We remind readers that the Scottish Government's own figures show that the resource and capital budgets in 2014-15 are estimated to be 9.2% and 36.7% lower (in real terms) than 2010-11 respectively.

## Recent economic developments

We begin by comparing figures for Scotland from the Scottish National Accounts Project (SNAP) with comparable series from UK Economic Accounts. The UK figures used here were released on the 25th of October, and were substantially revised compared to earlier UK figures. In particular, wage income and consumption expenditure was revised down while the household savings ratio was revised up (as will be detailed later). This has resulted in the pattern in household consumption for the UK coming much closer to that which Scotland has seen (on the experimental measures). If the Scottish figures are revised in light of the major UK revisions, then the differing pattern of household consumption between Scotland and the UK could reopen. This aside, we describe the pattern of income growth, demand and household savings, over the following sections.

## Household income

Without specific National Statistics figures on weekly earnings for Scotland we cannot say how incomes growth differs between Scotland and the UK as a whole. Experimental statistics prepared under the SNAP are available however on Compensation of Employees – i.e. that portion of gross value added accruing to providers of labour (e.g. household income). This is the first time we have used these data in the commentary. Both data are available at current prices, so are not adjusted for inflation. Taking 2008 as the index year we can see from Figure A that the level of incomes fell slightly in 2009 and in 2010 is only slightly higher than the figure for 2008. The level of

incomes in the UK had risen over this period to 3.5% above the 2008 level. This suggests – and we should note again that these Scottish data are experimental and so do not have the status of official National Statistics – that wage income growth in Scotland since the recession may have been weaker than for the UK as a whole.

## Household consumption expenditure

Household consumption expenditure both in Scotland and the UK as a whole has fallen sharply during the recession. Total household spending in real terms remains significantly lower than its peak, and has fallen again in most recent quarter for which Scottish data are available (Q1 2011). This recent fall mirrors a decline in UK household expenditure. Household spending in Scotland is currently 4.5% below its pre-recession peak in real terms, unchanged from the level seen in Q4 2009. Household spending for the UK as a whole has fallen by 5.0% over the same period. These are shown in Figure B.

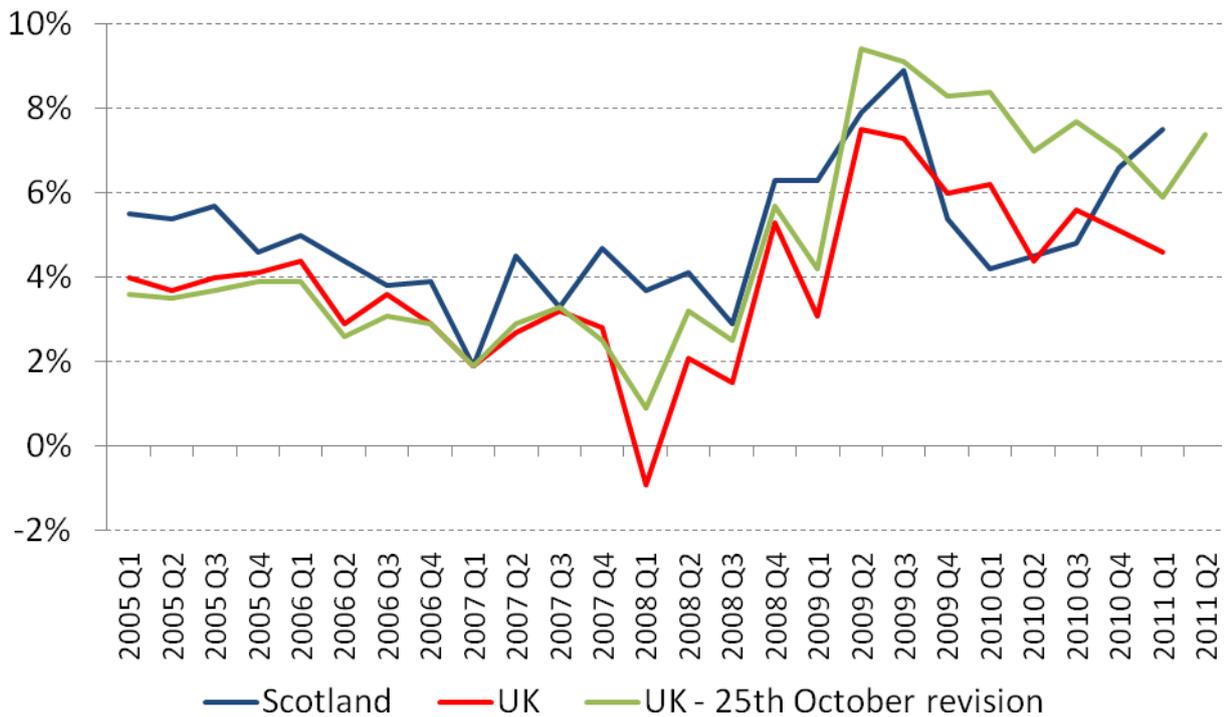
## Household savings ratio

Part of the relative worsening of the household expenditure can be explained by examining the relative movements in the household savings ratio. This is the difference between total household resources (i.e. wage and other incomes minus taxes and transfers paid) and total household consumption expenditure. As was noted at time of publication at the end of October, the UK savings ratio was revised significantly upwards. This measure suggests that the savings ratio increased to 9.4% in a single quarter – an increase of 1.9 points on its previous estimate – at the start of 2009. Further, while previous data signalled an increasing savings ratio for households in Scotland and a fall in the UK ratio, the most recent UK data for Q2 shows an upwards jump. These data are shown in Figure C.

As the Bank of England notes in its August Inflation Report, households may raise their savings in anticipation of lower earnings growth, or increased uncertainty about employment prospects. The Bank also notes that any gains to households from the reductions in interest rates might have been offset by an increased riskiness of lending, and so households unable to borrow at reduced rates. It remains likely however that household savings rates will remain above their averages over the last decade for the coming quarters as households' real earnings growth remains weak. This implies that growth in the service sectors will remain weak. We shall see the consequences of this for forecasts of these sectors in the Forecast section.

## Output

The latest figures on Gross Value Added in the Scottish economy are discussed in the Overview and appraisal section of this Fraser Economic Commentary. In brief, data continues to suggest that the recovery in both Scotland and

**Figure C: Household savings ratio, UK and Scotland**

the UK is weak, but that growth is stronger in the UK as a whole than in Scotland. Growth in the second quarter of 2011 in Scotland was 0.1%, the same as growth in the UK. The Scottish economy has grown 1.1% over the year, while the UK economy has grown by 1.5%. Growth in the UK economy over the year is stronger for both production and services sectors as a whole, with value added in the Scottish service sector still at an aggregate level comparable to that seen during the second quarter of 2009. Manufacturing growth remains stronger in the UK than in Scotland on an annual basis (4.6% vs. 1.9%). Scottish construction activity appears to be faring stronger than the UK, however much of the differences in the annual growth figures appears to be due to spikes in construction activity during Q3 and Q4 of 2010, not repeated in the UK. For the Scottish construction sector, there have been three quarters of negative growth since, while the sector grew in the UK in the recent quarter (although recent preliminary estimates of UK GDP for Q3 2011 suggests that this sector has seen growth of -0.6% in Q3).

The release of preliminary GDP data for the UK in Q3 reports that growth in the UK economy over the last two quarters has been 0.6%. Looking over the year as a whole annual GDP has grown by 0.5%, far below the official forecasts for growth.

### Investment

Data on public and private expenditure on investment that are consistent with UK series' are not available for Scotland. Experimental data under SNAP suggests that the fall in total investment expenditure in Scotland was less severe than for

the UK as a whole, which would be consistent with overall activity in Scotland declining by less than activity in the UK as a whole, and a typically higher outturn on GVA for the construction sector in Scotland. This impression however cannot be fully understood without further examination of the links (including timing of activity) between investment spending and changes in the contribution of the construction sector. The relative lower decline in the sector in Scotland if corroborated in future figures, is of course an important issue. Current trends in Scottish construction activity appear to be weak, with three periods of declining GVA to Q2 2011, while the sector expanded in Q2.

The preliminary estimate for construction activity in the UK in Q3 showed a decline of -0.6% - indicative of, and consistent with, continued worries about the investment environment. As is noted elsewhere in this issue of the Commentary, the investment outlook remains weak across much of the Scottish surveys. An exception appears to be oil and gas, which expects increased capital spending on exploration and production. Smaller companies in the sector report issues around the availability of access to capital.

### Scottish trade

Scotland's exports to the rest of the world during the second quarter of 2011 were detailed in the Index of Manufactured Exports, produced on the 5th of October. This revealed a broadly flat growth in the real value of exports to non-UK destinations. Growth in the second quarter of 1.1% meant that on a rolling annual basis real exports had increased by 2.0%.

Within manufacturing sectors, the pattern of growth was mixed. Of continuing concern must be the growth missing in the “Engineering and allied industries” sectors, which was worth almost 46% of Scottish manufacturing exports in 2007. In the second quarter of 2011 the value of total exports by this sector was almost 20% below this peak. Within this sector, we note that it is the “Electrical and instrument engineering” sector where GVA has fallen sufficiently to offset stronger performances in the “Transport equipment” and “Mechanical engineering” sector. “Food, drink and tobacco” continued its strong showing on exports as did “Chemicals, coke, refined petroleum products and nuclear fuels”, recovering the outputs and exports to levels of early in 2009.

At the UK level, exports at the start of the year moved positively, in line with the evidence for Scotland as a whole. The Bank of England’s Inflation Report from August suggests that, while the lower level of Sterling should have helped exporters at the start of the year, demand from abroad is either being understated by surveys, or there has been an “adverse shift” in global demand away from the service exports produced by the UK. The only survey on Scotland’s service (and goods) exports is the Global Connections Survey, which is scheduled for release in January 2012 and will relate to the calendar year 2010. The timeliness of this survey means that we continue to rely on Manufacturing exports figures as indicators of the direction of Scotland’s exports.

### Exports to the rest of the UK

Growth in the rest of the UK remains critical for the exports of Scottish firms. UK growth has remained broadly flat over the last three quarters, with preliminary data for Q3 2011 estimating a slight rebound in growth of 0.5%. Digging deeper under this however, one sees that a wide range of “special events” were estimated to have reduced growth in the second quarter by around 0.5%. Figures for the UK economy, the ONS suggested should be viewed grouping together quarters 2 and 3, giving growth of 0.6% over the last two quarters and 0.5% over the last year. Continued weak economic figures and survey evidence for the UK, combined with a worsening labour market performance, suggests that growth in the second half of 2011 is likely to be flat. Indeed, some commentators have not ruled out a quarter of negative growth in Q4 2011. Against this background of worsening domestic demand in the UK, significant revisions to savings ratios and weak signs of the investment environment improving, it appears that external factors are not currently providing the sources of growth hoped for during the period of deliberate rebalancing. Indeed, the UK Economic Accounts reported that positive contributions to UK growth in Q2 came from General Government and Investment, while trade and household spending acted as a drag to growth. Household expenditure growth in Q2 for the UK fell by 0.8%, making the fourth consecutive quarterly decline in household expenditure. The persistence of General Government consumption expenditure growth underlines the importance

of the announced reductions in public spending at all levels of government across the UK to be implemented fully through the current spending review period (and elaborated on during further previous Forecasts). It appears that at the UK level real reductions in government spending have yet to feed through into the economic system. The consequences of fiscal consolidation would be expected to reduce domestic demand sources further. We await the publication of the Office for Budgetary Responsibility’s forecasts for the UK economy, to be published during November 2011. This is widely expected to revise down its growth forecast for 2011 from 1.7%, given that would require a significant positive growth in Q4 and most significant indicators are pointing towards a flat or falling quarter for growth. Between June 2011 and October 2011 the median new forecast for growth in the UK in 2011 and 2012 were both revised down by 0.5% to now stand at 1.0% and 1.5% respectively.

### Exports to the rest of the world

As discussed above, Scottish manufacturing exports saw continued growth, albeit not increasing from an annual rate of growth of 2.0%. The global outlook has worsened significantly since we reported in June 2011. The IMF’s report on the world economy from September 2011 lowered forecasts for growth in every economy between its June and September publications, with the exception of Japan in 2011 – increasing its growth by 0.2% - and keeping its forecast for Spanish growth constant at 0.8%. World growth in real terms is forecast at 4.0% in 2011 and 2012, down 0.3% and 0.5% respectively in three months. (The IMF forecast for the UK was cut by 0.4% and 0.7% to 1.1% during 2011 and 1.6% during 2012).

The OECD pointed to the “Euro area debt crises and fiscal policy in the United States” as being likely to dominate economic developments over the coming two years. “Excessive” fiscal policy in the US and a disorderly sovereign debt situation in the Euro zone with contagion, could lead to their gloomy scenario. Weak growth persists for 2011 and 2012 in their main scenario with unemployment rates remaining high in developed countries. The largest reduction in growth forecast for a major economy was the downgrade of the US forecast for 2011 from 2.5% to 1.5%. This is lower than the OECD’s latest forecast of 1.7% for the US during 2011, but is higher than some forecasts for the US made earlier in this year. Perhaps most critically for world economic developments over the longer term, growth forecasts for China and India in 2012 were reduced by 0.5% and 0.3% respectively. The Eurozone situation remains deeply uncertain and appears to move from crises to resolution and back over the space of a few days. The announcement on the 26th of October of a series of reforms and funds agreed for Greece, including “haircuts” for holders of Greek government debt and additional loans to the country. This appears, at the time of writing, to have been undermined, perhaps fatally so, by the announcement that these options will be put to a referendum in Greece, perhaps into 2012. Continued uncertainty about the political will to implement reform

**Table 1: GDP growth forecasts for 2011 and 2012 for top five export markets for Scottish products in 2009, plus UK and euro area (including change from June 2011 forecasts by IMF where appropriate)**

		2011		2012	
	Share of Scottish exports to rest of the world, 2009	IMF (September 2011)	Change from June 2011 forecast	IMF (September 2011)	Change from June 2011 forecast
USA	15.5%	1.5%	-1.0%	1.8%	-0.9%
Netherlands	9.6%	1.6%	+0.1%*	1.3%	-0.2%*
France	7.5%	1.7%	-0.4%	1.4%	-0.5%
Germany	6.1%	2.7%	-0.5%	1.3%	-0.7%
Belgium	4.0%	2.3%	+0.6%*	1.5%	-0.4%*
Others					
Asia	9.8%	8.2%	-0.2%	8.0	-0.4
Euro area	-	1.6%	-0.4%	1.1%	-0.6%
United Kingdom		1.1%	-0.4%	1.6%	-0.7%

**Sources:** IMF World Economic Outlook, September 2011, Global Connection Survey. "Asia" in the table above uses the growth figure for "Developing Asia" from the IMF World Economic Outlook. \* Netherland and Belgium growth forecasts were last produced by the IMF in the April World economic Outlook (not June's World economic Outlook Update). The changes given refer to the change since April 2011's forecast.

programmes may undermine investor confidence in the ability of Eurozone economies to take steps necessary in the event of debt crises in larger economies. With some commentators laying out proposals for Greece to withdraw from the Eurozone, the future of the Euro in its current shape requires that growth returns to all economies across the economic area. The economic dividend to growth prospects for the UK and Scotland will critically affect the timing of these economies return towards long-term trends. SNAP data suggests that over half of non-UK exports from Scotland are to the EU economies, largely those within the Euro zone. Growth forecasts for key markets for Scottish goods are shown in Table 1.

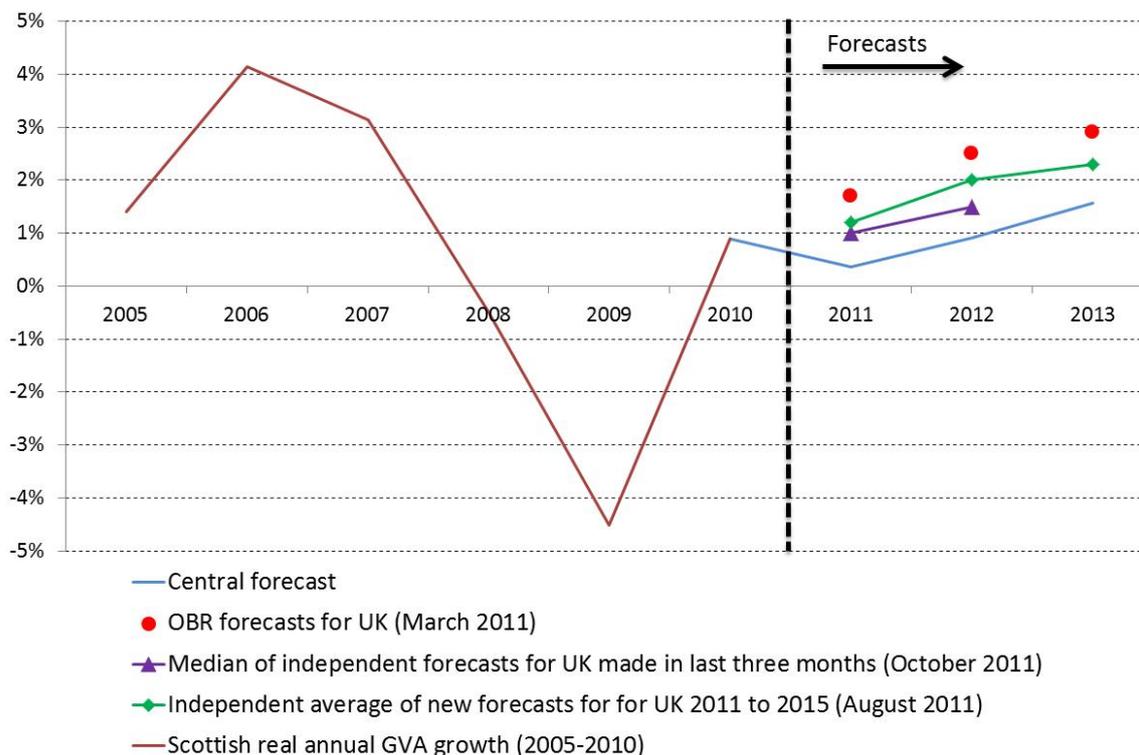
### Forecasts of the Scottish economy

The outlook for Scottish domestic demand has worsened since June's forecast. Household wage growth remains weak – and is likely to be weaker than for the UK as a whole going forward. Retail price inflation running at over 5 per cent, is anticipated to continue to squeeze real household spending, largely due to higher energy, transport and food prices. Evidence suggested that the Scottish and UK savings ratios were diverging with larger reductions in demand and higher savings ratios in Scotland, although this pattern is less strong since upward revisions to the UK savings rate. Whether Scottish households over the medium-term reduce their consumption at higher equilibrium rate of savings remains uncertain. Consumption spending in Scotland remains at levels seen during the worst of the recession (2009Q2). With an increased savings ratio and lower income growth our forecast for household consumption remains depressed for several quarters. The combinations contribute to us revising down our forecast for

household growth through 2011, 2012 and 2013 from our forecasts in June 2011 in our central scenario.

Against this background, General Government spending – which remained broadly flat in real terms during 2010 while there were reductions in the UK as a whole – appears to have fallen further in Scotland in the first quarter of 2011 than in the UK. Only when we have a breakdown of the components of central and local government spending in real terms for Scotland will we be able to examine the scale of these differences. The outlook for growth in spending by governments of all levels in Scotland remains weak. We anticipate the largest reduction in local government spending within our forecast horizon to occur through 2011-12, with smaller reductions in real terms budgets in subsequent years.

The prospects for a return to higher growth remain weak while growth in demand centres for Scottish products remain sluggish. Continued uncertainty over the Eurozone economies, notably Greece – where a "rescue package" of financial support, "haircuts" for lenders and continued deep austerity appear to be the route by which the Eurozone is seeking to restore confidence in the single currency project. Developments in other Eurozone countries, particularly Italy, point to a winter of continued heightened market uncertainty, likely to be resolved only when European economies begin to show returns to growth. The latest data suggests that it is only Germany which is seeing positive growth at the end of 2011, which is concerning for the growth of the euro area as a whole. The self-fulfilling nature of market fears about specific countries' fiscal stability means that we cannot rule out continued uncertainty and increasing volatility.

**Figure 1: GVA growth for Scotland in central case, 2005 to 2010 and forecasts for 2011 to 2013, annual real (%)**

The implications for the Scottish economy of continued uncertainty in the Eurozone – Scotland’s major (non-UK) trading partner – is likely to produce slow overall trade growth through the coming years. The US, another key market for Scottish goods, continues to face economic and budgetary challenges. The US 2011 deficit is likely to be the third highest in 65 years, with the two previous years the 1st and 2nd highest figures. The US Congressional Budget Office now expects real growth of 2.5% this year and 2.0% in 2013. With the US economy not returning to near to trend growth until 2014, the outlook for the developed economies – and by extension, Scottish exports – indicates a continued depression. In this background, the recent export figures suggest that by the end of 2010 the share of manufactured exports accounted for by the “food, drink and tobacco” sector had risen from 26% of exports in 2007 to almost 30%, while “engineering and allied industries” had lost equivalent share. There is some positive news however in that total manufacturing exports grew for the second quarter of 2010 for the second consecutive quarter. Exports to the rest of the world are currently growing at around 2% on an annual rate, which is significantly below the rates seen through the early and middle part of the decade. Given a worsening external growth background we have slightly revised down the forecasts for Scottish export growth from the rest of the world from our June forecasts.

The impact of the reduced public capital spending in the current year will be having a direct effect upon the construction and affiliated sector of the Scottish economy.

Public capital spending in Scotland is likely to see reductions in the next two years – up to the end of our forecast horizon – albeit at a slower rate than in this current year. Private capital spending on the other hand is showing some, albeit limited, signs of growth.

The latest data indicates that GVA in the construction sector fell sharply in recent quarters - down 2.9% and 2.3% in 2011Q1 and 2011Q2 respectively. With a reduction of 1.5% in 2010Q4, the level of activity in the construction sector in Scotland was at same level as during the start of 2010. The arithmetic of GVA calculations mean that the upward spike in construction sector activity seen in 2010Q3 will be in the denominator of the rolling four quarter growth calculations from the next quarter. Even with positive growth in the construction sector in the coming quarters, the loss of this quarter from January’s figure onwards will produce significant reductions in the rolling annual growth rate in this sector (down from its current figure of 11.8%).

## Results

As with our commentary in June 2011 we forecast over a horizon of three calendar years – i.e. 2011, 2012 and 2013. We are forecasting year-on-year growth. We will know how accurate these (and previous) forecasts for 2011 are when growth in the final quarter of 2011 is released during April 2012. Elsewhere in the commentary we provide an assessment of the accuracy of the FAI’s forecasts for the Scottish economy made between 2000 and 2011.

The aggregate forecasts for Gross Value Added in Scotland for 2011, 2012 and 2013 are shown in Figure 1, alongside (for comparison only) the forecasts for the UK over the same period by the Office for Budget Responsibility (reported in March 2011). HM Treasury collects forecasts from City and non-City forecasting organisations on a monthly basis. These give a frequently updated picture of the trend in forecasts for the UK economy than the OBR

forecasts. In Figure 1 we include the median of new (i.e. made in the last three months) forecasts (as published in the October release of HM Treasury's collected forecasts for the UK). As an indication of the scale of possible revisions to the OBR's earlier forecasts, the median growth rate forecast for 2011 and 2012 in October 2011 is 0.5 points lower than the median forecast in June 2011.

**Table 2: Growth in the Scottish economy in central case, 2011 to 2013, % change from previous year**

	2011	2012	2013
Gross Value Added	0.4%	0.9%	1.6%
Production	1.2%	2.2%	3.7%
Services	0.2%	0.6%	1.1%
Construction	0.2%	0.6%	1.0%

Our central forecast for growth in 2011 is now 0.4%, down from 0.8% forecast in June and down from 1.0% forecast in March 2011. Our reduction in the 2011 growth forecast within this year is therefore broadly in line with that seen in forecasts for the UK as a whole.

We present our forecasts for growth over the forecast period for broad industry groupings. Table 2 gives the real growth in sectoral GVA and aggregate GVA for the central scenario. With continuing weak domestic demand due to reduced income growth, increased savings and higher inflation in the near-term squeezing household incomes, the domestic-facing sectors of the Scottish economy will face continuing troubles. The service sector as a whole – representing all private and public service activities is forecast to grow 0.6% in 2012 and 1.1% in 2013, well below trend growth for the sector. Of course within this sector there will be differing growth, with some public sector activities forecast to see falling GVA, while growth in the crucial retail and wholesale sector – comprising around 10% of Scottish output – moves broadly in line with the services sector as a whole. GVA growth within services is forecast to be stronger than the average for the services sectors in “hotels and catering”, however this is well below trend growth.

Production sectors as a whole are forecast to see the major growth in the Scottish economy over the forecast period. In 2012 we forecast production increasing by 2.2%, and an increase of 3.7% in 2013. Comprising around 17% of GVA in Scotland, this growth is supported by external demands from exports (to the rest of the UK and overseas) and investment. The positive boost from external consumption forecast is weaker than previously assumed, given the global weakening seen over the last six months as many leading economies have struggled to recover from recession. With the Eurozone banking system, sovereign debt and currency-uncertainty, low growth for the Eurozone

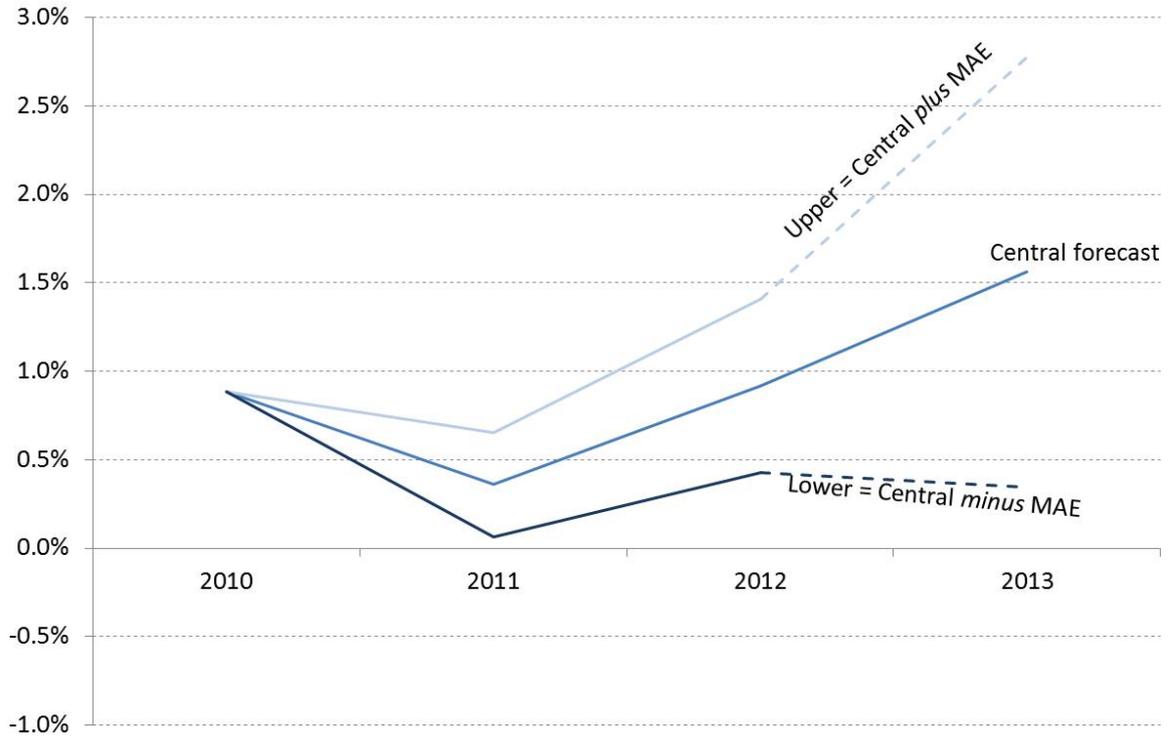
will contribute to weaker than anticipated demand for Scottish products. As mentioned above, on the latest data the majority of Scottish exports were destined for European markets.

