



University of
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Business
School

Fraser of Allander Institute

Economic Commentary

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Vol 43 No 3

Foreword

As we go to press, it is still not clear if the UK will be exiting the EU on 31 October. An extension has been requested but will it be granted? Will the deal that has been negotiated and the related Withdrawal Agreement Bill be approved by parliament and, if so, when? What we do know is that profound change is coming and businesses will need to respond. However, many of the levers of change lie with businesses and planning for Brexit can be a catalyst to make these changes.

Faced with uncertainty on the terms on which we may leave, it has been encouraging to see more businesses are prepared for change. However, some are still adopting a wait and see strategy. As time ticks on and the uncertainty continues, these judgement calls ought to be re-visited to avoid being left with insufficient time to act.

Businesses need to consider the issues that are most likely to affect their sector and then identify actions of no-regret, those steps that divert as little resource as possible, and potentially add value to the business whatever direction Brexit heads. Three key questions would be; (i) Supply chains – are your suppliers ready?; (ii) People – have you communicated with all your staff and do you know how you will move staff in/out of the country after we leave?; and (iii) Legal and Regulation – can you continue to trade in the same way or must you change? These – and many other questions - should be considered in advance and there is a wealth of information to help business assess what they need to do. We should also not lose sight of the fact that with or without a deal, this is just the start of a process

to agree our long-term relationship with the EU and at this time there is no agreed destination. Concluding a UK/EU free trade agreement by 31 December 2020 (or even by 2022) will be challenging based on historical precedents.

With all the focus on Brexit, there has been little chance for discussion on the wider structural challenges facing the Scottish economy, such as our aging population, stagnating productivity growth and the potential impact of automation. For our long-term benefit, we do need to try to look past Brexit. One exception that has undeniably captured public attention is climate change. The subject is now central on many agendas and at Deloitte we see both our people and our clients wanting action; it is no longer a CSR issue and is now a key business risk.

This is an area where Scotland has been taking a lead. There has been broad agreement on setting some very ambitious targets, including net zero by 2045, and this has been backed-up with a range of Government policy announcements. While there are undoubted challenges, there will also be significant opportunities.

When we consider the research conducted by our universities, our expertise in key sectors such as renewables and financial services, Scotland is better placed than most to deliver a low carbon economy. If we are to optimise our chances of success, then on top of the targets and the policy framework, businesses need to consider significantly investing in and applying low-carbon technologies to achieve long-term change.

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There are going to be some difficult trade-offs. As an example, Oil & Gas UK's latest Economic Report outlines the importance of the sector to our economy and the actions the industry is taking now to better assess and reduce the emissions from the production of hydrocarbons. On the other hand, there are those who would argue that we should stop developing any new oil & gas fields. Striking the right balance and maintaining widespread support will not be easy.

On a wider level, we know that climate change is likely to drive some of the biggest change to businesses in our lifetime. We believe that businesses have a critical role to play in creating a better, stronger and more sustainable Scotland. For example, at Deloitte, we have committed to reduce our building, fleet and travel emissions by 2025 compared to 2017 levels. The overall effect of these goals equates to a 20% reduction in our total carbon footprint per fulltime equivalent employee.

Looking ahead, will prolonged political uncertainty continue to impact on business confidence? A good temperature check is Deloitte's latest [CFO Survey](#), which highlights that corporate risk appetite is being suppressed both by Brexit and economic uncertainty. 58% of CFOs say that cost control is a strong priority for their business over the next 12 months, higher than when the economy was emerging from the recession in 2009. On balance, CFOs expect UK corporates to reduce hiring over the next 12 months while almost half rate increasing cash flow as a strong priority for their business.

On a positive note, while the most recent data show a rise in unemployment in Scotland, the

numbers out of work are at a near record low and real earnings are growing. While it is unclear whether these trends will be sustainable, we should take confidence from the fact that businesses in Scotland have long shown themselves to be adaptable and resilient to change. We now need clarity on what this next chapter of change will look like.

John Macintosh
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Deloitte

October 2019

Fraser of Allander Institute

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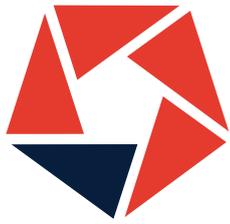
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Policy context

For regular analysis on the Scottish economy and public finances please see our blog

www.fraserofallander.org



Summary

At the time of writing (22nd October), there continues to remain significant uncertainty over the timing and nature of the UK's departure from the EU.

Unpicking the impact that this is having on the Scottish economy is not an easy task.

What we do know is that consumer confidence and risk appetite amongst businesses remains weak. Business investment in the UK has now been negative in 5 of the past 6 quarters.

We also know that growth – whilst volatile – remains fragile.

Shortly before our June Commentary, figures for Scotland showed economic activity in Q1 of 2019 rising at its fastest rate in almost five years.

At that time, we cautioned that such figures were likely to be impacted by firms stockpiling in the run-up to the first Brexit deadline of 31st March.

Consistent with this, the latest figures now show that the economy contracted by 0.3% in Q2.

Unofficial indicators for activity over the summer suggests that once the effects of stockpiling are accounted for, underlying growth remains weak but positive.

But Scotland's economy continues to lag behind trend.

There are positives however. Exports have performed strongly, with growth of over 4% in 2018, holding up well despite rising global trade tensions. Unemployment has risen sharply in recent times, but remains low by historical standards.

As we have argued before, forecasting the future path of the economy in such times is fraught with difficulty.

As per recent Commentaries, we outline a range of scenarios. Our central forecast – assuming continued uncertainty – is for growth of 1.0% in 2019, 1.2% in 2020 and 1.3% in 2021. We also have weaker and more positive forecasts based upon different outcomes to the negotiations.

Should a deal be secured, then this is likely to lead to a better performance in the short-term (relative to ongoing uncertainty).

However, Boris Johnson's deal is a 'harder' Brexit than the plan put forward by Theresa May. Therefore, whilst the short-term outlook may improve, the outlook over the longer-term could be even more challenging.

A 'no deal' remains a possibility. This would remain the most damaging outcome. Interestingly, there is some tentative evidence that sentiment around a 'no deal' outcome has improved (or at least become less negative). Why? Firstly, preparations for a 'no deal' outcome have increased. Secondly, we are now clearer on the scale of the policy response by UK fiscal and monetary authorities.

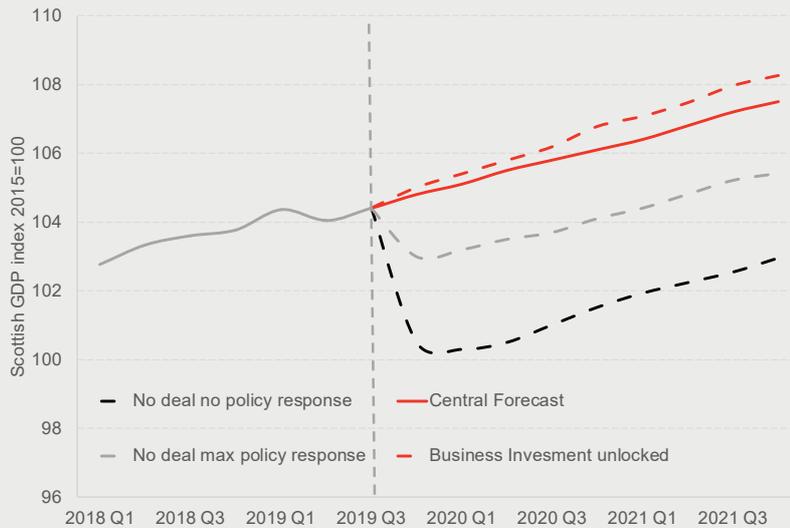
Whilst some of the more apocalyptic predictions we have seen are wide of the mark, a 'No deal' exit would still be a major negative economic shock.

Aside from Brexit, the lack of discussion about Scotland's economic performance remains a surprising gap in the policy debate, particularly given the tax implications that now face Holyrood.

The one exception has been climate change. And in this Commentary we discuss what a transition to net zero might mean for our economy and the risks and opportunities ahead.

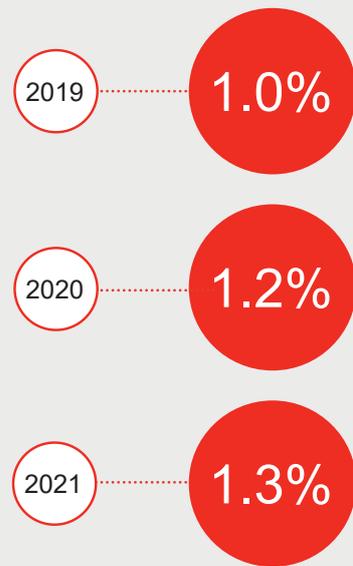
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Scottish growth scenarios



Due to uncertainty around possible Brexit outcomes, we have developed a range of different scenarios. More information can be found in the 'Our forecasts' section.

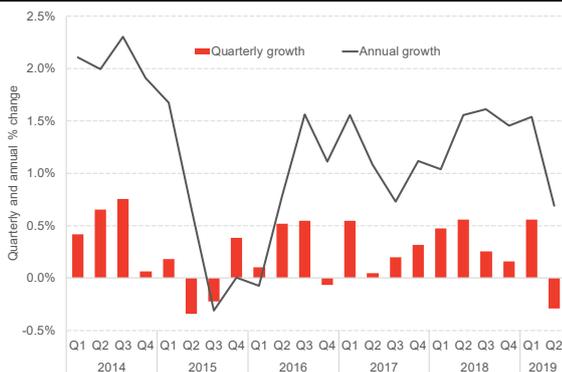
Central forecast



Fraser of Allander Institute

At a glance

Scottish growth (since 2014) – year and quarter %



Employment & unemployment rates, Jun-Aug 2019

	Employment (16-64)		Unemployment (16+)	
	Rate (%)	Year Change	Rate (%)	Year Change
Scotland	74.3	▼	4.1	▲
England	76.3	▲	3.9	▼
Wales	74.1	▼	4.2	▲
N. Ireland	71.5	▲	2.9	▼
UK	75.9	▲	3.9	▼

FAI forecast Scottish labour market indicators - central forecast based on orderly departure

	2019	2020	2021
Employment rate (%) ¹	75.1	74.9	74.7
Unemployment Rate (%) ²	3.8	4.1	4.2

FAI forecast Scottish economic growth (%), 2019 – 2021, central forecast based on orderly departure

	2019	2020	2021
GDP	1.0	1.2	1.3
Production	1.2	1.4	1.5
Construction	0.7	0.9	1.0
Services	1.1	1.2	1.3

Outlook and Appraisal

Brexit uncertainty continues to act as a drag on Scotland’s economy with output around 2% smaller (or £3bn) as a result of the weaker performance post-referendum. But Brexit cannot explain all recent challenges, and the lack of debate about Scotland’s longer-term performance remains a concern.

Chart 1: Scottish growth since 2014 - year and quarter %



Source: Scottish Government

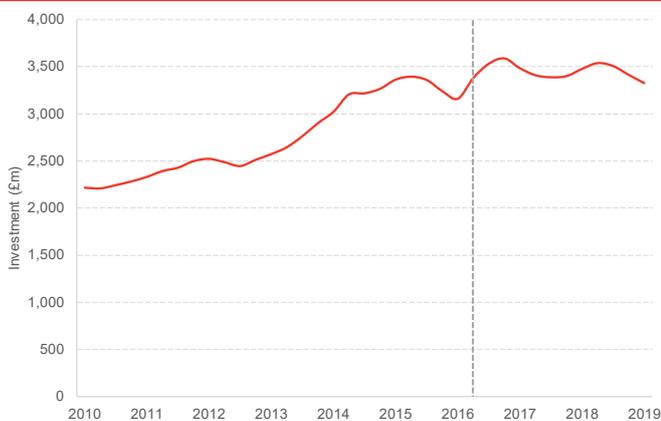
Table 1: FAI GDP growth (%) 2016 forecasts and actual growth

	June 2016 Forecast	FAI December 2016	Actual
2016	1.4	1	1.1
2017	1.9	1.1	1.1
2018	2	1.3	1.4
2019	-	1.6	1.0*

Source: Fraser of Allander Institute

*Forecast for 2019

Chart 2: Business investment in real terms, Scotland, Q1 2010 - Q1 2019



Source: Scottish Government

Introduction

Recent events have given us little clarity over the UK’s departure from the EU.

Scotland’s economy contracted by 0.3% in Q2 2019, with annual growth slipping to just 0.7%. Chart 1.

Whilst some of the more extreme predictions for how the economy would react to a ‘leave’ vote have proved to be wide of the mark, it is clear that there has been an impact.

We estimate that – based upon forecasts prior to the EU referendum – our economy is around 2% smaller (equivalent to £3 billion) than it should be. Table 1.

Investment has been most affected, with decisions delayed, or worse, cancelled. Chart 2.

But, not all of Scotland’s below-par performance can be explained by Brexit.

It remains surprising that the performance of the economy does not feature more permanently in the policy debate. Growth matters: for incomes and the public services that we all depend upon.

Too often, discussions are dominated by soundbites (‘the Scottish economy is resilient’ or ‘the Scottish economy lags the UK’).

And most of the time, debates get no further than simply asserting that higher tax rates are to blame (despite little evidence to back this up) or that the solution is to spend more money (with no explanation of where such monies will come from).

Similarly, it is increasingly commonplace to divert attention from the growth debate by arguing for ‘wellbeing’, blaming Brexit or asserting that further constitutional change will solve all our challenges.

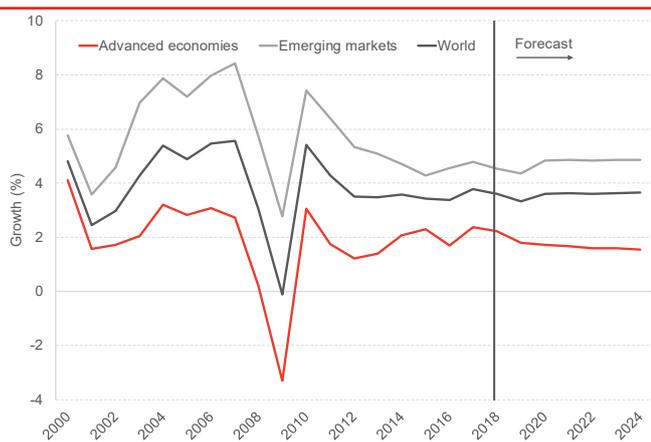
Brexit will usher in the greatest shift to our economy in over a generation. A more open discussion, not just of the risks and opportunities that Brexit will bring, but the underlying growth dynamics of the Scottish economy more generally, is needed.

