Over the course of this week, the UK Government, the Scottish Government and the Bank of England all published new Brexit analysis.

We have been asked by a number of people to give our take on these numbers.

So in this blog, we attempt to summarise what each model is telling us and the implications for Scotland.

In short, the numbers don't look great. Far from it.

Even under the UK Government's favoured deal, the UK economy is expected to be smaller in the long run by around 4%.

But it is the Bank of England's scenario of a disorderly 'no deal' Brexit that is the most eye-watering. Here the UK economy could shrink by 8% in a year – double the size of Scotland's recession during the financial crisis. Unemployment could rise to 7.5%. If that was replicated in Scotland this would be equivalent to around an additional 100,000 people out of work.

Two modelling approaches for two different questions

It is important to note that the analysis of the UK and Scottish governments is quite different to that of the Bank of England.

In the case of the former, both governments are attempting to assess what the *long-term* outcomes might be from a new relationship with the EU. In contrast, the Bank of England's focus is on potential scenarios for the economy in the *short-term* from different transition arrangements.

The UK and Scottish Government's analysis

Most economists would argue that, all else remaining equal, the larger the economic barriers between Scotland (and the UK) and its main international trading partner, the greater the potential hit to the country's growth potential.

Moving from this textbook view to an actual estimate of what the impact might be, requires the use of an economic model. For an excellent discussion of the models used in this context, see this report by the Institute for Government.

Such models are always subject to a degree of uncertainty, arguably even more so when the

change is unprecedented (like Brexit). But in the main, most economists will tell you that they are a good way of assessing the overall magnitude of changes from major events, even if the exact decimal point predictions need to be viewed with caution.

Our initial work – published back in October 2016 – estimated that after around 10+ years, employment in Scotland could be around 80,000 lower under a 'Hard Brexit' compared to a situation where the UK remained in the EU. This looked at trade barriers alone.

The work published by the UK and Scottish Government's is essentially an update of similar work (though also including wider effects such as migration).

The UK Government's headline results are shown in the chart below. All of them suggest a long-run hit to the economy.

Chart: UK Government (size of UK economy after 15 years relative to UK remaining within the EU)

