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Cambridge Econometrics' UK forecast assumptions (EEFM 2017)

August 2017

The UK forecasts are produced by CE's MDM-E3 model. They underpin the forecasts for the regions, Local Enterprise Partnerships (LEP) and local authorities in the East of England Forecasting Model (EEFM).

How the forecast assumptions were developed

Overview

In the context of the UK referendum vote to leave the EU, there is persistent political and economic uncertainty on what the nature of the deal between the EU and UK will look like. At the macroeconomic level, this will have numerous implications for a UK forecast. Some of the main impacts are highlighted in our qualitative exploration of the potential macroeconomic impacts of Brexit[1].

The UK regional forecasts in the EEFM 2017 were published in August 2017. The assumptions on the impacts of Brexit for the August 2017 UK forecast were formulated over April-May 2017. The assumptions are based on what we think is most likely to happen at the time, given announcements and published reports by think-tanks, non-profit organisations and the UK government.

In very general terms, we adopted the following *political* assumptions for our forecast:

- there is no "cliff-edge" moment as the UK obtains a transitional deal with the EU[2];
- UK agrees a bespoke deal with the EU;
- the UK secures an ability to reduce EU migration;
- the UK can remain in the single market for goods but not services (so there is no financial services passporting); and
- there are likely to be some continued payments for access to the EU from the UK (although these are negligible in macroeconomic terms).

These political assumptions were converted into *economic* and *modelling* assumptions, to explore the macroeconomic implications. The modelling assumptions provide inputs for our MDM-E3 model. For this forecast, we focussed primarily on the macroeconomic effects of Brexit on **exports**, **migration** and **investment**.

MDM-E3 is an industrially-disaggregated model. This permits an assessment of the sector-level effects according to their exposure to the changes that might be brought about by Brexit. Our forecast incorporates these differential effects in a way that is consistent with the literature on the potential impacts of Brexit, both by sector and for the UK as a whole.

Export assumptions

We expect that there will be restrictions to trade with the EU. For the forecast, we assumed that the degree of restrictions to UK exports will differ at the sectoral level. At the broadest level, we assumed that the impacts on goods will be small, while the impact on services trade

[1] The document is available at https://www.camecon.com/wp-content/uploads/2016/08/Potential-economic-impacts-of-Brexit-v2.pdf.
[2] For the remainder of this note, EU denotes all member states apart from the UK.

will be relatively larger. We made no assumptions on the specific types of trade restriction measures that will be adopted.

We derived an estimate of UK exports to the EU by broad sectors[3], based on trade data for 2014. Using this estimate, we formulated diminished export growth assumptions by broad sector consistent with the political assumptions outlined above.

We utilised the relationships within MDM-E3 to develop a forecast for imports; no explicit, additional economic or modelling assumptions were developed as inputs for the model with respect to imports.

We also assumed that trade with the rest of the world will continue as before. The implicit assumption is that UK will form trade arrangements with the rest of the world, similar to those in place at present.

Migration assumptions

As documented within the existing literature and the media, movement of labour is a primary consideration of the Brexit deal for both the UK and the EU, and will likely incur a plethora of political, economic and social impacts on households and the national economy. Given existing migration restrictions to the rest of the world, we assumed that migration restrictions will manifest as restricted movement of low-skilled workers from the EU.

The UK population projections in the EEFM 2017 are aligned with the 2014-based central population projections developed by the Office of National Statistics (ONS).

We derived an estimate of low-skilled employment of EU nationals by broad sector in the latest year within the model for which data was available. From this information, we developed economic assumptions of diminished total employment growth per annum, by broad sector. The assumptions of varying impacts across the different sectors were predominantly based on published reports, which provide qualitative assessments of skill shortages and dependencies on migrant labour in selected industries.

Our economic and modelling assumptions were further aligned to available estimates in published reports of reductions in annual net migration to the UK as a result of Brexit. This provided a benchmark and a reference forecast horizon across which we incorporated the employment assumptions.

The implicit assumption is that EU low-skilled migrant labour force would not be totally replaced by domestic workers (although this does not exclude the possibility of *some* of the jobs filled by domestic workers).