Table 2: OECD growth rates (%), 2018 (outturn) to 2020

	2018	2019	2020
UK	1.4	1.0	0.9
US	2.9	2.4	2.0
Japan	0.8	1.0	0.6
Canada	1.9	1.5	1.6
Germany	1.5	0.5	0.6
France	1.7	1.3	1.2
Italy	0.7	0.0	0.4
Euro Area	1.9	1.1	1.0
World	3.6	2.9	3.0

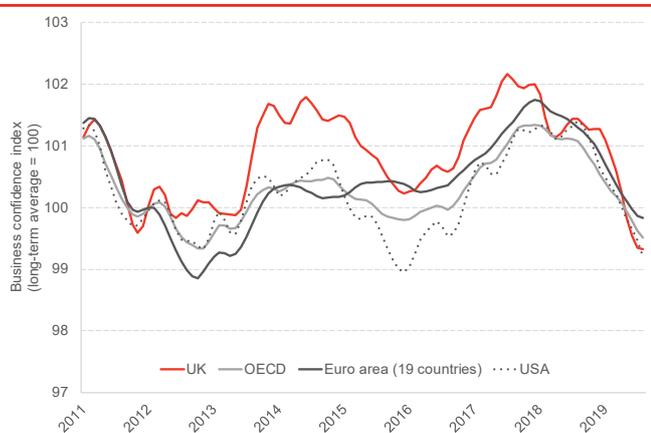
Source: OECD

Chart 3: GDP growth – actual and IMF forecasts, constant prices, 2000 - 2024



Source: IMF

Chart 4: Business Confidence Index, Jan 2011 – Aug 2019



Source: OECD

The global economy

The slowdown in global growth that we identified in the last commentary has intensified over the summer.

As Table 2 highlights, this trend is forecast to continue into 2020 (and beyond).

Early last year, the consensus forecast for world growth in 2019 was over 4%. The latest predictions are for growth of just below 3%.

While relatively broad-based, the slowdown has been particularly acute in a number of countries. Europe’s largest economy – Germany – is teetering on recession. Italy formally entered recession in late 2018.

Some economists are now actively discussing the possibility of a new global downturn, just 10 years after the financial crisis.

In our view however, this does seem a little pessimistic. Yes, growth has slowed but, on balance, activity is expected to remain positive for the foreseeable future. Chart 3.

The latest data suggests that the slowdown in China may not be as bad as first thought, whilst growth remains relatively resilient in the US.

This is not to say that there are no risks.

Geo-political tensions, coupled with a proliferation of rising trade barriers, have the potential to turn the current slowdown into something more serious.

It is no surprise therefore, that confidence levels – particularly in advanced economies – have fallen sharply in recent times and now sit below long-term trends. Chart 4.

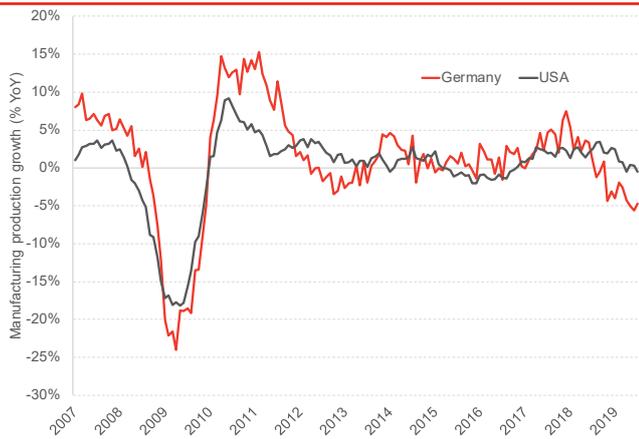
The greatest impact of heightened levels of uncertainty has been on investment.

Global investment is expected to rise by less than 1% this year, down on the 5% growth of last year.

When uncertainty becomes deep rooted, reduced investment affects not just present day demand but also tomorrow’s growth potential. The epicentre of the slowdown has been in manufacturing.

In Germany, industrial output is now down by around 5% over the year. Chart 5.

Chart 5: Manufacturing production growth, year on year



Source: OECD

Chart 6: World trade growth, year-on-year (merchandise volume)



Source: CPB World Trade Monitor, Netherlands Bureau for Economic Policy Analysis

Chart 7: Effective Federal funds rate, Jan 2012 – Aug 2019



Source: US Federal Reserve

It is no surprise that international trade growth is also now falling sharply. Chart 6.

In light of these conditions, attention is once again returning to policymakers to gauge their response.

One view is that monetary and fiscal authorities need to act decisively with a renewed stimulus. The US FED has already acted, with only their second rate cut since 2008. Chart 7.

An alternative, albeit less popular view, is for less short-term stimulus but a focus upon the structural problems within the global economy.

It is increasingly clear that the current globalisation model needs reformed. Like-minded countries will need to work together to promote trade, and learn lessons from what happens if the gains from integration are not shared more equally.

Whatever the response, Scotland cannot expect to be immune from current pressures.

Somewhat paradoxically, and as we discuss later, the last 12 to 18 months have been a strong year for Scottish exports.

But a global slowdown is likely to suppress demand. And punitive tariffs, such as the 25% tariff placed on Scotch whisky by the US, will act as a significant barrier in key markets.

A global slowdown is also likely to mean that oil prices will stay lower (and for longer). Chart 8. Despite this, the North Sea sector now seems to be more resilient to a lower price environment than five years ago.

Chart 8: Price of oil, Jan 2013 – Oct 2019



Source: Thomson Reuters Datastream

Chart 9: UK economic growth, Q1 2010, Q2 2019



Source: ONS

The UK economy

The UK economy contracted in the 3-months to June – the first such contraction since 2012. Chart 9.

Growth was always going to be weaker, as a result of the slowdown in the global economy we discussed above. However, Brexit uncertainty is clearly having an impact.

In the most recent data, the impact of stockpiling (and then its unwinding) is clearly evident.

In the run up to the initial March 31st deadline, firms were running up their supplies of both final products and inputs. So it was no surprise production output rose sharply in Q1 but fell back in Q2. Chart 10.

But it would be wrong to dismiss these results as simply due to temporary volatility.

Activity in the all-important services sector is weak. And whilst more up-to-date data from the ONS suggests that activity bounced back somewhat in July, performance remains mixed. Table 3.

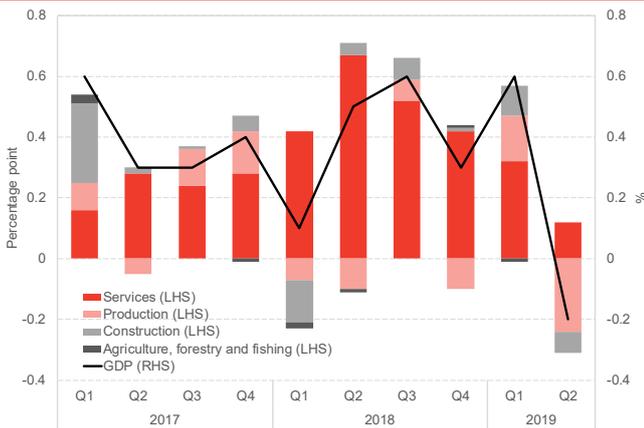
Whilst the post-referendum recession that George Osborne predicted may not have come to pass, growth has clearly slowed since 2016. Chart 11.

Annual growth is currently tracking at 1.2%, well below long-term trend of over 2%.

Most estimates are that the economy is now between 2% and 2½% lower than where it might have been without Brexit uncertainty. This weakness has been both more longstanding and more extensive than in other major economies.

One area of much greater focus has been the potential regional impacts of Brexit.

Chart 10: Composition of UK economic growth, Q1 2017 – Q2 2019



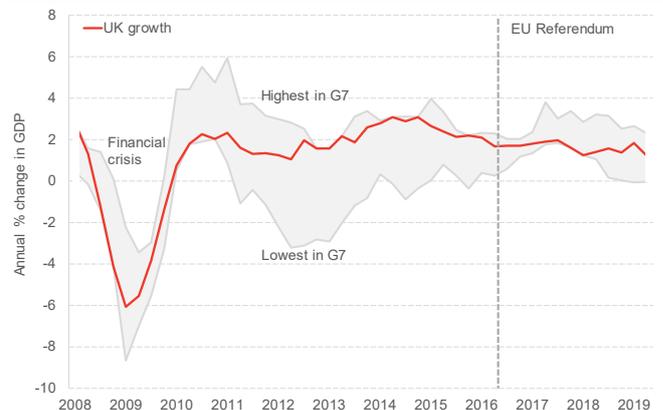
Source: ONS

Table 3: UK GDP components, June – Aug 2019

	Jun 2019	Jul 2019	Aug 2019
GDP	0.1	0.4	-0.1
Services	0.2	0.3	0.0
Production	0.1	0.1	-0.6
Manufacturing	-0.3	0.4	-0.7
Construction	-1.1	1.8	0.2
Agriculture	0.0	0.0	-0.1

Source: ONS

Chart 11: G7 economic growth, 2008 – 2018



Source: OECD

Chart 12: Economic growth estimates and PMI measures



Source: ESCOE

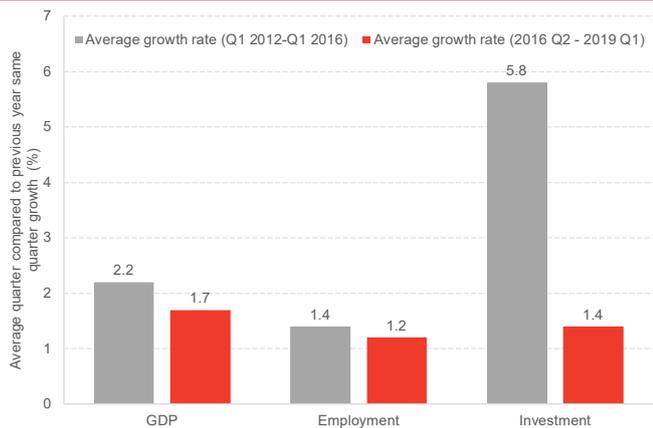
Although we have data on the UK’s Q2 growth, we do not have comparable official estimates for much of sub UK growth.

As part of our work funded through the Economic Statistics Centre of Excellence we have developed methods to produce ‘nowcasts’ of economic activity across the UK. Our estimates for Q2 are reported in Chart 12, alongside the PMI survey data for each part of the UK.

These estimates suggest that the economies of Northern Ireland, Scotland, Wales and the North East of England contracted the most in Q2, while the North West and Yorkshire & the Humber grew most robustly.

One element that has taken a particularly significant turn for the worst across the UK has been business investment. Chart 13.

Chart 13: Performance of key economic indicators pre and post-EU referendum, UK, average quarter on previous year quarter growth



Source: ONS

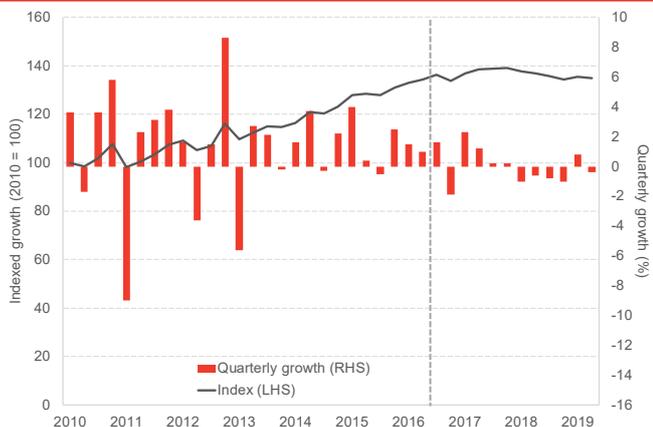
Prior to the EU referendum, UK business investment growth was growing in line with the G7 average. Since then, it has barely risen in the UK, compared to growing by an average of >10% elsewhere.

And in five of the last six quarters, business investment in the UK has contracted. Indeed, its hard to find a time in the data – outside of a recession – where investment has been so weak for such a sustained period of time. Chart 14.

This persistent weakness in investment is despite both labour shortages and accommodative financial conditions, which are generally supportive for businesses to expand operations.

Instead, the risk appetite amongst corporates in the UK remains very weak. Chart 15.

Chart 14: Business investment in the UK, Q1 2010 – Q2 2019



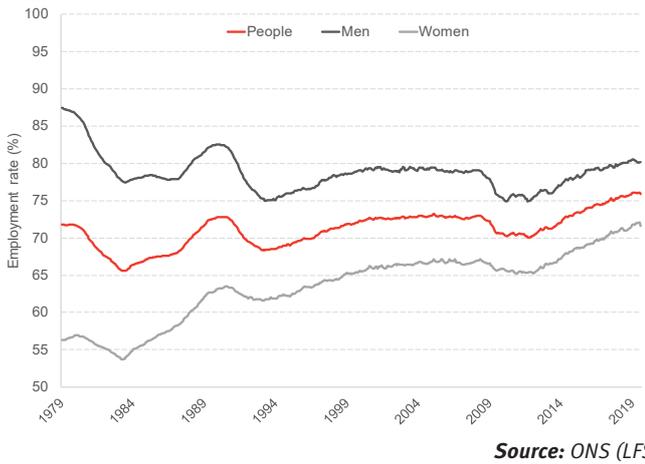
Source: ONS

Chart 15: % of CFOs that think it is a good time to be taking greater risk onto balance sheets



Source: Deloitte

Chart 16: UK employment rate (aged 16-64), 1979 - 2019



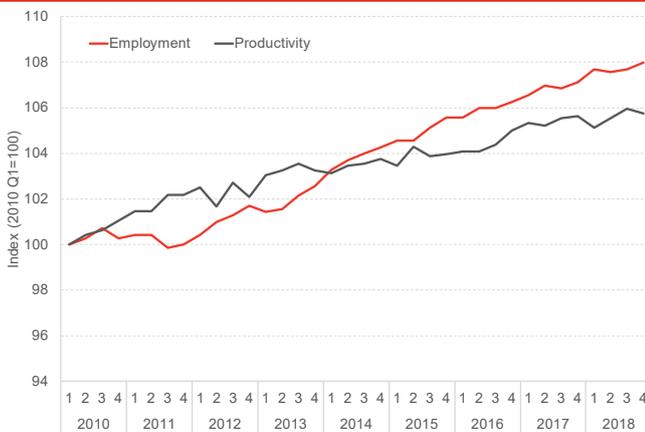
Source: ONS (LFS)

Table 4: UK labour market indicators, Jun-Aug 2019

	Employment (16-64)		Unemployment (16+)	
	Rate (%)	Year Change	Rate (%)	Year Change
Scotland	74.3	▼	4.1	▲
England	76.3	▲	3.9	▼
Wales	74.1	▼	4.2	▲
N. Ireland	71.5	▲	2.9	▼
UK	75.9	▲	3.9	▼

ONS (LFS)

Chart 17: Trends in productivity and employment, Q1 2008 – Q2 2019



Source: ONS

UK labour market indicators

One consequence of the very low levels of investment in the UK economy has been to amplify the vicious cycle of “low investment: low wage employment growth” that we have seen since the financial crisis.

Employment rates in the UK are at their highest levels ever. Chart 16.

This trend is consistent right across the UK. Table 4.

