3 The price of oil and the Scottish economy

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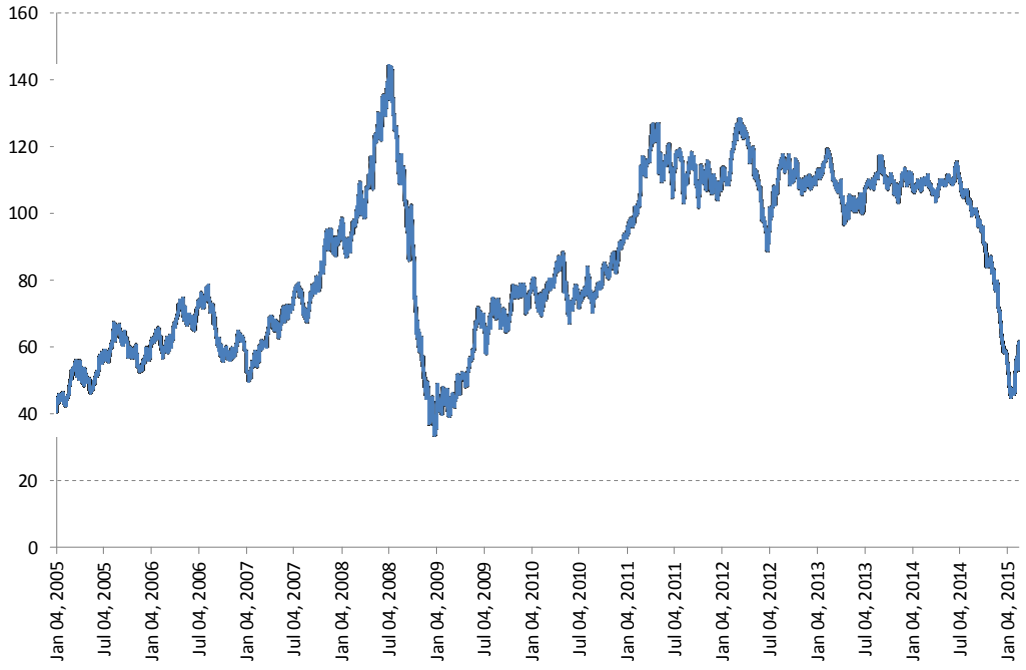
There were days in the latter half of 2014 when it seemed as if the price of oil was declining faster than newspapers were able to report it. Published prices were out of date almost before the ink was dry, superseded by successively lower prices, eventually falling to just over $45/barrel. So, we know that as soon as we note that the price of oil today (13th February 2015) is $55.73/barrel, that this will likely be wrong in the very near future *[Update: as of 28rd February 2015 it is $62.58/barrel – a rise of over 12% in just ten days]*. As an indication of how much the price of oil has fallen, and the rapid pace of this decline, prices in June 2014 were above $110.00/barrel. The decline appeared to have two distinct phases; first, the period to the start of October 2015 when the price fell by just over $10/barrel in three months, prior to a second phase – lasting slightly more than three months - when prices fell by over 50% to $50/barrel. The last time there was such a rapid decline in price was in final half of 2008, at the start of the Great Recession.

Figure 1 – Price of Brent crude ($ per barrel), January 2005 to January 2015 (daily average price)



Source: Thomson Reuters

Whatever the factors that are causing this recent and significant price fall – and plausible explanations include: the slower-than-expected forecast for global economic growth and hence lower growth in demand for energy; increased shale oil production in North America (adding about 4.5% to global supply); and critically the – ongoing - decision of Saudi Arabia (and the wider OPEC group) *not* to

defend the former oil price by decreasing production in the face of falling prices – they are having and will continue to impact significantly on the global economy as well as on the UK, Scottish and sub-Scotland economies – in addition to having serious structural impacts on the oil and gas and wider energy sectors.