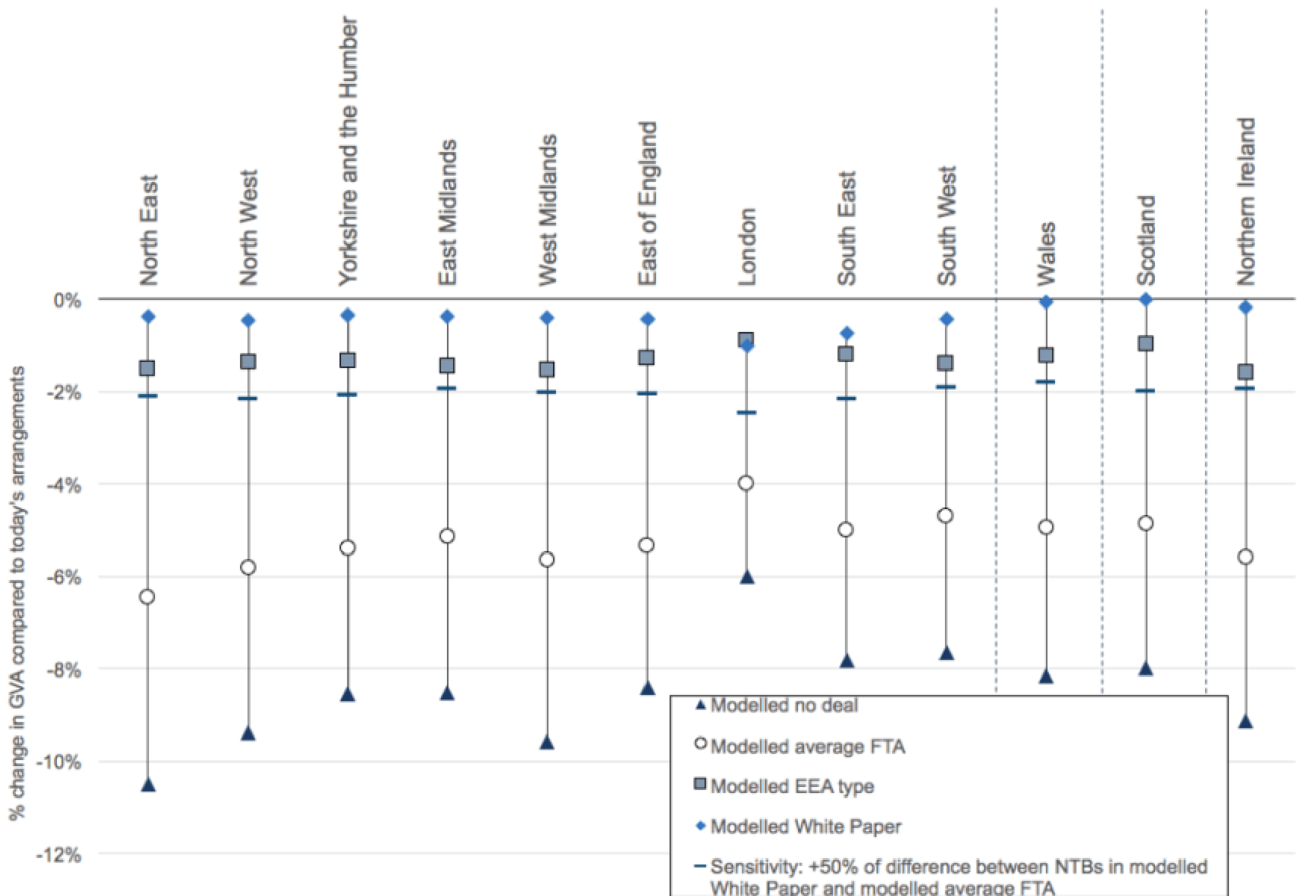
Source: UK Government

It’s important to remember that that even under these scenarios, the Scottish and UK economies will still grow, it is just that they will do so at a slower pace.

Of course, the key aspect of the ‘deal’ – the UK’s future trade relationship with the EU – has still to be agreed. We still cannot see how any deal that involves the UK leaving the EU Customs Union, coupled with the freedom to set up new trade deals, can be compatible with the commitment to no hard border on the island of Ireland.

The UK Government also undertook an assessment of impacts across the UK. For Scotland – as the chart highlights – the worst case scenario is a lower level of GVA equivalent to around 8%.

Figure 4.6: Summary of trade policy impacts on UK nations and English regions compared to today's arrangements.



Central estimates only. [167]

Source: UK Government

The Scottish Government get similar results. Under their modelling, a free trade deal would reduce GDP by around 6%, with a WTO/'Hard Brexit' outcome reducing GDP by around 8.5%.

Table 1 - Headline Macroeconomic Indicators by 2030 relative to a baseline of Full EU Membership

	GDP (%)	GDP Per Capita (£) in 2016 Cash Prices	Real Disposable Income(%)	Business Investment (%)
EEA	-2.70%	-£688	-1.40%	-2.90%
FTA	-6.10%	-£1,610	-7.40%	-7.70%
WTO	-8.50%	-£2,263	-9.60%	-10.20%

Source: Scottish Government Global Econometric Model (SGGEM)

Such modelling must always be viewed with a degree of caution. Changing the model's assumptions will have an impact on the results. But any sensible approach of likely outcomes will still lead to the same broad conclusion – putting up economic barriers between the UK and EU will put a drag on growth.

It is important to acknowledge however, that such modelling doesn't take into account future domestic policy changes that may help boost (or reduce) growth. It also doesn't take into account the potential impact of future trade deals with other countries.