Whilst high rates of employment are clearly positive, it is clear that much of this pick-up reflects this underlying investment weakness in the UK economy at the current time.

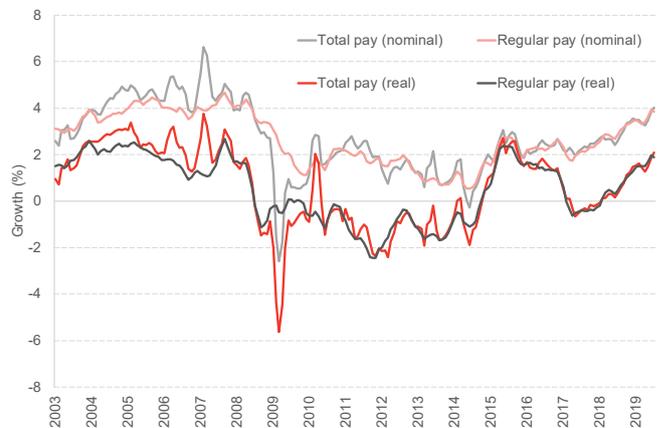
Heightened uncertainty effectively raises the cost of new capital, and hence businesses will substitute new investment for (cheap) employment.

A downside of this is that lower levels of investment ultimately feed through to weaker productivity rates. As Chart 17 highlights, the growth in productivity has lagged behind employment growth for a number of years.

As a result, whilst more people are in work, the amount they get paid has been squeezed. This helps explain why real wage growth in the UK has been so poor for so long.

There are some signs however, that the labour market is now close to capacity. This is helping to boost wages, with the first sustained improvement in earnings in a number of years.

Chart 18: Average weekly earnings growth rates, Great Britain, 2003 - 2019



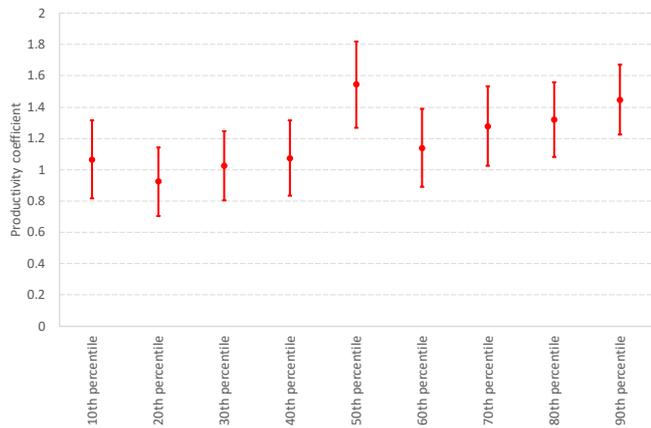
Source: ONS – Monthly Wages and Salaries Survey

Chart 19: UK labour productivity and median real hourly wages (1997 – 2017)



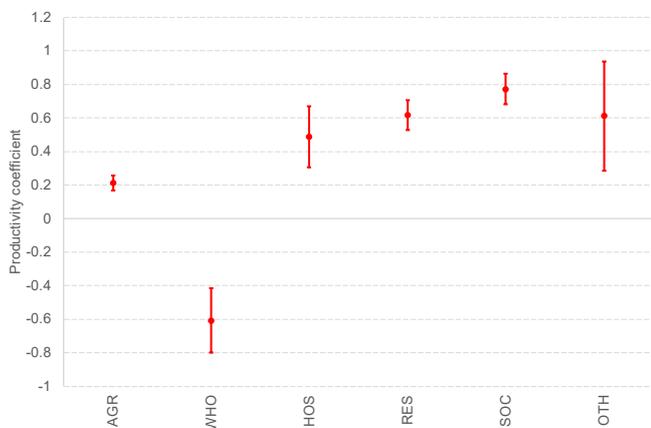
Source: ASHE, ONS, FAI calculations

Chart 20: The relationship between labour productivity growth & wage growth across the wage distribution, UK



Source: ASHE, ONS, FAI calculations

Chart 21: The relationship between labour productivity growth & wage growth, low-paid sectors, UK



Source: ASHE, ONS, FAI calculations

AGR=Agriculture, forestry and fishing, WHO=Wholesale and retail trade, HOS=Hospitality, RES=Residential care activities, SOC=Social work activities, OTH=Other service activities

Productivity

In the long-run, what really matters for earnings is productivity growth.

As productivity rises it takes fewer hours of work to produce the same amount of output. This allows employers to increase wages.

So how has that link been performing in the UK in recent years?

Chart 19 shows a clear break in trend growth in both productivity and median wages in post-crisis years.

While labour productivity has continued to grow albeit at a slower rate, the median real hourly wage, the key indicator of earnings of the typical UK worker, has fallen over the post-financial crisis years. It would appear that the link between labour productivity and median real wages has changed.

Chart 20 shows that the link between labour productivity growth and real wage growth is weakest at lower deciles of the wage distribution in comparison to the top deciles.

[NB: The chart shows productivity coefficient estimates and 95% confidence intervals from regressions we ran for each decile. For each decile, we regress the change in the 3-year moving average of wages on average labour productivity.]

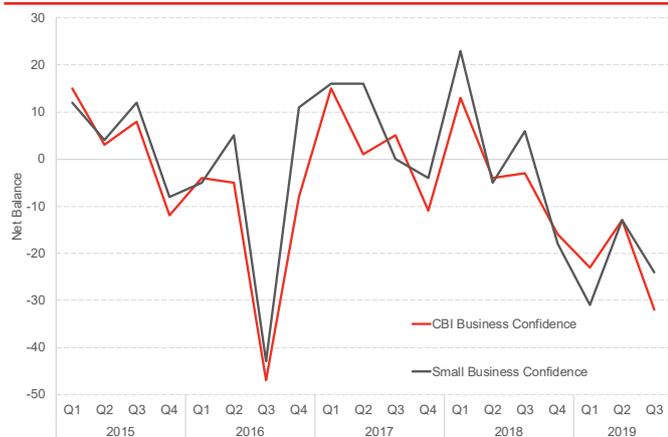
Chart 21 highlights that the relationship is particularly weak for low-paid sectors.

The expected positive relationship is not evident for the wholesale and retail sector, and is weak and insignificant in most other services sector.

A weak but significant positive relationship is found in agriculture, forestry and fishing. For residential care and social work sub-sectors we see their real wage growth is influenced by productivity growth, but that the estimated coefficients are significantly below 1.

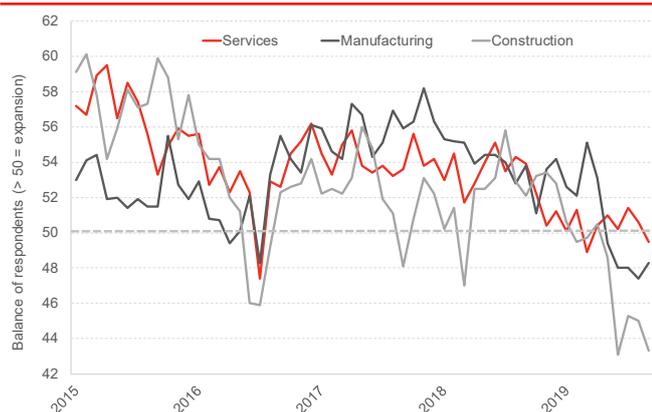
All of this suggests that policy needs not just to focus on boosting productivity across the board but it might need to target the areas of this weak productivity in particular sectors and the nature (and relative bargaining power) of people in that sector.

Chart 22: CBI measures of confidence for the UK, Q1 2015 – Q3 2019



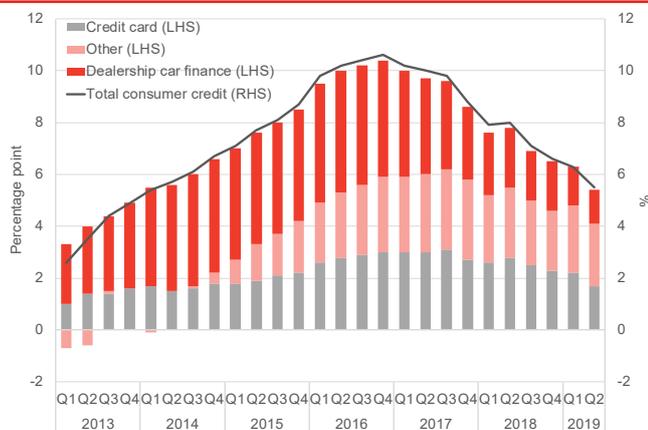
Source: CBI

Chart 23: Purchasing Manager's Index (PMI) for the UK, Jan 2015 – Sep 2019



Source: IHS Markit

Chart 24: Contributions to annual consumer credit growth, Q1 2013 – Q2 2019



Source: Bank of England

UK outlook

The outlook for the UK economy remains highly uncertain.

As highlighted above, the most recent official statistics show growth returning in July, but slipping back in August.

In recent trends, Business surveys have pointed to a more negative outlook.

Surveys do need to be interpreted with a degree of caution as the link between sentiment and actual activity can be weak.

For example, in the aftermath of the EU referendum, most survey indicators fell significantly. However, on this occasion growth continued.

That being said, it is clear that levels of activity are weaker than normal.

The CBI's Business Confidence index in Q3 was at its lowest level since 2016 (with a clear downward trend evident). Chart 22.

Confidence appears negative irrespective of the size of company.

All of the latest PMI indicators are below the cut-off value of 50 (where >50 marks expansion and <50 contraction).

Services are now tracking at 49.5, whilst manufacturing PMIs have been below 50 for 5 months.

The figures for construction are particularly weak. Chart 23. Indeed the figure of 43 is the 2nd worst reading since April 2009. And consistent with the overall decline in business investment, the commercial property market has been particularly impacted.

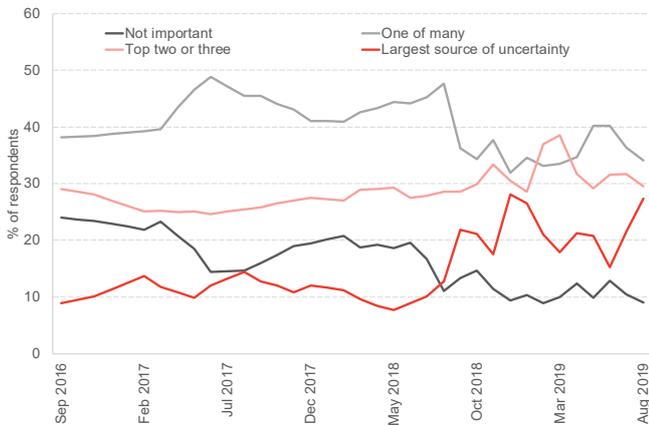
Away from the business community, the economy has been supported by strong growth by the consumer.

However, there are signs that this too is easing. Chart 24, with credit levels falling back.

Credit growth has been slowing since the EU referendum and is now at its lowest level in five years. Much of this decline is coming from a fall back in longer-term financing such as for cars.

Of course, sentiment can change quickly. Should a deal be agreed then those surveys are likely to turn around.

Chart 25: How much has the result of the EU referendum affected the level of uncertainty affecting your business? September 2016 – August 2019



Source: Bank of England Decision Maker Panel

As highlighted above, UK growth figures have been distorted in recent times by the impact of stockpiling on activity.

More generally, the level of Brexit-planning being undertaken by businesses across the UK has clearly picked-up.

It is not hard to see why. The proportion of businesses in the UK say that Brexit is one of the most important uncertainties that they face has increased sharply in recent months. Chart 25.

Chart 26 shows the extent of Brexit planning taking place, with many businesses clearly now operating upon a rolling basis of continual contingency work planning.

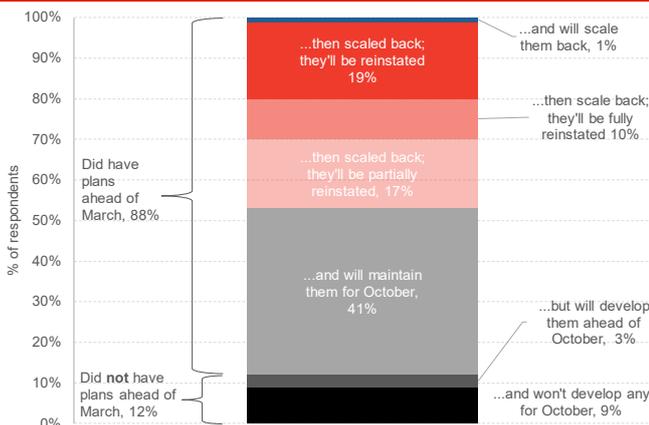
The challenge of course is that a great many of these activities will do little to aid the long-term productivity or efficiency of their business and is instead all about minimising negative impacts.

Of those undertaking contingency plans, many are now more confident about their readiness for 'no deal'. Chart 27.

The turnaround in sentiment amongst businesses to Brexit is interesting, whilst they think that it will be a challenge for them, they believe that they have been able to put in place appropriate plans.

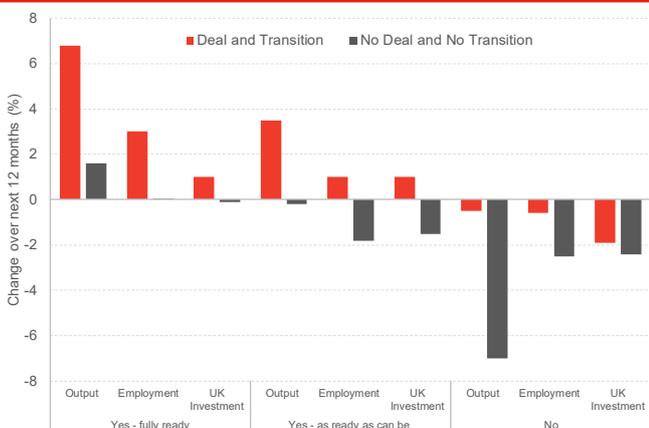
Whilst most independent forecasters have revised upwards (slightly) their sentiment around the impact of a 'no deal', there is a weakening in terms of the overall expectations about future growth for the remainder of this year and next. Chart 28.