Elsewhere in this issue of the Fraser Economic Commentary, this author reviews the accuracy of FAI forecasts. The paper evaluates how accurate forecasts made at different points throughout the year were in correctly predicting the annual growth rate both for the year that the forecast was made in, and the following year. This process will be updated regularly, providing reflective evidence on the accuracy of the modelling framework used to produce these forecasts. In this first instance we use the estimated forecast errors to capture the likely range that the first estimate of Scottish GVA growth will lie between. This is the value of Scottish growth which will be released in April 2012 and give the first official estimate of growth during 2011.

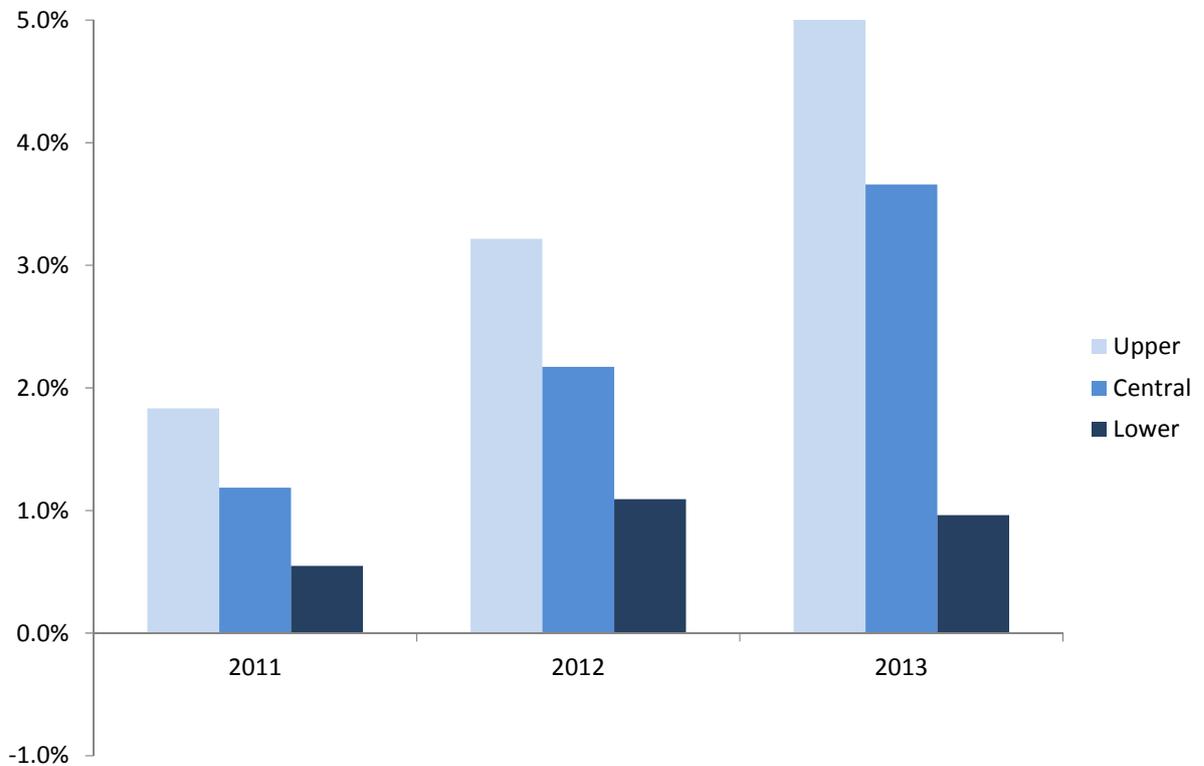
Here, we use the Mean Absolute Error (MAE) between forecasts made during the last three months of each year (termed “winter” in the paper) to give the average difference between the central forecast published and the first estimate of growth. These are taken directly from Table 3 in that paper. The true value of the first estimate is, on average, 0.296 percentage points different from the forecast made in the winter of the year being forecast. Therefore, the “upper” and “lower” estimates for growth in 2011 are our central forecast (0.4%) plus (for the upper) and minus (for the lower) the MAE for winter forecasts .

The MAE for forecasts for the following year made in the winter period is 0.492 percentage points. Both of these MAE figures are used to construct the upper and lower estimates of growth in 2011 and 2012 respectively.

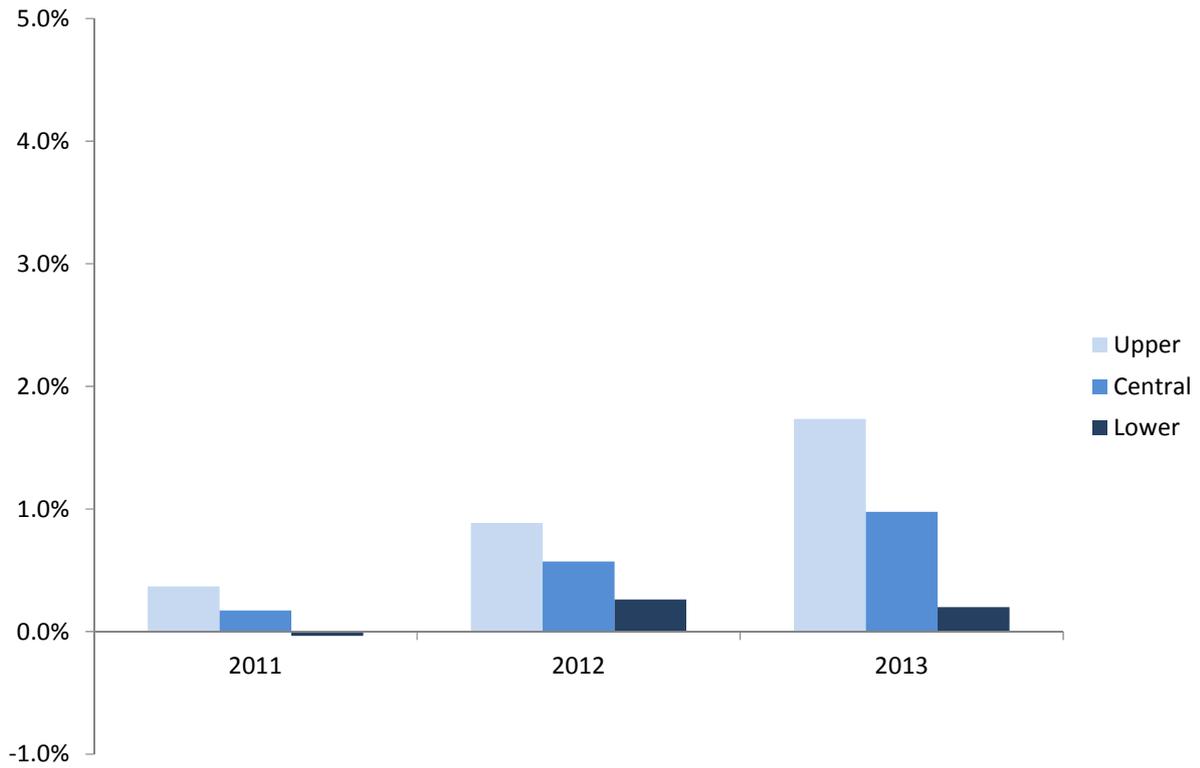
**Figure 2: GVA growth in Scotland in central and upper and lower cases, annual real (%)**



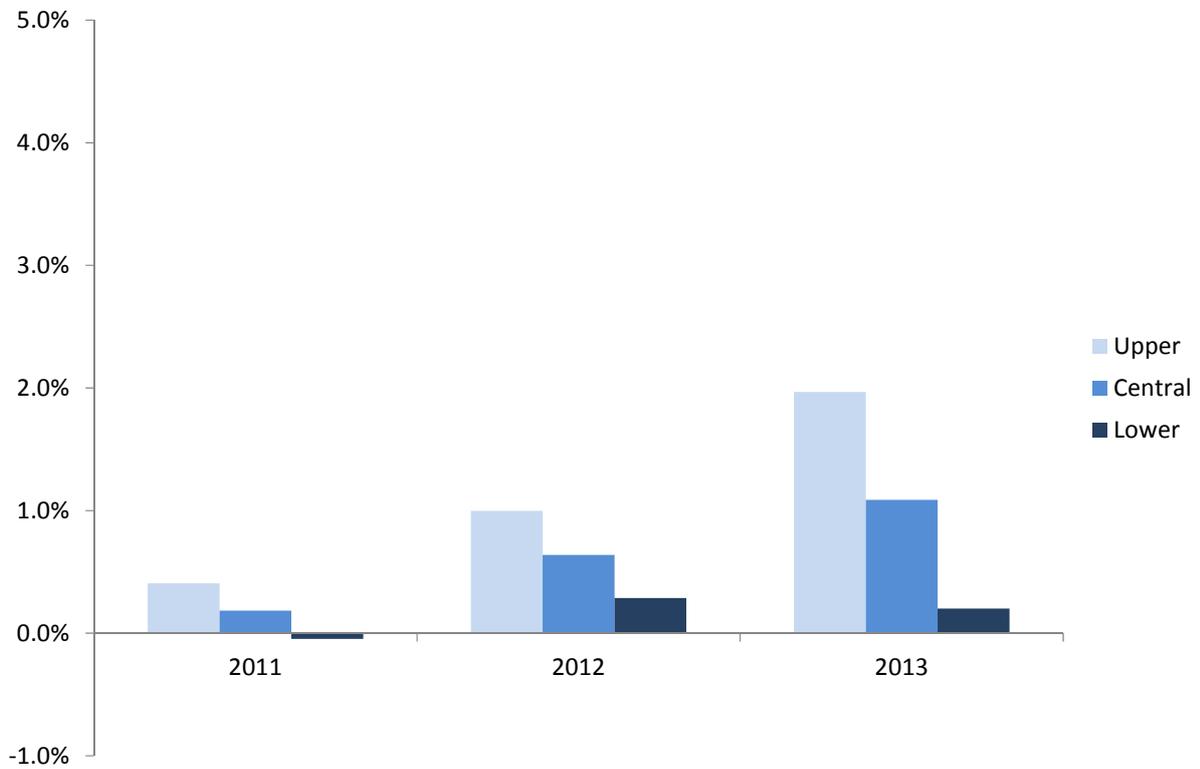
**Figure 3: Forecasts of GVA growth in “Production” under three scenarios, 2011 to 2013**



**Figure 4: Forecasts of GVA growth in “Construction” under three scenarios, 2011 to 2013**



**Figure 5: Forecasts of GVA growth in “Services” under three scenarios, 2011 to 2013**



**Table 3: Forecasts of Scottish employee jobs (000s) and net change in employee jobs in Central scenario, 2011 to 2013**

	2011	2012	2013
Total employee jobs (000s), Dec	2,299	2,308	2,324
Net annual change (jobs)	4,900	8,750	16,200
% change from previous year	0.2%	0.4%	0.7%
Agriculture (jobs, 000s)	32	33	33
Annual (absolute) change	150	300	550
Production (jobs, 000s)	226	229	235
Annual (absolute) change	2,400	3,400	6,100
Services (jobs, 000s)	1,905	1,910	1,919
Annual (absolute) change	2,250	4,950	9,350
Construction (jobs, 000s)	136	136	136
Annual (absolute) change	100	50	200

**Note:** Absolute changes are rounded to the nearest 50 jobs.

**Table 4: Net employee jobs growth in Scotland in central, upper and lower forecasts, 2011 to 2013**

	2011	2012	2013
Upper	11,150	18,850	41,100
Central	4,900	8,750	16,200
Lower	-1,550	-1,350	-9,250

**Note:** Absolute changes are rounded to the nearest 50 jobs.

**Table 5: Forecasts of Scottish unemployment in Central scenario, 2011 to 2013**

	2011	2012	2013
ILO unemployment	219,800	234,200	231,550
Rate1	8.3%	8.9%	8.9%
Claimant count	149,500	166,300	164,400
Rate2	5.4%	6.0%	5.9%

**Note:** Absolute numbers are rounded to the nearest 50.

Notes: 1 = rate calculated as total ILO unemployed divided by total of economically active 16+ population. 2 = rate calculated as claimant count divided by the sum of claimant count and total jobs. The latest labour market figures are detailed in the Labour market section of this Commentary.

We are forecasting 2013 as well, but forecasts more than two years in advance were not assessed in the paper elsewhere in this issue. This was outside the typical forecast horizon during the last decade. Until we have enough evidence on the accuracy of forecasting at this time horizon we will not be able to use measured historical forecast errors to inform possible ranges of uncertainty. In the meantime – for this commentary – we assume that the accuracy of forecasts made now for 2013 have the same errors as the longest forecast horizon. The range around our central case is given in Figure 2. Readers will note that the

range is smaller for shorter forecast horizons, which is as we would expect.

Figure 3 gives the GVA changes in the “Production” sectors, while Figures 4 and Figure 5 give the forecasted changes in “Construction” and “Services” sector respectively for the central case. Note that these are given for SIC2007 categories, and so are consistent with the figures published 1A and 2A of the GVA release for Scotland.

**Figure 6: Scottish ILO and claimant count unemployment rate, history and forecast**

## Employment

As of December 2010 the number of employee jobs in Scotland stood at 2,294,400, with the current level of employee jobs (at the end of 2011Q2) giving a level of employee jobs of 2,292,200 (down 2,200 from the end of 2010). Forecasts for employee jobs are shown in Table 3.

In our central scenario we forecast that the number of (employee) jobs in Scotland at the end of 2011 will be 2,299,000. This is down from our estimate of the level of jobs made in June 2011, but is consistent with seven thousand additional jobs being between the end of Q2 and the end of Q4 2011. The largest number of jobs added during 2011 are forecast to come in the Production sectors, adding almost 2500 jobs from the end of 2010. The service sector is expected to expand employment by 2250 jobs, while there are only small employment gains in the construction sector over the forecast horizon. An evaluation of the accuracy of previous financial services sector employee jobs forecasts is given in Box 1.

The number of employee jobs in Scotland by the end of 2013 is forecasted to be thirty thousand higher than at the end of 2010, and almost sixty thousand higher than at the end of 2009. Employee jobs numbers are however forecast to be almost eighty thousand lower than at the end of 2008. Changes in net employee jobs under the forecasted range of growth scenarios are given in Table 4. With growth consistent with the upper points, net jobs of 70,000 are forecasted to be added to the Scottish economy. With growth at the lower end. Note that we expect the outcome to

be closer to the central forecast than either of these two alternative points.

## Unemployment

We present our 2011 to 2013 forecasts for unemployment in the central scenario, as measured by the ILO definition as well as those receiving unemployment benefits, in Table 5. The preferred measure of unemployment is the ILO definition as given by the Labour Force Survey. This is preferred as it is an indication of the level of labour available for work in the labour market, and so a better measure of the level of spare capacity in the Scottish economy. Our forecasted levels of ILO unemployment and claimant count for the end of 2011 have increased by 3,000 and 6,500 respectively since the forecast in June 2011. This reflects faster than expected growth in the unemployment rate which in the quarter to August 2011 increased by 0.3 percentage points to 7.9%. The claimant count level has increased by 6 thousand since the start of 2011 and now stands at 145,200 (5.4%). An increase of 4,300 in the number of claimants of Jobseekers Allowance, as we are now forecasting between September and the end of 2011 would be slightly faster increase than over the previous three months (3,200 between June and September 2011).

Our forecasts for both ILO and claimant count measures of unemployment have been revised upwards since June's commentary, again reflecting the worsening domestic and international economic climate, and weakening employment and unemployment statistics for Scotland over this period.

We show the history and forecasted values for the ILO unemployment rate and claimant count rate from 1992 to 2013 in Figure 6.

Grant Allan  
November 2011

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**References:**

Joyce, M., Tong, M and Woods, R. (2011), The United Kingdom's quantitative easing policy: design, operation and implementation, Bank of England Quarterly Bulletin Q3 2011, p. 200-212.

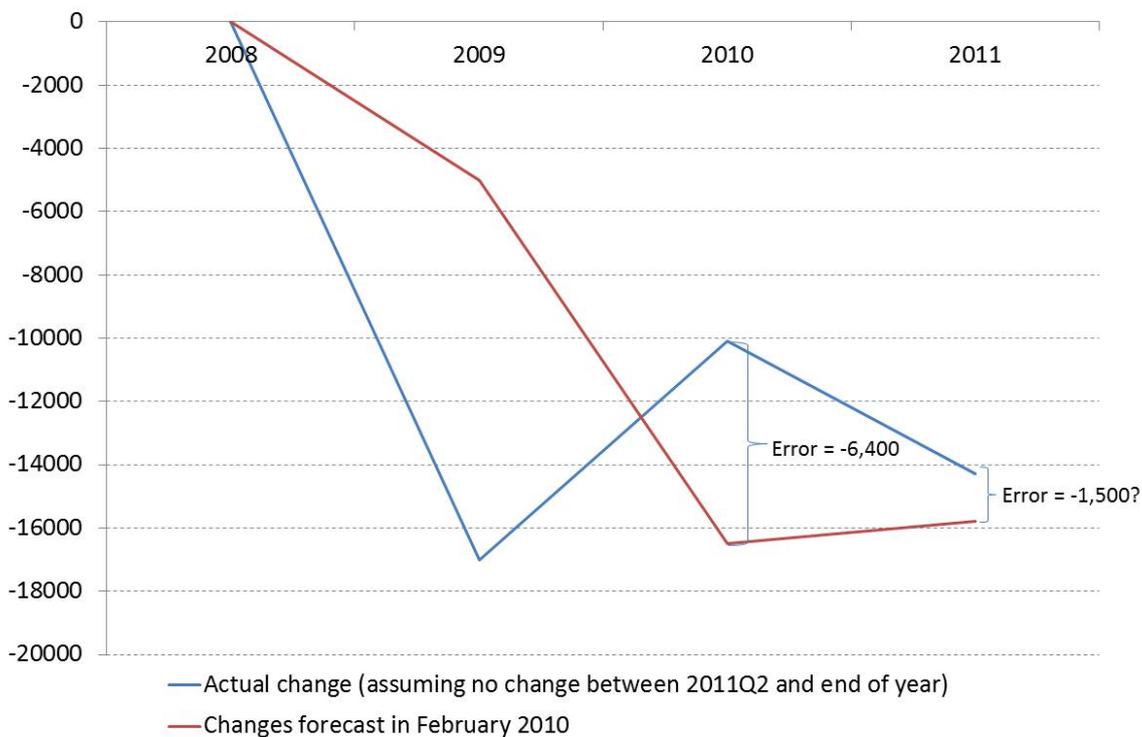
### Box 1: Forecasts of employment in the financial services sector

In February 2010 the FAI forecasted the level of employment in the financial services sector in Scotland. Produced over eighteen months ago, this forecast that the level of employment in the financial services sector would decline through 2009 and 2010 by a total of 16,500 jobs from the level at the end of 2008 (with most of these lost in 2010). It should be noted that the number of employee jobs in financial services at the end of 2009 was not known until after our forecast was published. Our forecasted jobs loss was picked up by some commentators as higher than would be expected at that time.

The latest data reveal that our initial forecasts were generally correct in both direction and magnitude, if not exactly accurate on quantitative or timing. The (seasonally adjusted) employee jobs series for financial services reports that at the end of 2010 there were 10,100 fewer jobs in this sector. The time period of changes is particularly interesting though. Rather than a slower reduction in 2009 with a larger loss of jobs in 2010, the decline in jobs was 17,000 in 2009, and 2010 saw a recovery of almost 6,900 jobs. Our forecast of the number of employee jobs was 6,400 more than were lost between the end of 2008 and the end of 2010.

Taking things forward, our February 2010 forecast had predicted a gain of 700 jobs in 2011, bringing total employee jobs in the sector by the end of 2011 down from 2008 levels by 15,800. At the time of writing, official statistics give the number of job losses during the first two quarters of 2011 as 4,200 jobs. Without further job growth in the sector through to the end of 2011 our forecasts for the employee jobs in financial services by the end of 2011 will have overestimated the number of jobs lost by 1,500. Comparing to the size of employment in the sector at the end of 2008, this is an error of 1.4%. We will return to check and report on the accuracy of the forecasts for employee jobs in the financial services when Q4 figures for 2011 are available during 2012.

**Figure B1: Changes in employee jobs in the financial services sector, end 2008 to end 2011**



# Review of Scottish Business Surveys

## Overall

Increasingly surveys of Scottish business, in common with UK and European surveys, have highlighted the continuing and deepening concerns as to the sovereign debt crisis in the Euro zone. These, together with growing fears of recession coupled with more signs of a slow down both in the UK and internationally, forecasts of lower rates of growth in 2012, consumer insecurity, pressures on household spending, rising energy costs and continued difficulties in obtaining finance have all contributed to a dampening of business confidence and activity.

However, the Scottish Engineering Review (Q3) retained a positive outlook, as did the Oil and Gas UK Quarterly Index (Q2), albeit more modestly and with more reservations it noted the announcement of a substantial investment and 'the Government's apparent willingness to engage with companies to lessen the negative impacts may have reassured companies and resulted in a slightly more positive outlook'.

Notwithstanding the deepening economic concerns the most recent occupancy rates as reported by Visit Scotland Scottish hotel occupancy surveys (July and August 2011) suggest average bed and occupancy rates were slightly better than in the same months in 2010 and 2009, and business remained quite confident. In contrast whilst Scottish Chambers hotel respondents reported declining business confidence, demand was still rising and occupancy rates better than in the previous year.

A sense of a slowdown in activity, noted earlier in other business surveys, was more evident in the latest CBI Industrial Trends (Q3), Bank of Scotland Scottish Job market (September) and PMI report (for September 2011) which reported a further moderation in Scottish private sector growth due to a fall in new business. It reported a fall in employment levels for the second consecutive month in the private sector, due mainly to job shedding in the service sector offsetting rising employment in manufacturing. As the Scottish Engineering Quarterly Review (q3) noted 'whilst our level of optimism remains high, our sector realises that in the longer term we are not immune to the effects of uncertainty associated not only with the Euro zone but also with the USA'.

Cost inflation continues to feature as an increasing business pressure, being noted by the PMI, Scottish Chambers, and Scottish Retail Consortium surveys.

## Oil and gas services

Internationally prospects are positive with expectations of increased capital spending on both exploration and production with continued expansion of deep water reserves and unconventional sources. Whilst the outlook for operators and for oilfield services is much brighter than other sectors in the current international economic difficulties, macro economic uncertainties continue to pose major uncertainties as to demand and the level of activity in both the short term and medium term.

In the UKCS and elsewhere volatility in stock exchange values have been seen by some analysts as adversely affecting smaller exploration and production companies' access to capital, and this may well encourage some consolidation of smaller E & P companies in the short to medium term.

In the UK positive news as to major investments, and signs of some resilience in investment levels, contributed to a positive view of the UKCS, and one which the Government took advantage of in support of its view that the recent tax increase, announced in the 2011 Budget, would only have a marginal effect on investment trends and activity in the industry. However, in a climate of limited resources it is likely that the unannounced 'raid' on the industry together with the increase in taxation levels will, in general terms, lower the attractiveness in investment in the UKCS compared to other regions, a review endorsed in the recent report of the House of Commons Energy and Climate Change Select Committee's report noted 'It is not sensible to make opportunistic raids on UKCS producers. The Government must build a more constructive relationship if it is to restore industry confidence and maximise the benefits gained from the UKCS.'

## Production

Respondents from the LloydsTSB Business Monitor (June-August 2011) reported that the overall net balance of turnover for firms in the production sector was 0%. This was worse than the +3% from the previous survey but better than the -14% reported by firms in the same quarter last year. The Business Monitor noted that expectations differ widely between sectors with production firms more pessimistic, although the degree of pessimism declined from the previous quarter.

## Manufacturing

The Index of Manufactured exports for the second quarter of 2011 indicated that exports grew by 1.1% over the quarter and on an annual basis grew by 2%. Textiles, engineering and chemicals registered the largest rise over the quarter. Business surveys differed in their interpretation of trends, but there was more agreement in recent surveys of a slowing down in activity. The Purchasing Managers Index (PMI) conducted by The Bank of Scotland concluded that the overall growth of manufacturing output in September was better than for the service sector, although the trends new orders were weaker. More recent UK data

(Markit/CIPS October) reported a substantial reduction in new order inflows with declining output, new orders and employment, this may herald weaker trends in Scottish surveys for the fourth quarter. Cost pressures for manufacturers remained similar to August levels with firms reporting sharper increases than their counterparts in the service sector. Employment prospects in manufacturing continued to look favourable during September.

The Scottish Engineering Review in its upbeat survey in September noted that 'for the first three quarters of 2011, the manufacturing engineering sector has shown remarkable resilience in the face of global economic disruption'. By and large firms in the survey remained optimistic and maintained their strong growth levels with respect to orders and output, although non metal products returned negative trends. Export trends, whilst positive, were again weaker and down from the peak reported in Q1 2011, and the rising trend in order intake remains on the positive trend for the sixth quarter, albeit at slightly lower levels. Staffing levels remain positive for the sixth quarter. But recognised that the sector is not immune in the longer term from the uncertainty in the Eurozone economies.

Similarly the CBI Industrial Trends Survey for Q3 2011 was that 'following seven consecutive quarters of growth, export orders are expected to contract in the coming three months and at their fastest pace for four and a half years. It comes as firms report that concerns over political and economic conditions overseas have risen, and which are now at their fifth highest quarterly level in 10 years'. The Survey concluded that manufacturing orders, employment and employment were all down whereas costs had increased during the third quarter.

The SCBS reported that manufacturing firms were, on balance, more pessimistic compared to three months ago. The rising trend in total new orders ended in quarter three although the upward trend in total new sales continued. The outturn in total orders was worse than had been expected however export orders continued to improve. Average capacity utilisation rose marginally to 77.7%, a little higher than a year ago. The rising trend in orders is expected to resume during the fourth quarter. Cost pressures eased marginally with half of respondents expecting prices to stabilize. Once again the net trend in turnover is expected to remain positive over the coming twelve months. Profitability, on balance, is expected to decline although the decline is set to ease with a net balance of 5% (compared to 10% in Q2) expecting a decline over the coming year.

Plans to invest in plant/machinery improved during quarter three for a net balance of SCBS manufacturing firms. New investment mainly directed towards replacement or to improve efficiency whereas R&D/expansion investment intentions remained low. Employment trends continued to rise modestly. Fewer than 15% of firms increased pay during the three months to October and the average

increase was 3.3%. Recruitment activity increased further with 40% attempting to recruit compared to 23% in Q2.

## Construction

The latest Scottish Construction Monitor conducted by the Scottish Building Federation members (SBF) for Q2 2011 reported an improving picture of overall confidence, but with at best a fragile recovery within the Scottish construction industry, with their latest confidence rating having risen by 16 percentage points from -22% to -6%. The survey noted however that, 70% of those completing the survey described themselves as less confident or as neither more nor less confident about the prospects for their business over the next 12 months compared to the past year. The Scottish Building Federation remain concerned over the prospects for sustainable long-term recovery in the industry.