The Bank of England's analysis

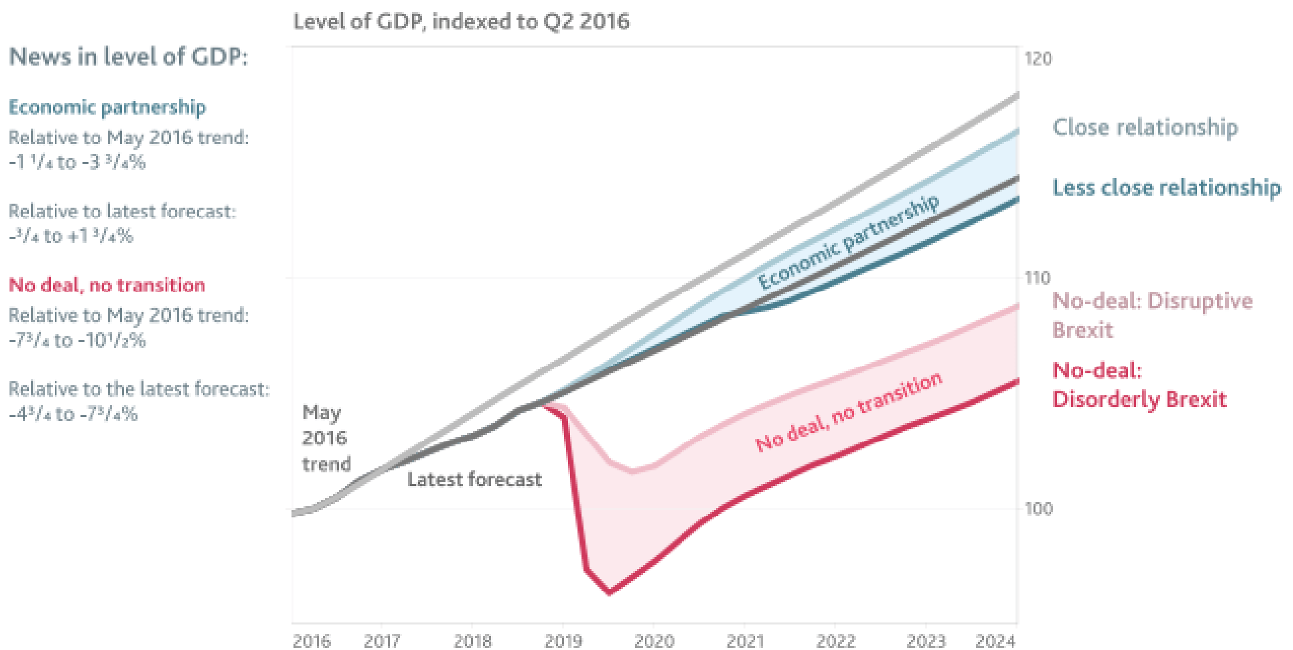
The Bank of England's analysis – published on Wednesday – focuses upon the short-term adjustment the UK economy could expect to go through after March 2019.

As we indicated last week, very little has been written about the implications of 'no deal'….beyond "bad" or "very bad". The Bank of England – the UK's most respected economics institution – has attempted to fill that gap.

It's important to note that the Bank isn't forecasting what *will* happen – or even what is *likely* to happen – but instead what *might* happen if certain scenarios were to come to pass. The purpose of doing so is to 'stress-test' the UK financial system to the worst case scenario.

The Bank's analysis is that the major UK banks are in a stronger position that pre-financial crises, and so are resilient to "worst-case Brexit outcomes".

In this 'worst case' scenario – one of a disorderly Brexit (see here for what that might look like) – the Bank believe that the UK economy could shrink by 8%. It'll be 2023 before that loss ground is made up.



To put this in context, the Scottish economy contracted by just under 4% during the financial crisis. An unemployment rate of 7.5% would mean around an extra 100,000 people in Scotland unemployed compared to today. A fall in house prices of 30% would take around £45,000 off the average price of a home in Scotland.

The Bank also looked at three other scenarios – including a 'disruptive' Brexit (where the UK retained access to some trade agreements) and a 'close' relationship (with no custom checks etc). Under a 'disruptive' Brexit, GDP falls 3% and unemployment reaches 5.75%. If a 'close' relationship is agreed, the economy is projected to still be smaller than pre-referendum forecasts but higher than the bank's most recent estimate (reflecting a boost in investment and consumption which has been held back by the uncertainty).

How likely is the worst possible scenario? The Bank don't attach a probability to this happening. Nor do they outline what their pro-active response – and the UK Government's response – might be to prevent the worst effects of such a downturn becoming a reality. Instead, it's a hypothetical scenario where policy responds mechanically and highlights the risks involved.

Summary

Unsurprisingly, the reaction from some has mirrored much of the debate on Brexit so far. Whilst it is entirely fine to criticise the Bank's and the Treasury's forecasting record (in fact, it's not anything like half as bad as some believe), this criticism needs to be on matters of substance.

The UK Government, Scottish Government and Bank of England reports provide credible analysis of the key issues that our politicians have to weigh up in the coming weeks. Whether you agree or disagree with Brexit, or the specific assumptions used in the modelling, what the analysis shows clearly is that whatever decision is taken, the potential implications for growth, jobs and livelihoods both in Scotland and the UK are hugely significant.