Chart 26: Brexit contingency plans, Q3 2019



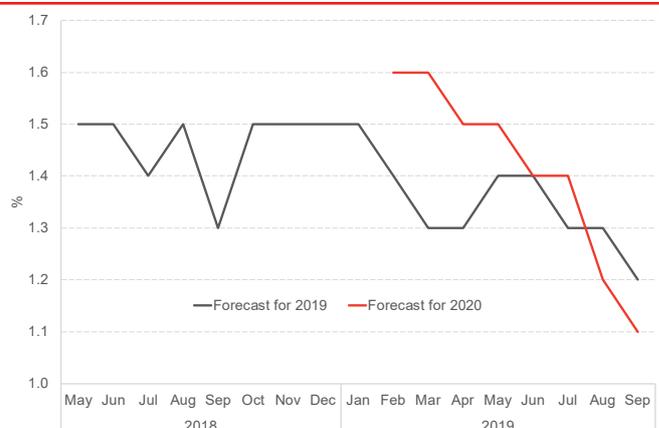
Source: Bank of England

Chart 27: Preparations and expectations of companies for a deal and no-deal Brexit



Source: Bank of England

Chart 28: Time path of average of independent forecasts for the UK economy



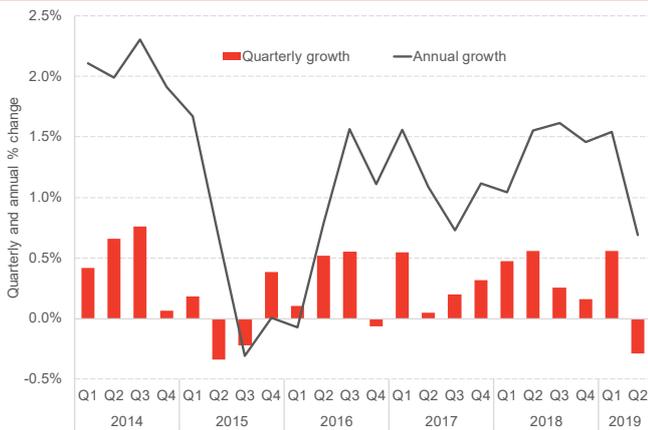
Source: HMT

Scottish Economy Dashboard

	Annual Growth	 	5-Year Average Annual Growth	Key trends
GDP	0.7%		1.0%	<ul style="list-style-type: none"> There was a contraction in growth of -0.3% in Q2 after growth 0.6% in Q1 with the unwinding effects of stockpiling in Q1 now evident.
Production	-0.7%		0.6%	<ul style="list-style-type: none"> The production sector felt the effect of stockpiling the most in Q2, with growth contracting -2.5%. The sector was the biggest contributor to the contraction in growth in 2019 Q2.
Services	1.1%		0.9%	<ul style="list-style-type: none"> Growth in the services sector improved in Q2 In the last year, the bulk of the services sector's growth has been driven by financial services. Additionally, IT and accommodation services have been performing well whilst retail slipped back into negative growth.
Construction	-0.3%		2.3%	<ul style="list-style-type: none"> The first contraction in growth since 2018 Q2 for the construction sector, bringing the period of sustained growth to an end.
Agriculture	-0.8%		0.7%	<ul style="list-style-type: none"> Agriculture recovered from last quarter when annual growth was -2.6% however, growth in this sector remained fragile into the second quarter of this year
Exports	2.4%		2.7%	<ul style="list-style-type: none"> Exports slipped back in Q1 of 2019, after strong growth last year However, export growth remains positive and just below its five-year average.
Business Investment	-4.3%		4.9%	<ul style="list-style-type: none"> Business investment declined further in Q1 2019 after a turbulent year in 2018. Brexit uncertainty continues to halt investment and the latest data indicates that investment in January-March of this year was deeply effected.
Productivity	1.1%		0.9%	<ul style="list-style-type: none"> Productivity (output per hour) increased by 0.4% in 2019 Q1.

	Level	 	Change over year	Key trends
Employment	74.3%		-0.6 pp	<ul style="list-style-type: none"> Employment fell by 1.4 percentage point in Q3, with approx. 60,000 fewer people in employment than earlier this year.
Unemployment	4.1%		0.2 pp	<ul style="list-style-type: none"> Unemployment increased by 0.8 percentage point in Q3, the largest quarterly increase in 4 years.

Chart 29: Scottish economic growth, Q1 2014 – Q2 2019



Source: Scottish Government

The Scottish economy

The latest official data – covering the 3-month period to June 2019 - shows that the Scottish economy contracted by 0.3%. Chart 29.

This followed strong growth of 0.6% in Q1 2019.

Like the UK, the key driver appears to be stockpiling in the run-up to the 1st Brexit deadline of 31st March.

As Chart 30 highlights, growth was pulled down in Q2 by a sharp drop in production output, coupled with a decline in construction activity.

In contrast, in Q1 construction and production both made a positive contribution to growth. Indeed, over half of the pickup came from production (just 17% of the Scottish economy).

The volatility in the data is clearly evident from the quarterly behaviour of the production sector over the last year – see Chart 31. This is no more evident than in manufacturing, which grew by 2.3% in Q1, but then shrank by 2.5% in Q2.

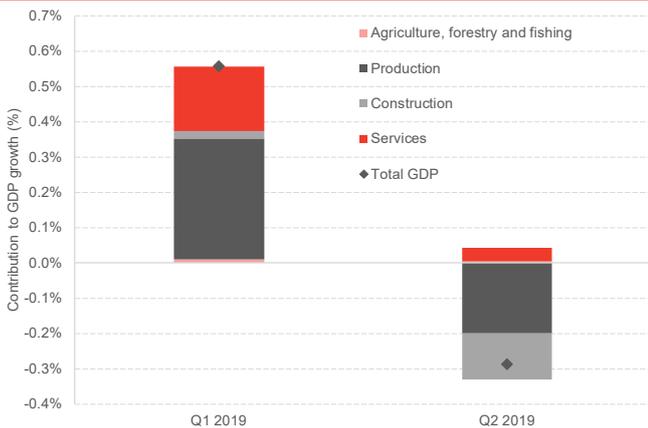
Such volatility means that comparisons to a year ago, or across the UK, provide a more meaningful basis to assess economic performance.

Growth for the year to Q2 was +0.7%. As has been a trend in recent times, Scotland has grown more slowly than the UK as a whole (UK growth = 1.2%).

On a per capita basis, growth in Scotland over the year was just 0.1% compared to 0.6% in the UK.

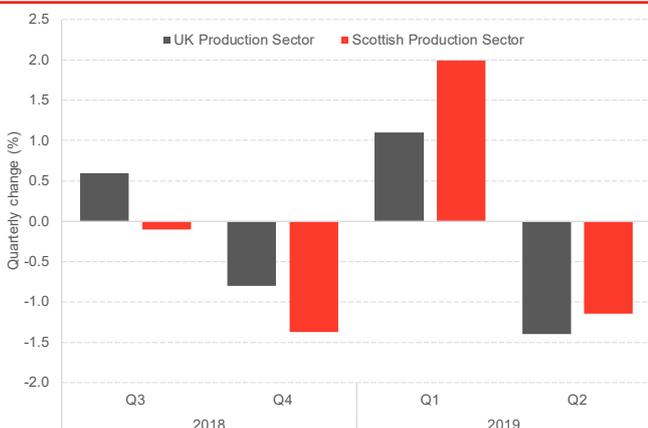
Annual growth – either on an aggregate or per capita basis – remains below Scotland’s long-term trend growth. Chart 32.

Chart 30: Composition of economic growth in Scotland over Q2 2019 and Q1 2019



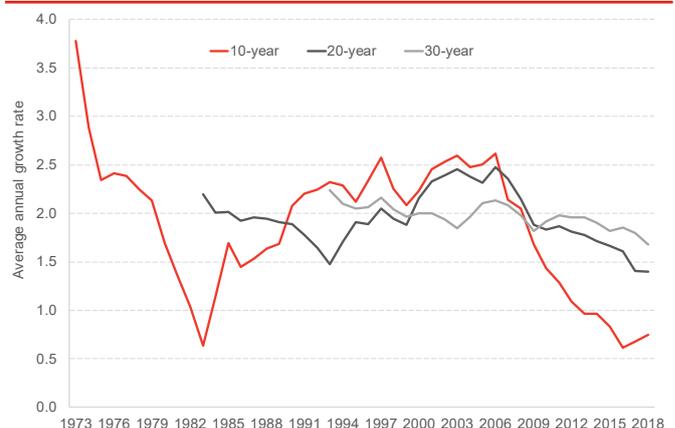
Source: Scottish Government

Chart 31: Scottish and UK production sector growth over last year



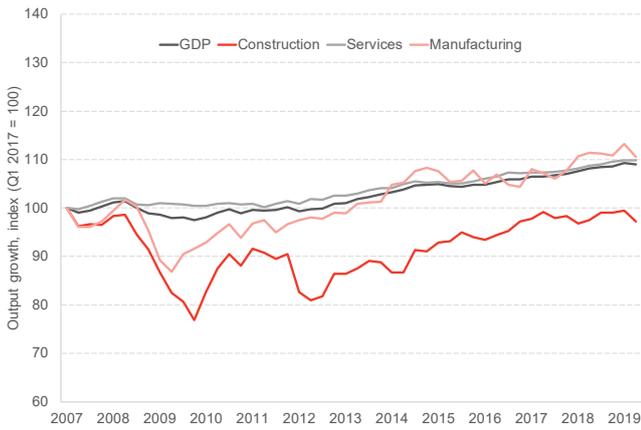
Source: Scottish Government

Chart 32: Scottish GDP, average annual growth rate, 1973 - 2018



Source: Scottish Government

Chart 33: Sectoral output and GDP trends



Source: Scottish Government

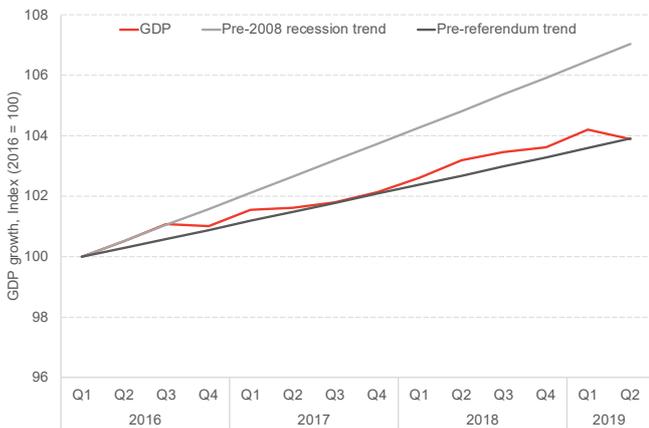
This weaker performance appears to be relatively broad-based. Chart 33.

The construction sector has had the greatest challenges, and has yet to recover the lost ground during the financial crisis.

But more generally, output in the service sector and production industries have broadly performed in line with the recent (weaker) performance in the economy as a whole.

Interestingly, whilst some of the recent weakness in the Scottish economy can be pinned on Brexit uncertainty, the actual trend in activity since early 2016 (and the run up to the EU referendum) is broadly in line with the period between 2010 and 2016. Chart 34.

Chart 34: Scottish GDP against pre-recession (pre-Q2 2008) and pre-referendum (pre-Q2 2016) trends



Source: Scottish Government

And since 2016, the Scottish economy has grown 4% compared to 5% in the UK and 7% in the EU.

One interesting development is that Scotland is now thought to have been in a mild recession in 2015.

Between Q1 and Q3 2015, the Scottish economy contracted by 0.6% (with a fall of 0.3% in Q2 and 0.2% in Q3). Recall that this was at the height of the downturn in the oil price. However, the initial estimates published by the Scottish Government were for growth of 0.1% in both quarters. Table 5.

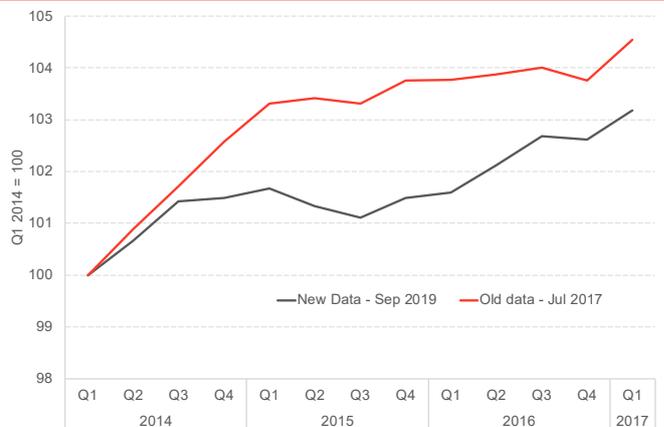
The annual growth revisions were larger. Two years ago, the statistics were pointing to growth of over 2% in 2015 but today's figures suggest growth was just a quarter of that (at 0.5%). Chart 35.

Table 5: Quarterly GDP growth estimates in 2015 v. 2019

	Initial estimates (Q3 2015)	Latest estimates (Q2 2019)
2015 Q1	0.6%	0.2%
2015 Q2	0.1%	-0.3%
2015 Q3	0.1%	-0.2%

Source: Scottish Government

Chart 35: Scottish GDP growth with the latest data and estimates from July 2017, Q1 2014 – Q1 2017



Source: Scottish Government

Chart 36: International exports and GDP, Scotland, 2008 - 2018



Source: Scottish Government

Table 6: Composition of GDP (excl. imports) by expenditure type, 2009 - 2019

	2009 Q1	2019 Q1	Difference
Households	65%	61%	-4 p.p.
Government	26%	24%	-2 p.p.
Gross Capital Formation	14%	19%	5 p.p.
NPISH	2%	2%	0 p.p.
Net Trade	-7%	-6%	1 p.p.
Exports	53%	55%	2 p.p.
Imports	-60%	-61%	-1 p.p.

Source: Scottish Government, QNAS

Chart 37: Business investment, Scotland, 2008 - 2018



Source: Scottish Government, QNAS

Looking at trends over the year, we see that one area of positivity has been the performance of Scottish international exports. Chart 36.

As we have discussed in previous commentaries, Scotland’s export performance has – in the past – lagged behind many of our key competitors.

In May, the Scottish Government published a new strategy which was much bolder in its approach to supporting businesses to grow their international footprint than we have perhaps seen in the past.

In recent times, Scottish exports have actually grown more quickly than the domestic economy. Indeed, since 2016, international exports have grown by 9% in real terms, compared to 4% growth in GDP. Table 6. As a result, export as a share of our economy has grown in recent years, highlighting just how international the Scottish economy is.

On the other side of the coin, one area where performance has been weak has been in investment.

As Chart 37 highlights, business investment in Scotland had been growing relatively steadily from 2010 onwards. However, from 2016 it has increased only marginally.

Like the UK as a whole, a key reason for this appears to be ongoing Brexit uncertainty.

A similar trend can be picked up from commercial property data in Scotland. Chart 38.

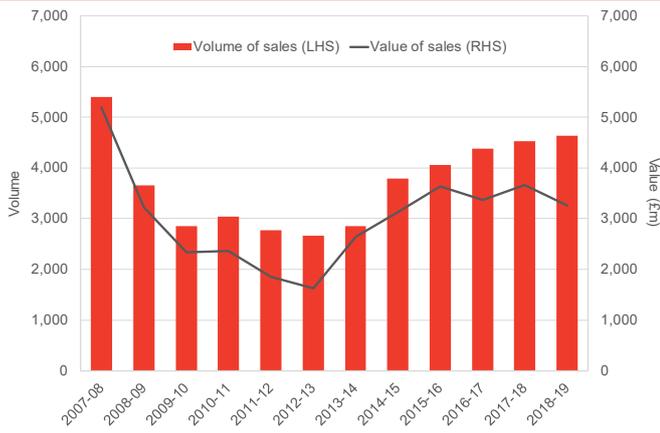
We can illustratively estimate the impact of factors such as Brexit uncertainty on business investment using a series of trends to act as upper and lower bounds to business investment had previous trends continued.