Scottish Chambers' construction respondents noted that the strong downward trend in business confidence resumed in Q3 with business optimism as low as in Q3 2010; suggesting that the easing in the downward trend during Q2 was temporary. The outturn, in terms of new contracts, was significantly worse than had been anticipated by respondents in the previous survey. Trends in contracts from all areas declined with the most significant reduction being for public sector contracts. A net balance of firms from the previous survey had expected a rise in work in progress however the outturn was a net balance of -21%. 60% of firms reported working below optimum levels. Average capacity used, at 76.4% was two percentage points lower than Q2 although was marginally higher compared to a year ago. Turnover, tender margins and profitability over the next twelve months are expected to decline for more than half of respondents. The long-term downward trend in employment resumed in Q3, suggesting that the rise in Q2 was seasonal. Once again no recruitment difficulties were evident. Average pay increases declined from 3.9% in Q2 to 2.1%.

## The service sector

The Lloyds TSB Scottish Business Monitor (June-August 2011) described the recovery in the service sector as 'muted and mild' with no overall improvement in turnover during the three months to the end of August. The survey reported that service sector respondents continue to expect a negative net balance for expectations in turnover in the six months to the end of February 2012.

## Retail distribution

Recent UK retail figures from the ONS (August and September) provide a useful insight as to the issues confronting the sector. In the food sector sales values increased by 5.0% in August 2011 and continued to rise at similar rates in September, sales volumes decreased by 0.8% and prices rose by an estimated 5.7%. Interestingly in November 2006 approximately £1 in every £33 spent in retail (excluding automotive fuel) was spent on line, in August 2011 £1 in £10 spent in retail is spent on line. The implications for firms without an on line sales facility are

clear. Moreover, non food sales decreased and sales fell for the smallest retail firms. The September Retail Sales Monitor saw a slight improvement over the August figures with a slight rise in non-food sales (mainly small home wares and electrical goods). However, there is much to suggest, as the Scottish Retail Consortium noted, that any growth in retail is being driven by inflation rather than an increase in sales. Widespread discounting is evident and set to continue for the remainder of the year.

The Scottish Retail Sales Monitor (August data) reported sales falling at the second fastest annual rate since 1999. Retail sales value fell by 0.7% compared to the same month a year ago and the value of non food sales was down 3.6% compared to August 2010. With food sales rising 1.4% year on year in a context of inflation of 4.5% in August suggests a decline in the volume of sales.

Scottish Chambers' retail respondents reported no improvement in conditions in the retail sector in recent quarters with weak/declining consumer confidence, flat sales trends, increasing competition, rising costs and declining margins were widely reported by SCBS respondents. The low levels of business confidence remained with more than half of firms reporting a decline. The trend in sales weakened further with 68% reporting and 72% expecting some decline in the total value of sales. Only 10% reported increased sales during Q3 2011, and once again continuing concerns over consumer confidence are moderating sales expectations for the coming quarter with only 10% of retailers expecting an overall increase. Cost pressures remain intense with over 80% reporting increased suppliers costs, 58% reporting increased transport costs. Pressure from utility costs increased from 50% to 73% of firms (reflecting recently announced price increases). Inflationary pressures remain widespread. Pressures on margins also remain widespread with two thirds expecting declining profitability and turnover over the next year. Labour market activity continues to remain at low levels with three quarters of retailers reporting no change to overall employment levels. Recruitment activity eased for the ninth consecutive quarter.

## Tourism

Business confidence remained positive for respondents to the Visit Scotland Monthly Occupancy Survey (August 2011), but declined significantly in Q3 for Scottish Chambers' hotel respondents. Scottish Chambers' respondents reported increased occupancy levels (averaging 75.4% for Q3) and Visit Scotland's survey reported hotel occupancy up slightly compared to the previous two years, but a further decline in self catering occupancy. Increasing occupancy levels in the major city centres and in the islands adds support to those who see current visitor numbers bolstered by 'staycations' and shorter breaks.

During the three months to the end of September, trends in bar/restaurant trade and demand for conference/function

facilities remained relatively weak. A third reported reducing average room rates and the widespread pattern of 'special offers' seems set to continue with almost half expecting to reduce room rates in Q4. Underpinning these weak trends is the lack of tourist demand, reported by 84% of Scottish Chambers' hotel respondents whilst almost a quarter noted competition and poor transport infrastructure. Recruitment activity remained widespread, but mainly seasonal staffs.

## Logistics and wholesale

Data from the Scottish Chambers' Business Survey showed that business confidence amongst Scottish wholesale respondents deteriorated further in Q3 with no firms reporting an improvement in optimism. Business confidence was considerably lower compared to one year ago. Sales trends remained very weak during Q3 with the outturn worse than had been predicted by firms in Q2. Almost half of firms reported declining sales and more than half expect a further decrease. Cost pressures eased slightly during the three months to the end of September for SCBS responding firms although remained historically high. Three quarters of respondents cited transport costs and 62% cited increased suppliers costs and. Over 60% expect to increase prices over the next three months, but cash flow trends remain weak Concerns over turnover eased slightly however profitability remains low. Once again most firms reported no change to investment plans; nevertheless the net decline continued. Wholesale respondents continued to shed staff during Q3 although the rate of decline eased. Slightly fewer than a third sought to recruit staff; largely for replacement. The average pay increase in Q3 was 3.5% compared to 3.3% in Q2.

## Outlook

Recent business surveys suggest a slowing down in the recovery and more concerns that the recovery may, to all intents and purposes, halt over the winter months. Continued consumer uncertainty and reduced living standards are evident in the trends in retail and tourism. Concerns as to likely events in both the Eurozone and American economies continue to adversely influence both activity and sentiment in Scotland and in the rest of the United Kingdom.

The Scottish Chambers' Business Survey for Q3 concluded 'As we noted in report for Q1 2011 'Rising price pressures and weak demand seem set to continue in the service sector, for many Scottish businesses the combination of limited improvements in turnover, rising costs, pressures on margins and declining trends in profitability will pose real problems in 2011 we see little evidence in the results for the third quarter to change this view, if anything, our concerns are greater'. Such sentiments are more widely evident although not universal in recent business surveys.

Cliff Lockyer/Eleanor Malloy  
November 2011

Current trends in Scottish Business are regularly reported by a number of business surveys. This report draws on:

1. The Confederation of British Industries Scottish Industrial Trends Survey for the third quarter 2011;
2. Lloyds TSB Business Monitor for the quarter June 2011 – August 2011 and expectations to February 2012;
3. Scottish Engineering's Quarterly Reviews for the third quarter of 2011;
4. The Bank of Scotland Markit Economics Regional Monthly Purchasing Managers' Indices for July, August and September 2011;
5. The Scottish Retail Consortium's KPMG Monthly Scottish Retail Sales Monitors August/September 2011;
6. The Scottish Chambers of Commerce Quarterly Business Survey report for the second and third quarters of 2011;
7. Oil & Gas UK quarterly Index Q1 and Q2 2011;
8. Oil & Gas UK Economic Report 2011;
9. ONS Retail sales August and September 2011;
10. Visit Scotland Occupancy Survey for July and August 2011;
11. The Scottish Construction Monitor October 2011

# Overview of the labour market

Inevitably current interest in the Scottish labour market continues to focus on the trends in both employment and unemployment figures, a theme developed in other sections of this edition. Public interest continues to focus on public sector employment trends and for a further issue we return to these themes and to a review of a recent ACAS discussion paper reviewing the emerging changes in public sector employment relations.

## A new era of public sector employment

In a recent ACAS discussion paper (2011) Professor Bach argues, that just as there have been major change in the public sector over the past two decades the current Government's policies to modernise public services and to reduce the deficit are 'likely to have wide ranging and in some cases, profound implications for employment relations'. Bach argues that these changes imply a 'major shift in terms and conditions of employment and a further erosion of national bargaining'. Moreover the issues of maintaining morale and employee commitment will become more problematic and will 'have a bearing on behaviour and motivation long after the redundancy process has been completed'. The credibility of independent pay review bodies is likely to be under some strain given policies of pay restraint, and Bach notes some 'waning in official enthusiasm for independent pay review'. The further dismantling of national pay arrangements may well lead to new problems especially those relating to the provision of training and mobility of staff. Pay restraint in the public sector needs to consider the longer term issues of likely shortages of staff and the consequential pay and grade drift together with the introduction of supplements which have been a feature in periods following previous periods of public sector pay restraint. Later this year widespread public sector industrial action seems likely over the current proposals to change public sector pensions, and threats of action seem likely in a number of areas as the effects of reductions in public sector expenditure become more evident.

## Recent trends and statistics

Comparable figures on the labour market between Scotland and the United Kingdom in the quarter June – August 2011 are summarised in Table 1. Labour Force Survey (LFS) data show that in the quarter to August the level of employment in Scotland fell by 24 thousand, to 2,474 thousand. Over the year to August 2011, employment in Scotland rose by 20 thousand. For the same period, UK employment fell by 47 thousand. The Scottish employment rate (16 – 64) – those in employment as a percentage of the working age population – was 71.2 per cent, up 0.3 per cent compared to

one year earlier. For the same period the UK employment rate was 70.4 per cent, down 0.3 per cent compared to one year earlier. Unemployment, in the quarter to August, rose by 7 thousand to 212 thousand, a fall of 17 thousand over the year.

In considering employment, activity and unemployment rates it is important to remember the bases and relationships of these figures. LFS data (estimated) is provided for: (1) all aged 16 and over and (2) for all aged 59/64. The first measure (all aged 16 and over) leads to higher numbers in employment, in the total economically active and economically inactive – but reduces the economic activity rates and unemployment rates, but at the same time increases the economically inactive rate. Conversely the second measure (all aged 16 to 59/64) leads to lower numbers economically active, in employment and economically inactive – but leads to a higher economically active, employment and unemployment rates but lower economically inactive rates. Figures derived from the Labour Force Survey differ slightly from those derived from the Annual Population Survey.

The relationships between employment, unemployment, totally economically active and inactive are important in appreciating changing levels of employment and unemployment, and changes in the employment rates should be seen in conjunction with changes in the activity rates. If people leave employment and become unemployed (but are still economically active) the unemployment rate increases, but the economically active rate remains unchanged. However, if people leave employment and do not seek employment, as seems to be a continuing pattern, they are categorised as economically inactive, as such the unemployment rate remains unchanged whilst the activity and inactivity rates change. Equally the changing pattern between full and part time employment is of interest. As the State of the Economy Annex to the July 2011 State of the Economy, produced by the office of the Chief Economic Adviser, notes between Jan – March 2008 and Jan – March 2011, part time employment in Scotland grew by 6.5% compared to a fall of 5.8% in full-time employment over the same period. Our understanding of the trends in total employment will differ if we examine total employment, or consider the trends in full time equivalents, we return to this issue later in this section. These relationships are clearly shown in tables 1 and 5. Over the year to August 2011, the numbers employed rose by 20 thousand, whilst unemployment fell by 17 thousand – and the numbers of those aged 16-59/64 who are economically inactive fell by 8 thousand and the numbers economically active rose by 14 thousand.

Table 1 shows that for Scotland the preferred ILO measure of unemployment rose to 212 thousand, between June - August 2011, and fell by 17 thousand over the year. The ILO unemployment rate rose in the three months to August 2011 and now stands at 7.9 per cent. This represents a 0.3 per cent rise over the last quarter.

**Table 1: Headline indicators of Scottish and UK labour market, June - August 2011**

June - August 2011		Scotland	Change on quarter	Change on year	United Kingdom	Change on quarter	Change on year
Employment*	Level (000s)	2,474	-24	20	29,101	-178	-47
	Rate (%)	71.2	-0.5	0.8	70.4	-0.3	-0.3
Unemployment**	Level (000s)	212	7	-17	2,566	114	113
	Rate (%)	7.9	0.3	-0.7	8.1	0.4	0.3
Activity*	Level (000s)	2,686	-17	3	31,668	-63	66
	Rate (%)	77.4	-0.3	0.3	76.7	0.0	-0.1
Inactivity***	Level (000s)	770	10	-8	9,354	26	75
	Rate (%)	22.6	0.3	-0.7	23.3	0.0	0.1

**Source:** Labour Market Statistics (First Release), Scotland and UK, October 2011

\* Levels are for those aged 16+, while rates are for those of working age (16-59/64)

\*\* Levels and rates are for those aged 16+, rates are proportion of economically active.

\*\*\* Levels and rates for those of working age (16-59/64)

The economically active workforce includes those individuals actively seeking employment and those currently in employment (i.e. self-employed, government employed, unpaid family workers and those on training programmes). Table 1 shows that the rate of the economically active fell 17 thousand between June - August 2011. There were 2,686 thousand economically active people in Scotland during June - August 2011. This comprised 2,474 thousand in employment and 212 thousand ILO unemployed. The level for those of working age but economically inactive rose by 10 thousand in the latest quarter, but over the year the total fell by 10 thousand to 770 thousand people; this indicates a fall of 0.8 per cent in the number of people of working age economically inactive over the last year.

Data on employment by age, derived from the Annual Population Survey, is available up to March 2011. In the year to March 2011 employment rates fell for those aged 18 – 24 and those aged over 35, with the employment rate for those aged 16 – 64 falling by 0.1 percentage points and with the largest percentage point falls being recorded for those aged 18 - 24 (down 1.6%) and 50 - 64 (down 0.6%).

Employment rates for men again fell more than those for women, except for those aged 50 – 64. Table 2 illustrates the changing employment rates by age group for the four years April - March 2008 – 2011 and illustrates consistent declines across all age groups, except 16 – 17 year olds.

In the year to August 2011 (the latest available data) inactivity amongst 16 – 64 fell by 8 thousand, a 0.8% decrease over the year and the inactivity rate (16 – 64) stood at 22.6%. Inactivity for men aged 16 – 64 rose by 10 thousand (3.3%) over the last quarter but fell by 9 thousand (3.9% over the year. Inactivity for women was unchanged over the past quarter but rose by 1 thousand (0.3%) over the year.

In the year to August 2011 inactivity fell by 2 thousand to 779 thousand. The main increases reported for the reasons for inactivity over the year were: retired up 9 thousand and long term sick up 11 thousand. The numbers looking after family and home rose by 1 thousand and those temporarily sick fell by 3 thousand.(See Table 11, First Release Data).

**Table 2: Employment rates thousands (%) people by age for the four years April – March 2008 - 2011**

	All 16+	16 - 64	16 - 17	18 - 24	25 - 34	35 - 49	50 - 64	65+
Apr 2007 - Mar 2008	60.6	74.0	38.0	68.1	81.6	83.9	64.9	5.6
Apr 2008 - Mar 2009	60.1	73.3	39.2	66.8	81.1	82.8	65.0	6.1
Apr 2009 - Mar 2010	58.4	71.2	32.2	62.6	78.1	81.1	64.9	6.5
Apr 2010 - Mar 2011	58.1	71.0	33.2	61.7	78.9	81.6	63.3	6.7

**Source:** Labour Market Statistics (First Release), Scotland and UK, October 2011

**Table 3: Employment, unemployment and inactivity rates by local authority area 2007, 2008 and Apr 2010 – March 2011 (%)**

Geography (Residence Based)	Employment rates			Unemployment rates 16+*			Economic inactivity rates		
	2007	2008	Apr 2010/ Mar 2011	2007	2008	Apr 2010/ Mar 2011	2007	2008	Apr 2010/ Mar 2011
<b>Scotland</b>	<b>76.0</b>	<b>75.6</b>	<b>71.0</b>	<b>4.7</b>	<b>4.9</b>	<b>7.8</b>	<b>20.1</b>	<b>20.3</b>	<b>22.9</b>
<b>Local Authority Area</b>									
Aberdeen City	79.1	79.4	76.5	3.7	3.6	5.3	17.3	17.6	18.2
Aberdeenshire	82.6	82.2	80.9	2.5	2.6	3.7	15.6	15.5	16.0
Angus	79.1	80.0	73.2	4.5	4.6	7.0	16.2	15.6	20.5
Argyll & Bute	80.0	77.6	72.5	4.0	4.3	6.3	16.3	18.4	22.7
Clackmannanshire	69.4	70.9	74.2	5.5	5.4	8.3	25.3	25.4	21.6
Dumfries * Galloway	77.4	76.2	70.1	4.2	4.5	6.6	19.1	19.5	24.4
Dundee City	72.1	71.5	70.5	6.6	6.3	8.8	22.4	23.9	23.1
East Ayrshire	73.1	74.6	70.2	6.3	6.1	9.3	21.5	20.4	23.5
East Dunbartonshire	78.9	77.6	72.6	3.1	3.9	6.2	19.0	18.7	21.5
East Lothian	79.2	77.9	72.2	3.5	3.5	7.0	18.0	19.4	21.9
East Renfrewshire	77.2	76.5	72.5	3.4	3.6	5.5	19.1	20.5	22.5
Edinburgh, City of	77.4	76.6	71.5	4.3	4.5	6.5	19.5	19.8	23.5
Eilean Siar	79.4	78.7	65.3	4.2	4.6	7.0	17.7	16.3	31.4
Falkirk	78.1	78.9	72.6	4.6	4.4	8.0	18.5	18.3	21.4
Fife	75.9	76.5	70.8	5.6	5.8	9.2	18.8	17.7	21.3
Glasgow City	66.9	66.6	62.3	6.8	6.9	11.2	28.2	28.8	29.4
Highland	82.0	81.7	77.8	3.2	3.5	5.1	16.0	16.3	18.9
Inverclyde	68.4	72.5	70.4	7.1	6.4	8.7	24.8	23.0	23.4
Midlothian	80.7	79.9	72.7	4.2	4.2	7.9	15.1	16.2	20.3
Moray	80.4	81.8	78.3	3.5	3.8	5.0	17.2	15.0	18.9
North Ayrshire	71.5	71.8	61.4	6.4	7.4	12.1	23.5	22.0	29.8
North Lanarkshire	73.2	71.0	70.4	5.4	5.9	9.9	22.6	23.8	21.9
Orkney Islands	86.4	83.9	77.5	2.7	2.9	3.9	11.2	14.2	19.3
Perth and Kinross	78.1	78.7	75.0	3.5	3.7	5.3	18.8	17.9	20.5
Renfrewshire	75.0	76.0	67.2	5.1	5.5	9.6	20.9	18.9	24.9
Scottish Borders	81.4	80.6	72.2	3.1	3.6	6.0	16.2	15.8	23.1
Shetland Islands	88.1	88.0	83.8	2.6	2.8	3.6	10.4	10.8	14.6
South Ayrshire	77.2	75.4	67.9	5.0	5.4	9.0	18.9	20.5	24.3
South Lanarkshire	78.9	76.7	71.6	4.2	4.4	7.8	18.5	20.6	23.7
Stirling	76.8	75.2	69.5	3.9	4.5	7.0	19.2	20.2	24.3
West Dunbartonshire	73.9	71.2	68.0	6.3	6.9	10.8	20.8	23.3	23.6
West Lothian	77.8	79.1	73.0	4.8	4.6	7.7	17.7	17.4	21.6

**Source:** 2007 and 2008 data from Annual Population Survey (Jan to Dec)

Oct 2009/September 2010 data from Labour Market Statistics (First Release), Scotland and UK, October 2011 (Source Annual Population survey, Job Centre Plus administrative system and Annual Business Inquiry)

**Notes:** See sources for definitions and original sources

Statistics from the Annual Population Survey provide some indications of the impact of the recession at local area levels, by occupation and by sector (the APS combines results from the Labour Force Survey and the Scottish Labour Force Survey). Thus these figures differ slightly from those produced from the Labour Force Survey and the Annual Business Inquiry and from those published in Labour Market Statistics (First Release), Scotland and UK, October 2011). Table 3 indicates the continuing significant differences in employment, unemployment and inactivity rates before the onset of the recession, however, between 2008 and 2009 the gap between the areas with the highest

and lowest employment rates widened by 5.8 percentage points. In the year April 2010 – March 2011 employment rates varied from over 80% in Aberdeenshire and Shetland to under 70% in seven local authority areas. Likewise unemployment rates were again lowest in Aberdeenshire, Orkney and Shetland and highest, over 12%, in North Ayrshire and over 11% in Glasgow, and inactivity rates were highest in Eilean Star, North Ayrshire and Glasgow City.

The most recent figures for the number of workforce jobs by industrial activity are detailed in Table 4. Total workforce job figures are a measure of jobs rather than people. Total

**Table 4: Total workforce jobs\* by industry, Scotland, June 2005–2011 (thousands)**

Industry	June 2005	June 2006	June 2007	June 2008	June 2009	June 2010	June 2011
A : Agriculture, forestry and fishing	51	54	60	60	59	62	55
B : Mining and quarrying	25	28	30	30	29	27	29
C : Manufacturing	233	226	228	212	201	181	177
D : Electricity, gas, steam and air conditioning supply	10	10	13	16	19	19	20
E : Water supply; sewerage, waste management etc	16	18	17	16	14	14	15
F : Construction	181	194	203	199	185	188	172
G : Wholesale & retail trade; repair of motor vehicles etc	382	384	380	396	398	363	389
H : Transportation and storage	125	118	123	123	111	140	112
I : Accommodation and food service activities	189	190	188	191	186	197	193
J : Information and communication	72	73	79	69	68	75	65
K : Financial and insurance activities	114	107	91	98	100	95	95
L : Real estate activities	25	29	30	32	32	23	29
M : Professional, scientific and technical activities	145	154	161	176	174	157	173
N : Administrative and support service activities	174	180	192	200	185	176	172
O : Public administration & defence; social security	180	177	181	177	146	145	138
P : Education	199	200	192	208	208	197	211
Q : Human health and social work activities	384	399	383	398	401	375	431
R : Arts, entertainment and recreation	75	81	75	84	71	72	70
S : Other service activities	63	65	63	58	59	67	60
Column Total	2,644	2,685	2,690	2,740	2,651	2,571	2608

**Source:** Labour Market Statistics (First Release), Scotland, October 2011

\* Workforce jobs are a measure of jobs rather than people

**Note:** There have been considerable revisions to the June 2009 and June 2010 from previous figures and as of September 2011 ONS are highlighting figures with a coefficient of variation greater than 25%

**Table 5: Trends in total, full, part-time, temporary and part-time who could not find a full-time job**

Scotland	All in employment							
	Total <sup>1</sup>	Employees <sup>1</sup>	Self employed <sup>1</sup>	Full-time workers <sup>2</sup>	Part-time workers <sup>2</sup>	Workers with second jobs	Temporary employees	Could not find full-time job
Jan 2007 - Dec 2007	2,525	2,244	263	1,892	631	93	128	60
Apr 2007 - Mar 2008	2,533	2,248	267	1,900	630	96	126	60
Jul 2007 - Jun 2008	2,544	2,254	271	1,912	629	98	125	61
Oct 2007 - Sep 2008	2,550	2,262	269	1,916	631	98	119	61
Jan 2008 - Dec 2008	2,529	2,243	268	1,900	626	99	116	64
Apr 2008 - Mar 2009	2,527	2,245	267	1,899	624	101	117	65
Jul 2008 - Jun 2009	2,515	2,235	264	1,880	632	103	123	73
Oct 2008 - Sep 2009	2,503	2,220	265	1,856	644	102	127	81
Jan 2009 - Dec 2009	2,492	2,211	265	1,844	645	102	133	84
Apr 2009 - Mar 2010	2,470	2,185	267	1,815	652	101	132	90
Jul 2009 - Jun 2010	2,462	2,179	265	1,802	656	99	126	96
Oct 2009 - Sep 2010	2,466	2,183	264	1,798	663	98	127	99
Jan 2010 - Dec 2010	2,469	2,181	268	1,793	671	97	124	106
Apr 2010 - Mar 2011	2,471	2,182	270	1,796	670	97	125	110

**Source:** Labour Market Statistics (First Release), Scotland, October 2011

**Note:** <sup>1</sup> Includes people who did not state whether they worked part time or full time

<sup>2</sup>The split between full time and part time employment is based on respondents' self classification

seasonally adjusted employee jobs for the quarter ending June 2011 (the latest available figures) stood at 2,608 thousand, although it is necessary to note significant revisions to the 2009 and 2010 figures since the last report. Table 4 provides some indication of both the impact of the recession and the recovery on sectors, although the trends need to be considered with some caution.

Table 5 outlines the changing patterns of full time and part time employment, and highlights the growth in the numbers of part-time workers in Scotland, the latest data (April 2010 – March 2011), indicates that since the peak in employment (October 2007 – September 2008) total employment (employees, self employed, unpaid family workers and those on government supported training and employment programmes) has fallen by 79 thousand. The numbers of full time workers in Scotland since the peak in employment has declined by 120 thousand whilst part time employment numbers recovered very quickly and are now 40 thousand higher. The number of self employed is now above that reported in October 2007 – September 2008, suggesting some substitution of self employment for employment. The number of those working part time because they could not find a full time job has almost doubled, suggesting that

increasing numbers of workers were taking part time employment in the absence of full time work (the same argument applies to temporary work). Interestingly, a comparison of tables 3 in the first release for Scotland and for the UK figures suggests that, in relative terms, the decline in full time employment has been greater in Scotland than in the UK, but in contrast the growth in part time employment, in relative terms, has been greater suggesting that the relative 'better' performance in employment in Scotland in recent quarters has been fuelled by a growth in part time employment, as a comparison of FTEs would suggest. The relative growth in the numbers of self employed has been greater in the UK than in Scotland.

Table 6, drawing on the Annual Population Survey, attempts to explore how the pattern of jobs has changed since the onset of the recession, it suggests a growth in the numbers employed in personal service, sales and customer service and elementary occupations, and some decline in managerial, professional, and process, plant and machine operatives. This pattern would resonate with the trends in increasing numbers of part time employees, but raises some concerns as to the potential availability of sufficient skills to sustain a recovery.