When faced with the global dynamics of oil prices, what is not lost on economists and policymakers is that the changing oil price could have serious economic impacts for Scotland and parts of the Scottish economy. What is less clear however is the extent to which this price reduction will impact on the Scottish economy *as a whole*. We consider several factors, before attempting to draw some conclusions. We begin by looking at oil prices, before considering what might be termed the 'good' and 'bad' news, and before considering items for which it is difficult to attach either a positive or negative label.

Prices in the future

What is different between the recent price fall and that of 2008 is the extent to which price forecasts have moved. Markets which failed to predict the spectacular price fall are relatively confident that prices will remain below / around $70 a barrel through to 2017, however as shale gas production begins to slow and as demand recovers slightly over the coming years this could mean a faster-than-expected return to higher prices. The stance of OPEC and Saudi Arabia remains critical. If their current policy of maintaining production levels were to change – and output to be sharply curtailed – the price could soon rise. It is certainly true however that various plausible scenarios for coming weeks and months are feeding through to uncertainty and hence volatility in forward oil markets. Price volatility – measured by using futures contracts – has increased sharply over the last six months, and now stands at its highest levels for over five years (i.e. 2010). It would be interesting to better understand the separate, but linked, effects on production and exploration of low oil prices and high (forward) price volatility.

Employment and the UK Continental Shelf (UKCS)

Four figures need to borne in mind when talking about employment in the UKCS. The first two are measured, while the latter two are estimated using economic techniques (and are partly based on the first two). First, the **core workforce** – i.e. those workers spending more than 100 nights offshore – totalled almost **28,000** in 2013 (Oil and Gas UK, 2014). Second, is the total **offshore workforce** – i.e. all those who travel offshore for any length of time – was almost **62,000** in 2013 and has risen by about 10,000 between 2010 and 2013. Oil and Gas UK (2014) note that this increase is attributable to maintenance programmes and investment projects linked to recent capital spending.

Oil and Gas UK also produce a figure for the **total employment in the UK which is supported by UKCS activities**. This is the sum of three elements: the number of "direct" jobs, i.e. those in the sector itself, multiplied by a jobs multiplier, which shows the number of jobs supported by each direct job. This multiplier takes into account the linkages which exist between offshore activities and onshore employment in supporting sectors "indirect jobs", i.e. those employed in the production of goods and services, etc. to the offshore activities (and in the production of parts required for the production of those goods and services, and so on). In this methodology, these indirect jobs are attributed to the UKCS activity. Oil and Gas UK take direct employment of 32,000 and a job multiplier of 7.5 (Oil and Gas UK, 2012) to estimate **direct and indirect** employment in the UK of **240,000**.

The final figure is the **total employment supported by the UK oil and gas sector**, which Oil and Gas UK estimate as **440,000** Oil and Gas UK (2012). This is produced by adding an additional two additional elements with 100,000 jobs each to the direct and indirect figure above. The first of these is the induced effect (i.e. the spending by UK households of wages earned) while the second is the number of jobs in the UK supported by oil and gas activities in the rest of the world, i.e. producing goods for export to international markets.

It is also useful to examine where those who work offshore on the UKCS actually reside, as this gives a geographical distribution of the offshore workforce and indication of the geographical / regional impact of any significant changes in workforce numbers. Fortunately, figures for the residential location of the offshore workforce are available for as recent as 2013 (Oil and Gas UK, 2014). These show that 28% of offshore workers live in the North East of Scotland, with a further 21% living in the rest of Scotland. Put another way, more than 50% of the UKCS workforce live outwith Scotland (with 16% of the total offshore workforce living in the north east of England, for example).

The good news?

1. Low energy prices = higher real incomes (for households) and lower input costs (for businesses)

A number of news outlets have reported that a 10% fall in oil prices, could lead to a 0.1% increase in economic output. This would likely come from lower prices, stimulating household incomes – through reducing the costs of energy – and increasing the purchasing power of household incomes. In this way, the fall in prices would be equivalent to a wage increase. The most recent economic accounts suggest that household expenditure on energy, including gas, electricity and transport, is around 4% of all household spending. Any reductions in fuel prices could also have positive impacts for those on lower incomes, for whom energy comprise a higher portion of their expenditures. What is fundamentally important for the scale of the stimulus to household incomes is the extent to which the fall in price is passed on to consumers.