Comparing these trends with actual business investment in Q1 2019 indicates the cost of these factors to business investment.

We find that if the economy had continued growing at a pre-2016 growth trend then business investment would be between a conservative 2.6% larger and optimistic 13.7% larger. This is equivalent to around £100m - £550m of lost investment.

While Brexit will not account for all of this difference, the uncertainty that has surrounded the economy over the past few years has played an important role.

Chart 38: Sales & volume of commercial property transactions, 2008 - 2019



Source: Registers of Scotland

Over the longer-term, growth in Scotland continues to lag behind trend.

As an illustration, Chart 39 shows the relative growth gap by sector between Scotland and the UK since 2010.

Some of this is clearly down to the downturn in oil and gas.

As Chart 40 highlights, output in oil and gas has been falling since 1999 – with the exception of modest increases in more recent years. But during this time of rising output, prices fell rapidly.

As a result, sectors across the Scottish economy have slipped back.

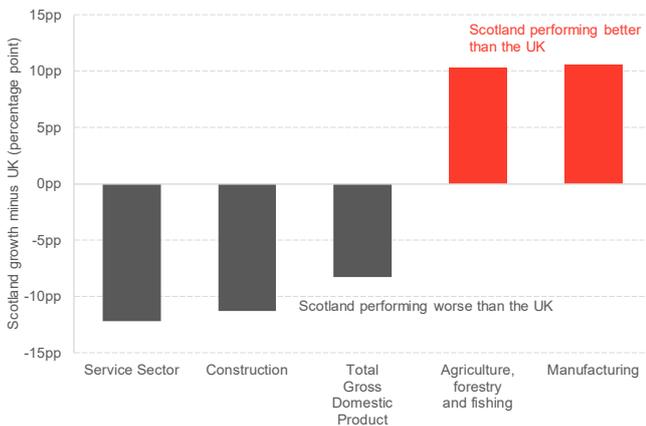
But the relative balance of sectors which have performed more slowly than the UK suggests that oil and gas spill-over effects cannot be the only reason.

Chart 41 shows the resilience of Scottish sectors to both the Great Recession (Q1 2009) and the downturn in oil prices (Q1 2015).

As the chart shows, whilst most sectors except electricity and gas supply and construction have bounced back from 2009 levels, there remains significant variation in performance. A similarly diverse picture emerges in terms of performance since 2015.

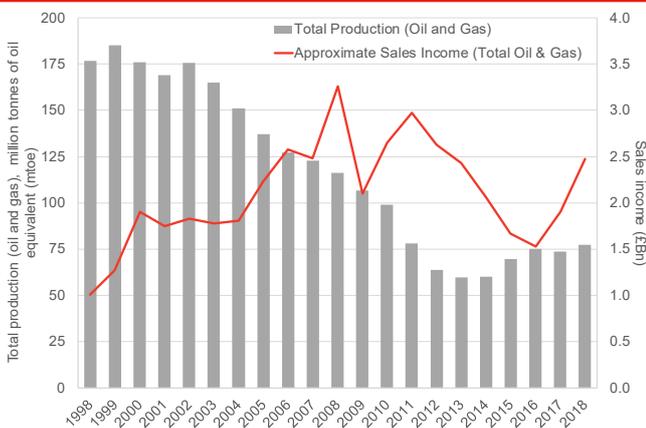
Interestingly, business and financial services - the epi-centre of the financial crisis - has performed relatively strongly.

Chart 39: GDP difference by sector, UK minus Scotland, Q2 2010 - Q2 2019 *



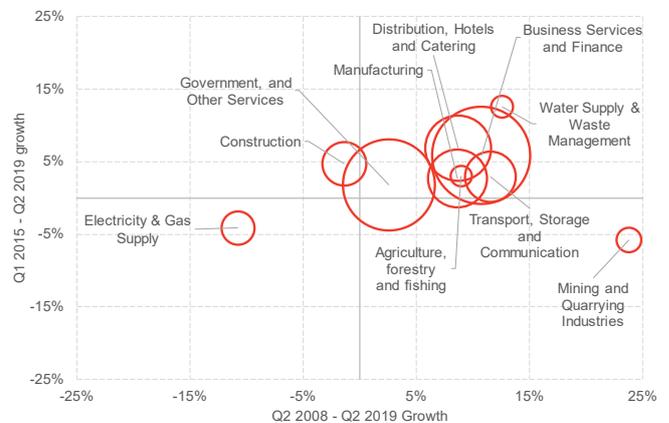
Source: Scottish Government

Chart 40: Oil and gas production and income, Scotland, 1998 - 2018



Source: Scottish Government

Chart 41: Growth of sectors since the pre-recession peaks of 2008 (Q2 2008) and 2015 (Q1 2015)*



Source: Scottish Government

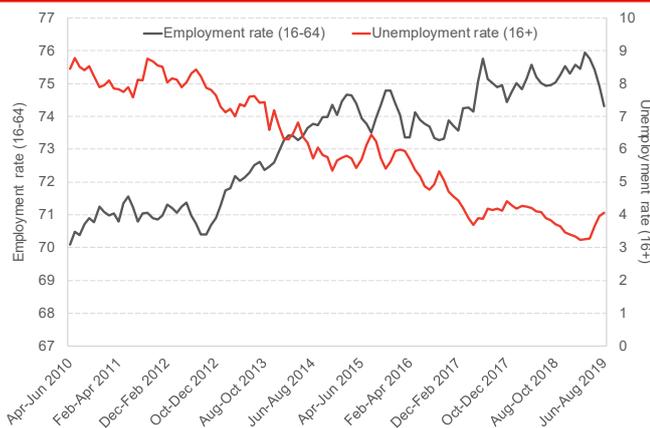
*The diameter of the circle shows the weight of each sector in the Scottish economy

Table 7: UK Labour market, Jun-Aug 2019

	Employment (16-64)	Unemployment (16+)	Inactivity (16-64)
Scotland (%)	74.3	4.1	22.5
Quarterly change (p.p.)	-1.4	0.8	0.8
Annual change (p.p.)	-0.6	0.2	0.5
<hr/>			
UK (%)	75.9	3.9	21.0
Quarterly change (p.p.)	-0.2	0.1	0.1
Annual change (p.p.)	0.3	-0.2	-0.2

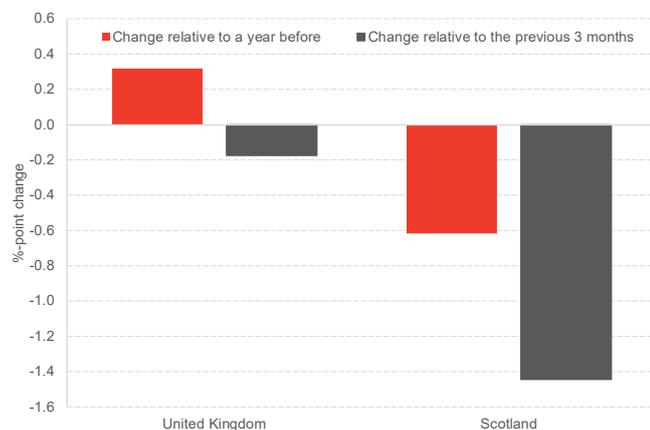
Source: ONS (LFS)

Chart 42: Employment and unemployment rate in Scotland, Apr-Jun 2010 - Jun-Aug 2019



Source: ONS (LFS)

Chart 43: Change in the employment rate in Scotland and the UK relative to the three months and year before, Jun-Aug 2019



Source: ONS (LFS)

Scottish labour market and productivity

While UK and Scottish labour market indicators remain strong relative to historical standards, the most recent data suggests some weakening in these measures.

Scottish unemployment jumped 0.8 percentage points, and employment fell 1.4 percentage points, in the most recent data covering the three months to August. Table 7.

This means that relative to earlier in this year, 20,000 more people are unemployed in Scotland, and nearly 60,000 fewer people are in employment. Chart 42.

Relative to a year ago, the same is true: the employment rate is 0.6 percentage points lower and the unemployment rate 0.2 percentage points higher in Scotland.

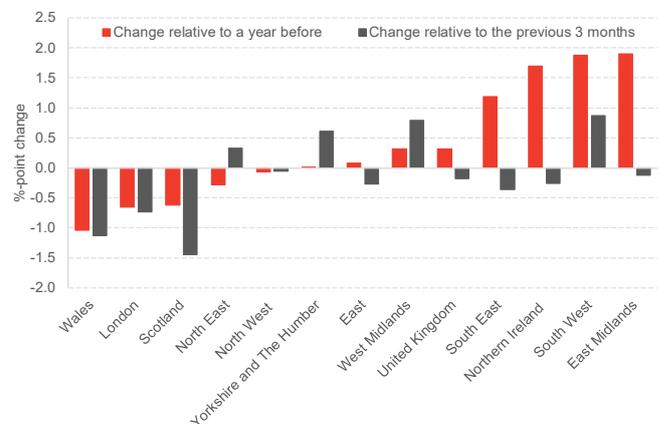
In the UK in contrast, the employment rate is 0.3 percentage points higher, and the unemployment rate 0.2 percentage points lower than a year ago.

While the economic headwinds caused by Brexit are real, this does not fully explain these data. Chart 43.

One way to see this is to remember that Brexit uncertainty is not isolated to Scotland, by definition it affects all parts of the UK. In this sense it is a ‘common shock’ to the economies of the UK. Chart 44.

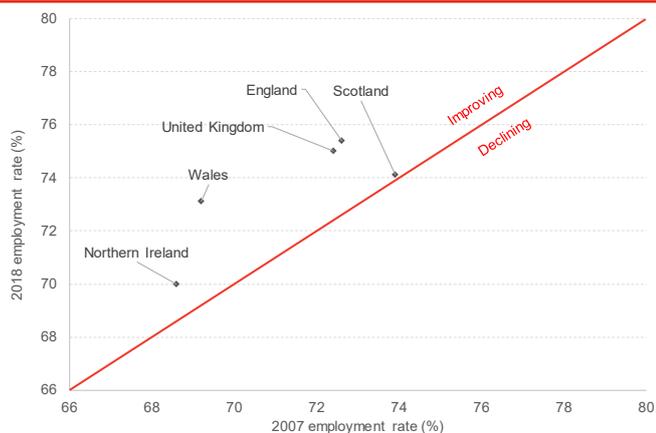
It should be noted however, that regional employment data is more volatile than for the UK as a whole, so some of these movements are likely to reflect a degree of inherent volatility in the series.

Chart 44: Change in the employment rate across the UK relative to the three months and year before, Jun-Aug 2019



Source: ONS (LFS)

Chart 45: Employment rate (16-64), 2007 & 2018, for the nations of the UK



Source: ONS APS

When we compare performance across all parts of the UK, we can see diverse economic experiences over the past year.

Some parts of the UK have seen their employment rate improve substantially (East Midlands, South East, South West and Northern Ireland), while others have seen their employment rate fall substantially (like Scotland, Wales and London).

Comparing employment rates of the nations of the UK since the pre-financial crisis peak, Scotland has seen the smallest improvement in its employment rate. Chart 45.

Alongside these headline employment numbers it is important to consider what is happening to those in work.

As highlighted in the recent Joseph Rowntree report “Poverty in Scotland: 2019”, substantial challenges remain around in-work poverty, and the conditions for those in work.

Nominal wage growth in Scotland has increased more sharply in the latest data, returning nominal wage growth over the past few years to more closely match that of the UK as a whole - albeit UK wage growth itself has underperformed expectations in recent years. Chart 46.

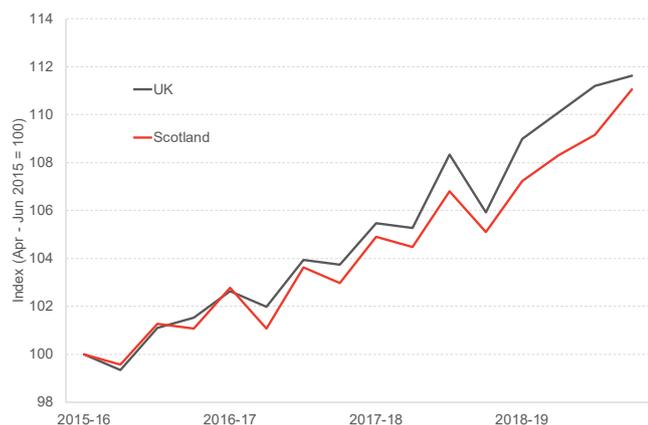
This is consistent with the productivity growth seen in Scotland in 2017-2018, albeit this improvement has slowed at the start of 2019. Chart 47.

Since the financial crisis in 2007/08 Scottish productivity, in terms of output per hour worked, has increased by 10.3%, or an average of just over 0.9% per year. This compares to an average annual growth rate of 1.5% per year between 1998 and 2007.

It is always important to consider whether it is changes in hours worked or in how much is being produced that is driving improvements in productivity.

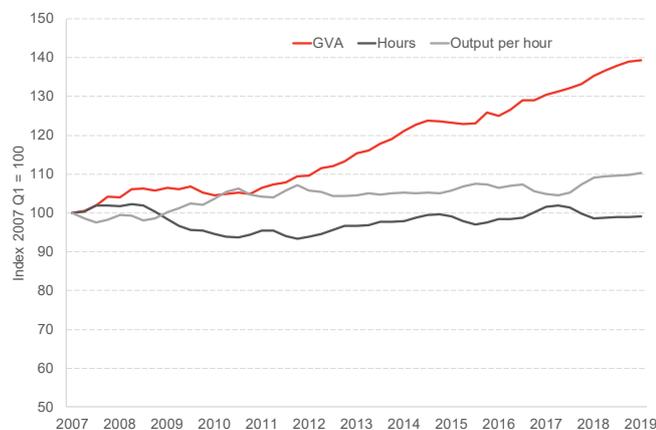
Over the past year or so the growth in hours worked has been relatively modest, with most of the improvement in productivity over the period coming from faster output growth. Indeed hours worked has still not recovered to pre-financial crisis levels. Chart 47.