**Table 6: Trends in employment by standard occupational classification**

	Apr 06 Mar07	Apr 07 Mar08	Apr08 Mar09	Apr09 Mar10	Apr10 Mar11
Managers and senior officials	566,500	578,700	586,500	577,900	575,300
Professional occupations	596,900	617,000	625,600	599,400	616,900
Associate Prof & Tech Occupations	646,900	687,100	697,500	695,000	688,900
Administrative and Secretarial Occupations	560,400	531,500	521,800	513,300	496,900
Skilled Trades Occupations	366,300	380,000	392,700	372,400	376,800
Personal Service Occupations	444,400	454,700	441,600	457,700	469,700
Sales and Customer Service Occupations	396,100	403,900	385,600	394,800	417,000
Process, Plant and Machine Operatives	276,900	271,700	268,800	259,700	251,600
Elementary occupations	558,400	532,900	517,500	535,600	526,400

**Table 7: Total claimant count and computerised claims by age and duration (Numbers and percentage change over year to September 2011)**

	All computerised claims	All computerised claims Up to 6 months	All computerised claims Over 6 and up to 12 months	All computerised claims All over 12 months
All 16+ numbers	140,000	84,500	31,300	23,600
All 16+ % change over year	7.7%	6.6	2.6	1.4
All 18 – 24	41,600	30,600	8,700	2,300
All 25- 49	75,900	41,900	17,900	16,000
All 50 and above	21,000	11,200	4,600	5,300

**Table 8: Local Government employment by local authority (headcount) Q2 207 – Q2 2011 (not seasonally adjusted)**

<b>Year</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Annual change</b>
<b>Quarter</b>	<b>Q2</b>	<b>Q2</b>	<b>Q2</b>	<b>Q2</b>	<b>Q2</b>	<b>headcount</b>
<b>Local Authority / Joint Board</b>						
Aberdeen City	11,700	11,600	9,500	9,400	8,900	-400
Aberdeenshire	14,000	14,000	14,700	14,900	14,400	-500
Angus	5,600	5,700	5,700	5,600	5,600	0
Argyll & Bute	5,600	5,400	5,500	5,200	5,100	-100
Clackmannanshire	2,800	2,900	2,900	2,800	2,600	-200
Dumfries & Galloway	8,300	7,700	8,000	8,300	7,900	-400
Dundee City	8,400	8,400	8,200	8,100	7,800	-300
East Ayrshire	6,800	6,800	6,800	6,600	6,500	-100
East Dunbartonshire	4,800	4,900	5,000	5,000	4,400	-500
East Lothian	5,000	4,900	4,900	4,800	4,700	-100
East Renfrewshire	4,600	4,700	4,800	4,500	4,500	-100
Edinburgh, City of	20,800	20,200	19,300	18,800	18,100	-700
Eilean Siar	2,500	2,600	2,500	2,500	2,500	0
Falkirk	7,900	8,000	8,200	7,800	7,900	100
Fife	23,900	23,000	23,300	23,100	21,900	-1,200
Glasgow City	32,700	32,200	23,800	23,100	21,700	-1,400
Highland	12,800	12,700	13,000	13,000	12,400	-600
Inverclyde	5,200	4,900	4,900	4,700	4,500	-100
Midlothian	4,500	4,800	4,700	4,800	4,600	-200
Moray	5,100	5,100	5,300	5,100	5,000	-100
North Ayrshire	7,400	7,400	7,300	7,200	6,700	-500
North Lanarkshire	18,300	18,000	17,900	17,500	16,700	-800
Orkney Islands	2,200	2,100	2,400	2,400	2,400	-100
Perth & Kinross	6,000	6,100	6,300	6,100	5,900	-200
Renfrewshire	9,200	8,900	8,900	8,400	7,600	-800
Scottish Borders	5,800	5,800	5,800	5,700	5,700	0
Shetland Islands	3,700	3,800	4,000	4,100	4,100	100
South Ayrshire	5,900	5,800	5,600	5,600	5,700	200
South Lanarkshire	16,500	15,700	15,900	15,800	14,700	-1,100
Stirling	4,600	4,400	4,400	4,400	4,000	-400
West Dunbartonshire	6,000	6,300	6,500	6,300	6,200	-100
West Lothian	8,300	8,400	8,500	8,500	7,900	-600
Total Fire Joint Boards	5,800	5,800	5,800	5,700	5,600	-200
Total Police Joint Boards	24,100	23,300	24,700	24,800	24,000	-800
Total Valuation Joint Boards	700	700	700	600	600	0
Total Regional Transport Partnerships (SPT)	700	700	700	700	600	0
<b>SCOTLAND</b>	<b>318,100</b>	<b>313,700</b>	<b>306,300</b>	<b>301,800</b>	<b>289,400</b>	<b>-12,400</b>

**Source:** Joint Staffing Watch Survey, Scottish Government

- Notes:**
1. Figures are rounded to nearest hundred.
  2. Totals may not add to the sum of the parts due to rounding.
  3. Figures for Fire Service staff exclude volunteer and retained fire-fighters.
  4. Police and Fire Service staffs in Dumfries and Galloway and Fife, who are not covered by Joint Boards, are included within the figures for Joint Boards for consistency.

Tables 7 and 8 of the Labour Market statistics (first release) provide information of the trends in the claimant count. The figure for September indicates a total of 145.2 thousand claimants, up 10.3 thousand for the year. Of interest are the differing trends in the claimant count for men and women. The claimant count for men, 100.9 thousand was up 2.9 thousand over the year, whereas the comparable figure for women, 44.3 thousand, was 7.4 thousand higher than a year ago.

Table 7 provides some limited indications of the experience of unemployment in terms of claimant count by age and duration. The latest figures suggest that 23.6 thousand have been claiming benefit for more than a year, up 2,600 over the year and 5.8 thousand have been claiming for more than 2 years, up 1.4 thousand over the year.

### **Public sector employment in Scotland**

The pace of reform of the public sector is accelerating with the announcement of proposals for a single Scottish police force and similar national organisations for the emergency services. Within the university sector rationalisation of courses continues and the first mention of merger has been voiced. Elsewhere, cuts, reduction in services, possible contracting out of services have been announced and/or are under discussion, although proposals for shared services by local authorities seem to have faded.

Table 8 indicates the changes in headcount by local authority and indicates both a decline in Local Authority employment of 12,400 over the year, and some evidence of acceleration in the rate of reduction in employment. The latest data for public sector employment (q2 2011) suggests a reduction of 22,700 (excluding public sector financial institutions) over the year with declines in all areas, including a decline in headcount employment of 4,800 in the NHS, 1,100 in FE colleges, 9,400 in total central Government, and again some acceleration in the rate of decline.

### **Outlook**

The short term trends in employment indicate a decrease in employment and a rise in unemployment. Total employment is still some 79 thousand below the peak before the recession; the number of full time employees has declined by 120 thousand whilst the numbers of part time employees has risen by 40 thousand, growth in employment seems to be more concentrated in personal services and sales occupations, but as household incomes continue to be under pressure is uncertain how much longer this trend in employment can be sustained. Reductions in public sector expenditure have yet to impact on the public sector employment landscape. Yet, if the rate of decline in public sector employment continues, then the private sector will need to generate over 25,000 jobs in the next year to sustain current employment figures.

Any recovery in employment is likely to be slow and limited. Reducing unemployment/increasing activity rates for areas with a history of higher levels of unemployment will be particularly difficult and harder than in the past given the changing landscape of local and central government services.

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Cliff Lockyer  
October 2011

# Economic perspectives

## How wrong were we? The accuracy of the Fraser of Allander Institute's forecasts of the Scottish economy since 2000

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### Abstract

The Fraser of Allander Institute regularly forecasts the annual growth of the Scottish economy. This paper measures the accuracy of these forecasts. It contrasts official measures of the growth performance of the Scottish economy and FAI forecasts for growth. Specifically, official measures of growth for the calendar years 2001 to 2010 are compared to forecasts for growth in these years made between January 2000 and spring 2011. Results show that: FAI forecasts of the direction of economic growth from one year to the next was statistically better than chance; the accuracy of forecasts improve as we get closer to the publication of the first growth estimate; excluding the 'Great Recession', the mean absolute error of forecasts made up to eighteen months before publication of the first growth estimate for a year is approximately half a percentage point (i.e. 0.5%). There have often been significant revisions to Scottish GVA data, particularly at the start of the sample period. This emphasises the need for quality, and timely, indicators of economic performance for the Scottish economy as part of the information required for accurate forecasts in the future.

*"The only function of economic forecasting is to make astrology look respectable", (John Kenneth Galbraith, quoted in US News and World Report, 11th January 1988)*

### 1. Introduction

Whether aware of it or not, we all use forecasts, and the accuracy of these is important. Weather forecasters will state the pattern of weather likely for particular areas during certain hours of the day, with their accuracy (or an idea of the likely margin of error) being crucial for users reliant on such forecasts. Astrologers will suggest particular influences

**Opinions expressed in economic perspectives are those of the authors and not necessarily those of the Fraser of Allander Institute**

or outcomes for people born between specific calendar dates. Economic forecasters will, typically, produce estimates of the likely growth of an economy in a future year. These forecasts may be considered a “barometer” of the potential strength of that economy in the future. All users of forecasts will be helped to understand the nature of uncertainty around this specific forecasts is the forecasts also provide the scale of margins of error on these forecasts.

Since 1975, the Fraser of Allander Institute (FAI) has published forecasts of elements of the Scottish economy, including annual economic growth. The accuracy of these forecasts can be empirically quantified. To the author’s knowledge, this is the first academic assessment of the accuracy of the FAI forecasts<sup>1</sup>. We consider forecasts for the growth of the Scottish economy published between January 2000 and Spring 2011. These relate to annual growth between 2001 to 2010. While this is a relatively short time period, it allows us to evaluate how accurate the FAI’s forecasts of the Scottish economy have been over the last decade. Here we are not concerned with issues relating to the production of the forecasts, rather we are solely focusing on the accuracy of the published forecasts<sup>2</sup>. The availability of recent data produced by the Scottish Government on the growth of the Scottish economy begins in 1998, so analysis cannot go before this date on a comparable basis.

Figures for economic growth in Scotland are published by the Scottish Government and produced on a less timely basis than for growth in the UK as a whole (produced by the Office for National Statistics). The first estimates of annual growth figures for Scotland for each year of the decade in question have typically been available around seventeen weeks after the end of the calendar year to which they relate.

For example, the first estimate of growth in the final quarter of 2010 was published on the 20th of April 2011, sixteen weeks after the end of the year. This is three weeks longer than the time taken for the first three official estimates of UK growth as a whole to be published. Preliminary data for growth in the UK in the final three months of 2010 was published on the 25th of January 2011, a second estimate published on the 25th of February 2011, and the third estimate was reported in the UK national accounts publication produced on the 29th of March 2011. The longer delay in Scottish GVA series appears to be due to all of the information used to calculate this series not being available earlier. Some data is available reasonably quickly – for example, the most recent Retail Sales Index, for example, for the second quarter of 2011 was published less than five weeks after the end of that quarter. This is however a relatively small part of the data requirements for Scottish GVA series. Monthly surveys are typically more important for the GVA series, but are available at a much longer delay (around two months).

In addition to the delay in the GVA data being published, the first estimates of Scottish GDP growth figures have also been subject to considerable revision. A recent assessment of the revisions to Scottish GDP figures (Scottish Government, 2010) looked at revisions over the last ten years. This used a “rolling” five-year average which would take account of changes in methodology over the last decade. This concluded that future revisions to quarterly data had not been always positive or negative (i.e. first estimates of growth were not systematically biased). Mean Absolute Errors however showed that first estimates of quarterly growth were likely to be revised by around 0.15 percentage points by the same time the following year. This is broadly in line with absolute revisions to initial UK quarterly growth estimates.

The implications of slower release of Scottish growth data and revisions increase the complexity of evaluating the accuracy of forecasts. For example, part of the information available when forecasts are produced relates to the past performance of the Scottish economy as represented in the data released up to that point in time. If that information had subsequently been revised, it is likely that our forecasts would have been different from those published. Revisions to the growth series have implications for the accuracy of FAI forecasts and we explore these by comparing forecasts for growth to estimates of growth published initially, after one year, and the latest estimates<sup>3</sup>.

This paper proceeds as follows: Section 2 discusses the provision of figures on growth in the Scottish economy, including revisions between the first estimate of annual growth and later periods. This section also describes the forecasts for economic growth made by the FAI over the period, and how “errors” (i.e. differences between what was forecast and the actual growth figures) are calculated. Diagrams reveal the scale of these “errors”. Section 3 introduces two statistical measures which use the errors to examine the accuracy of the FAI forecasts. Section 4 presents and discuss the results, while Section 5 makes some conclusions.

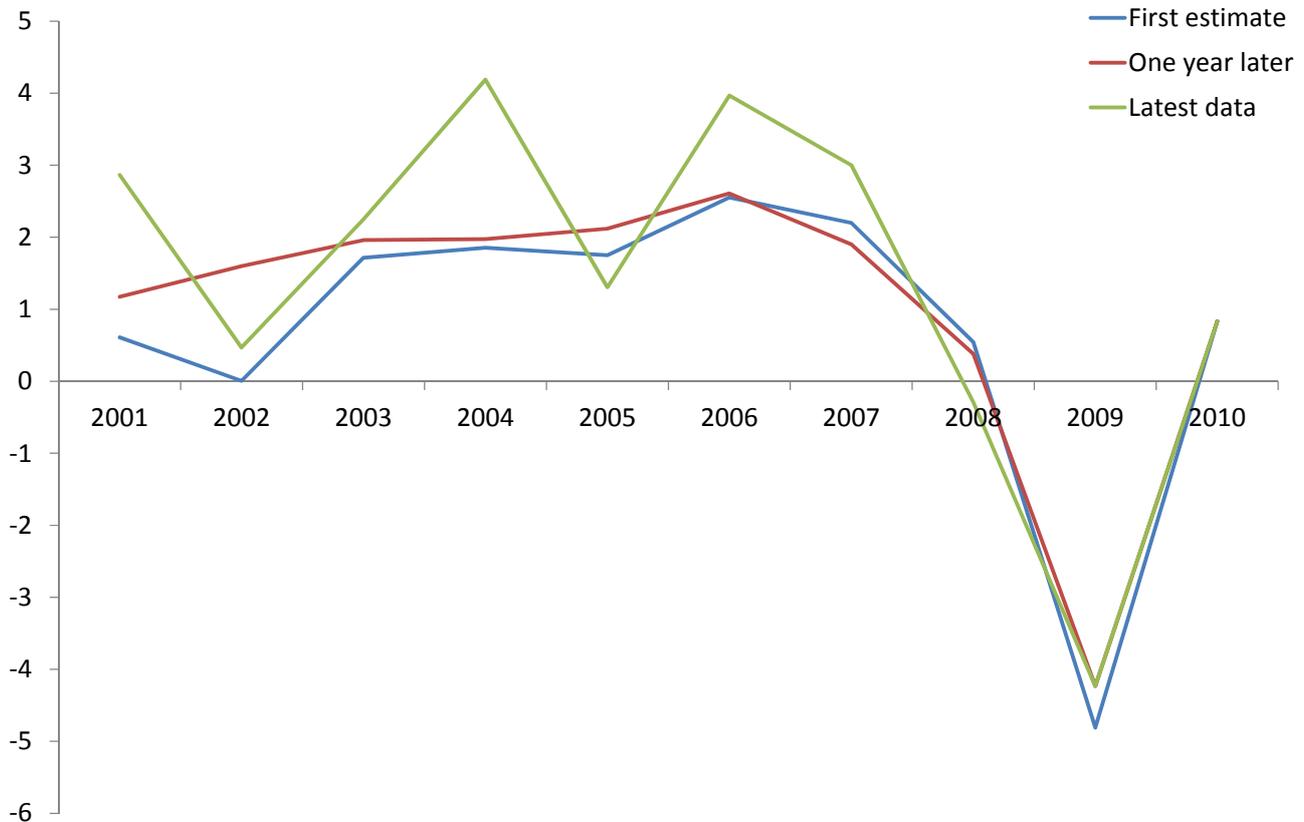
## 2. Data

### 2.1 *Growth in the Scottish economy*

Gross Value Added (GVA) measures the amount of goods and services produced in an economy. Annual GVA growth figures reveal by how much economic activity has increased from one year to the next. GVA figures for the Scottish economy have been produced on a quarterly basis beginning in the first quarter of 1998. As mentioned in the introduction these are typically produced around seventeen weeks after the end of the quarter to which they refer, although it must be noted that this time period has reduced slightly over the last decade. The first estimate of annual GVA growth in a year is available with the publication of the GVA growth figures for the final quarter of that calendar year. The annual growth rate is constructed by “annualising” from the quarterly growth series. We refer to that figure of

GVA growth given initially for annual growth as the “first estimate”.

**Figure 1: Annual GVA growth in Scotland, the importance of revisions**



As noted earlier there are revisions made to a given year's GVA growth in subsequent periods as more data becomes available about the true state of the economy during each (previous) quarter. Such revisions can be quite sizeable, and can affect the annual growth figures. For example, the first estimate of annual GVA growth for 2002 was 0.0%. One year later, the estimated growth was 1.6%<sup>4</sup>. In fact this has been the largest revision in the first year after the first estimate of GVA growth for any year in the sample. Other sizeable revisions evolve more gradually throughout the sample. The first outturn figure for growth in 2004, for instance, was 1.9%; however data now suggest that GVA grew by 4.2%. A similar upward revision – albeit not as dramatic – occurred between the first estimate of GVA growth in 2006 (2.6%) and that suggested now<sup>5</sup> (4.0%).

For simplicity we focus on three measures for the “actual” growth rate of the Scottish economy: the first estimate, that is available one year later, and the latest data. The differences between these three estimates for annual growth rates can be striking, as Figure 1 shows. What we are interested in is the differences (the errors) between FAI forecasts and actual growth estimates. While it is the first published estimate of GVA growth that forecasts are more normally evaluated against in the media, the growth estimates available from the most recent data are likely to

be the most accurate description of what growth was seen in an economy during that period.

## 2.2 Forecasts of growth in the Scottish economy

We analyse all the forecasts for annual GVA growth between 2001 and 2010 in Scotland published by the FAI between January 2000 and March 2011<sup>6</sup>. In order to take appropriate account of the varying months in which the FAI produced forecasts, we group the months of the year into three periods. We compare the forecasts made in each of these periods to the outturn figures on a consistent basis across the sample.

We consider forecasts for each year made at seven different forecast horizons, shown in Table 1. Each of the published forecasts included were made prior to the publication of the first estimate of annual growth for the year being forecast. We include therefore forecasts made in the year before that which the forecast relates to, the year itself and the spring of the subsequent year (i.e. before the first estimate of annual growth is published).

To clarify with a specific example, we look at the separate FAI forecasts for annual GVA growth in the year 2005 that were published during the Spring, Summer and Winter of 2004, as well as three further forecasts during 2005, and the final forecast made before the first release of official data

**Table 1: Forecast horizons for each annual growth rate**

Forecast horizon	Year	Months
Previous spring	Year before the year forecast	January to April
Previous summer	Year before the year forecast	May to August
Previous winter	Year before the year forecast	September to December
Spring	During the year being forecast	January to April
Summer	During the year being forecast	May to August
Winter	During the year being forecast	September to December
Following spring	The year after that being forecast	January to April

which was published in March 2006. The first release of annual growth figures for 2005 was published on the 26th of April 2006. Data for longer forecast horizons are not available on a consistent basis over the sample, so we do not include any forecasts produced any earlier than the start of the year before that being forecast (e.g. we do not include any forecasts for 2005 published in 2003)<sup>7</sup>.

evaluate the accuracy of the FAI's forecasts of the Scottish economy over the sample. The first column lists the forecast horizon, while each subsequent column gives the forecast for Scottish GVA growth for a particular year for a given forecast horizon. Reading across the rows of this table shows the forecasts made at a specific forecast horizon. Reading down the columns shows how forecasts for specific years have changed as the forecast horizon has shortened.

Table 2 below summarises all the information used to

**Table 2: Annual GVA growth forecasts published by FAI, by forecast horizon for each calendar year, and three official GVA estimates for annual GVA growth**

Forecast horizon	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Previous spring	3.3	2.3	1.5	1.8	2.7	1.5	2.1	2.1	-	-1.2
Previous summer	2.9	1.9	1.3	2.2	2.0	1.8	2.3	2.3	1.2	-0.9
Previous winter	-	1.3	1.4	2.1	1.9	1.9	2.3	-	-1.1	0.1
Spring	2.0	1.2	1.1	2.1	1.7	1.9	2.2	-	-2.6	0.6
Summer	1.6	0.9	1.3	2.2	1.8	2.1	2.5	1.4	-2.9	0.7
Winter	0.9	0.7	1.3	2.1	1.8	2.2	-	0.7	-5.0	1.0
Following spring	0.7	-0.2	-	2.0	1.7	2.3	-	0.6	-4.8	1.1
<b>GVA estimates</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
First release	0.6	0.0	1.7	1.9	1.8	2.6	2.2	0.5	-4.8	0.8
One year later	1.2	1.6	2.0	2.0	2.1	2.6	1.9	0.4	-4.2	0.8
Latest data	2.9	0.5	2.2	4.2	1.3	4.0	3.0	-0.3	-4.2	0.8

**Note:** "-" indicates that no forecast was published in this period. See footnote six.

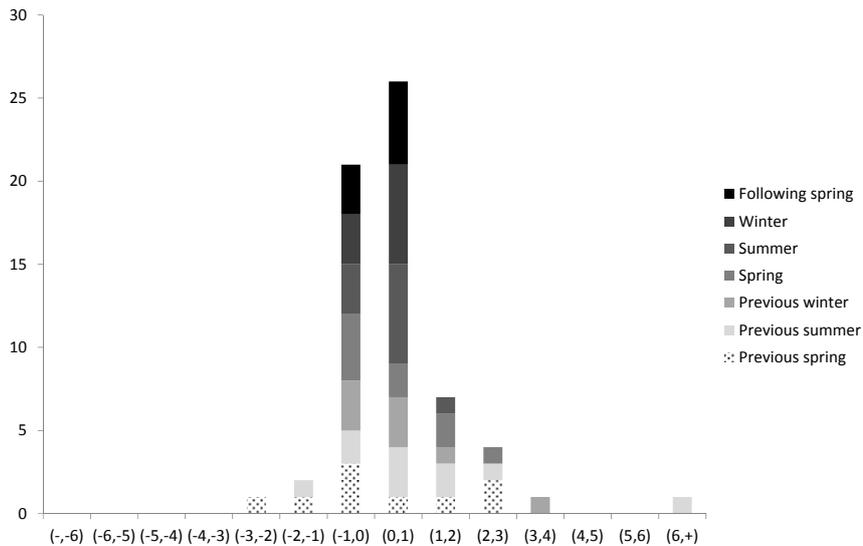
### 2.3 Analysis of "errors" between forecasts and GVA estimates

The difference between the forecast and the estimate of GVA data is described as the "error" of the forecast. We can show the absolute size of these errors over time using histograms. Good forecasts will have small "errors". Forecasts with larger errors will lie further away from the centre of the histograms below. The labels on the horizontal axis of each histogram shows the range in which each of the errors lies. The label (0,1), for example, records those forecasts with errors greater than zero but less than (plus) one percentage point. The height up the vertical axis shows

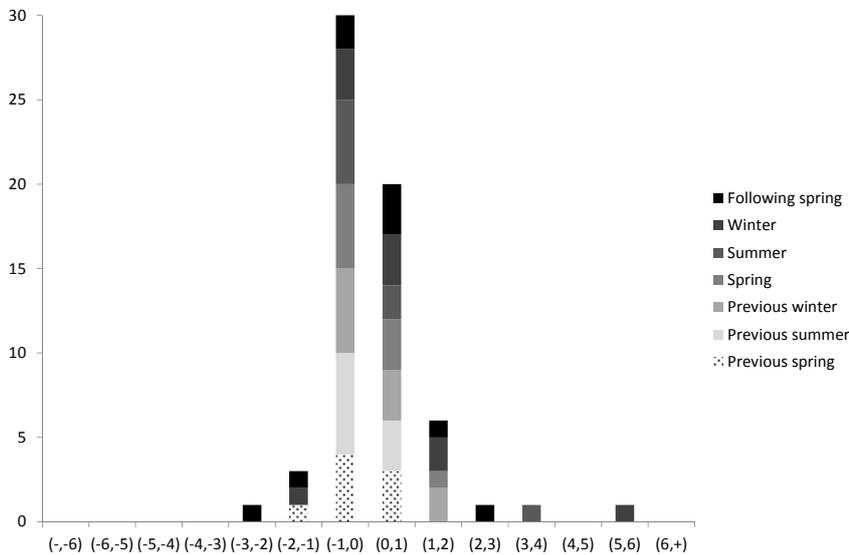
the number of forecasts which had an error of this size and direction. In total, Table 2 shows that forecasts for a total of 63 points in time are evaluated.

Figure 2 shows the histograms for errors over the sample period, comparing the forecast against the value of growth. Figure 2a, for example shows that the majority of the errors between the forecast and the first estimate lie between -1 and 1 percentage point. The shading in each column of Figure 2 identifies which period the forecast error was made in. The darker colours show forecasts made closer to the release of the first estimate of GVA. The same diagram is

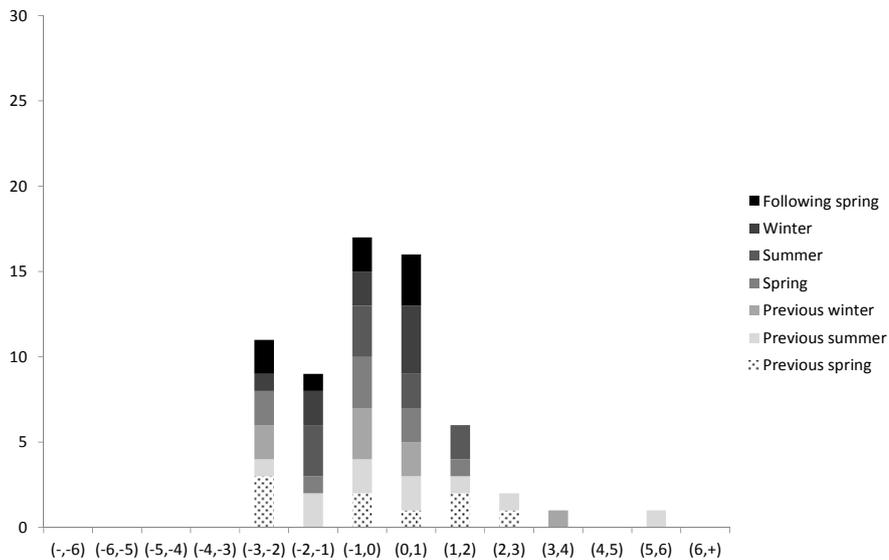
**Figure 2: Errors between forecasts and estimates of GVA data (a) First estimate, (b) One year later, and (c) Latest estimate**



**Figure 2a: Difference between forecasts and first estimate**



**Figure 2b: Difference between forecasts and estimate one year later**



**Figure 2c: Difference between forecasts and latest estimate**

reproduced for the errors between forecasts and the values for growth published one year later and the latest data (Figures 2b and 2c).

We can see from Figures 2a, 2b and 2c that in each of the three comparison cases, the most frequent forecast error is between the -1 and +1 range, i.e. are concentrated within one percentage point (above or below) the official estimate of growth. This is particularly evident in Figures 2a and 2b.

Further, in each of these figures darker shading indicates the forecasts made closer to the publication of official growth figures. We can see the improvement in the forecasts as the horizon between the forecast publication and the first estimate of annual growth. In Figure 2a, for example, all forecasts made at the shortest forecast horizon are within one percentage point of the first estimate of growth.

**Table 3: Share of directions for growth correctly forecast and p-value result for significance**

	Percentage of forecasts correctly predicting direction of change in growth	Significance (p-value)
Summer of year forecasts	89%	0.02

## 2.4 Directional analysis

Aside from “eyeballing” the errors, a further simple test is to see how well FAI forecasts have predicted the direction of growth, i.e. did growth increase or decrease from the previous year’s figure, and was this direction for growth correctly predicted? We follow Ashiya (2006) in calculating the accuracy of the direction of forecasts against those from the first estimate of annual GVA growth in each year. Against these known directions for annual growth, we compare the directions as predicted in the summer of the year (i.e. the first forecasts after the growth in the previous year is known). By comparing the actual change in growth and that forecast, we can calculate the proportion of changes which are forecast correctly.

On this measure, a result of 50% would mean that the forecasts are correctly identifying the direction of growth changes only half of the time. A figure less than 50% would suggest that a coin-toss would be a better predictor than the forecast. A figure above 50% would indicate that there is value in the forecast for its direction of growth from one year to the next. We can use a test statistic (p-value) to show if the number of forecast record is statistically better than chance would suggest. A p-value below 0.05 means that we can reject the null hypothesis and conclude that the FAI forecasts are better than a “coin-toss” at predicting the direction of change in growth in the Scottish economy. The results from this analysis are shown in Table 3. FAI forecasts has correctly predicted the annual direction of growth on eight out of nine occasions.

## 3. Statistical measures of forecast accuracy

We next use two statistical measures to calculate the accuracy of the FAI forecasts. These are the mean absolute error (MAE) and the mean absolute proportionate error (MAPE)<sup>8</sup>. These are defined as follows:

$$MAE = \sum_{t=1}^T T^{-1} |e_t(k)|$$

$$MAPE = \sum_{t=1}^T T^{-1} (|e_t(k)| / y_t)$$

Where k is the period in which T forecasts are made,  $e_t(k)$  is the error between the forecasts made in period k ( $f_t(k)$ ) and the actual value for growth in year t (y).

