



Brief Update & Research for Innovation

As survey data continue to trickle in, hard data for the European economy post-Brexit is still lacking. After a regular overview of European indicators, this week's PwC Europe Brexit Monitor also looks at the Brexit effects on research for innovation. Next week's issue will build on this and look at the effects on innovation in the start-up sector.

Brexit Monitor A European view

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This week, the CESifo Group (consisting of the Centre for Economic Studies, the Ifo Institute and the Munich Society for the Promotion of Economic Research), released results from the World Economic Survey of 762 experts from 112 countries in the period from 1 July to 27 July 2016. The survey included questions about Brexit and its perceived effect on economies. According to the survey respondents, the EU 15 member states¹ are likely to face the greatest impact from the UK vote in 2016, because they have close economic ties with the UK. Countries like the US, Brazil, Norway, Russia, Turkey and India are expected to remain unaffected this year. Within the next three to five years, the whole of the EU would be impacted according to the respondents. Within this time frame and except for Norway, the aforementioned non-EU member states are not expected to be negatively affected by Brexit. Ireland stands out as a country on which the impact is expected to be “strongly negative”, both in the short and longer term.

¹ Prior to the enlargement in the 2000s: Belgium, Germany, France, Italy, Luxembourg, the Netherlands, United Kingdom, Ireland, Denmark, Greece, Spain, Portugal, Austria, Finland and Sweden.

Industrial production figures published this week for Germany and the Netherlands concern June, and are not representative of any effect of the referendum outcome. In both countries industrial production increased compared to June 2015, and were better than the previous month this year. In June, German exports rose with 1.2% compared to the same month last year, while imports increased with 0.3% on an annual basis. In this respect the economic momentum is positive.

Last week, the Bank of England cut the interest rate from 0.50% to 0.25%, introduced a funding scheme and expanded its asset purchase scheme to support the economy. In a response, the value of the pound sterling strongly declined versus the US dollar and euro. Despite the referendum outcome, UK households were not discouraged to spend more in July. According to the British Retail Consortium, retail spending increased with 1.1% in July on a like-for-like basis and compared to the same month last year, after decline of 0.5% in June, which was influenced by bad weather and uncertainty surrounding the EU referendum.



Also, better than expected US jobs data added fuel to global financial markets, leading to a higher dollar value and renewed speculation about a potential interest rate increase by the Federal Reserve this year. Positive economic news from the US has in the past weeks proved to be a counterbalance for negative sentiment relating to the UK referendum outcome. In combination with lower market rates, it has supported share prices globally. The jobs report from the US outweighed the impact of Chinese trade data for July, that indicated further weakness in global demand. China is an important global production hub, and trade developments can be indicative for the demand for both consumer and capital goods. Chinese imports in July declined with 12.5% compared to the same month last year, while export from China fell 4.4% on an annual basis.

The European political context

Europe is on holidays and the institutions will not be back in business until early September. On the agenda then is a row of Informal meetings hosted by the Slovak Presidency.² Among those, an informal gathering of EU Finance Ministers (the so-called Ecofin Council), gives an indication of the current thinking in European capitals. As expressed by the Dutch Prime Minister Mark Rutte in a recent post on his Facebook page, there can be no ‘business as usual’ for the European Union post-Brexit.



While the two-year negotiating period³ with the UK poses a challenge in itself, the remaining EU block also needs to reexamine the EU’s role in an ever changing world. Complacency is not an option.

The Informal Ecofin meeting, which includes an agenda point on “Deepening the EMU – fiscal pillar”, gives an indication of what may be to come, as deeper integration of the euro area (including, but also beyond the fiscal sphere) is the answer given by some. In this context we can expect the debate between EU federalists and those advocating a more pragmatic and solutions-driven approach to intensify. The division in opinions – often along north-south lines – will likely be one of the major challenges for the European Union to tackle in the years to come. Put in the words of the Dutch prime Minister: “the Netherlands will benefit not from grand visions of the future, but from stability and economic growth. Let us continue to focus on the cross-border approach to terrorism and the jobs that improve our common internal market”.

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² In accordance with the regular calendar of the European Council at the start of each Presidency.

³ There is a two year negotiating period set by article 50 of the Lisbon Treaty. The period may however be extended subject to a unanimity vote in the Council (all 28 member states).



Innovation

The Brexit impact on Research and Innovation

“Innovation means change that speeds up and improves the way we conceive, develop, produce and access new products, industrial processes, and services. Changes that create more jobs, improve people’s lives and build greener and better societies.”

“Turning Europe into a true Innovation Union, European Commission - MEMO/10/473 06/10/2010”

Within our rapidly changing business landscape, innovation is a critical success factor for the continuity of business in the longer run. During the last decade, and recently even more, we have seen organisations which have not sufficiently invested in innovation go out of business.

The EU supports research, development and innovation through several policies and programmes with a view to support innovation, to increase investment in research and development, and to better convert research into improved goods, services, and/or processes for the market.

In the period 2014-2020, the EU’s innovation programmes are estimated to provide €120 billion to directly support research, development and other innovation activities. Horizon 2020 is the biggest EU Research and Innovation programme in history with nearly €74.8 billion of funding available over the seven year period (2014-2020). The EU has supported 3,539 UK based researchers to access 1,055 European research facilities in the previous 2007-2013 period. 125,000 EU students are currently studying at UK universities. This is roughly 5% of students studying in the UK, and EU students are estimated to generate £2.7 billion to the UK economy. 43,000 university staff from

other EU countries are active in the UK. Under the Erasmus scheme, over 200,000 UK students have studied at European universities since 1987.