Furthermore, industries which are energy-intensive will benefit particularly from lower production costs – and all sectors will benefit from lower input prices. Domestic energy costs – oil, gas, and electricity – broadly comprise around 12% of all intermediate input costs for the Scottish economy as a whole, while all energy costs are around 15%. There are particularly sectors for whom energy are a larger portion of all intermediate inputs, such as parts of manufacturing. This being true, however, it would only improve the competitiveness of Scottish products, e.g. for exports, were Scottish exporting firms to be particularly more energy intensive than their counterparts in other regions and nations (as all regions and economies would benefit from lower input prices).

The bad news?

1. Oil and gas production activity likely to reduce in the short to medium term

To the extent that production is related to a high and stable oil price, the recent large falls might be expected to lower production. Indeed, many major operators in the North Sea are actively seeking to reduce their employment in the UKCS. Chevron was the first to announce job reductions, announcing plans to reduce its employment in Aberdeen by 255 (BBC News, 2014) in July 2014. Shell announced 250 onshore job losses in August 2014 (BBC News, 2014) while in January 2015 there were four further

announcements: BP announced a total of 300 job losses (BBC News, 2015), Schlumberger announced a reduction in its North Sea jobs of 100 (Scotsman, 2015),Talisman-Sinopec said it would cut around 300 jobs, broadly split across permanent and contract staff (Telegraph, 2015) and Conoco-Phillips announced plans to reduce its UK employment by 230 (by roughly 14%) (Reuters, 2015).

Two points should be made here. First, these announced job changes are only those in the operators themselves, and take no account of the possible impact on suppliers and the wider jobs supported by the sector. Using the same jobs multiplier as Oil and Gas UK – which is higher than for many sectors - the announced 1,435 job losses detailed above could mean the loss of more than 10,000 jobs across the UK as a whole, taking account of direct and indirect effects. Given the figures reported above on the residences of offshore workers, it is likely that any *indirect* job losses could be concentrated in the North East of Scotland, while the induced effects would have a far wider geographic spread across the UK.

2. Drilling activity in the UKCS will weaken, without any countervailing tax policy

In addition to exploration success, a major predictor of exploration and drilling activity has typically been (expectations of) a high and stable oil price. It is highly likely that one of the direct consequences of a sustained period of low prices will be lower exploration activity. However it should be noted that the level of exploration has been falling for the past few years, and current expectations are that between 8 and 10 exploration wells will be drilled in 2015. There were 15 wells drilled in 2013, which was well below the average for the previous decade. The expected oil price is a critical determinant of future drilling activity expectations, however the data shows that the last few years have seen significant declines in exploration activity, so high prices *per se* (such as existed before mid-2014) are a necessary but not sufficient condition for drilling activity. Part of this is explained by the scale of firms undertaking appraisal and exploration work, which Oil and Gas UK identify as being smaller than in the past – and so they are less able to accommodate non-successful exploration drilling – particularly when the cost of appraisal wells has increased significantly (i.e. from £20million per well in 2010 to £70 per well in 2013) (Oil and Gas UK, 2014b).

The good / bad news?

1. Decommissioning activity – up?

Shell announced plans at the start of February 2015 for the decommissioning of the Brent Delta platform. Decommissioning of the UKCS oil and gas facilities has been estimated to cost be a £30 to £35 billion market, with a large number of jobs to be sustained over many years through these activities. Although certain to occur for all projects at some point, the specific dates as to when individual projects and pipelines will be decommissioned is highly uncertain; however many factors other than the current oil price impact on decommissioning. Decom North Sea, for instance, identify, among other things, future prices, improved production technologies, fiscal and regulatory changes and alternative uses for the structures as all playing a part in determining the date at which fields will be decommissioned.