The MAE measures the mean absolute error between the forecast and the actual annual growth figures, and so is probably the most easily understood measure of forecast accuracy. Unlike other measures, such as the mean error, it is not affected by errors which are positive or negative (i.e. if growth is above or below that forecast, then the mean average will be smaller than the mean absolute average) since it is the absolute size of each forecast error which matters.

The MAPE shows the relationship between the mean absolute error and the growth outturn. Mills and Pepper (1999, p. 252) note that a value for MAPE of greater than one means that, on average, the forecast error is greater than the growth estimate. We will see that for particular years the very low (first release) figures for annual growth in Scotland has an impact upon the values of the MAPE statistic.

## 4. Results and discussion

We evaluate the accuracy of FAI forecasts for economic growth in Scotland over two periods. Firstly, we report the values of each of the measures of forecast accuracy over the whole sample period, i.e. for forecasts made between Spring 2000 and Spring 2011 for annual growth between 2001 and 2010. Secondly, we exclude forecasts for the year of the “great recession”, i.e. 2009 when Scottish GVA fell by 4.2%.

As is well documented, the vast majority of professional forecasters did not forecast the timing or scale of the “great recession”. For example, from the HM Treasury’s collection

of forecasting organisations published in May 2008, the average UK growth forecast for 2009 was 1.7%. The Treasury's own range forecast for growth in 2009 (produced in March 2008) was between 2.25% and 2.75%. Only one of the thirty-seven forecasts available in May 2008 forecast a decline in GDP in 2009 for the UK economy as a whole<sup>9</sup>,

while the latest data shows in fact UK GVA declined by 4.3% during 2009. Since the failure to forecast this decline is likely to dominate the results on forecast accuracy over our sample, it seems appropriate to consider the accuracy of the FAI forecasts for Scottish GVA growth with and without the forecasts for 2009.

**Table 4: Precision of FAI forecasts made between Spring 2000 and Spring 2011, forecasts for 2001 to 2010**

Forecast horizon	First estimate		One year later estimate		Latest estimate	
	MAE	MAPE1	MAE	MAPE	MAE	MAPE
Previous spring	1.216	1.357	1.011	1.150	1.622	0.134
Previous summer	1.555	0.969	1.333	0.854	1.773	-0.279
Previous winter	0.894	0.112	0.766	0.154	1.381	0.501
Spring	0.733	0.359	0.611	0.220	1.107	0.428
Summer	0.635	0.415	0.592	0.445	1.066	-0.266
Winter	0.284	0.186	0.448	0.269	1.047	-0.060
Following spring	0.135	0.110	0.510	0.328	1.101	0.070

**Note:** 1 = MAPE calculated excluding 2003 where annual growth was 0.01% in the first release. This was subsequently revised to 1.6% one year later.

#### 4.1 Whole sample

What is not known when publishing forecasts is the extent to which (any or all) of the official quarterly growth figures will be revised in the future. As already noted, the fact that official data are revised highlights the importance of clarity in relation to which official figures the forecasts are to be evaluated against. As noted above, there have often been some quite significant revisions to Scottish GVA data over the last decade. We therefore show the accuracy of forecasts made at each of the second forecast horizons against three estimates of the growth rate: the first estimate, that available one year later, and the most recent estimates (available in Summer 2011).

Smaller values of mean absolute errors (MAE) and mean absolute proportionate errors (MAPE) reflect better forecast accuracy. If we look at the columns relating to "first estimate" in Table 4, reading down the column we see that on both measures the accuracy of the forecasts improve as the forecast horizon shortens. That is, as the forecasts are made closer to the point at which the first estimate growth figures are produced.

The same general pattern is evident when we compare the forecasts to the growth estimates known one year later. Note that the forecast will not have changed, but what was understood about growth in the Scottish economy during the year being forecast will have changed. The reduction in MAE and MAPE between the earliest and latest forecasts is much less pronounced than the pattern observed for the accuracy of forecasts compared to the first estimate. It would appear therefore that our forecasts have been reasonably successful in taking in economic information available throughout the year being forecast and producing an improved estimate of the first estimate of the annual growth rate.

Turning to the accuracy of the forecasts compared to the latest estimates, we again see the same reducing MAE and MAPE over the forecast horizons. It is clear is that there is a larger error on each of these measures between the forecast of annual growth and the latest estimates of growth. Part of this difference will be due to changes in the methodology used to calculate growth in the Scottish economy over the sample period while we do not – in line with other forecasters - continue to publish forecasts after the release of the first estimate of growth.

Of further interest is the extent to which these results – comparing forecasts and growth outturns over our whole sample – is affected by the decline in GVA seen in 2009 (and not predicted by many forecasters). We therefore calculate the same statistics for the sample but removing forecasts and growth estimates for 2009.

#### 4.2 Whole sample, excluding 2009

The dominance of poor forecast performance in 2009 is clearly shown in the comparison between Table 4 and Table 5 (where 2009 is omitted from the analysis). If we begin by comparing the accuracy of the forecasts against the first estimates, the MAE for the forecast produced around eighteen months in advance of the first official estimate (after summer of the previous year) is less than 0.55 points. So if the first estimate of growth is 2%, then in the winter of the previous year the FAI forecast would, on average, lie between 1.5% and 2.5%. The accuracy of the first official estimate improves as its publication nears, and the forecast produced in the winter of the year and spring of the following year have an mean absolute error of 0.296 and 0.153 respectively.

**Table 5: Precision of FAI forecasts made between Spring 2000 and Spring 2011, forecasts for 2001 to 2010, excluding forecasts for 2009**

Forecast horizon	First estimate		One year later estimate		Latest estimate	
	MAE	MAPE <sup>1</sup>	MAE	MAPE	MAE	MAPE
Previous spring	1.216	1.357	1.011	1.239	1.622	0.134
Previous summer	1.060	1.246	0.877	1.205	1.366	-0.168
Previous winter	0.492	0.259	0.427	0.298	1.131	0.679
Spring	0.548	0.476	0.484	0.302	1.042	0.530
Summer	0.493	0.516	0.510	0.541	1.036	-0.261
Winter	0.296	0.218	0.409	0.287	1.082	-0.044
Following spring	0.153	0.129	0.501	0.272	1.178	0.099

**Note:** 1 = MAPE calculated excluding 2003 where annual growth was 0.01% in the first release. This was subsequently revised to 1.6% one year later.

Looking at the MAPE results – and again focusing on the accuracy of the forecasts against the first release estimate – from the previous winter forecast these values are (typically) less than 0.5. For the longer forecast horizons, published in the spring and summer of the previous year MAPE is greater than one. This is explained by the presence of two years of relatively low initial growth estimates – i.e. 2001 (0.6%) and 2008 (0.5%) – meaning that the errors for forecasts made in the spring and summer of the previous year were greater than the outturn growth (in the first release). Interestingly, if the revised figure of 1.2% growth for 2001 which was estimated one year on is used rather than that from the first release, then both these MAPE figures reduce significantly.

Looking at the accuracy with regard to later estimates of the annual growth rates, we again see the importance of revisions. FAI forecasts for growth are not produced after the first official estimate is produced, but the estimates for annual growth will be revised. As we have seen, some of these revisions have been quite sizeable over the sample using in this paper. This suggests that perhaps a greater emphasis should be placed on comparing forecasted estimates of GVA growth to later estimates of growth. It might be several quarters before the annual growth rates are no longer affected by revisions. This however is a possible tension between placing forecasts in context with regular updates on the current state of the economy. Uncertainty in the history of economic performance serves to multiply the possible states of the future economy.

With relation to the MAE between forecasts and the values one year on, we can see that the FAI forecasts have an absolute error of around 0.5 for all forecasts produced from a horizon of one year or less (that is, from the winter of the year before that being forecast onwards). If we look at the accuracy of the forecasts against the latest estimates, again we see the huge impact of revisions. FAI forecasts in each of the periods have an average absolute error of over 1 percentage point. This result is particularly driven by the sizeable revisions to GVA figures for 2004 and 2006 more than one year after their first release (see Figure 1). Without

comparison forecasts of the Scottish economy, we are unable to say if these errors are superior than those produced by other forecasting organisations. What they do suggest is the scale of uncertainty which should be attached to future forecasts made by the FAI.

## 5. Conclusions

We have evaluated the accuracy of FAI forecasts of annual Scottish GVA growth between 2001 and 2010, and have examined the accuracy over a range of forecast horizons. We have compared growth forecasts to the first estimate and subsequent official figures published by the Scottish Government. We have noted that revisions to official data are a normal phenomenon of economic statistics and that the Scottish Government's analysis has indicated that there is no systematic bias in the revisions made to the quarterly growth figures between their first and subsequent releases. Such revisions however mean that the accuracy of FAI forecasts appears better for the first estimate of GVA growth than for the subsequently revised data.

Revisions to the GDP series are a natural part of production of official economic statistics, particularly for series compiled from components of evidence, e.g. partial surveys supplemented with fuller information that is necessarily accumulated over a period of time. In addition the initial publication of Scottish GDP data occurs after three separate releases of official UK GDP data for the same period. These combine to cloud our understanding of the position of the Scottish economy at a given instant. The forecasts are made with the set of information which is available at a given time. Where the information turns out to have been incorrect given subsequent revisions it is unsurprising that the forecast accuracy worsens.

In this paper we find that:

- Forecast errors are concentrated close to zero and which typically reduce in size as the forecast horizon is reduced (i.e. we get closer to the release of first estimate of growth).

- FAI forecasts perform significantly better than chance would suggest in predicting whether growth in one year will be greater or less than growth in the previous year.
- If we exclude the “great recession” of 2009 – an event missed by economic forecasts at the UK level – the Mean Absolute Error between forecasts made in the winter of the year preceding the forecast year is approximately 0.5. This means that if the first estimate of annual growth is revealed to be 2%, the forecast made up to eighteen months previously would lie between 1.5% and 2.5%.
- It is crucial whether the forecast is compared against the first release of GVA data or that available after one year, given the size of some revisions to GVA data for Scotland over the last decade.

## Acknowledgements

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## Footnotes

<sup>1</sup>The author is aware of an assessment of the accuracy of Scottish forecasters made in 2000 or 2001, published by Business AM, which reported that the FAI forecasts were the most accurate.

<sup>2</sup>Granger (1996) argues that forecasts typically do not provide adequate information to allow others to replicate the forecast and so it is therefore “correct” to judge the forecasts on their accuracy, rather than the assumptions used.

<sup>3</sup>A second important point may be to evaluate the accuracy of the forecasts by taking into account what was known at the time the forecasts were made. This is not explicitly addressed in this paper, but could be a line for future research.

<sup>4</sup>The current estimate for annual growth in 2002 is 0.5%.

<sup>5</sup>The latest data we use for growth in each year are those given from the publication of Q4 2010, published in April 2011.

<sup>6</sup>During the sample number of forecasts by the FAI varied from year to year. Forecasts were produced four times a year between 2000 to 2003, and then three times in each year between 2004 and 2006. There were two forecasts (April and June) published in 2007 before there was a break in the production of the Fraser Commentary. This break meant that no forecasts were published from July 2007 until June 2008. The Fraser Economic Commentary was relaunched with the support of PWC in June 2008 and has been published three times a year, typically in February, June and November of each year.

<sup>7</sup>Further, in a small number of instances where two forecasts of annual growth were published in the same period we have used a mean average of the two forecasts.

<sup>8</sup>Other articles evaluating economic forecasts include Pain and Britton (1992) and Melliss and Whittaker (1998). The first article here examines if National Institute forecasts are “efficient” (i.e. unbiased either positively or negatively in relation to the outcome), and not whether the forecasts are accurate, while the second paper examines the accuracy of HM Treasury forecasts and applies some of the measures identified above for a different time period and for the UK as a whole.

<sup>9</sup>This was Economic Perspectives, who, in May 2008, forecast UK GDP growth for 2009 of minus 1.

# The UK “Immigration Cap”: Implications for Scotland

David Coldwell, Katerina Lisenkova, Robert E. Wright, University of Strathclyde

## Abstract

The main purpose of this paper is to consider how the Conservative Liberal-Democrats Coalition’s so-called “immigration cap” will impact on Scotland. The immigration cap is a set of not yet specified policies (working mainly through the points-based immigration system) aimed at lowering net-migration to the UK primarily by lowering immigration. While the UK Government wants to reduce net-migration to the UK, the Scottish Government wants to maintain a historically high level of net-migration in Scotland in part to achieve its population growth target and to ensure labour force growth. The two levels of government are pursuing policies that clearly conflict, since lowering net-migration to the UK will also likely lower net-migration to Scotland.

## The UK “Immigration Cap”: implications for Scotland

### 1. Introduction

The Conservative Liberal-Democrats Coalition, led by David Cameron, is committed to reducing net-migration in the UK from “the hundreds of thousands to the tens of thousands” by the end of their first parliament. Net-migration is the difference between the number of immigrants (those coming to the UK) and the number of emigrants (those leaving the UK). Consequently, lower immigration and/or higher emigration will decrease net-migration. Since it is unlikely that the current administration wants more people (at least British citizens) to leave the UK, the focus on delivering on this promise lies with putting policies in place that lead to a much lower level of immigration in coming years. As a group, these policies, which are still at the “consultation” stage have become known in the media and political circles as the so-called “immigration cap”.

The main purpose of this paper is to consider how the immigration cap will impact on Scotland. While the UK Government wants to reduce net-migration to the UK, the Scottish Government wants to maintain a historically high

level of net-migration in part to achieve its population growth target and ensure labour force growth. For obvious reasons, one might expect net-migration at a UK-level to be positively correlated with net-migration at Scotland-level. If this is the case, then the two levels of government are pursuing policies that clearly conflict, since lowering net-migration to the UK will also lower net-migration to Scotland. Immigration is a “reserved power” with the devolved administrations, such as the Scottish Government, only having a minor role in shaping immigration policy.

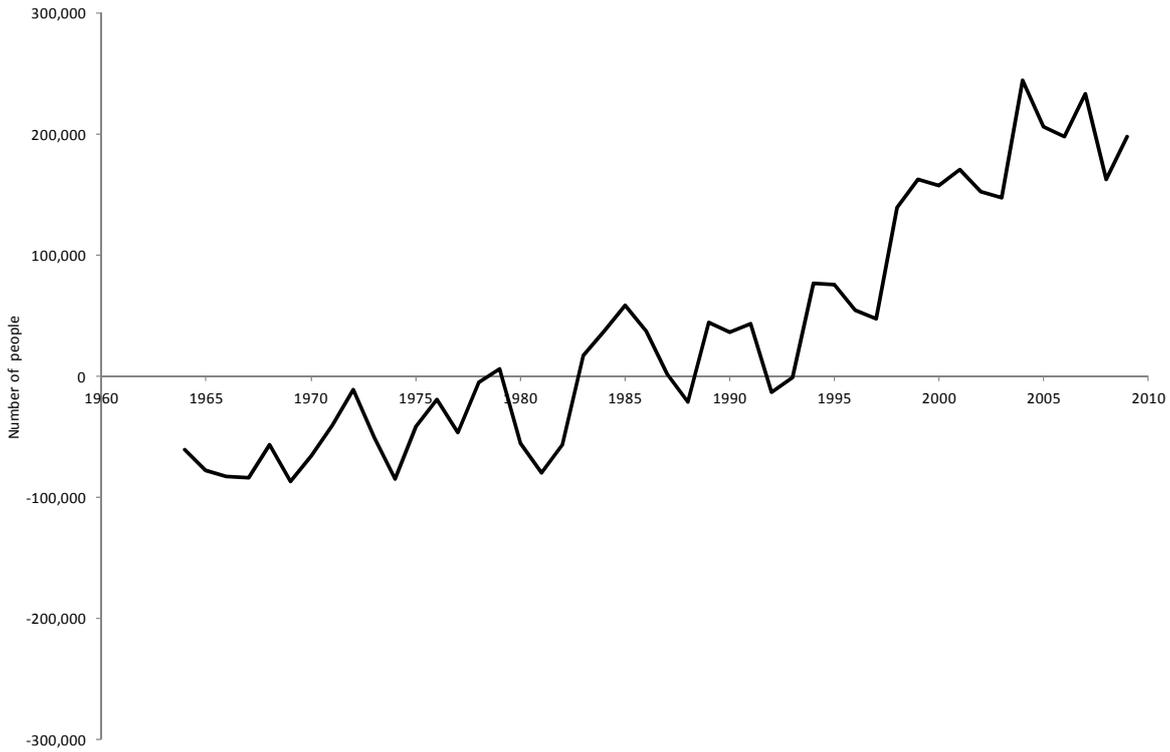
In February 2005, the then Home Secretary Charles Clarke outlined a “five year plan” aimed at changing fundamentally the way immigration to the United Kingdom is managed (see Mosca and Wright, 2009). Central to this plan is the adoption of a “points-based system” (PBS), where applicants are allotted points or “scored” for possessing human capital characteristics that make them more employable, such as education, age and previous earnings. If some threshold level of points is achieved (which can be varied), then the individual is allowed to immigrate to the UK (conditional on satisfactory security checks). When fully operational, the PBS will eventually replace the system that includes over 80 ways to immigrate to the UK. It is acknowledged that manipulating the details of the PBS will be the main vehicle by which the UK government will attempt to reduce immigration levels.

The effectiveness of the government’s approach to reducing immigration will depend on what fraction of the potential pool of immigrants the PBS applies to. As is documented below, a sizeable share of immigrants to the UK (and Scotland) come from member states of the European Union. There are no restrictions on movement from the other member states—citizens of these countries are free to live in the UK. In addition, with the exception of Bulgarian and Romanian citizens, they are free to work here too. Likewise, a non-trivial share of immigrants are in fact British citizens. These immigrants may be individuals who emigrated from the UK earlier in their lives but have decided to return. They may also be foreign-born individuals who have obtained citizenship via their parents and/or grandparents. The PBS also does not apply to refugees and family class immigrants (e.g. immigration tied to marriage). Given these exclusions, it is unclear what the scope of the PBS is to seriously lower immigration levels to the UK.

### 2. Net-migration, immigration and emigration

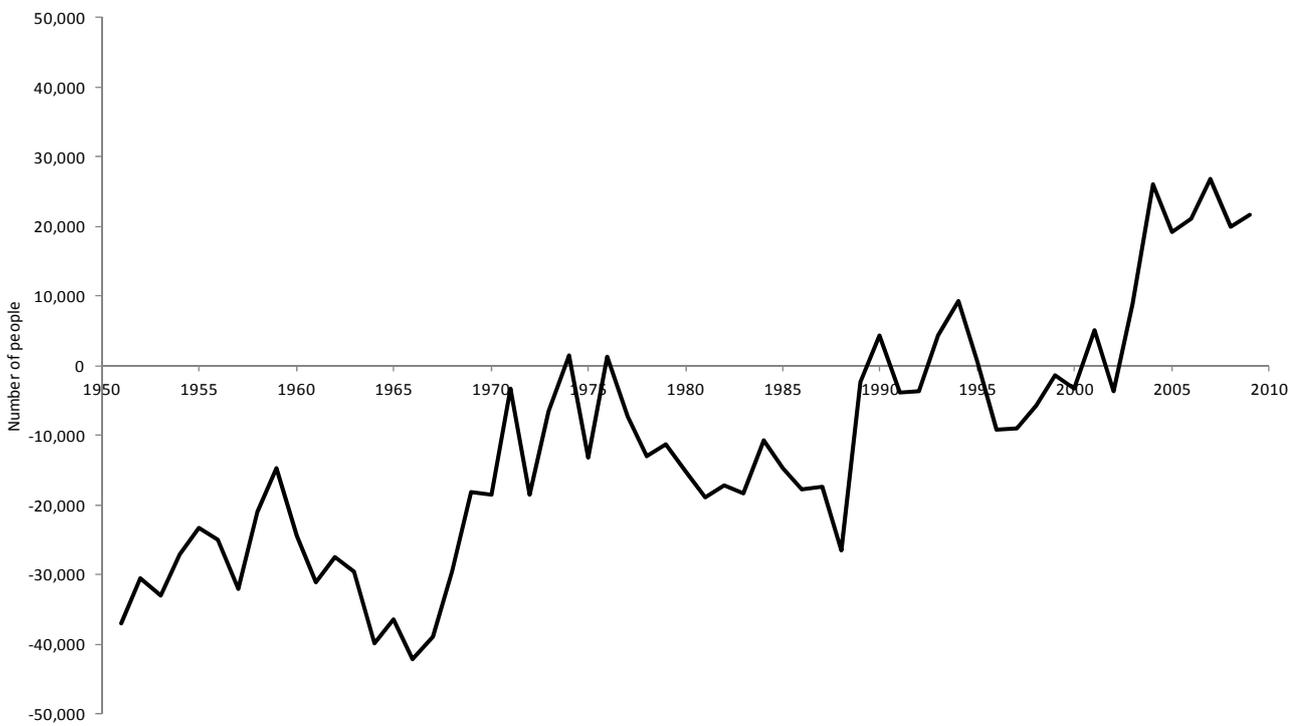
As a starting point, it is not unreasonable to argue that over time net-migration in the UK is correlated with net-migration in Scotland. Figure 1 shows the trend in UK net-migration from 1964 to 2010. Note that migration statistics for the UK before 1964 are of notoriously low quality so are not included in our discussion (see Hatton, 2005). Figure 2 shows net-migration to Scotland from 1951 to 2010. Note that for Scotland net-migration also includes migration flows to and from the other countries of the UK. It is clear that these two series are highly correlated in a statistical sense.

**Figure 1: Net-migration - United Kingdom, 1964-2010**

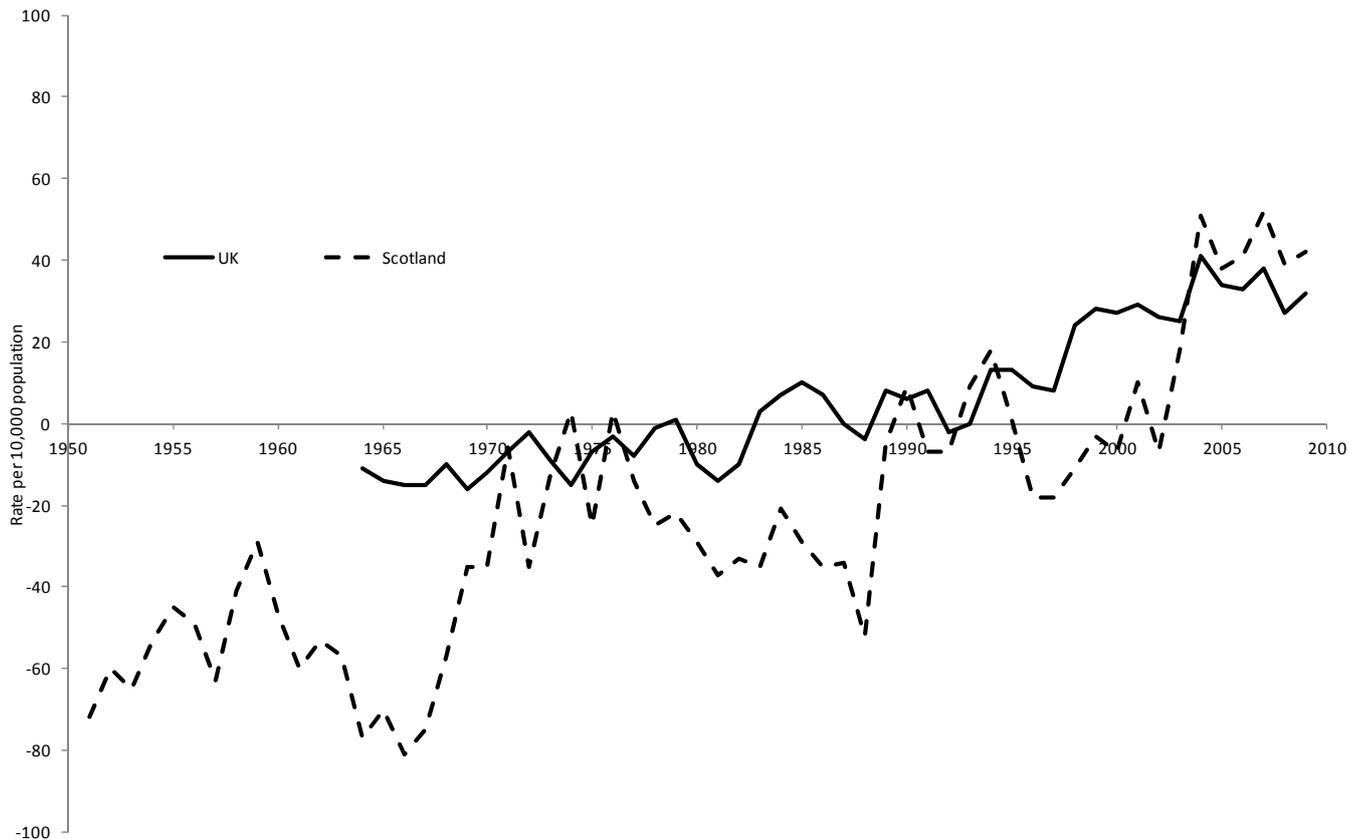


Source: Office of National Statistics (ONS)

**Figure 2: Net-migration - Scotland, 1950-2010**



Source: General Register Office for Scotland (GROS)

**Figure 3: Net-migration rate (per 10,000 population) - Scotland and United Kingdom, 1951 (1964)-2010**

**Source:** GROS and ONS

In fact, in the 1964-2010, period the zero-order correlation is +0.85.

Figure 3 shows the “net-migration rate” for the UK and Scotland. This rate is the number of net-migrants per 10,000. It is a useful measure since it controls for the scale effect generated by the fact that the UK population (c. 62 million) is around twelve times larger than the Scottish population (c. 5.3 million). The figure suggests that in a

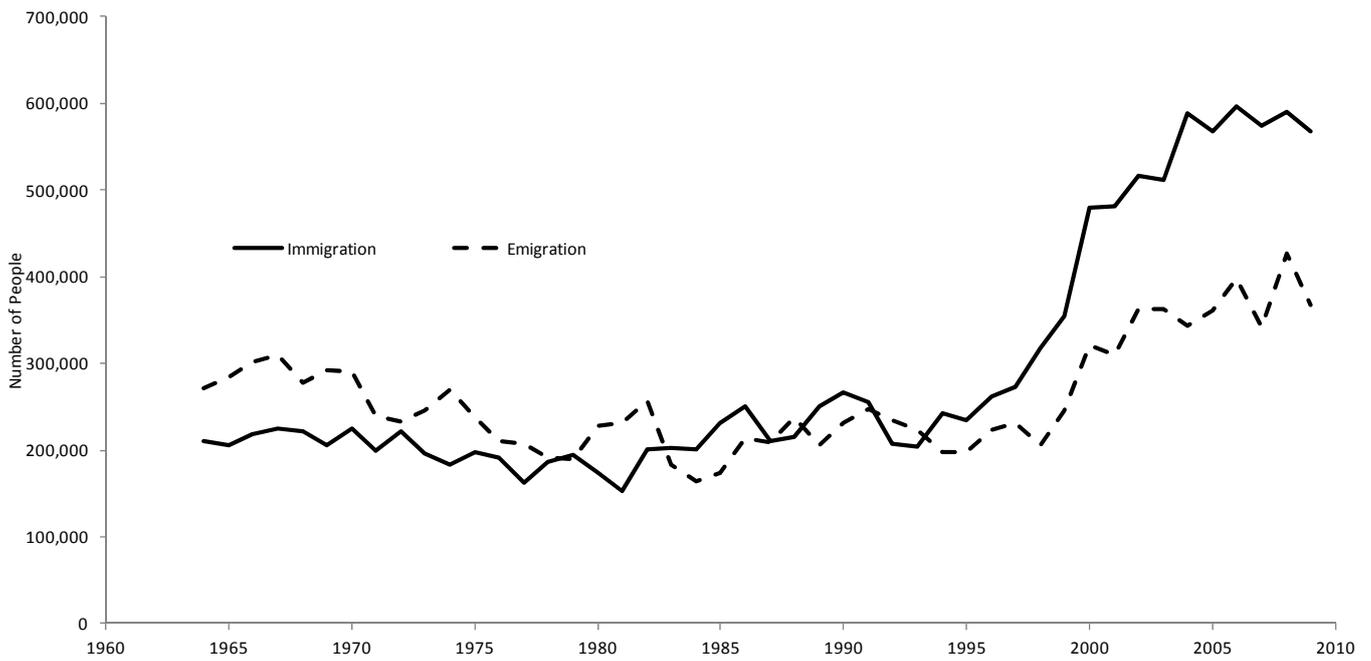
relative sense, emigration exceeded immigration by a much greater extent in Scotland compared to the UK in most of this period. However, since around 2004, when ten Central and Eastern European countries joined the EU, the net-migration rate in Scotland has been higher than for the UK as a whole. However, these two series are still highly correlated with the zero-order correlation being +0.79 in the 1964-2010 period.