Investment assumptions

Much of the published literature on the investment impacts of Brexit focuses predominantly on the potential decrease of foreign direct investment (FDI) into the UK, as well as (possibly) the implications this would have on productivity at the national aggregate level. We adopted a different approach, and developed investment assumptions at the sectoral level. We characterised long-term[4] assumptions for investment for each broad sector according to several simplifying categories:

- there would be no change in investment levels;
- investment would slow down, due to some businesses moving a proportion of their activity out of the UK. This would result in a decrease in investment, proportional to the diminished level of activity in the UK;
- investment would adjust based on changes to public spending plans.

[3] The broad sectors are outlined in more detail in the appendix.
[4] In the short-term, investment is expected to fall sharply, driven by persistent political and economic uncertainty. This was modelled in a separate exercise.

- investment would slow down, due to some businesses moving a proportion of their activity out of the UK, but also as a result of the diminished growth prospects of that particular sector within the UK. This could further dampen investment intentions within the UK, as multi-national organisations within those sectors may choose to divert a disproportionate amount of their investment to countries with better growth prospects.

In the last case, expectations of diminished growth prospects may stem from factors such as lack of single market access, or skill shortages that have been further exacerbated by migration restrictions. Expectations for growth may also dampen in sectors which rely heavily on cooperation with other member states or funding from the EU. The mechanisms through which expectations of sectoral growth may diminish were not explicitly accounted for when developing the economic and modelling assumptions. A judgement was taken on which of these are most applicable at a sectoral level.

Implicitly, no further judgements were taken on the impact of FDI on investment, including the potential impacts diminished FDI may have on productivity. However, our economic and modelling assumptions for investment are broadly in line with published studies which do consider the link between FDI and investment, at the UK-aggregate level.

Detailed explanations of the assumptions in the forecast

The summary table below presents a qualitative overview of the specific long-term economic assumptions of the impacts of Brexit by broad sector:

Table 1: UK forecast assumptions

Sector	Export assumptions	Employment assumptions	Investment assumptions
Agriculture	Mild slowdown in EU demand	Strong employment constraints	Mild slowdown in investment
Mining & quarrying	No specific impact modelled	Moderate employment constraints	Moderate to pronounced slowdown in investment
Low and medium-low tech manufacturing	Mild slowdown in EU demand	Moderate employment constraints	Moderate to pronounced slowdown in investment
High and medium-high tech manufacturing	Mild to moderate slowdown in EU demand	Moderate employment constraints	Moderate to pronounced slowdown in investment
Construction	Mild slowdown in EU demand	Moderate employment constraints	Moderate to pronounced slowdown in investment
Utilities	Mild slowdown in EU demand	Mild employment constraints	No specific impact modelled
Transport, distribution, retailing, accommodation, catering, and administrative and support services	Moderate to pronounced slowdown in EU demand	Strong employment constraints	Moderate to pronounced slowdown in investment
IT, financial and insurance, real estate, professional, and scientific and technical services	Pronounced slowdown in EU demand	No specific impact modelled	Moderate to pronounced slowdown in investment
Public administration and defence, education, health and social work, and other services (arts and other services)	Mild slowdown in EU demand	Moderate employment constraints	Mild slowdown in investment

Source: Cambridge Econometrics.

Appendix: mapping to broad sectors

The broad sectors outlined above map to 31 EEFM sectors according to the following classifications:

Broad sectors	EEFM sectors
Agriculture	Agriculture & fishing
Mining & quarrying	Mining & quarrying
Low and medium-low tech manufacturing	Food manufacturing
	General manufacturing
	Chemicals excl. pharmaceuticals (part)
	Metals manufacturing
High and medium-high tech manufacturing	Chemicals excl. pharmaceuticals (part)
	Pharmaceuticals
	Transport equipment, machinery & equipment, etc
	Electronics
Utilities	Utilities
	Waste & remediation
Construction	Construction
Transport, distribution, retailing, accommodation, catering, and administrative and support services	Wholesale
	Retail
	Land transport
	Water & air transport
	Hotels & restaurants
	Publishing & broadcasting
	Telecoms
	Business services excl. employment activities
	Employment activities
IT, financial and insurance, real estate, professional, and scientific and technical services	Computer related activities
	Finance
	Real estate
	Professional services excl. R&D activities
	Research & development
Public administration and defence, education, health and social work, and other services	Public administration

	Education
	Health & care
	Arts & entertainment
	Other services

Source: Cambridge Econometrics.