Chart 46: Nominal median quarterly pay, Scotland v UK, 2015 - 2019



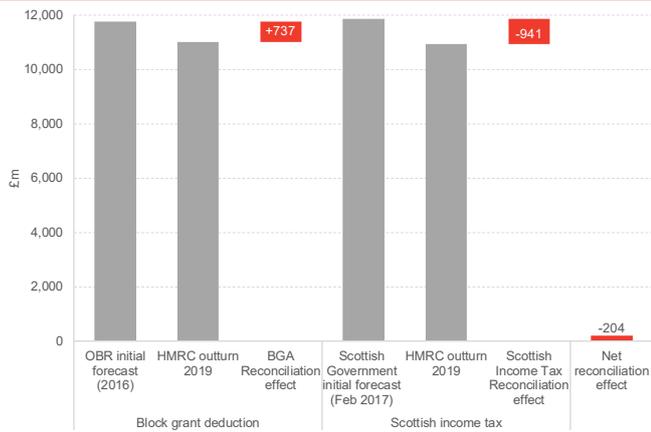
Source: HMRC

Chart 47: Real productivity growth, Q1 2007 - Q1 2019, Scotland



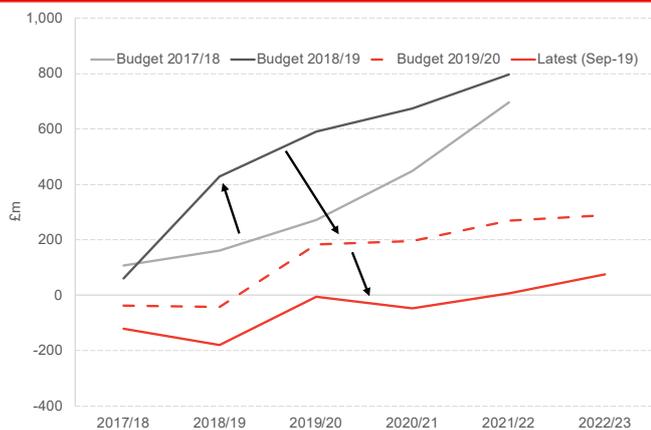
Source: Scottish Government

Chart 48: Forecasts and reconciliations



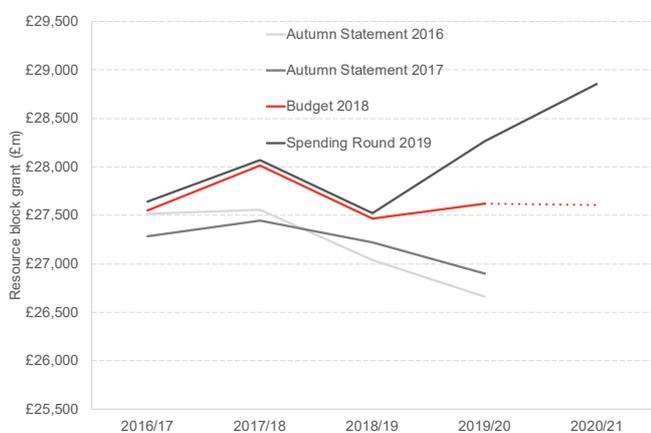
Source: UK Government

Chart 49: Income tax 'net tax' position at successive fiscal events



Source: FAI analysis of various Scottish budget (various years) and Scotland's Fiscal Outlook 2018 and 2019 (Scottish Government)

Chart 50: Evolving outlook for the resource block grant at successive budget events, 2019/20 prices



Source: FAI analysis of Scottish Budget (various years) and HM Treasury Spending Round 2019

Scottish Budget Outlook

Next month we will be publishing our 4th annual Scotland's Budget report.

It will contain an updated assessment of the outlook for the budget, scheduled for publication by the Government on the 12th December.

There have been a number of developments over the summer with respect to Scotland's devolved finances.

Firstly, we had the outturn data for how Scottish tax receipts had performed in 2017/18 – the first full year of tax devolution – alongside equivalent data for the UK.

This has confirmed that a gap has opened up between outturn revenues and the forecasts that were used to determine the 2017/18 budget. As a result, the Scottish Budget for 2020/21 will be reduced by just over £200 million. Chart 48.

Perhaps of greater concern are the estimates for future years. It is now believed that reconciliations totalling over £1 billion will be required by 2022/23.

The reason for this has been weaker growth in Scottish tax revenues – particularly driven by a slower pick-up in earnings – than originally thought.

As a result, despite the Scottish Government raising an additional £500 million in income tax than under the UK policy, this has been offset by weaker performance in the Scottish tax base. Chart 49.

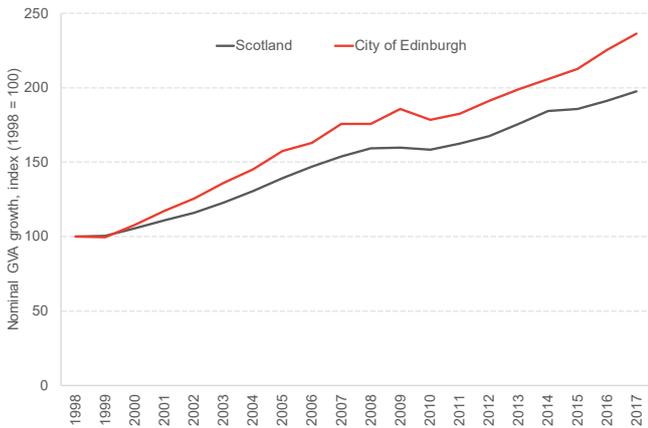
A number of factors however, will help offset this outlook.

Firstly, the government has around £570 million in reserve from money unspent in previous years which it can draw upon. Indeed, despite significant spending pressures it added to its reserve in 2018/19.

Secondly, the new Chancellor - Sajid Javid – has announced a significant uplift in spending across the UK (up 4.1% in real-terms). Via the Barnett Formula, this spending will be passed on to the Scottish budget. Chart 50.

As a result, the block grant is on track to increase next year by the fastest rate since the financial crisis.

Chart 51: Nominal GVA(B) growth for NUTS 3 regions, index (1998=100), 1998 - 2017



Source: ONS

The rise of the East

An interesting feature of recent data for Scotland is the shifting balance of economic activity toward the east of the country.

Edinburgh is the fastest growing city in Scotland and is outpacing the national average. Chart 51.

GVA per head in Edinburgh is now £44,000, compared to a Scottish average of 25,500.

The concentration of activity to the east of Scotland is becoming more noticeable.

A significant amount of employment growth in recent years has been driven by Edinburgh and its surrounding areas (with Glasgow doing well too). Chart 52.

Unsurprisingly, the population levels in local authorities in the east are growing at some of the fastest rates of any part of the country. Chart 53.

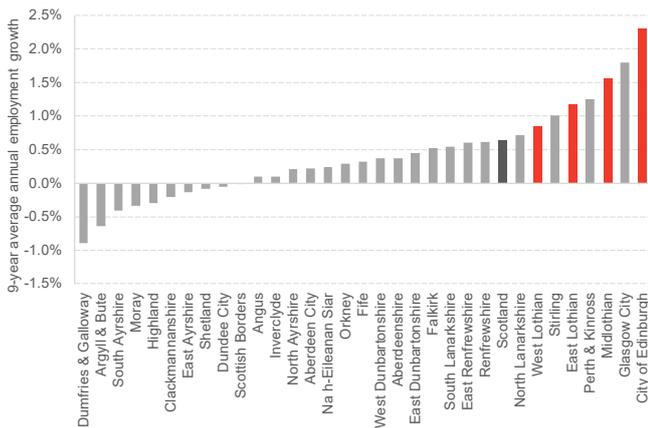
This is being mirrored in housing supply growth. New housing in Edinburgh, Midlothian, East Lothian, West Lothian, Falkirk and Fife made up 24% of Scotland's new housing stock in 2010-11, but 35% in 2017-18.

However, affordability is increasingly becoming an issue. Chart 54.

Most predictions are that this shift in the balance of economic activity will continue. In particular, the demographic profile of the east of the country is much more favourable, with positive migration and a younger population base.

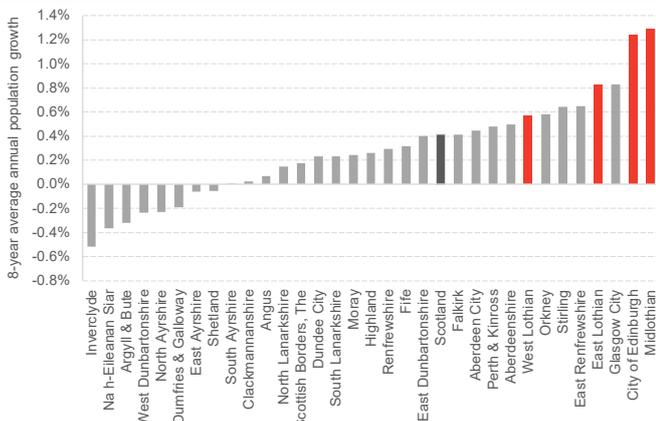
All of this poses challenging questions for future investment, particularly around infrastructure spending. Should investment be targeted at areas growing strongly, or to help weaker areas 'catch-up'?

Chart 52: 9-year average annual employment growth in Scottish local authorities, 2010 - 2019



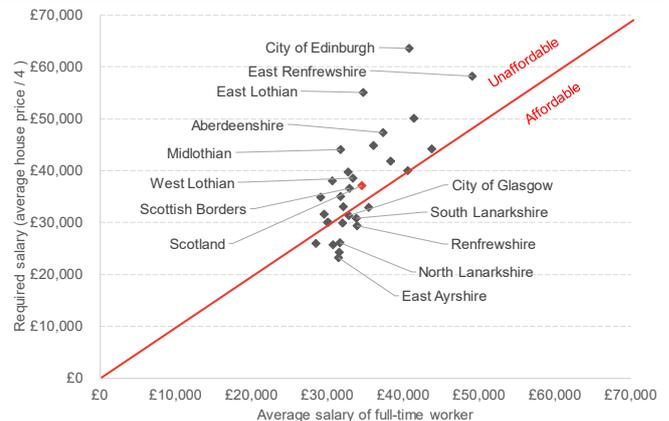
Source: ONS

Chart 53: 8-year average annual population growth in Scottish local authorities, 2010 - 2018



Source: ONS

Chart 54: Housing affordability in Scotland, 2018



Source: UK HPI, ONS ASHE

Table 8: Scottish business monitor headline results, Q3 2019

	Q3 2019	Quarter change	Year change
FAI Business Activity Index (net % balance)	5	-9 ▼	-11 ▼
New business	3	-8 ▼	-12 ▼
Turnover	8	-5 ▼	-12 ▼
Costs	56	5 ▲	2 ▲
New capital investment	-3	4 ▲	8 ▲
Export activity	-8	3 ▲	-8 ▼

Source: Scottish Business Monitor, FAI

Table 9: Trend in volume of business activity, net response of firms

Budget year	2018		2019		
	Q3	Q4	Q1	Q2	Q3
Construction	25%	22%	21%	0%	-6%
Retail & wholesale	-9%	0%	0%	8%	-14%
Manufacturing	17%	7%	-2%	12%	-2%
Accommodation & food	14%	0%	24%	17%	-32%
Finance	42%	35%	0%	32%	25%

Source: Scottish Business Monitor, FAI

Latest Scottish indicators

The latest up-to-date indicators of performance in the Scottish economy tend to show a relatively mixed picture.

Our own measure of economic activity – the FAI Business Activity Index – has fallen over the quarter, but remains positive. See Table 8.

The net balance of +5 suggests that, on average, businesses in Scotland continue to grow with a majority reporting an improved order book.

But on most key indicators, activity was down over the year, with steady falls in both turnover and new business won.

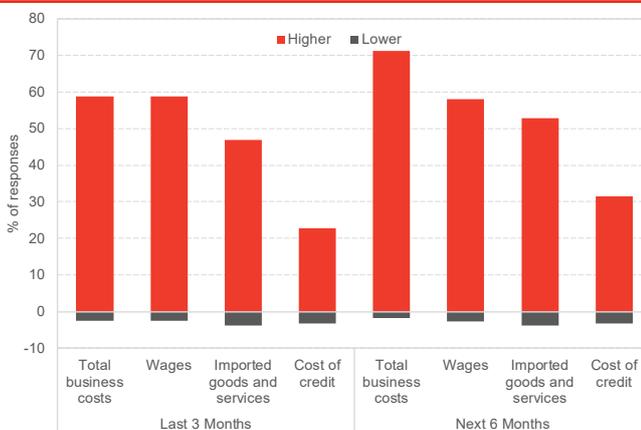
The downturn was consistent across most major sectors of the economy. The one exception was financial services where firms reported strong growth over Q2 and Q3. See Table 9.

One particularly clear message from the survey was a trend in rising costs. This was believed to be taking place across credit, imports and wages. Expectations are for these pressures to build in the next 6 months – with 71% of firms surveyed expecting costs to increase.

Like UK wide surveys we are picking up evidence of more firms preparing for Brexit, including the possibility of a ‘no deal’.

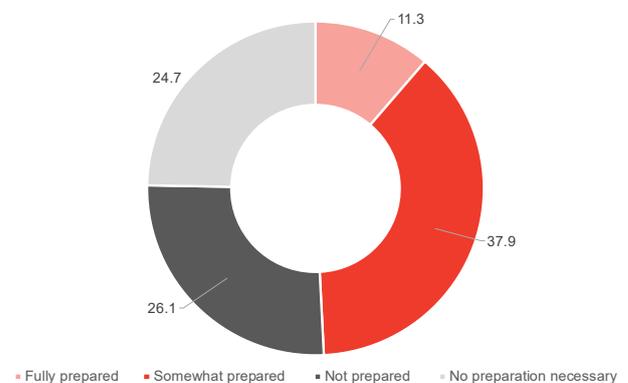
The number of firms who are saying that they are ‘not prepared’ has fallen to around 25%. This is a sharp fall on previous surveys.

Chart 55: Key cost pressures now and in future



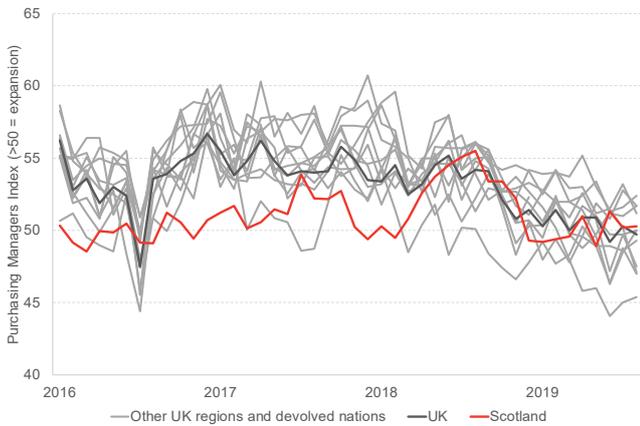
Source: Scottish Business Monitor, FAI

Chart 56: Preparation for a ‘no-deal’ Brexit



Source: Scottish Business Monitor, FAI

Chart 57: Purchasing Manager's Index, Scotland & UK, Jan 2016 - Aug 2019



Source: IHS Markit

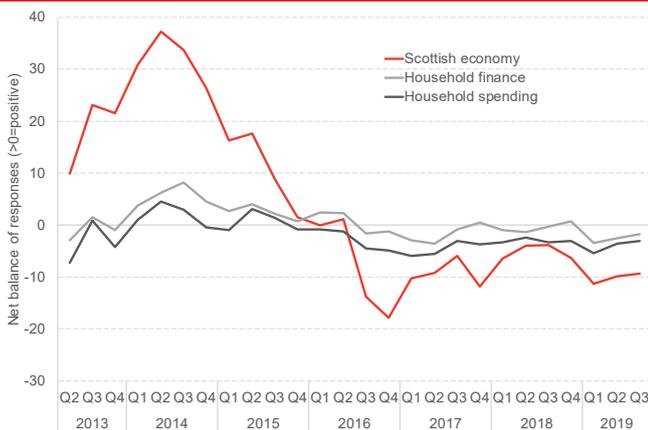
The latest Purchasing Managers Index for Scotland shows a score of 50 – exactly on the point of cut-off between growth and expansion. Within this, there was a marginal expansion in the service sector but a sharp fall in manufacturing output (the joint-quickest since December 2010).