2. Renewable energy

Some have argued that the low oil price could make renewable electricity technologies less competitive against fossil technologies, and so limit the development of renewable energy capacity. On a “levelised cost” basis, this is almost certainly the case. However, it is worth noting – as others have for other

countries - that from the perspective of the electricity system as a whole that renewable electricity, for instance, does not typically directly compete with fossil technologies. Hence such support mechanisms for renewable electricity technologies however are likely to be the critical factor in developments over the short and medium run. Renewable heat, on the other hand, may be affected by lower (oil) prices as its cost competitiveness suffers, while the fall in the price of petrol and diesel reduces the incentives for drivers to move to electric cars.

Assessment

In summary, despite the increased uncertainty, the future oil price remains critical for activity in the UKCS and – through a range of transmission channels described above – will have a direct impact on the Scottish and UK economies. To the extent that low prices are a feature not only of the first half of 2015 but into the medium term, activities in the UKCS will likely change quite significantly, particularly in the absence of increased exploration activity or any countervailing tax / fiscal regime change. The outcome for the Scottish economy as a whole however is difficult to predict, particularly as it is likely to be positive for the UK as a whole (and this is Scotland's largest export market).

The reduction in energy prices and commensurate effective wage increases (for households) and input cost reduction (for businesses) could plausibly have some positive consequences for the Scottish economy. However, there are likely to be negative and significant consequences for particular parts and sectors of Scotland, in particular the North East of Scotland, from a sustained low oil price and via production, labour and supply chains to other locations both in Scotland and the UK. For an outline assessment of the range of potential impacts on the Scottish economy, please see the Box 1 'Estimates of the impact of fall in oil price on GDP and jobs, Scotland and UK', page 25).

From a purely data perspective, as UKCS activities are not counted as part of Scottish GDP figures (only the onshore and supply chain activity is) any direct effect on UKCS production will be felt in the UK GDP series, and not in Scottish GDP figures. For this reason, we are unconvinced by the assessment of the Governor of the Bank of England that the (short term) impact of the low oil price will be negative on Scotland as a whole. Clearly however the duration over which prices remain low will be important for the longer term economic impacts from changes to UKCS production, exploration, and energy production and prices.

As to the future, policy in Scotland requires better data on how activities in the UKCS connect to the rest of the Scottish (and UK) economy. This should take into account not only tax revenues and employment, but to the direct activities and supply chain linkages of all different aspects of UKCS activities to manufacturing and other sectors across Scotland and the UK. This will allow better understanding of what the changing profile of UKCS activity could mean for the Scottish and UK economy and developments in the major economic centres linked to the oil and gas sectors.

Were the oil price to stabilise over the medium term somewhere between $70-$100/barrel, it would be interesting to see what this may mean for the activities in the UKCS. With costs increasing as the UKCS is a maturing basin with low exploration activity ("one of the world's most mature basins" (OGA, 2015)), the newly-established Oil and Gas Authority (OGA) has an intriguing challenge to deliver a strategy – as formalised in the recently confirmed Infrastructure Act – to maximise economic recovery from the UKCS.

Major questions include: what should be the immediate fiscal actions – as it appears likely that the UK Budget in March 2015 will take steps to reduce the Supplementary Charge and investment allowances; and into the longer term, what specific actions will the OGA, acting with the industry and government in a new "tripartite" approach to regulation, take to reducing the costs of exploration, improving the efficiency of production, encouraging investment and ensuring the sustainability of activities in UKCS for the longer term?

[Update: On 25th February 2015, the Oil and Gas Authority published "Call to action" (OGA, 2015) identifying the two key risks facing the industry in the UK from the sharp fall in the oil price as 1) reduced profitability failing to attract investment, "leading to premature decommissioning of assets" and 2) a lack of long-term investment due to a decline in the "confidence in the future potential of the UKCS", and additionally highlighting priority actions for the regulator, Government and industry to take forward in 2015 and over the next two years in key areas.]

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