**Table 1: Immigration, emigration and net-migration - United Kingdom, thousands, 2004-2010**

Period	(1) Immigration	(2) Emigration	(1)-(2) Net-migration
2004/2005	596	336	260
2005/2006	565	388	177
2006/2007	596	387	208
2007/2008	571	375	196
2008/2009	563	397	166
2009/2010	572	346	226
2004-2010	3463	2229	1,233
Average	577	372	206

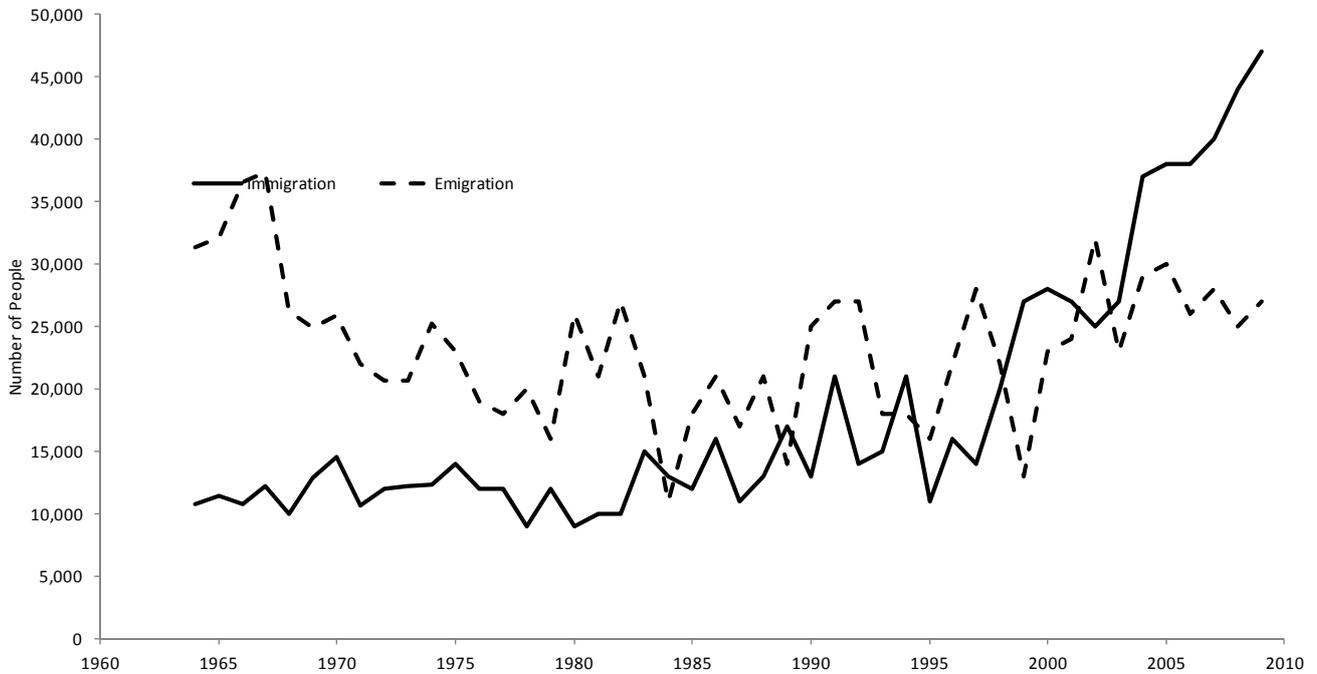
**Source:** Office of National Statistics

**Figure 4: Immigration and emigration - United Kingdom, 1964-2010**



Source: Office of National Statistics (ONS)

**Figure 5: Immigration and emigration - Scotland, 1964-2010**



Source: GROS

Figure 4 shows immigration and emigration totals to the UK in the 1964-2010 period. Figure 5 gives the same estimates for Scotland. Immigration to the UK and immigration to Scotland are highly correlated, with the zero-order correlation being +0.94. The statistical relationship between emigration from the UK and emigration from Scotland is not as strong. The relationship is clearly positive with a zero-order correlation of +0.68.

This descriptive analysis indicates that net-migration, immigration and emigration at the UK-level and the Scotland-level are highly correlated in a statistical sense. In research not reported here, we have constructed a statistical model that explains current levels of net-migration in Scotland in terms of the past levels of immigration and emigration in Scotland and the UK. This model is quite accurate in terms of predicting past trends. More generally, it provides more rigorous evidence suggesting that UK and Scotland net-migration are related in a casual sense.

Table 1 gives the net-migration, immigration and emigration totals for the UK for the period 2004-2010. An examination

of this table confirms that it is incorrect to conclude (as is routinely done in the media) that net-migration is increasing because immigration is increasing. Net-migration increased between 2004/2005 and 2005/2006 because emigration decreased — immigration actually decreased during this period. The same is the case for the period 2008/09 to 2010/11.

Table 2 gives the net-migration, immigration and emigration totals in Scotland for the more recent period 2004-2010. As mentioned above, the situation is more complicated in Scotland compared to the UK since in addition to “overseas” immigrants and emigrants there are immigrants from and emigrants to the rest-of-the-UK. In addition, the way migration statistics are compiled, the migration of armed forces personal, prisoners and asylum seekers are considered as a separate adjustment. In the period 2004-2010, about 44% of immigrants to Scotland came from overseas. In the same period, 38% of emigrants from Scotland moved overseas. In other words, based on the past, less than half of the immigrants to Scotland would fall under the PBS according to the current rules.

**Table 2: Immigration, emigration and net-migration - Scotland, 2004-2010**

Period	Immigration			Emigration			Net-Migration		
	UK	Overseas	Total	UK	Overseas	Total	Total	Adjustment(*)	Total Adjusted
2004/2005	57,342	35,400	92,742	44,835	28,100	72,935	19,807	-511	19,296
2005/2006	53,335	42,200	95,535	44,413	29,500	73,913	21,622	-455	21,167
2006/2007	51,546	37,800	89,346	42,697	21,000	63,697	25,649	1,162	26,811
2007/2008	53,327	38,500	91,827	41,818	30,800	72,618	19,209	744	19,953
2008/2009	45,407	42,700	88,107	41,285	25,200	66,485	21,622	49	21,671
2009/2010	46,968	46,100	93,068	43,535	24,600	68,135	24,933	35	24,968
2004-2010	307,925	242,700	550,625	258,583	159,200	417,783	132,842	1,024	133,866
Average	51,321	40,450	91,771	43,097	26,533	69,631	22,140	171	22,311

\*This total includes movements to and from the armed forces, asylum seekers and prisoners.

Source: General Register Office for Scotland

### 3. Citizenship mix of immigrants

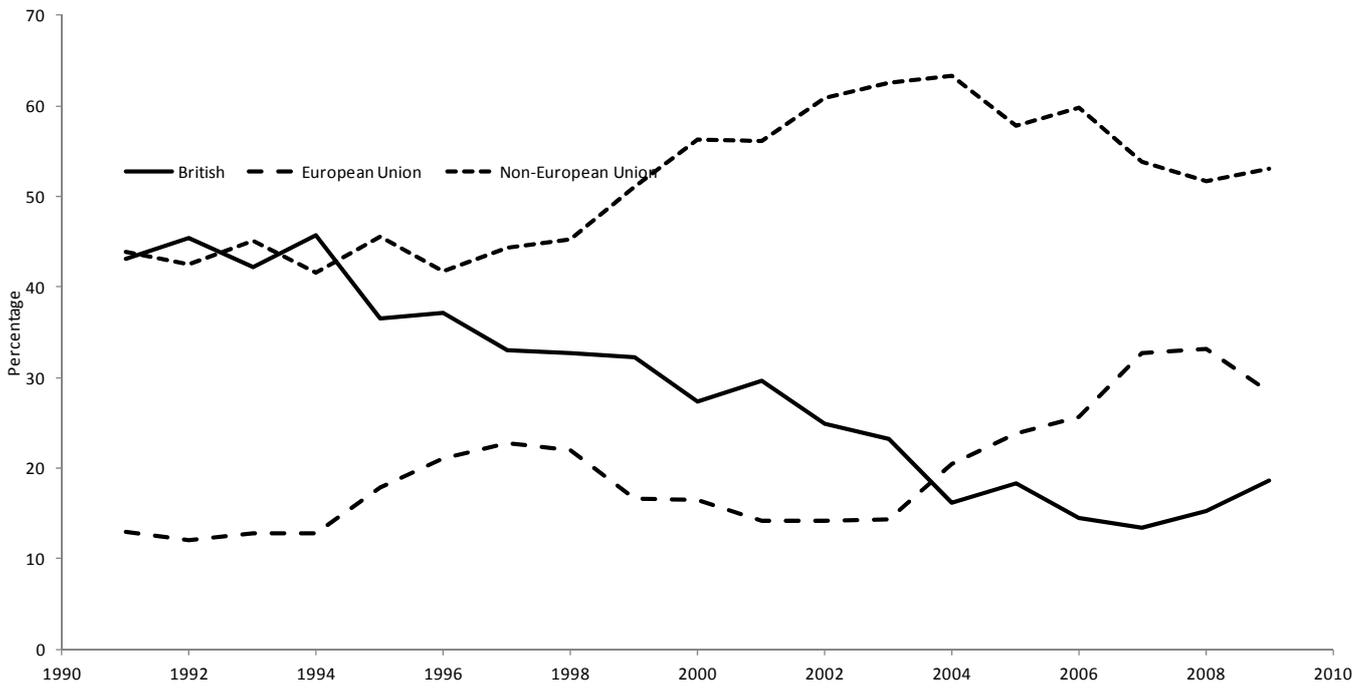
Figure 6 shows the “citizenship mix” of immigration to the UK in the period 1991-2009. In 2009 (the most recently available estimate), 18.6% of immigrants were British citizens; 28.4% were EU citizens; and 53% were non-EU citizens. As the figure shows the share of immigrants who are British citizens steadily declined while the share of immigrants who are EU-citizens increased sharply after the major enlargement of the EU in 2004. From 2004 onwards, there has been a slight decline in the share of immigrants who are non-EU citizens. However, non-EU citizens are the biggest group of immigrants to the UK.

The PBS does not apply to immigrants who are British citizens or EU citizens. Therefore, at most, it currently applies to about half of immigrants. As a thought exercise,

assume that the PBS was in place since 2004. Assume further that it was effective at reducing non-EU citizenship immigration to zero. Table 1 shows that in the period 2004-2010 net-migration in the UK averaged +206,000 per year. Arithmetic suggests that a 50% reduction in immigration corresponds to a net-migration of around -80,000 per year. Likewise, a 25% reduction in immigration gives a net-migration of around +60,000 per year. It is clear that the PBS has the potential to reduce net-migration to “tens of thousands” by severely curtailing the immigration of individuals with non-EU citizenship.

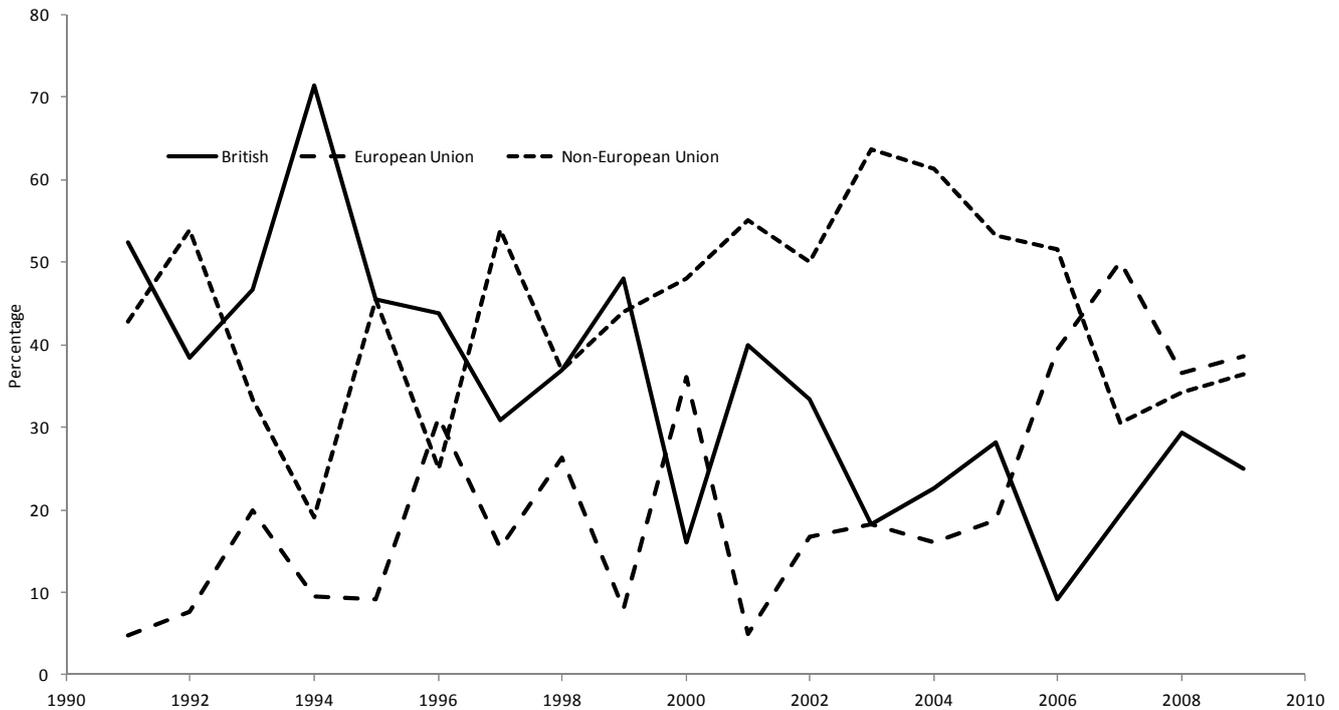
Figure 7 shows the “citizenship mix” of overseas immigration to Scotland in the period 1991-2009. In 2009, the citizenship mix of overseas immigrants to Scotland was different to that of the UK as a whole. More specifically 25%

**Figure 6: Citizenship of Immigrants (% of total) - United Kingdom, 1991-2009**

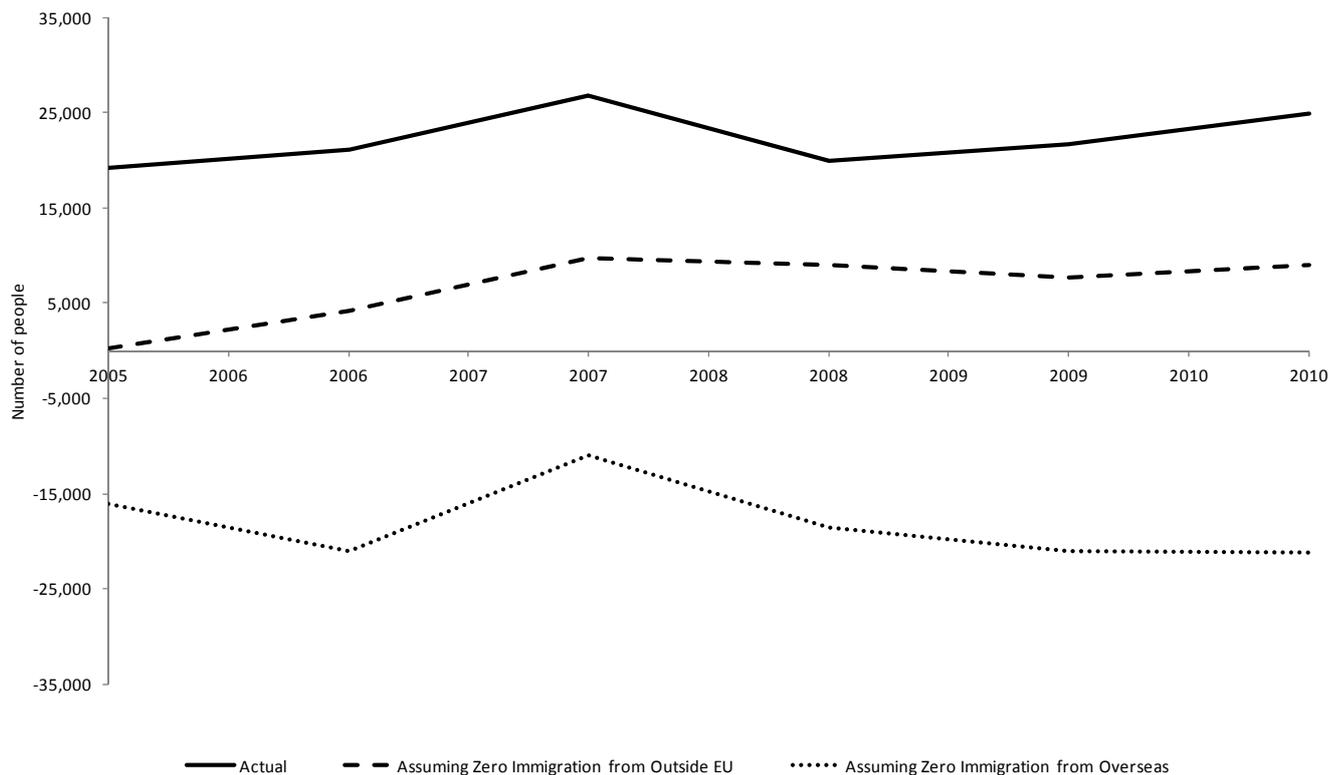


Source: ONS

**Figure 7: Citizenship of Overseas Immigrants (% of total) - Scotland, 1991-2009**



Source: GROS

**Figure 8: Adjusted net-migration - Scotland, 2005-2010**

**Source:** GROS and authors' calculations (see text)

of immigrants were British citizens; 39% were EU citizens; and 36% were non-EU citizens. The key difference is that 36% of non-EU citizens is considerably lower than 53% for the UK. As Figure 7, shows there is considerable year-to-year volatility in the citizenship mix of immigration. However, when the period 2004-2009 is considered as a whole the difference persists. More specifically, 56.5% of immigrants to the UK were non-EU citizens compared to 43.3% of overseas immigrants to Scotland.

Figure 8 shows the actual level of net-migration in Scotland for the period 2005-2010 taken from Table 2. As a further thought exercise, the figure also shows what the level of net-migration would be under two scenarios. In the first scenario, the government is successful at reducing immigration to the UK from "outside the EU" to zero. In the second scenario, they are successful at reducing immigration to the UK from "overseas" to zero. In these calculations, it is assumed that migration flows to and from the rest-of-the-UK remain the same. It is clear from the discussion above that it would not be possible to achieve such reductions for several reasons. However, the scenarios do provide some indication of the range of variation in net-migration that could be brought about through the PBS.

Reducing immigration from countries outside the EU would result in a considerable reduction in net-migration in each of these periods. Between 2005 and 2010 the net-migration averaged +22,311 per year. Driving immigration from countries outside the EU to zero (not surprising) results in a net-migration of +6,644 per year. Likewise, driving immigration to zero from overseas countries, results in a net-migration of -18,139 per year. By any standards, both represent sizeable reductions in net-migration.

#### 4. Concluding comments

It is well established that Scottish population momentum is moving in the direction of rapid aging and decline (see Lisenkova and Wright, 2009). Population decline goes hand in hand with labour force decline. For most of the past decade, deaths have exceeded births, and it has been only through positive net-migration that both the labour force and general population have grown (see Wright, 2008). Research carried out by the Fraser of Allander Institute suggests that an annual net-migration of around 20,000 is needed to counteract some the negative macroeconomic consequences (such as lower economic growth) generated by a "shrinking" labour force decline, (Lisenkova et al, 2010). This suggested level of net-migration is no too different to what has occurred in recent years (see Table 2). It is clear from the simple analysis carried out in this paper,

that the UK Government's desire to significantly lower net-migration to the UK, through lower levels of immigration, has the potential to reduce net-migration in Scotland to levels well below +20,000.

This conclusion however is based on the assumption that the other flows of migrants would not change if the immigration of non-EU citizens was reduced. This seems unlikely. Even if the UK Government was successful at reducing the immigration of non-EU citizens, the immigration of EU-citizens and British citizens could increase to make up the difference. This substitution is more likely if immigration is predominately a response to employment and economic opportunities. In the case of Scotland, this difference could also be made up by an increase in immigration from the rest-of-the-UK. Put simply, if the decrease in immigrants of one type (i.e. non-EU citizens) results in an increase in immigrants of another type (i.e. EU-citizens and British citizens), then all that will be achieved is a change in the citizenship mix of immigration with no decrease in net-migration levels. If this is the case then trying to reduce immigration solely through the making it "tougher" (impossible?) to immigrate to the UK via the PBS will not be successful.

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# Innovation in Scotland: Analysis of the community innovation survey 2009

Jennifer Turnbull, Kenny Richmond (Scottish Enterprise)

## Introduction

Strengthening levels of innovation is one of the cornerstones of the Scottish Government's Economic Strategy<sup>1</sup>. Innovation is a key catalyst for productivity growth as new ideas drive enterprise, create new products and markets and improve efficiency, delivering benefits to firms, customers and society. It is a crucial factor in determining competitiveness and national progress<sup>2</sup>.

Until recently, the most common and well known measure of innovation has been the ratio of national expenditure on R&D to GDP<sup>3</sup>. Data shows that there has been a significant gap in business research and development (R&D) expenditure between Scotland and the UK, EU and OECD averages in recent years. Scottish Business Enterprise R&D (BERD) expenditure was 0.56% of Scottish GDP in 2009, lower than the rate for the UK as a whole (1.11%) and the EU (1.17%)<sup>4</sup>. Compared to other UK Government regions, Scotland ranked in 10th place out of the 12 regions.

However, while R&D is useful for measuring technology-based activities, it is increasingly recognised that this is only one element of the broader concept of innovation and is frequently more relevant for manufacturing than for services<sup>5</sup>. Evidence shows that firms introduce new products and services onto the market without necessarily performing R&D. A lot of innovation activity is based on (or embodied in) advanced machinery and computer systems purchased to implement new or improved processes and deliver new products and services. Innovation can also be purchased through rights to use patents, licences, trademarks and software. Innovation can also encompass training and new design and marketing processes<sup>6</sup>. Evidence also shows that many firms adopt multiple, complementary innovation strategies, with the most innovative firms introducing both product and process innovations as well as marketing or organisational innovations. Therefore, productivity growth can be achieved through advances in technology combined with new approaches to creating and delivering of goods and services.

There is now a solid body of evidence describing the relationship between research, innovation and economic development<sup>7</sup>. The evidence suggests that investment in 'intangible assets' that give rise to innovation (R&D, software, human capital and new organisational structures) now accounts for up to 12% of GDP in some countries and contributes as much to labour productivity growth as investment in tangible assets such as machinery and equipment. According to OECD estimates, investment in intangible assets accounted for around a quarter of labour productivity growth in the UK and other countries between 1995 and 2006<sup>8</sup>.

The Community Innovation Survey (CIS) allows an assessment of business innovation performance, wider than just R&D expenditure, across European Union countries. CIS collects a range of information from businesses on the types of innovation they are involved in, motivation for innovation, spending on a range of innovation activities beyond R&D, collaboration and linkages between businesses or with public research organisations, as well as data on sales from product innovations<sup>9</sup>. In light of the growing recognition that innovation encompasses a wider range of activities, and that broader metrics are required to reflect this, the Innovation Survey provides a key data set to measure innovation within businesses<sup>10</sup>.

## UK innovation survey, Scottish sample and analysis

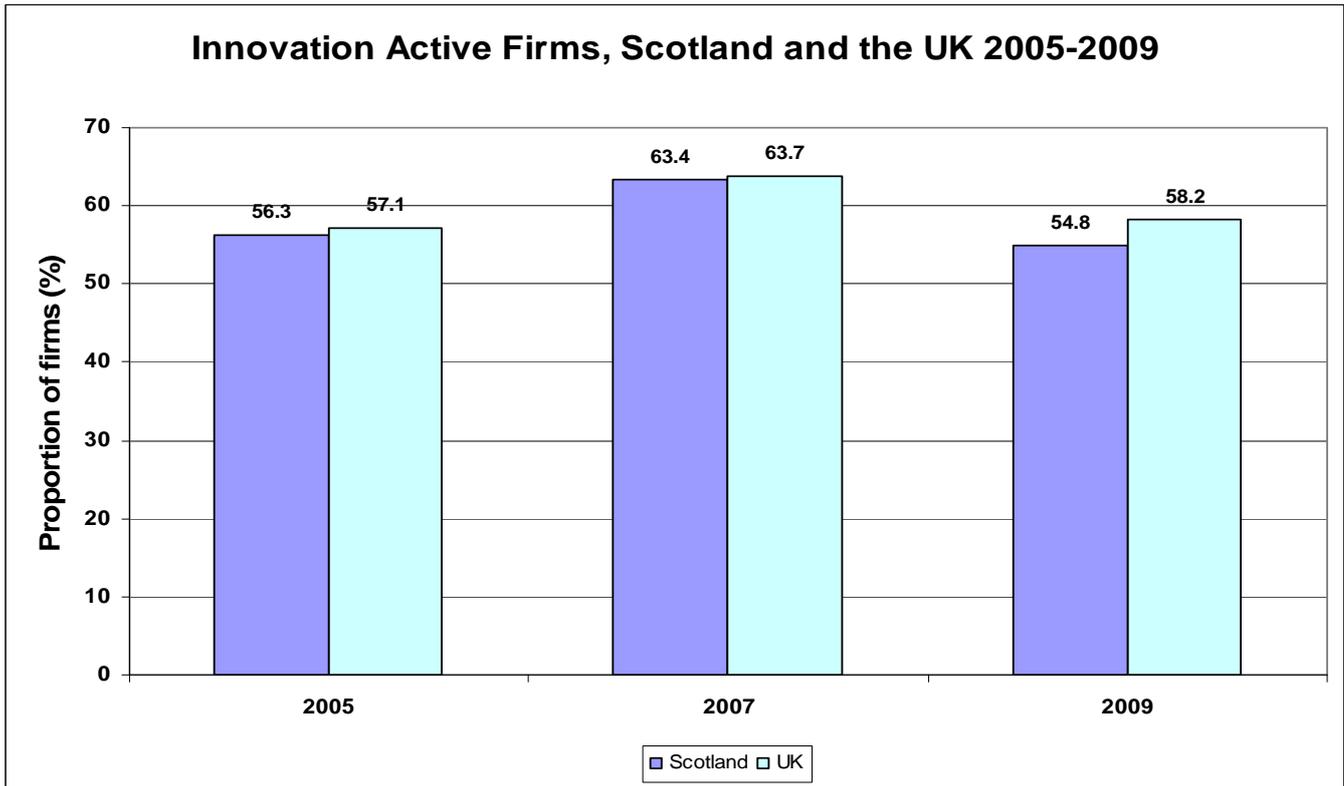
This paper presents an initial analysis of the Scottish results of the 2009 UK Innovation Survey. The 2009 survey is the third bi-annual survey, and this analysis focuses on Scottish trends over time and provides comparisons with the UK as a whole.