The long term future of UK participation in European science programmes will be decided as part of the UK’s exit negotiations. The UK will remain an EU member during this time and as such will be entitled to participate in EU programmes and apply for EU research grants. However, international collaboration between the UK researchers and the European partners is coming under pressure. The other principal areas of concern are mobility of researchers and funding of the research beyond Horizon 2020.

UK and EU research collaboration is under pressure

EU support goes far beyond the money of Horizon 2020 and other programmes. The value of building networks and exchange knowledge and expertise is more important than successfully applying for EU funding. The big research problems related to societal challenges, from health care to security, are too complex to be solved by national groups of scientists. A UK exit from the EU will inevitably have an impact on the European research collaboration, but the scale is not clear.



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Collaboration framework

EU membership provides a common framework which enables researchers to pool their knowledge, infrastructure and resources to tackle global societal challenges, from cancer to climate change. Most of the EU funded research is intrinsically collaborative, bringing together expertise from different sectors and countries to share knowledge and expand networks. Collaborations are vital for R&D, and researchers and scientists want to work with the best people in their field irrespective of geographical location or institutional affiliation. Collaborative projects give organisations access to partners with skills or assets complementary to their own, and which may otherwise be very difficult to find. This collaboration will become far more difficult, when the UK leaves the EU, due to additional rules and regulations related to collaborations with non-EU member states. The UK and EU researchers would look to establish new international (personal) relationships, which takes time and effort. Many organisations in Europe are likely to continue to seek research relationships with UK academics, also because of the quality of the UK research and their access to EU funding. However the scale, frequency and intensity of collaboration between EU and UK researchers will likely decrease over time due to the lack of an institutional framework.

Structures such as Horizon 2020 enable, facilitate and promote collaboration and prevent duplication of activities. This is essential as researchers in different EU countries operate on different funding



cycles, which makes international collaborations difficult. By pooling resources and distributing them centrally, EU funding can overcome these collaboration challenges, while also lowering the cost of collaborations.

UK as a co-author

There is also a downside for the EU if the UK leaves the European Union, as the UK is a world leader in international collaborative research. According to the World Economic Forum, the UK's scientific research institutions are ranked second in the

world for quality (2015-2016). UK researchers also co-author more research papers with the rest of the EU than with any other continent. In terms of countries, the UK's top collaborative partner is the USA (by number of co-authored papers), but thirteen out of the UK's top 20 collaboration partners are EU member states⁴.

⁴ Elsevier and BIS (2013).



Uncertainty regarding participation in Horizon 2020 successor

The UK is one of the largest recipients of research funding in the EU and, although national contributions to the EU budget are not itemised, analyses suggest that the UK receives a greater amount of EU research funding than it contributes. The UK Office of National Statistics (ONS) reports an indicative figure for the UK's contribution to EU research and development of €5.4 billion over the period 2007-2013. During this time, the UK received €8.8 billion in direct EU funding for research, development and innovation activities.

The UK is currently the leading player in EU science programmes, winning more Horizon 2020 grants than any other country so far. In the current funding round of Horizon 2020, the UK secured 15.4% of funds, behind only Germany on 16.5%, and with the second largest number of participating organisations.

However, overall the UK is a net contributor to the EU budget. Over the period 2007-2013, the UK contributed €77.7 billion to the EU (10.5% of the total EU income from member states), and received €47.5 billion in EU funding (6% of the total EU expenditure to member states). A UK exit from the EU, would mean a decreased contribution to the EU budget, including to research funds. Any framework programs put in place after 2020 may therefore be impacted by a lower EU budget, and in the medium-term, companies and institutions would have to compete for a smaller amount of research and innovation funds.

EU membership facilitates international mobility of researchers

Brexit could have serious consequences for the UK and EU scientists working in the UK and in the EU, including a drain of talent from the UK itself. Free movement of people across the EU allows EU member states to attract the best and brightest students and researchers to their universities. In terms of recruiting staff in the longer term, any changes will depend on the kind of relationship the UK negotiates with the EU.

Student mobility not only contributes to individuals' personal and professional development, but also equips students with transferable skills that are valuable to employers and to society. European firms face growing competitive pressure in the context of globalised markets and need highly skilled and competent researchers in order to be competitive. Brexit would further make things more difficult for young researchers who are generally dependent on grants - usually from state, federal, or private sources. This would be a concern not only for the organisations who need skilled researchers, but also for the society at large.

The UK vote could also lead to a decline in the number of EU students going to study in the UK and UK students coming to study in the EU. Once the UK has left the EU, UK students in the EU and EU students in the UK, would be considered international students, facing significantly higher tuition fees. This would be particularly felt by EU students in the UK where universities have

generally higher fees than their counterparts in the rest of the EU.

The Takeaway

Brexit will have profound consequences on the EU and UK's research and innovation. As pointed out above, the innovation programmes of the EU create an important framework for collaboration projects, sharing of facilities and the mobility of researchers. It is not only the main EU funding mechanism for research, development and innovation, but also a catalyst for international collaboration, which also prevents duplication of activities. Currently the EU puts more funds into collaborative work than any national government. It is a one-stop-shop for international collaborations, removing a vast amount of bureaucracy that would be incurred otherwise.

With the future of the UK's relationship still unclear, the actual impact of Brexit on EU research remains uncertain. When the UK leaves the EU, it will be difficult for the EU to take full advantage of the UK's powerful research base. This would undermine the profile and impact of the European research on the global level. Simultaneously, it will impact UK's researching activities as quality of UK research also benefits from the competitive mechanism of the EU's institutional frameworks.