As highlighted above, the UK PMI data is also weak. Scotland is currently in the middle-of-the-pack in terms of nations and English regions. Chart 57.

On the consumer side of things, a particularly pessimistic set of results have been published in recent times.

For example, the Scottish Government's consumer sentiment indicator stood at -6.6 in Q3 2019 – down on the quarter but higher than the series low of -9.6 obtained in Q1 2019. Chart 58.

Chart 58: Scottish Government Consumer Sentiment Index, current conditions, Q2 2013 - Q3 2019

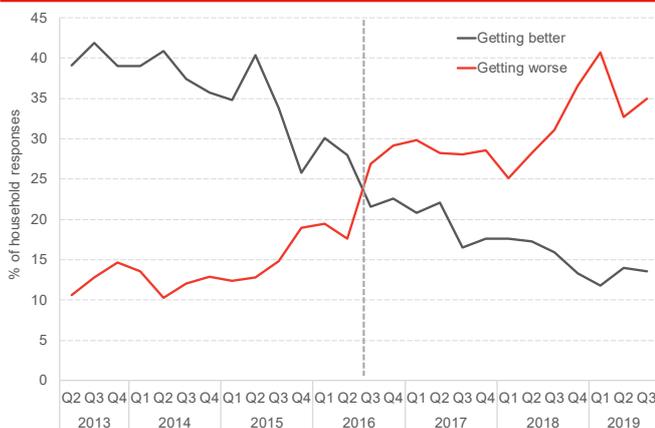


Source: Scottish Government

Once again, perceptions over the outlook for the Scottish economy were a key driving factor. The relative balance of respondents who believe that the outlook for the Scottish economy is 'getting worse' comfortably outstrips those who believe it to be 'getting better'.

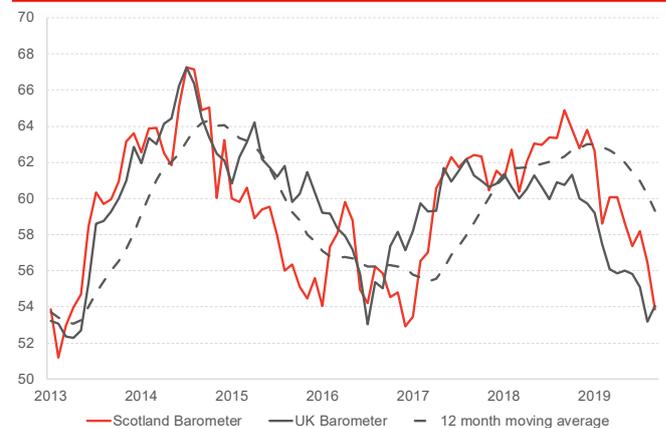
Consistent with this, and with the recent declines in official labour market indicators, surveys of hiring intentions have also fallen. The IHS Markit Scottish Employment Monitor fell once again during September. Chart 60.

Chart 59: Scottish Government Consumer Sentiment Index, expectations of the Scottish economy, Q2 2013 - Q3 2019



Source: Scottish Government

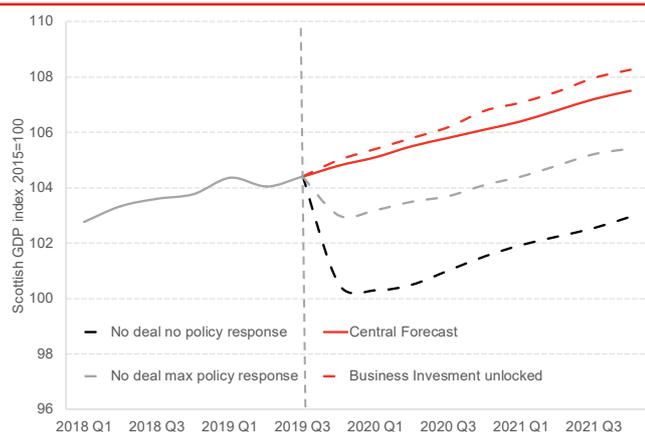
Chart 60: Employment barometer, Jan 2013 - Sep 2019



Source: IHS Markit / RBS

Table 10: FAI Nowcasts for Scotland's GDP, Q3 2019

	Q3 2019
Quarterly Growth	0.28%
Annualised growth	1.13%

*Source: FAI***Chart 61:** FAI central forecast and scenarios Q1 2018 - Q4 2021*Source: Fraser of Allander Institute***Table 11:** Latest growth forecasts for the UK economy

	2019	2020	2021
Bank of England	1.3%	1.3%	2.3%
OBR	1.2%	1.4%	1.6%
NIESR	1.2%	1.1%	1.8%
European Commission	1.3%	1.3%	-
IMF	1.2%	1.4%	1.5%
Oxford Economics	1.2%	1.1%	-
ITEM Club	1.2%	1.2%	-
CBI	1.4%	1.5%	-

*Source: HM Treasury, Bank of England, OBR***Table 12:** NIESR forecasts of the UK GDP, 2019 - 2023

	2019	2020	2021	2022	2023
Central forecast	1.2%	1.1%	1.8%	1.6%	1.7%
Orderly no-deal	1.0%	0.0%	2.2%	0.8%	0.6%

Source: NIESR

Our forecasts

Economic forecasting in the midst of the ongoing uncertainty is challenging.

As a result, all economic forecasts need to be viewed with caution.

Our latest nowcasts indicate weaker growth this quarter. See Table 10.

Even if an exit deal is reached – or a further extension is put in place – much of the UK's future relationship with the EU will remain unresolved. So a period of uncertainty is here to stay.

There may also be a trade-off between short-term uncertainty and longer-term growth.

For example, Boris Johnson's new plan is for a 'harder' Brexit than that put forward by Theresa May. As a result, whilst demand may pick-up in the short-term if there is an agreement, the longer term challenges may be more negative if the end-result is greater trade barriers and less integration with our key export partner.

In the light of all this, we continue to present a series of scenarios for how the Scottish economy may evolve over the next three years. Chart 61.

As always, the exact point estimates are less important than the scale and direction of travel.

Our central forecast should be interpreted as a scenario based on a number of different elements: leaving at some point in the next 6 months in an orderly fashion, but with further decisions postponed around the future relationship between the UK and the EU.

Here we forecast growth of 1.0% in 2019, 1.2% in 2020 and 1.3% in 2021. Table 13.

In this 'prolonged uncertainty' scenario, growth is likely to continue in much the same vein as in recent months. That is, investment and private sector spending remains weak, but day-to-day activity in our economy remains more resilient.

Overall, our forecasts are not dissimilar to those for the UK as a whole. Table 11 and 12.

Table 13: FAI central forecast and scenarios, 2019 - 2021

	2019	2020	2021
Central forecast	1.0%	1.2%	1.3%
No deal (no policy response)	0.0%	-2.4%	1.6%
No deal (“managed” policy response)	0.6%	-0.3%	1.3%
Business Investment unlocked	1.0%	1.5%	1.6%

Source: Fraser of Allander Institute

We estimate that impacts occur in Q4 2019. For the no-deal (no policy response) scenario, the “peak-to-trough” contraction is 3.7%, and for the no-deal (“managed” policy response) scenario the “peak-to-trough” contraction is 1.3%.

Table 14: FAI central forecast Scottish GDP growth 2019 to 2021

	2019	2020	2021
GDP	1.0%	1.2%	1.3%
Production	1.2%	1.4%	1.5%
Construction	0.7%	0.9%	1.0%
Services	1.1%	1.2%	1.3%

Source: Fraser of Allander Institute

Table 15: FAI Labour Market forecasts to 2021

	2019	2020	2021
Employment rate ¹	75.1%	74.9%	74.7%
Unemployment Rate ²	3.8%	4.1%	4.2%

Source: Fraser of Allander Institute

¹ Rate calculated as total employment divided by total of economically active population aged 16-64.

² Rate calculated as total unemployment divided by total of economically active population aged 16 and over.

On balance, we expect both services and production to continue in line with recent trends - that is, positive growth but below trend. In contrast, construction activity is likely to remain particularly fragile with investment remaining weak. Table 14.

For our other scenarios, we take the ‘impact’ point as Q4 2019, given the scheduled departure date of October.

Q4 provides an illustrative starting point to show the range of outcomes. (Of course, other outcomes are possible).

On the whole, the degree of negative sentiment against a ‘no deal’ outcome has – if anything – reduced in recent times.

Business preparations have intensified whilst the government has committed to helping support the economy in the short-run. Overall however, we still take the view that a ‘no deal’ would represent an economic shock and it seems at least highly probable that Scotland will enter recession at some point in 2020. Table 13.

However, the scale of any downturn is likely to be much less than some of the apocalyptic warnings that have been put forward by some. These scenarios rely upon no policy response (which is unrealistic) and a series of worst case outcomes.

Instead, we forecast a decline in 2020 of around 1% to 2% as a result of a ‘no deal’ outcome.

And even then, an economy is remarkably resilient and growth will pick-up again once the immediate dislocation impacts unwind.

But this comes with a number of caveats. Firstly, it is over the longer-term that the key challenges of Brexit will become evident. Secondly, the impact on individual businesses and industries will vary greatly. Those plugged in to complex supply chains or reliant upon EU sales for growth are most at risk.

Of course, there is a ‘best’ case scenario, where the recent uncertainty is reduced and confidence returns. A positive ‘deal’, which includes a commitment to a productive long-term relationship with the EU should help growth surprise on the upside.

In all scenarios, employment is likely to remain at near record levels, particularly with investment continuing to remain fragile in the short to medium term. Table 15.

Policy context

Scotland's climate emergency

One of the frustrations with the ongoing Brexit burach is that important debates about the future of our economy have been crowded out.

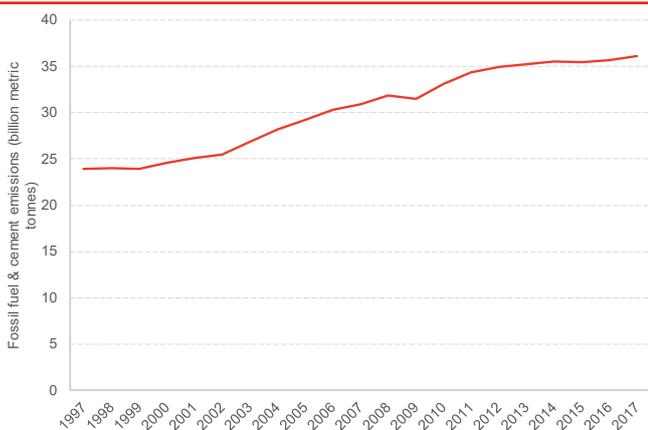
As we have highlighted in previous Commentaries, Scotland faces a number of significant structural challenges. Our population will age significantly, whilst – for many – the world of work will change radically as existing tasks are increasingly automated.

But there are also opportunities, with new markets opening up and technology helping to support improvements in living standards.

One area that has captured the public attention has been climate change. Across the world, we have seen a renewed desire from governments to step up their response to the environmental challenge.

Global CO₂ emissions rose sharply at the start of this century and, despite a range of international initiatives, they remain at near record high levels. The consequences of a rapidly changing climate for the vital ecosystems on which we all depend are hugely significant.

Chart 62: Global CO₂ emissions from fossil fuel & cement emissions, 1997 - 2017



Source: Global Carbon Project

In April, the First Minister declared a ‘global climate emergency’.

Just last month, the Scottish Parliament passed a new Climate Change Bill, which legally binds the Scottish Government to achieve ‘net zero’ by 2045 – five years ahead of the UK. An opposition amendment to up an interim target, to achieve a 75% reduction by 2030, was also supported.

This puts Scotland as one of the most ambitious countries in the world in terms of its commitment to tackling climate change.

Of course, targets do not themselves reduce emissions.

The Scottish Government has backed up its ambitions with a range of policy announcements, most recently in September’s Programme for Government, on transport, housing and business investment. This is clearly an area where Holyrood is setting a bold agenda, with a consistency of approach, visibility of leadership and commitment to action that sets it apart from the rest of the UK.

The Committee on Climate Change’s chairman Lord Deben commented on Scotland’s ambitious target: “Scotland has led the UK in reducing its emissions and has ambitions to lead the world in tackling climate change: this Programme for Government suggests that vision is alive and well”.

But the scale of the challenge – in both Scotland and the UK – should not be underestimated.

Achieving such significant reductions in CO₂ emissions will require a fundamental change within nearly every aspect of day-to-day life, including the way we heat our homes, the locations and types of new building stocks, the sources of our food supply and the transport systems we depend upon.

It is not clear that the true scale and pace of this change required is yet fully appreciated.

Moreover, many of the most difficult – and unpopular – decisions have yet to be taken. The hope that technologies such as carbon capture and storage, hydrogen or large scale battery capabilities, will come to the rescue and so minimise the need for substantial changes to the lives of households across Scotland remains a risky bet.

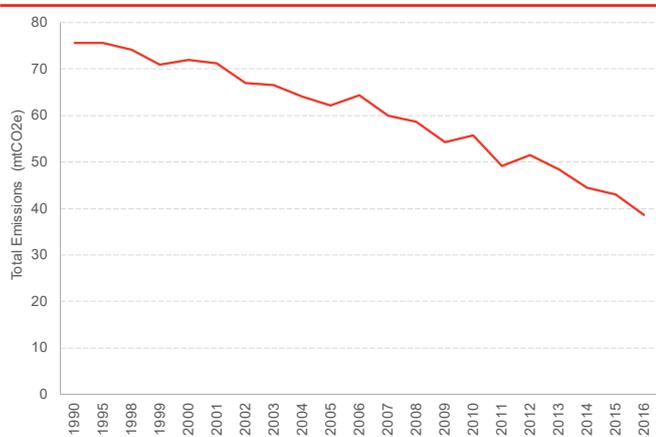
And even if net zero is achieved globally by 2050, the science suggests that our climate will continue to warm. So alongside efforts to reduce emissions, policymakers will need to plan for coping with this reality.

The transition to net zero

In 2009, the Scottish Parliament passed a ground-breaking Climate Change Act which bound the government to reduce emissions by 80% by 2050 from a 1990 baseline.

Over time, Scotland has seen significant emission reductions, with total emissions almost half the 1990 level.