The UK Innovation Survey is a voluntary survey of a sample of firms with 10 or more employees. It has been conducted every two years by the Office for National Statistics (ONS) on behalf of the Department for Business, Innovation & Skills (BIS) and its predecessors since 2005. Earlier surveys were undertaken every four years<sup>11</sup>. The results feed into the Community Innovation Survey (CIS), which allows Europe's progress in the area of innovation to be monitored.

Both across the UK as a whole, and specifically in Scotland, the 2009 survey achieved a response rate of 49%. In Scotland, 2,393 enterprises were surveyed and 1,184 questionnaires were returned. To compensate for the firms that did not respond to the survey and those not selected for the sample, BIS developed weightings so that the results are representative of the population of firms as a whole. On average each respondent represents 13 enterprises in the population<sup>12</sup>.

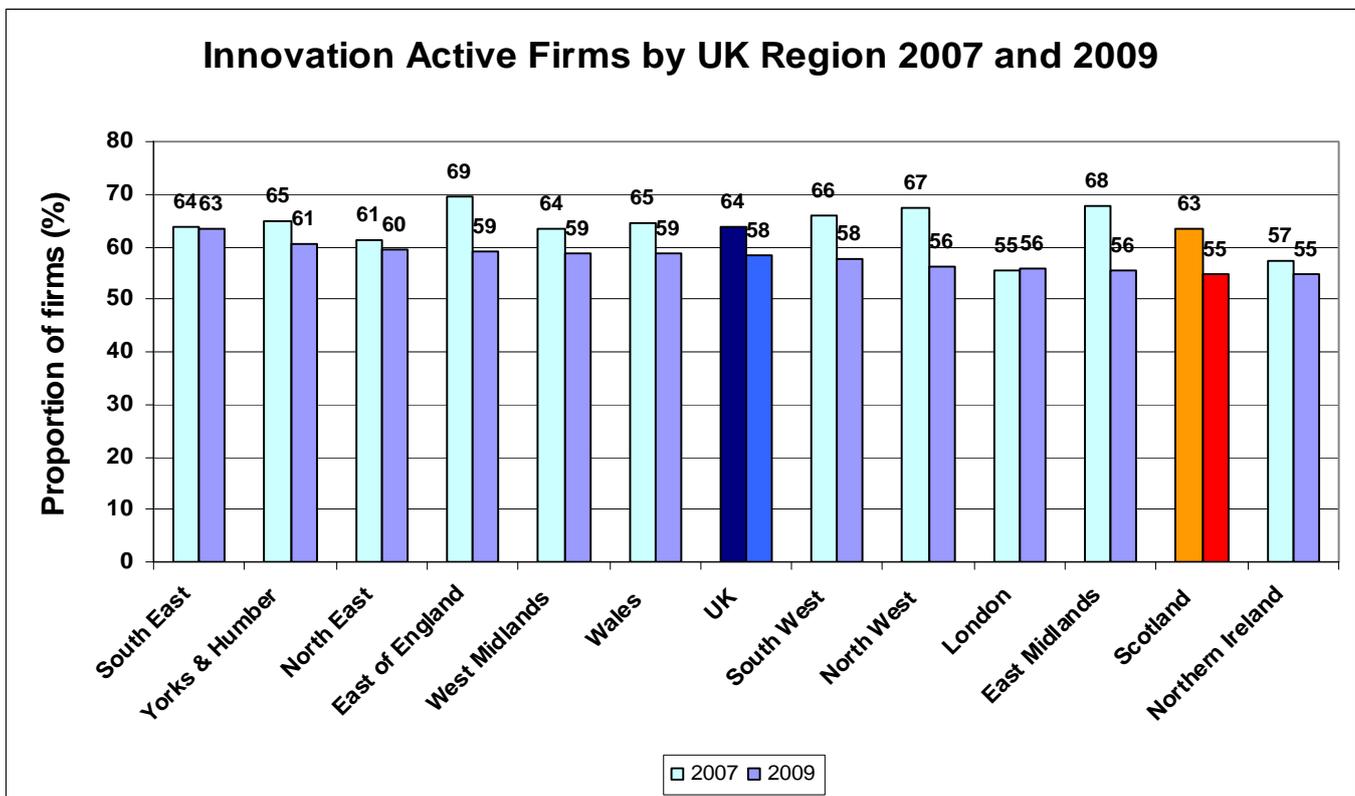
The analysis in this paper is based on microdata sourced from ONS<sup>13</sup>. Scotland's performance is compared over time and to the UK by business size band and focuses on

Figure 1: Proportion of innovation active firms in Scotland and the UK, 2005-2009



Source: ONS

Figure 2: Innovation active firms by government office region 2007 and 2009



Source: ONS

innovation activity indicators and innovation 'inputs' and 'outputs'.

### • Innovation activity indicators

'Innovation active' firms are defined as enterprises engaged in any of the following<sup>14</sup>:

- Introduction of a new or significantly improved product (goods or service) or process;
- Engagement in innovation projects not yet complete or abandoned;
- Expenditure in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities.
- Broader areas of innovation include the introduction of innovative business practices and organisational structures:
- 'Wider innovators' are firms that have introduced new and significantly improved forms of organisation business structures or practices aimed at improving internal efficiency or effectiveness of approaching markets and customers;
- 'Broader innovators' are firms that are either innovation active or wider innovators, or both.

### • Innovation inputs and outputs

There are several types of innovation expenditure that firms may undertake, such as bought-in machinery, equipment, software, knowledge and expertise. Impact on turnover is a measure of the effects, or outputs, of innovation. This is important since, for businesses, the value of innovation is the financial return. This paper reviews:

- Forms of innovation expenditure (inputs);
- 
- Turnover from innovation (outputs)

Analysis of the main innovation and broader indicators in this paper are based on weighted data. In line with the Scottish CIS3, CIS4 and CIS5 analyses, however, the analysis of input and output indicators is based on un-weighted data. The rationale for using un-weighted data was outlined in the 2005 report published by the Scottish Government in 2007<sup>15</sup>

### Innovation active businesses in Scotland

In the 2009 survey, in Scotland and the UK, the proportion of innovation active firms was 54.8 per cent and 58.2 per cent respectively, lower than in the 2005 and 2007 surveys. The 2009 survey covered the period 2006 to 2008, and by

the end of 2008 the Scottish and UK economies were in recession. This is likely to have had an impact on the number of businesses starting innovation activities in 2008 and affect the overall number of innovation active firms in the survey period<sup>16</sup>. The fall in innovation activity levels between the 2007 and 2009 surveys was slightly greater in Scotland than the UK and, since 2005, Scotland has tended to lag the UK as a whole (figure 1).

Scotland ranked in 11th place out of the 12 UK Government Office Regions in the 2009 survey, although since 2007 the gap in performance between the lowest and highest regions has narrowed. It is also worth highlighting that smaller sample sizes for the regions leads a bigger standard error in the results than for the larger UK sample<sup>17</sup>. Therefore, the differences between regions may not be significant.

Figure 2 shows the proportion of innovative active firms ranged from 63 per cent in South East England to 55 per cent in Northern Ireland and Scotland in 2009. The regional patterns and rankings can generally be explained by differences in industrial composition and business size, and variations in sectoral business cycles and product life cycles<sup>18</sup>. This suggests levels of innovation activity differ depending on firm size and sector. Table 1 summarises the results for Scotland by size band and table 2 indexes these results relative to the UK = 100.

The above results show that innovation activity levels tend to increase as the size of the business increases, reflecting the pattern shown in previous surveys. In 2009, the UK had a higher proportion of innovation active firms in the small and medium size-bands than in Scotland. However, Scotland had a greater proportion of large firms that were innovation active. Compared to 2007, the proportion of innovation active small and medium sized firms fell more in Scotland than the UK (falls of -4.7 and -13.8 percentage points compared to -1.4 and -10.3), but less in large firms (-8.7 compared to -14.8).

Table 2 highlights the effect of this on all firms with 10 or more employees in 2009. Compared to the UK, large firms in Scotland outperformed the rest of the UK against most of the indicators, while the UK outperformed Scotland in product innovation in each size band.

### New or significantly improved products

The ONS report, "First findings of the UK 2009 Survey", notes that the increased investment in innovation activity reported in the 2007 survey in many cases may have resulted in product and process innovations during the period 2006-2008. Although still lagging the UK average of 23.9 per cent, the proportion of firms introducing new or significantly improved products in Scotland increased by almost two percentage points to 21.3 per cent, with product innovation activity almost returning to 2005 survey levels<sup>19</sup>. Nevertheless, despite an overall improvement, Scotland

**Table 1: Innovation indicators by firm size band, proportion of firms (%), Scotland 2009**

Activity	10 to 49 employees	50-249 employees	250+ employees	All 10+ employees
Innovation Active	53.8	58.2	67.1	54.8
Product Innovator	20.4	25.2	28.7	21.3
Process Innovator	11.8	14.2	22.9	12.5
Ongoing/abandoned activities	7.0	9.9	20.2	7.8
Innovation Expenditure	40.7	46.4	53.6	41.9
Wider Innovation:	23.5	34.8	45.6	25.9
Corporate Strategy	14.0	16.9	24.4	17.1
Management Techniques	9.4	15.4	26.0	14.6
Organisational Structure	17.4	23.8	31.5	22.2
Marketing Concept	13.5	15.1	21.3	15.6
Broader Innovation	54.9	66.9	71.8	57.3

**Table 2: Main innovation indicators by firm size band, Scotland relative to UK = 100 2009**

Activity	10 to 49 employees	50-249 employees	250+ employees	All 10+ employees
Innovation Active	94	93	110	94
Product Innovator	89	89	91	89
Process Innovator	99	92	121	99
Ongoing/abandoned activities	84	79	128	86
Innovation Expenditure	97	94	118	97
Wider Innovation	96	95	117	97
Corporate Strategy	109	97	130	110
Management Techniques	103	96	142	111
Organisational Structure	109	101	120	109
Marketing Concept	89	78	120	92
Broader Innovation	93	100	110	95

**Note:** If the figure for Scotland relative to the UK is less than 100, then the proportion of firms engaged in that innovation activity in Scotland was less than the proportion in the UK. Conversely, if the figure is greater than 100, then the proportion of firms engaged in that activity in Scotland was higher than in the UK.

ranked in 10th place out of 12 UK regions, only the North East and Northern Ireland had lower product innovation levels.

Scotland has had a smaller proportion of product innovators than the UK average in every business size band over the last three surveys, the only exception being in the 2005 survey, when there was a tendency for large firms in Scotland to have slightly higher product innovation activity. This could be due to differences in the sector breakdowns between Scotland and the UK or influenced by weightings. For example, the UK Innovation Survey Report 2009 showed that the highest proportions of product innovators were in engineering-based manufacturing, other manufacturing and knowledge-intensive services such as financial services. As Scotland has a smaller proportion of firms in these sectors in its business base than the UK as a whole (around 34 per cent compared to 42 per cent<sup>20</sup>), then this is likely to reduce the overall proportion of firms that are product innovators when weightings are applied to the sample distribution. Similarly, the UK Innovation Survey 2009 analysis<sup>21</sup> that a higher proportion large firms were product innovators than small or medium sized firms. If Scotland has a smaller proportion of large firms than the UK

as a whole this would be likely to reduce the proportion of firms that are product innovators. However, there is little difference in the distribution of firms by size band between Scotland and the UK, with small businesses having the largest share of the business base and large firms have the smallest share in each. This suggests that industry structure is the main influence on differences between the UK and Scotland in overall product innovation performance.

### **New or significantly improved processes**

In terms of process innovation, Scotland's performance relative to the UK is slightly better, with the proportion of firms around the UK average over the last three surveys. The proportion of process innovators increased between 2007 and 2009 in both Scotland and the UK, however, activity levels were still lower than those reported in the 2005 survey. In 2005, both Scotland and the UK had 16 per cent of firms that were process innovators compared to 12.5 per cent and 12.6 per cent respectively in 2009. The proportion of process innovators ranged from 14.2 per cent in the South East of England to 10.6 per cent in Northern Ireland in 2009. At 12.5 per cent, Scotland was close to the UK average, and ranked in 7th place out of 12 regions. Both product and process innovators are more likely to be

larger firms. In the last three surveys a higher proportion of large Scottish firms were process innovators than across the UK as a whole.

**Expenditure on innovation**

Most innovation active firms have expenditure associated with innovation activities. In 2009, 55 per cent of firms were innovation active in Scotland, 76 per cent of which had innovation expenditure. Firms reported a range of investments, including, R&D, training and the acquisition of equipment and software. Although the proportion of firms reporting expenditure fell in 2009 compared to the previous two surveys, this may partly have been due to the economic

**Wider innovation**

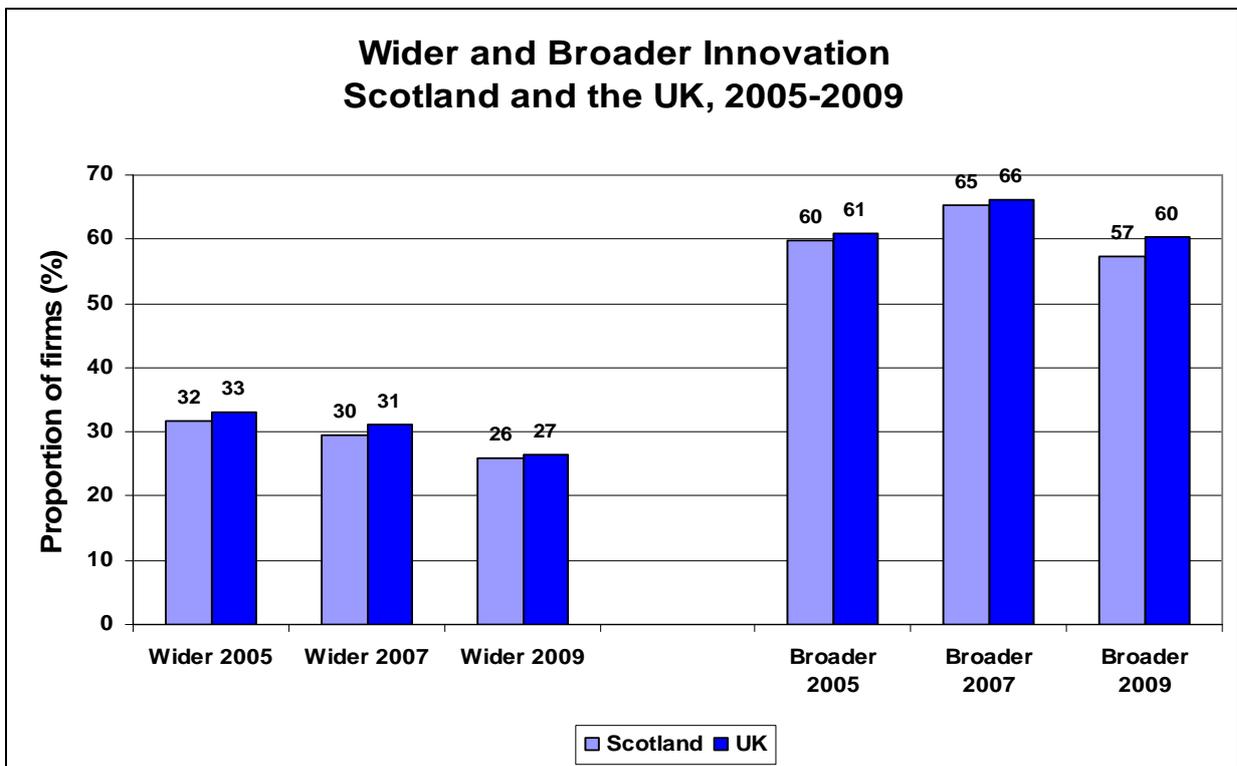
In addition to technological development and investment in innovation-related activities, strategic innovations are also important in terms of improving firms' competitiveness and

downturn. Once again, Scotland's overall performance was broadly similar to the UK (42 per cent compared to 43 per cent across the UK). For the third consecutive survey, Scotland remained in 8th place out of the 12 regions.

Over the last three surveys, a higher proportion of firms in the largest size band have had innovation-related expenditure in Scotland than in the UK. The effect of this, combined with the proportion of large firms with ongoing activities, could lead to an increase in large firms' innovation activity levels in the next survey.

growth opportunities. Wider innovation indicators are used to measure this. Wider innovators are those firms that have undergone strategic, organisational, managerial techniques and marketing changes to achieve efficiencies or

**Figure 3: Wider and broader innovation in Scotland and the UK, 2005-2009**



Source: ONS

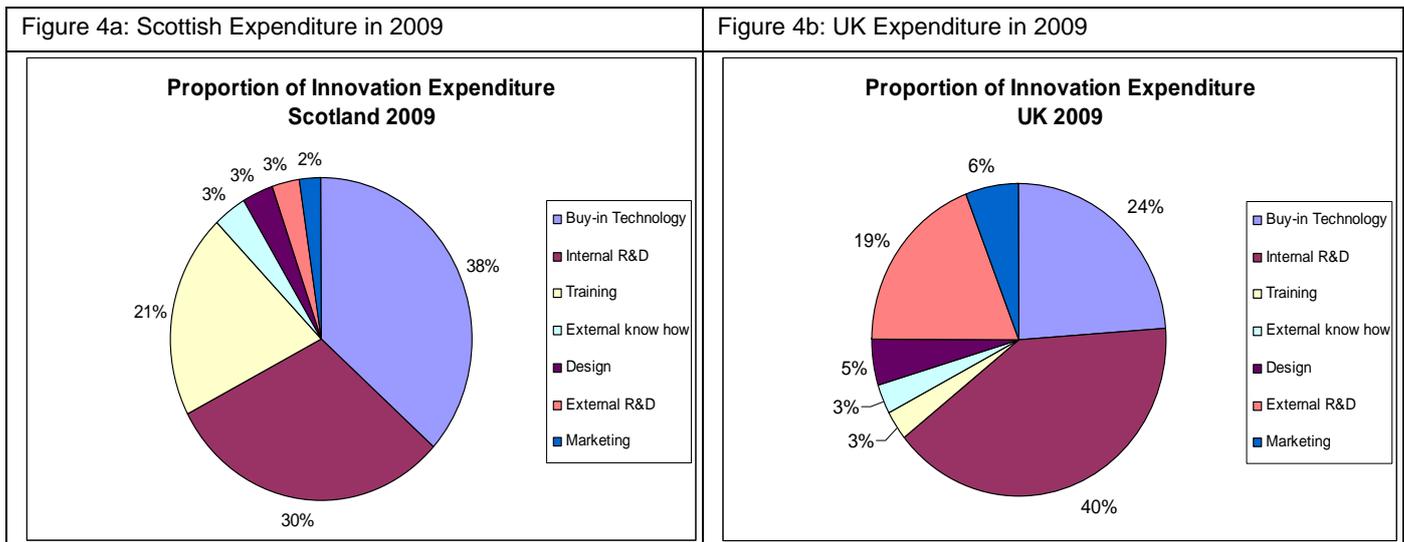
improvements to service. The proportion of firms reporting wider and broader innovation activity fell between 2007 and 2009 in Scotland and the UK (figure 3).

Firms were asked if they had made any major changes to their business structure or practices over the survey period. As in the rest of the UK, there was less engagement by Scottish firms in non-technological innovation than in the previous survey, continuing the decline from 2005. Scotland ranked in 6th place out of the 12 UK regions. The

proportion of wider innovators in the largest size band fell to 46.5 per cent in 2009 from 52.5 in 2007. Smaller firms also recorded a fall and remain less likely than large firms to engage in wider innovation.

**Broader innovation**

Broader innovators are those firms that are either innovation active or wider innovators, or both. Broader innovation gives an overall picture of the level of innovation, both



Source: ONS

technological and non-technological. Broader innovation levels in Scotland rose between 2005 and 2007 before falling back in 2009 by almost nine percentage points to 57.3 per cent, increasing the gap with the UK. Ranked in 11th place out of the twelve UK regions, this mirrors Scotland's overall innovation activity performance. Only Northern Ireland had lower proportions of 'broader' and 'innovation active' firms.

Scotland did have a higher proportion of broader innovators in the largest firm size band than the UK in 2009. Given that the broader innovation indicator includes firms that are innovation active, the high proportion of large innovation active firms in Scotland is likely to explain the high proportion of large firms that are broader innovators.

Based on the above definitions of wider and broader innovation, the broader innovation indicator can be used to illustrate the extent to which firms engage in wider (strategic) innovation only. This is calculated by subtracting the proportion of innovation active firms from the proportion of broader innovators. Across all the UK regions the proportion of firms engaging only in strategic innovation activity is very low at around 2.3 per cent. The figure for Scotland sits at around 2.5 per cent. This suggests that firms in Scotland tend not to change behaviours or business strategies as an independent means of improving competitiveness. Rather, they tend to introduce strategic, organisational, marketing or management changes in conjunction with other technological innovations.

The results outlined so far have shown that, generally, any differences between the results for Scotland and the UK are relatively small, particularly when considering the narrow range of performance across the UK regions for many indicators. However, there are differences in performance at firm size band level<sup>22</sup>. Small and medium sized firms in Scotland underperform relative to the UK while large firms

do better, and, for Scotland (and for the UK as a whole), innovation activity increases with firm size.

### Innovation inputs and outputs

The 2005 and 2007 surveys highlighted that R&D accounts for only a small proportion of total innovation spend and total innovation outcomes, and that low levels of formal R&D may not necessarily result in low levels of innovation. In terms of how well Scotland performs using innovation expenditure as a measure instead of Business R&D as a percentage of GDP, Scotland performs fairly well compared to the UK as a whole. Calculating total innovation expenditure per employee for all innovation active firms with 10 or more employees, Scotland ranks in 4th place out of 12 UK regions. Scotland had average expenditure of £3,268 compared to £3,018 across the UK as a whole. Therefore, although a slightly lower proportion of Scottish companies invested in innovation they tended to invest more than the UK average. Measuring innovation in this way, Scotland performs better relative to the UK than when measured using Business Enterprise R&D (BERD) figures. BERD data for 2009 shows that Scotland ranks in 10th place among UK regions for expenditure per employee, with average expenditure of £592 compared to a UK average of £1,037<sup>23</sup>.

The Innovation Survey 2009 results showed that across Scotland and the UK, bought-in technology was the most frequently cited type of innovation expenditure across most business size bands; although there were differences in the distribution of firms' actual expenditure (figures 4a and 4b). Firms in Scotland had invested a higher proportion of their total innovation expenditure in bought-in technology and training than the UK overall. Other notable differences include marketing and external R&D, where UK firms as a whole invested a higher proportion of innovation expenditure Scottish firms.

Compared to the UK, large firms in Scotland had a greater proportion of expenditure on bought-in technology such as

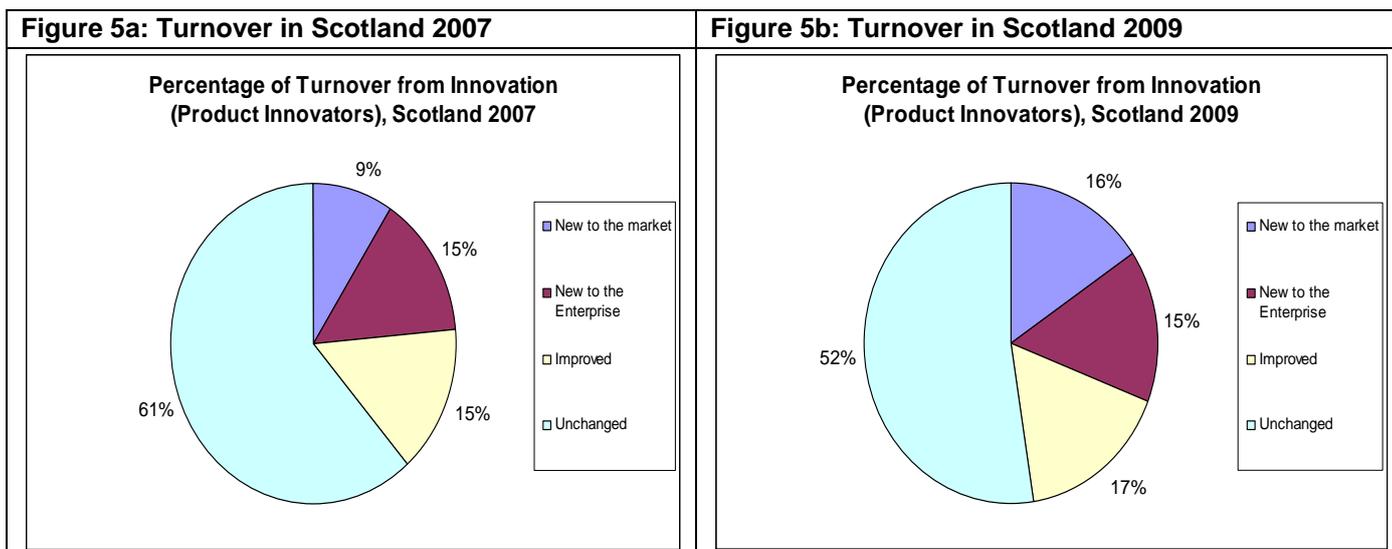
machinery, equipment and software and firms in each size band had a greater proportion of expenditure on training.

This indicates a greater tendency in Scotland for firms to introduce new products on the market or new processes without necessarily performing R&D. Considering trends by size band, large firms in Scotland were more likely to spend on in-house R&D, external R&D, bought-in technology and marketing. In medium sized firms, design and marketing accounted for the greatest proportions of expenditure and in small firms buying in external know-how and training were important. It is likely that the sector breakdown will also influence these results. For example, the UK Innovation Survey 2009 statistical annex shows that financial and business services had the highest proportion of expenditure

in internal R&D while manufacturing had the highest proportion on external R&D and transport and logistics had a high proportion of expenditure in training. This area requires further research and analysis to understand the implications for Scotland.

**Affect on turnover of product innovations**

The 2005 and 2007 surveys noted that the biggest proportion of firms' turnover was generated from products that were wholly unchanged during the survey period. Less than 40 per cent of turnover was attributed to new or improved products. However, between 2007 and 2009 the proportion increased by almost 9 percentage points in



Source: ONS

Scotland and by 2009 almost half of turnover was attributed to new or improved products in innovation active firms with 10 or more employees. The biggest increase was due to 'new to the market products', although the percentage of turnover from improved products also increased by two percentage points. This is illustrated in figures 5a and 5b.

Small firms in particular had a higher proportion of turnover from 'new to market' and 'new to business' products than medium and large sized companies (table 3), and a higher proportion of firms in Scotland in every business size band had a greater proportion of their turnover from new and improved products than in the UK (table 4).

Calculating the returns from innovation expenditure in turnover terms, table 5 estimates how much turnover (£) is generated for every £1 of innovation expenditure. Clearly, large firms' expenditure on bought-in technology and in-house R&D has produced a higher return on investment in Scotland.