Chart 63: Total emissions in Scotland, 1990 - 2016

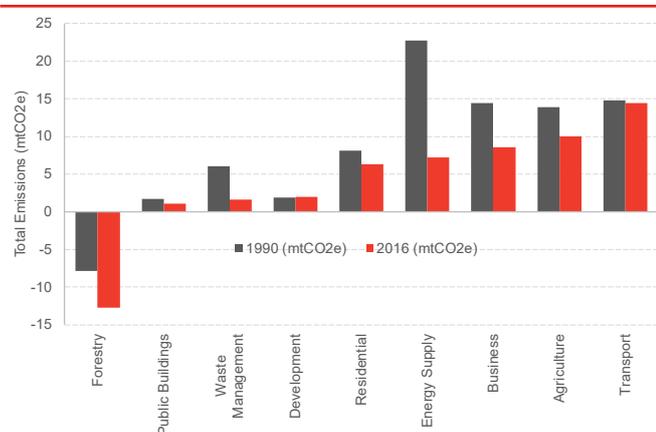


Source: Scottish Government

Whilst this reduction is significant – and ahead of most EU countries – Scotland now plans to go further, and over a much shorter time period.

The strides made in reducing emissions have been spread across different sectors of Scottish society.

Chart 64: Scottish emissions by sector, 1990 & 2016



Source: Scottish Government

Energy supply has clearly been a major success story. Scotland now has the second highest percentage of renewable electricity in the EU, increasing the proportion of consumption generated by renewables from 20% in 2007 to over 75% in 2018.

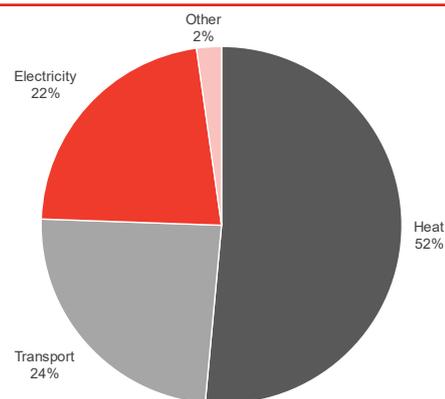
But to reach net zero, there will need to be much more. Electricity demand will rise rapidly as more systems – such as cars, buses and heating – shift from fossil fuels. To meet future demand, renewable generation is likely to have to quadruple in capacity.

In other areas, progress has been slow.

Scotland has amongst the lowest levels of renewable heat source in Europe.

With around 80% of Scotland on the gas grid, converting millions of households to renewable sources will be a major undertaking. From 2025, gas boilers will no longer be fitted in new homes.

Chart 65: Total final energy consumption by sector



Source: Scottish Government, BEIS

But for existing homes (75% of Scotland’s housing stock was built prior to 1982) a scalable solution – whether through local heat networks, heat pumps or hydrogen – is needed.

There has yet to be any large-scale trials for any of these technologies. And it is likely to be years before they are tested to a standard to operate across Scotland’s housing stock and environment. This is one area where there is an urgent need for a more ambitious – and deliverable – plan for change.

Similarly, whilst other sectors have decarbonised, transport has not. Surface transport emissions have now risen for the fourth consecutive year. When including aviation and shipping, transport is now Scotland's single largest source of greenhouse gases, accounting for 37 per cent of emissions.

The electrification of our transport network is for example a daunting task. More than 70% of Glasgow residents live without private off-street parking with limited capacity to install charging facilities. Much also depends upon manufacturers bringing enough new electric cars to market.

While a large part of cutting emissions will stem from renewables and cutting back on our energy demand, industries such as steel, petrochemicals, and construction will still produce large amounts of CO₂. Solutions for these industries will be needed.

A further radical change is likely to be required over land use, with the need for new forests both to help offset any remaining emissions and as a source of bio-fuel. But how much of Scotland's countryside will be impacted even just to generate 10% of heat demand from biomass? Similarly, what might be the implications from radical efforts to restore peatlands?

The political and environmental implications of changing Scotland's eco-system, and re-imagining land-use management, in radical ways should not be underestimated.

How much – and what – we eat is also likely to change. Agriculture is a major source of emissions. A combination of changes to sourcing of food, diet and waste will all be required. The Committee on Climate Change believe that we will need to reduce consumption of meat and dairy by 20% (at least). This is one area where Brexit provides an opportunity to design a new post-CAP framework that has a greater role for low-carbon farming practices.

But even with such changes, current plans are still heavily dependent upon much of the heavy lifting coming from new technologies that are in their infancy or have yet to be even invented. Their development, cost and timing of deployment are all elements that the Scottish Government has little, if any, influence over.

All of this will require a level of investment and degree of economic planning not seen since the Second World War.

The policy agenda

The establishment of high-level targets are clearly an important step.

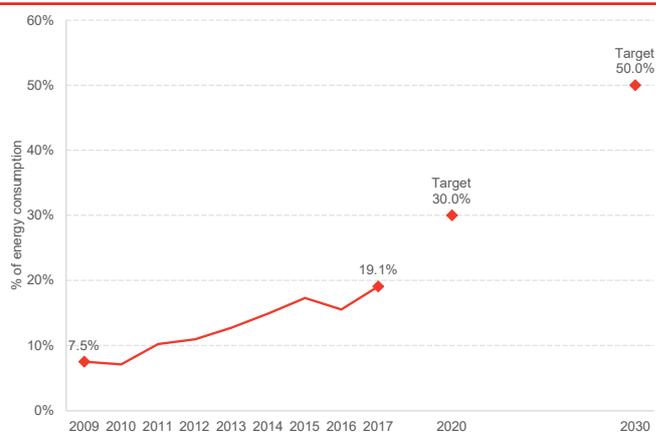
And the announcements in this parliamentary term are significant. But collectively, they will still only make a small dent in the scale of the change needed.

At the UK level, the Committee on Climate Change concluded in July that progress was generally “off-track” in most sectors, with only seven out of 24 indicators where they should be in 2018.

Arguably, many of the ‘quick-wins’ – e.g. in renewable electricity – have been made. Many more will not be as easy.

The scale of the progress required is hugely significant.

Chart 66: Share of renewable energy in gross final energy consumption, Scotland, 2009 - 2017 (with targets)



Source: Scottish Government, BEIS

Many of the changes so far have yet to impact upon people's day-to-day lives. But future changes will.

And they won't be costless.

Of course, many of these ‘costs’ will take the form of new investment, creating jobs and across the economy. The Committee on Climate Change estimated an extra 1% of GDP per year will need to be diverted to investment by 2050.

But even then, real ‘net’ costs will still be incurred. Being upfront about their scale, timing and who they will impact upon (and how any ‘losers’ will be compensated in the “just” transition, will be crucial in ensuring long-term public support)

Not all of the changes will be popular.

The Scottish Government has already faced some pushback over its reversal for planned cuts to Air Passenger Duty (which incidentally was a nonsensical policy anyway) and plans to permit councils to implement a workplace parking levy (the so-called ‘car park tax’).

But major changes will be necessary. And whilst there might – quite rightly – be disagreement over individual policy decisions, there is a responsibility on politicians of all parties to avoid seeking to make short-term political gains at the expense of longer-term action.

Building citizen acceptance through political leadership and harnessing trusted voices and institutions will be crucial. Rapid consumer transitions have happened in the past, but require effective information sharing and rapid responses to public concerns.

Achieving net zero is not something that is purely in the gift of the Scottish Government. Scotland’s success in reducing emissions will be heavily dependent upon action taken at the UK level, particularly in reserved areas linked to industrial emissions and in large scale financial support for innovation and R&D.

Whilst it is right that the Scottish Government is leading the charge, the onus must be on businesses themselves to deliver change. Individual businesses and business leaders need to commit to net zero carbon and collaborate across their supply chains to implement low-carbon technologies at scale and pace to drive long-term change.

Ensuring that existing business that might not consider itself as low carbon make the changes needed to operate in a low carbon environment will not be easy. Whether or not we ultimately end-up with a carbon tax will largely depend upon how businesses themselves push forward the climate change agenda

The economic opportunities

But whilst there are challenges, there are also significant opportunities.

Across the globe, an estimated \$13.5 trillion of new public and private investment in the global energy sector alone will be required by 2030. This will create jobs and opportunities across our economy.

It is arguably in this area that most of the hard thinking needs to take place – how to secure the economic opportunities from Scotland’s climate change leadership?

Scotland has major potential in key aspects of the low carbon economy, from developing technologies to improve the efficiency of renewable energy projects through to agriculture and forestry. The development of a circular economy through design, re-use, re-manufacturing and re-cycling has the potential to create new jobs across a range of sectors. To achieve this, Scotland can draw upon its strong scientific research base and expertise in key sectors from energy through to high-value service and financial firms.

Scotland’s oil and gas industry will be crucial, both in terms of continuing to supply vital energy needs for the foreseeable future but at the same time using its expertise in key technologies to support the transition into new energy systems of the future.

Past history suggests that this is easier said than done. We have not yet created the large-scale manufacturing cluster that our renewables figures would suggest we should have done. Much of the technology and kit for the large onshore and offshore windfarms that now exist in Scotland has been imported.

The jobs boom promised as yet to materialise. The ongoing challenges around BiFAB are a reflection of many of the wider challenges faced by the sector.

However, there are signs that the government has listened.

The new Scottish National Investment Bank's primary mission is to ensure transition to net zero, with the aim of helping to support the growth of low carbon businesses and technologies. The new National Manufacturing Institute of Scotland (NMIS) aims to help support a renaissance of advanced manufacturing – skills and expertise that will be required to support the building of the new technologies required.

New developments in offshore wind technologies demonstrated in Scotland and the UK will have a global market of up to £30 billion per year by 2030.

But as always, the challenge will be balancing these more indirect, longer-term investments with short-term pressures. In a world of tight public sector budgets and increased demand in areas such as health and social care, money will be scarce.

At the same time, care is needed to ensure that arbitrary annual targets on emissions do not create unhelpful incentives. There is a risk of sunk investment and businesses struggling to make changes in very tight timescales, which might ultimately undermine long-term objectives. Careful planning and coordination will be key.

The UK Government's Industrial Strategy, its Clean Growth Strategy and National Productivity Investment Fund all have important roles in helping to unlock future business opportunities. But here, there is a chequered history. The UK's record on supporting new technologies such as carbon capture and storage is not great.

But it is only at the scale of the UK as a whole can there be sufficient resource to support increased ambition in developing complex and high capital cost technologies and systems.

It is inevitable that much greater investment from the public sector will be required than is currently planned. This is why the concept of a 'Green New Deal' continues to gain traction. Alongside investment, new policies and incentive mechanisms will be required to support innovation, the deployment of new technologies, the creation of new markets and the need for workers with the appropriate training and skills to take advantage of the global opportunities.

At the same time, there will need to be greater recognition of the complex interactions of different policies and investments.

New frameworks and analytical tools will need to be developed to assess the consistency of policy approaches and the potential for both positive and negative spill-over effects. In recent work, as part of the UK Energy Research Centre, we showed how economic policy objectives – such as to boost productivity or international exports – could actually make achieving net zero more difficult.

Perhaps most of all, the importance of setting out a stable long-term environment for investment will be the most effective policy that anyone could set.

It will also require international cooperation, both in terms of connectivity, R&D and investment.

In the current climate both of these elements might seem far off, but the sooner stability and cooperation returns to our political system the better for all of us.

Fraser of Allander Institute
October 2019

Scotland's Budget 2019

Tuesday 12th November

We are delighted to announce the Fraser of Allander's 4th Scotland's Budget event will take place on Thursday 12th November in the National Museum of Scotland in Edinburgh.

This annual briefing event analyses the state of the economy, the public finances and the options open to the Scottish Cabinet Secretary for Finance, Economy and Fair Work as the Scottish Government prepares for its Budget later in the year.

Alongside the event, we'll be publishing our annual report of Scotland's devolved public finances and the choices, opportunities and risks facing the Scottish Government as it prepares to set its Budget for 2020/21.

Keynote speakers include:

- Paul Johnson, Director, Institute for Fiscal Studies
- David Eiser, Head of Fiscal & Budget Analysis, Fraser of Allander Institute
- Caroline Gardner, Auditor General, Audit Scotland
- Mairi Spowage, Deputy Director, Fraser of Allander Institute
- Charlotte Barbour, Director of taxation, ICAS

Date: Tuesday 12th November

Time: 9am-11.30am (registration & refreshments from 8am)

Sign up

www.strath.ac.uk/fraser

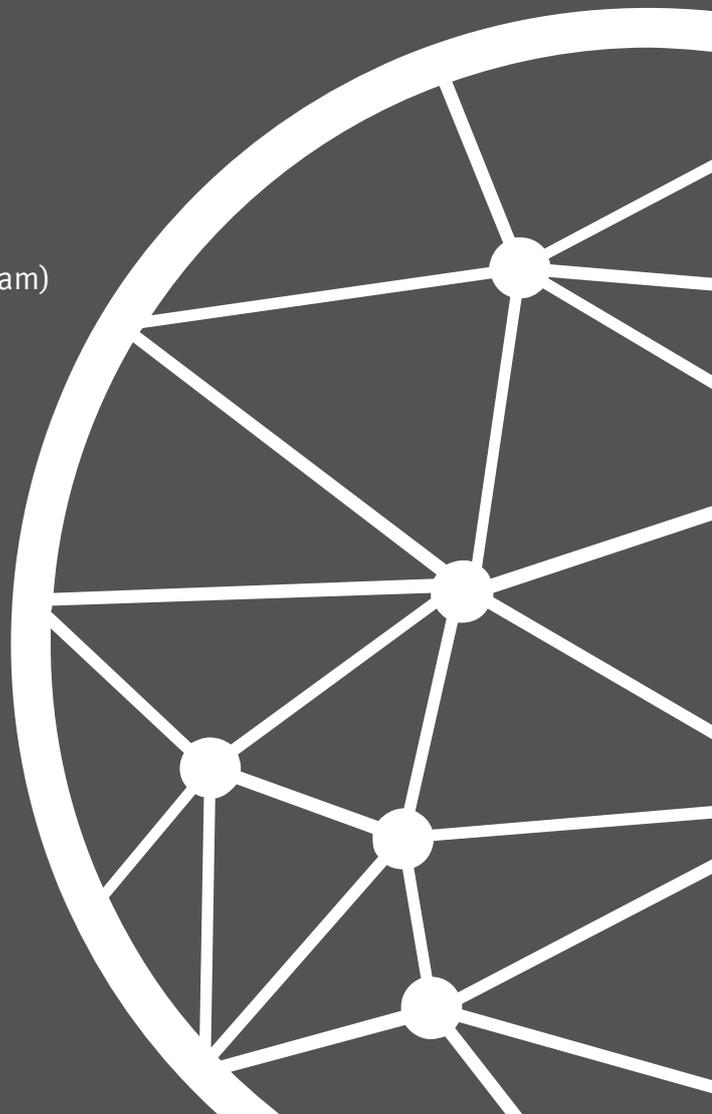
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