Potentially, some of the difference between Scotland and the UK may be explained by the extent to which products are new to the market, or any differences in the sector

breakdowns between the Scottish and UK samples. Previous reports have shown that some sectors are more innovation active than others. For example, the 2007 results showed that Scottish manufacturing firms were more innovation active while financial and business services firms were less innovation active than the UK average. Some increase in turnover could also be due to the increased investment in the previous survey period since, over the last three surveys, a higher proportion of firms in the largest size band have had innovation-related expenditure in Scotland than in the UK.

**Conclusions**

The analysis of the 2009 Innovation Survey results highlights a number of interesting findings:

- Innovation activity among businesses in Scotland (and the UK) by 2009 was lower than in 2007, probably due to the onset of the economic downturn
- Scotland's business innovation performance lags the UK as a whole for most innovation indicators

**Table 3: Percentage of turnover by product/service type and by firm size band, 2009**

Product/service	10-49 employees	50-249 employees	250+ employees	All 10+
New to market	18.5	13.4	11.2	15.7
New to business	16.7	13.1	14.6	15.3
Significantly improved	16.1	16.2	17.8	16.5
Unchanged/modified	48.7	57.2	56.5	52.6

**Table 4: Percentage of turnover by Product/Service Type and by Firm Size Band relative to UK = 100, 2009**

Product/service	10-49 employees	50-249 employees	250+ employees	All 10+
New to market	112	113	132	117
New to business	112	109	118	113
Significantly improved	105	113	113	109
Unchanged/modified	91	93	89	91

**Table 5: Estimated £s of turnover relative to £1 of expenditure, 2009**

	10-49 employees	50-249 employees	250+ employees	All 10+
Scotland	£3	£13	£35	£23
UK	£3	£9	£12	£12

- Innovation activity rises as firm size increases – and large firms in Scotland outperform those in the UK as a whole across most innovation indicators
- Lower levels of product innovation in Scotland compared to the UK may be due to industry structure. Differences in industry structure might also contribute to Scotland's relatively lower levels of innovation activity.
- Scottish businesses invest more of their innovation expenditure in 'non-technological' innovation than UK firms
- Scottish firms are more likely 'buy in' technology, and less likely to invest in their own R&D, compared to UK firms
- Scottish firms that do invest in innovation spend more per employee than the UK average
- 'Return on innovation investment' in Scotland is higher than for the UK as a whole.

active in Scotland than the rest of the UK will have an impact on Scotland's overall results, particularly when weightings are applied to the sample, since small firms have the largest share of the business base.

Large firms in Scotland are more innovation active, have more innovation related expenditure, are more likely to be process innovators and more likely to be strategic innovators than for UK as a whole. However, while the proportion of innovation active large firms has grown in Scotland relative to the UK, the proportion of small firms has fallen, reducing Scotland's overall performance.

To better understand the reasons for differences in performance between businesses of different sizes, and between Scottish and UK performance, a future analysis will examine in more detail factors such as motivation and barriers to innovation. Further analysis by industry sector may also provide some insight into the extent to which the performance in different sectors affects Scotland's overall and product innovator performance.

There has been a tendency for Scotland to lag the UK average over time, although differences in the results for Scotland and the UK are relatively small. However, there are fairly substantial differences between small and large firms' innovation activity levels in Scotland and the UK as a whole. The tendency for smaller firms to be less innovation

## Endnotes

<sup>1</sup>[The Government Economic Strategy, The Scottish Government, 2011](#)

<sup>2</sup>[Innovation and Growth: Rationale for an Innovation Strategy, OECD, 2007](#)

<sup>3</sup>[European Commission Staff Working Document: A Rationale for Action, European Commission 2010.](#)

<sup>4</sup>[Innovation and Research & Development - R&D Business Expenditure, The Scottish Government, 2010](#)

<sup>5</sup>[Measuring Innovation: A New Perspective, OECD, 2010](#)

<sup>6</sup>[European Commission Staff Working Document: A Rationale for Action, European Commission, 2010](#)

<sup>7</sup>[European Commission Staff Working Document: A Rationale for Action, European Commission, 2010](#)

<sup>8</sup>[Ministerial Report on the OECD Innovation Strategy: Innovation to strengthen growth and address global and social challenges, OECD, 2010](#)

<sup>9</sup>[Measuring Innovation: A New Perspective, OECD, 2010](#)

<sup>10</sup>[Annual Innovation Report, BIS, 2010](#)

<sup>11</sup>UK Innovation Surveys were carried out in 1993 for the period 1990-1992, in 1997 for the period 1994 to 1996, and in 2001 for the period 1998-2000.

<sup>12</sup>[UK Innovation Survey 2009 Statistical Annex, BIS, 2010](#)

<sup>13</sup>This contains statistical data from ONS which is Crown copyright and reproduced with the permission of the controller of HMSO and Queen's Printer for Scotland. The use of the ONS statistical data does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates.

<sup>14</sup>[First findings from the UK Innovation Survey 2009, Stephanie Robson and Martin Kenchatt, Economic & Labour Market Review, Vol 4, No 3, March 2010](#)

<sup>15</sup>[The Community Innovation Survey 4: Profiling Scotland's Innovation Performance, Dr. Mark Freel and Prof. Richard Harrison, The Scottish Government, 2007](#), Weights which are incorporated in the data can only be correctly scaled where information is given by all respondents, however, some respondents may only partially complete a questionnaire. In addition, the survey contains filter questions, inviting only enterprises fulfilling certain criteria to answer parts of the questionnaire and the relevant population for weighting purposes would not be all firms in the IDBR

<sup>16</sup>[First findings from the UK Innovation Survey 2009, Stephanie Robson and Martin Kenchatt, Economic & Labour Market Review, Vol 4, No 3, March 2010](#)

<sup>17</sup>The standard error is used to calculate the confidence interval for the range of values in which the population mean is expected to lie. Given the larger range of values for Scotland the Scottish population mean might not be very different from the UK population mean.

<sup>18</sup>[UK Innovation Survey 2009: Science and Innovation Analysis, BIS, 2010](#)

<sup>19</sup>The OECD Glossary of Statistical Terms defines product innovations as the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical

specifications, components and materials, incorporated software, user friendliness or other functional characteristics.

<sup>20</sup>Innovation Survey weighted and non-weighted sector data provided by BIS

<sup>22</sup>[UK Innovation Survey 2009 Statistical Annex, BIS, 2010](#)

<sup>23</sup>Although, as noted earlier, margins of error are an issue.

<sup>24</sup>[Innovation and Research & Development - R&D Business Expenditure, The Scottish Government, 2010](#)

# How the civil service responded to our proposal for changing the pricing system for Scottish Water

Jim Cuthbert, Margaret Cuthbert, January 2011

## 1. Introduction

1.1 Water is one of Scotland's most vital and largest industries. It is an input into all other forms of economic activity as well as being part of every family's expenditure. It is therefore important, both for living standards and for the economy, that the pricing of water in Scotland is taken extremely seriously and that efforts are made to have an appropriate, sustainable charging system. Since 2002, when the office of the Water Industry Commissioner for Scotland was established<sup>1</sup>, we have analysed the various methods used to determine water charges, and have shown that each of the various methods have major faults. See for example our previous articles in the Fraser of Allander Commentary, (Cuthbert and Cuthbert, 2007, 2009).

1.2 In 2008, the Cabinet Secretary for Finance raised with us the problem of capital charges on the water industry: it was expected that changes in Treasury policy would make water capital charges an increasing real burden to the Scottish government budget. As a result of both this concern and our 2007 Commentary paper, (which had set out the problems with the current method of setting water charges), we proposed a new charging system for Scottish Water, details of which we published in the Fraser of Allander Commentary in February 2009. Under our proposed charging system, net new capital formation financed from customer charges would be regarded as being paid for by a notional loan from the customer base as a whole to Scottish Water. We suggested that the body of customers as a whole would then earn a return: this would be in the form of a rebate, equal to historic cost interest and depreciation on the notional loan. In our paper, we showed how this approach would be fully sustainable, and would lead to significantly lower charges for customers than the present regulatory capital value pricing system. The approach would

<sup>1</sup> The Commissioner was replaced by the Water Industry Commission for Scotland in 2006, which body regulates Scottish Water and determines the caps to be placed on water revenues: in effect determining water charges.

also have had significant benefits as regards the capital charge which, (when the paper was written), the Treasury levied from departments on the capital assets of public corporations.

1.3 Although we received no response from the Water Industry Commission for Scotland, (WICS), or the Scottish government civil service with responsibility for water to this or our earlier paper, it transpires that the civil service did provide a briefing on our paper to Ministers. In the summer of 2010 we were given a copy of the brief which had been put to Ministers by the civil service, commenting on our proposal. This brief was originally prepared for Ministers in 2009, and a slightly revised version was put to Ministers again in mid 2010. It is the later version of the brief which has now been given to us. A copy is attached as an annex to this paper.

1.4 This paper represents our critique of the civil service comments on our proposal. We will demonstrate that the advice put to Ministers was seriously flawed: in several respects the advice was factually wrong – and we believe that there were major omissions relating to matters which should have been covered in advice given to Ministers. Our conclusion is that Ministers would have found it impossible to make a properly informed decision about the relative properties of different charging methods, or about the merits of our specific proposal, on the basis of the civil service brief.

1.5 Section 2 is the main part of this paper, where we examine what the civil service said about our proposals, and explain why their analysis is flawed. In section 3, we take the opportunity to consider the implications for our proposed charging system of the change that the Treasury has subsequently announced in the operation of capital charges.

## 2. Our critique of the civil service brief which commented on our original proposals

2.1 The civil service brief commenting on our proposals set out in our Fraser of Allander paper of February 2009 is reproduced in the annex to this paper.

2.2 Before considering the civil service argument in detail, it is necessary to give some background on the RCV method of setting utility prices, (as used by the WICS and by OFWAT in England and Wales.)

According to the definition given by the WICS, the RCV of a utility like Scottish Water is "The capital base used in setting charge limits. The value of the regulated assets on which Scottish Water can earn a return." (WICS, 2005, p38) Starting from some initially estimated value, the RCV is then rolled forward by a process of annual updating. This process involves:

a) updating the previous year's RCV figure for inflation;

- b) adding in the nominal value of investment undertaken during the year;
- c) subtracting off depreciation, assessed in current cost terms.

How this RCV fits in to the determination of charges is as follows. The basis for setting charge limits in any given year is:

- i) an appropriate allowance for the operating costs of the undertaking;
- ii) plus an allowance for the cost of capital, worked out as an appropriate interest rate applied to the RCV;
- iii) plus an allowance for current cost depreciation and infrastructure renewal expenditure.

Details of the application of this process can be found in (WICs, 2005, p294, and WICS 2009, sheet P4). (Note that, when the WICS first introduced the RCV approach in the 2006 Strategic Review of charges, their initial estimate of RCV was for the year 2009/10, and this was then rolled back to 2006/07 by reversing the above procedure: this does not affect our comments below, on the general properties of the RCV approach.)

2.3 For present purposes, the important thing about the version of the RCV method as used in the water industries in Scotland, and England and Wales, is that it is applied in current cost terms: specifically, when the RCV is uprated each year, the previous year's RCV is uprated for inflation: and when depreciation enters the process, what is used is an estimate of current cost depreciation. (There are versions of the RCV approach applied elsewhere in the world where the process is done in historic cost terms.) It was this current cost aspect of the RCV approach as applied in the UK which was the basis of our Commentary paper of 2007.

2.4 We refer the reader to that article for the full details of our critique of the current cost version of the RCV method. In that paper, we developed the financial model of an idealised utility, which undertakes a constant amount of real investment each year, and which finances this investment by borrowing. We assumed that the utility was funded as if it were charging customers RCV prices: that is, as if it were charging customers an interest charge based upon current cost RCV, and also charging customers to cover current cost depreciation. We then compared the company's income from these sources with the loan charges it would have to pay on its borrowing. We also assumed that the company started off with an initial RCV of zero.

What the model showed was that, if inflation was positive, then the company's RCV rapidly came to exceed the company's outstanding financial debts: in effect, a

substantial part of the RCV was being generated through inflation, rather than as a direct result of the capital the company had borrowed and invested. The effects were substantial: for example, if inflation was at 2.5%, and assuming the company was investing in assets with a 30 year life, then in the long run, 20% of the RCV would be generated by inflation, rather than directly relating to investment. If inflation was at 5%, then 34% of the RCV in the long run would be generated by the effects of inflation. In terms of customer charges, what the company received by way of charges from customers rapidly came to exceed what it had to pay out by way of loan charges. In other words, the company was making a substantial profit over and above what was needed to fully fund its capital investment.

The detailed modelling in our 2007 paper related to the version of regulatory capital value pricing originally implemented in Scotland, under which the interest charge is calculated by applying a nominal rate of interest to the RCV. As noted in that paper, OFWAT applies a different version of regulatory capital value pricing, under which a real interest rate is applied to RC V. Note, however, that if real interest rates are positive, the OFWAT variant still implies that the charge to customers significantly exceeds the funding cost of the capital invested.

It is important to note that these effects stem from the way that current cost RCV pricing uprates the RCV each year: and that the long term effects are independent of how the initial RCV estimate is calculated.

2.5 Let us now consider the argument in the civil service brief. The brief claims that there are two key errors in our analysis of the regulatory model being applied by the WICS. The first of these claimed errors is outlined in paragraphs 4 to 6 of the brief.

Paragraph 4 first of all states that *"...the Cuthberts assume that the regulatory capital values (RCV) used in the water industry (both in England & Wales and in Scotland) are an estimate of the value of the assets employed, derived from how much it would cost to create those assets. This is incorrect."*

This claim is, however, in itself incorrect. In our 2007 paper we made it clear, (paragraph 2.2), that in practice a number of different approaches were possible towards the basis of calculation of RCV. The important point, however, is that in the modelling developed in that paper, we considered the steady state, (that is, long run), position of a notional utility, with an initial RCV which started at zero, and which was then rolled on from year to year using exactly the same approach as employed by WICS/OFWAT. The long run RCV in our model is on exactly the same basis as implied by the WICS/OFWAT approach.

The civil service's first claim that we have made an error is, therefore, wrong.

2.6 As seen in the previous paragraph, there is no difference in the basis of the RCV with which we are working. The question then boils down to the issue of how that RCV should be remunerated: that is, what return needs to be earned on that RCV to adequately compensate investors.

The only reasonable interpretation of what the civil service are saying in their paragraph 5 is that the RCV has to be remunerated in line with the charges implied by the current cost RCV pricing method, or else investors would not fund any further investment. However, no evidence is given in the brief to justify this implicit assertion that what is required is remuneration in line with current cost RCV. In other words, once we have removed the incorrect civil service claim in paragraph 4 of the brief that we are dealing with the wrong definition of RCV, the civil service's first attempt at rebutting our criticism of the current cost RCV pricing method amounts to no more than an unsubstantiated claim that we are wrong.

2.7 We now consider the second error which the brief claims we have made. This is described as follows: *"The second error the Cuthbert's analysis appears to make is that the RCV, together with the cost of capital, are the sole determinants of customer charges. In practice, WICS (like OFWAT) has used the RCV as a guide but has set charges on a cash basis."*

Our 2007 critique of the current cost RCV approach is based on the published descriptions of how OFWAT and the WICS use RCV in setting prices. As regards OFWAT, our paper not merely describes the way they say they use RCV in setting prices: it also then draws inferences about the likely results of this approach, which are entirely consistent with the outcomes observed in practice – such as the extremely high returns earned on the equity capital actually invested: the high prices paid for water and sewage companies in England in post-privatisation trading (often described by commentators as "irrational"): and distortion of the English companies capital programmes. Given all this, it is disingenuous to say that, in effect, OFWAT do not really rely on RCV, but are primarily setting prices on some other basis.

Exactly the same comment applies when we consider the potential impact of RCV pricing on Scottish Water prices. The statement in the critique that *"The cash basis is driven by financial ratios, such as gearing and free cash flow, that investors see as critical indicators of a company's financial health"*, does not reflect what the published Final Determination for 2010 actually says and does. We quote from Final Determination papers:

### **"Staff Paper 3**

*The Commission signalled in the last review that it would move towards the method of charge setting that is widely used by other utility regulators in the UK. This method sets*

*an assumed annual rate of return on a 'regulatory capital value' (RCV).*

### **Staff Paper 9**

*The level of revenue is calculated using the RCV approach."*

In addition, the detail of the financial model, published with the final determination, shows the calculation of rolling the RCV forward, and calculating a capital charge by applying an interest rate to this RCV.

It is perfectly true that the process of setting prices in the final determination cross checks the results against key financial ratios: we have never sought to deny this. But to imply, as the brief does, that the RCV approach is almost irrelevant, and that prices are actually being driven by some quite different approach, simply runs counter to the published final determination of charges.

2.8 The civil service brief is therefore wrong in its claim that we made two "key errors". But the brief is not just wrong in what it says, but also in what it omits to say. As we will now argue, the advice given to Ministers should have included discussion of certain important topics which are just not featured in the brief at all.

2.9 Consider, for example, paragraph 5 of the brief. We have already noted above (para 2.6), that paragraph 5 of the brief amounts to making a particular assertion about the answer to the following question: namely, what return needs to be generated on the RCV in order that the funding cost of the capital invested in the company can be fully reimbursed? Now the RCV of the company, and the funding cost of the investment capital, are related to one another in a straightforward, but nevertheless fairly complex manner, depending on parameters like the inflation rate, interest rate, and asset life. Sensible statements about the relationship can therefore only be made in terms of some form of mathematical model, which takes these parameters into account. This is precisely the approach we adopted in our 2007 paper, where we developed one specific model of the evolution of RCV for an idealised utility. We are not claiming infallibility for our approach: but the important point is that criticism of our approach has to be along the lines either of pointing out a specific error in the calculations within our model, or in the assumptions underlying that model. The civil service brief, however, does not attempt to do this – but instead, relies on a loose and unsubstantiated assertion.

In our view, it is a major weakness of the brief that, in advising Ministers on a subject where an appreciation of modelling issues is paramount, the brief makes no attempt to use the tools which are essential for discussing and appreciating the relevant issues.

2.10 There is another grave omission in relation to what the brief claims is the second error in our approach. We have already discussed the civil service claim that water prices in Scotland are set, not using the RCV method, but

actually on the basis of certain financial ratios, which “investors see as critical indicators of a company’s financial health.” Surely, however, if it was indeed true that water prices were set like this, then the brief should go into detail about what method is actually used – and what the implications are. How are the key ratios actually applied: why is it appropriate for pricing for a publicly owned utility like Scottish Water, which can borrow at significantly lower costs than market rates, to be driven by financial ratios which would satisfy private investors: what are the implications of the approach which the WICS actually uses for the future trajectory of customer charges: and crucially, how does this trajectory compare with the trajectory which would result from the application of our proposed charging scheme.

Ministers are in no position to make a rational decision about the comparative methods of different charging schemes unless they are provided with the sort of detail implicit in these questions – and yet this detail is completely lacking in the civil service advice to Ministers.

2.11 We have dealt so far with the two main criticisms which the brief attempts to make of our approach. Before concluding, however, it is worth remarking on certain other aspects of the brief which are surprising.

2.12 In paragraph 11, the brief in effect second guesses what the likely reaction of HMT and HMRC would be to our customer loan proposal. It is not our business to second or third guess what the likely reaction of government departments would be. However, we would say that:

- a. If Treasury did oppose, they would have to justify going against World Bank advice that it is desirable to reward customers for customer financed capital.
- b. As regards the imputed HMRC position, since the notional interest and debt repayment are taken out of customer charges before they are even set, they would not feature at all in the accounts of SW, and hence are unlikely to be of any concern to HMRC.

(See, however, section 3 of this paper, where we examine the implications of the Treasury’s recent decision to abolish the capital charge).

2.13 The civil service brief claims in paragraph 6 that the WICS initial estimate of the RCV of Scottish Water is likely “to approximate the value investors would pay to own Scottish Water”. The initial RCV estimated by the WICS for 2009-10, when the WICS introduced the RCV method in Scotland, was £5.4 billion: and the WICS rolled this backwards, (as noted in paragraph 2.2 above), to give a value of £4.1 billion in 2006-07. The strategic review of charges for 2010-2015, however, recorded the outcome of an exercise undertaken by Scottish Water to assess the modern equivalent asset value of its assets. This resulted in an estimate of £42.7 billion in 2009-10 for the current cost

net book value of Scottish water’s assets, (rising to almost £50 billion in 2014-15.). It seems extraordinary that the brief did not alert Ministers to the huge discrepancy between the WICS estimate of the sale value of Scottish Water, and the value of the assets over which control would be lost in the event of a sale.

2.14 Overall, therefore, we see no merit, and much that is surprising, in the civil service critique of our findings on the RCV method and of our proposed replacement. The critique is not merely factually wrong in key respects: what is really surprising are the omissions from the civil service brief. In particular, it attempts to deal in a purely verbal basis with issues that are fundamentally matters of modelling: and it undertakes no serious analysis of the model which forms the basis for our critique of the current cost RCV method, nor does it undertake modelling of its own. Moreover, despite its surprising and implausible claim that prices are actually set on the basis of certain key financial ratios, rather than the RCV method, it then fails to specify what the resulting long term trajectory of charges would be on the basis of applying these ratios. Our conclusion is that Ministers would have found it impossible to make a properly informed decision about the relative properties of different charging methods, or about the merits of our specific proposal, on the basis of the civil service brief.

### **3. Postscript: the implications of the Treasury decision to abolish the capital charge**

3.1 A primary reason why we structured our proposal for a revised charging system for Scottish Water specifically in terms of a notional customer loan was because of the capital charge which the Treasury levied on departments in respect of capital assets – including the assets of public corporations like Scottish Water. (Indeed, the reason we addressed the issue was because of the concerns addressed to us personally by the Cabinet Secretary for Finance about the cost of the capital charge relating to Scottish Water). As we explain in our 2009 paper, our approach would have given the Scottish government a strong case to pursue with HM Treasury for exemption from a large part of the capital charge on Scottish Water’s assets.

3.2 Since publishing our earlier paper, however, there has been an important development – in that, in 2010, the Treasury effectively announced the abolition of the capital charge: (Treasury, 2010, page 20). This change opens up the opportunity for an even simpler, and ultimately even cheaper, approach to charging for water in Scotland – namely, moving to a position where all Scottish Water’s capital expenditure is funded directly from customer charges. This approach would be entirely feasible for a body of the size of Scottish Water, which has a large and stable investment programme. We have undertaken some further work in modelling both the long term and transitional arrangements of this approach. It is not the place here to go into the full detail of this modelling work: but, to summarise, this work does indicate that:

- a) the transition to funding capital directly from revenue could be achieved at the price of a relatively small extra cost burden on customers in the short term.
- b) the long term implications of this policy would be a very significant cost reduction for customers.
- c) And since Scottish Water would no longer need to borrow at all, the annual saving to the Scottish government would build up to the full £140 million annual provision for Scottish Water borrowing which is currently in the Scottish government DEL.

3.3 What we would now propose, therefore, given the recent change in capital charge rules, would be moving to a system where all of Scottish Water's capital expenditure was funded direct from customer charges, rather than the proposal set out in our 2009 paper of treating customer financed capital as a notional loan.

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## Annex

The following is the civil service critique which was put to Ministers in reaction to our proposal on water pricing. The passages in italics were not in the original brief, but were included in the version put to Ministers in mid 2010:-

### **A critique of the Cuthbert's analysis on the pricing mechanism currently used for Scottish Water**

#### **Background**

1. The Cuthberts contend that the regulatory model being applied by the WICS (and as it happens all other economic

regulators across the UK) imposes too high charges on customers and as a corollary over high returns for the regulated utilities. Their (or conceivably another) alternative might rectify that undesirable position. They further contend that an alternative regulatory model such as the one they advocate would act as a greater incentive to capital efficiency on Scottish Water's part to the overall benefit of the Scottish economy.

2. As part of an alternative regulatory model the Cuthberts have argued that the concept of customer loans could reduce the need for lending to Scottish Water (SW) from government, thus freeing resources for other priorities.

#### **Critique of the Cuthbert's analysis of the regulatory model applied by WICS**

3. There appear to be two key errors in the Cuthberts' analysis of the regulatory model being applied by the WICS.

4. Firstly the Cuthberts assume that the regulatory capital values (RCV) used in the water industry (both in England & Wales and in Scotland) are an estimate of the value of the assets employed, derived from how much it would cost to create those assets. This is incorrect. The regulatory capital value for the companies in England & Wales was originally set in the early 1990s and reflected the value paid for them on privatisation. Since then the RCV has been updated each year to reflect new (efficient) investment (over and above any investment to maintain the assets in the current state), which is funded by investors.

5. The RCVs of the companies in England and Wales therefore reflects the funds investors have put into those companies, which is why it is appropriate that this investment is remunerated. If it wasn't, investors would not fund any further investment.

6. An absence of information on what investors would pay for SW results in the RCV being set by the WICS based on the RCV of equivalent sized companies in E&W. SW's RCV is not therefore a reflection of the value of the assets employed, based on how much it would cost to create them. Rather it is an estimate of the regulatory value of SW, based on comparators from E&W, which is likely to approximate the value investors would pay to own SW.

7. The second error the Cuthbert's analysis appears to make is that the RCV, together with the cost of capital, are the sole determinants of customer charges. In practice, WICS (like OFWAT) has used the RCV as a guide but has set charges on a cash basis. The cash basis is driven by financial ratios, such as gearing and free cash flow, that investors see as critical indicators of a company's financial health.

8. These two erroneous positions lead the Cuthberts to conclude that "under the present charging model a significant financial surplus is likely to build up", and that the

utilisation of this surplus would allow customer charges to fall without borrowing from Government increasing.

9. In fact the cash basis that WICS uses is designed to ensure a tight budget constraint on SW. *With one exception, a financial surplus builds up only if SW outperforms the regulatory settlement.*

10. *The exception is that in the Final Determination for the 2010-15 period WICS explicitly funds Scottish Water to be able to pay commercial borrowing rates – that is the borrowing rates that would be incurred if Scottish Water was raising finance independently of Government. Further advice is provided on this in the annex but it should be noted that that the financial surplus does not occur as a result of the RCV methodology. Rather the surplus arises due to an explicit decision by WICS to providing sufficient finance so that SW could borrow commercially.*

### **Critique of the Cuthberts' proposals for customer loans**

11. With regards to the idea of a customer loan, we do not think that this proposal offers the possibility of replacing Government lending to Scottish Water. Further investigation has revealed that:

- HM Treasury is highly likely to view loans from customers to SW as analogous to private sector funding. Under its present structure private sector funding scores exactly the same as if the SG had lent SW the funds – i.e. as SG expenditure. Converting part of the existing charge on customers to a loan is therefore highly disadvantageous – it increases Government lending to SW without increasing the finance that is available to SW.
- The Cuthberts' suggestion assumes that Scottish Water could simply deem some of its income to be classed as loans. HMRC would require convincing that this was not a tax dodge as it is possible that there would be a tax advantage to SW. They are likely to seek evidence of credit agreements at the individual customer level. This would effectively require SW to account for loans to every household, which would be disproportionate to any tax gain that might accrue and would pose challenging questions of how to gain consumer consent for making loans and what to do if that consent were not forthcoming.

12. It therefore does not appear that customer loans are a productive option to pursue.

### **Summary**

13. To summarise, the Cuthbert's errors in their analysis of the regulatory model being applied by the WICS have led them to a false conclusion. The bottom line is that SW's

financing only comes from two sources – customer charges and borrowing from Government. If one declines, the other must increase to compensate. The Cuthberts' proposal on customer loans does not appear to be a productive option to pursue.

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