

Sense or sensibility?

There is no upside for UK science in the event of a vote to leave the EU in the upcoming referendum.

On 23 June, the United Kingdom will go to the polls over its membership in the European Union. The debate around the issue has dominated headlines and airwaves for months already, but it is now gathering pace in the run up to the vote. Views on the matter are, to put it mildly, polarized.

Broadly speaking, the arguments for continued membership have focused on historical, geopolitical and, above all, economic concerns. Those against membership have tended to focus more on national sovereignty and immigration from other EU countries (an issue being laboured to the point of monomania in some sections of the press). Moreover, many in favour of Brexit point towards the EU's accountability problem — namely the widely held perception that it is an overbearing bureaucracy. Liberated from the shackles of EU membership, runs the argument, the UK would be free to make its own way in the world, and trade with whomever it wishes on its own terms.

A succession of warnings from economists, prime ministers, presidents, the International Monetary Fund, the Bank of England and the UK government itself have pointed out the potential dangers of voting to leave. However, outlining the perils of Brexit has done little to change the minds of so-called Brexiteers — the default response to anything other than chest-beating optimism about the UK's prospects outside the EU is to dismiss it as 'scaremongering'.

Whether the wider public is quite so immune to 'project fear', as the Remain camp's strategy of relentless focus on the economic fallout of a possible Brexit has been dubbed, remains to be seen. Polls suggest a narrow advantage in favour of Remain, and the experience with the country's most recent referendum over Scotland's independence in 2014 indicates that, however vocal, those in favour of radical change are ultimately out-voted by a pragmatic, silent majority that are in no mood to stake their future on a leap into the unknown.

A powerful argument in favour of Remain is provided by the EU policy on research, science and innovation. The UK is currently completely integrated in a pan-European research network that benefits from roughly €120 billion that the EU is investing in research, development and innovation over the period 2015–2020^{1,2}. Its cosmopolitan community of scientists

consistently produces world-class research of the greatest variety, quality and depth. As a result, its track record at attracting EU funding for research is excellent: between 2007 and 2013 it was €8.8 billion, mostly awarded through competitive processes such as European Research Council grants and Framework Programmes, compared to €5.4 billion the country contributed to EU research activities over the same period.



Moreover, although it is hard to quantify precisely, the 'network effect' that results from being part of a European landscape in which scientists, knowledge and ideas can move freely across borders, and common, large-scale resources and facilities can be shared, tangibly benefits all aspects of British science³. A sizeable proportion of EU nationals that work in UK laboratories, both in academia and in industry, are talented individuals who are dedicating the best years of their professional lives for the benefit of the country that hosts them. In the event of a Brexit, many will prefer to further their career in more welcoming environments. Non-EU nationals, already subject to incredibly strict visa requirements, may also see more value in a Schengen visa, which permits them unrestricted access to most of the EU.

Critics point out that access to these pan-European research facilities and funding is not conditional on EU membership. Indeed, countries such as Switzerland, Norway and Israel have 'Associated Country' status and contribute to Framework Programme budgets in proportion to their GDP, which enables their scientists to apply for Horizon 2020 projects (although crucially, it does not give

them a say in shaping EU research funding policy). Since the UK is, overall, a net contributor to the EU budget, eurosceptics argue that leaving would free up money for research at the national level, while still allowing them to 'buy in' to EU science programmes as an Associated Country.

Though superficially appealing, this course of action rests on a number of flawed assumptions. Firstly, even the most optimistic scenarios for the UK's economic performance following a Brexit concede an initial loss in GDP, and it is hard to envisage that this will coincide with a large increase in the science budget. Secondly, as Swiss scientists know only too well, access to Framework Programme funding is conditional on accepting free movement of people in the EU. The Leave camp has so far been unable to lay out a coherent view on its preferred relationship with the EU in the event of a

Brexit, but the issue of free movement is one that senior campaigners are openly stating the UK should scrap. Thirdly, by opting for Associated Country status, the UK would forfeit its role as a leading player that can shape the EU's scientific agenda.

In short, it is overwhelmingly likely that leaving the EU will result in less funding and resources for UK science, not more.

Of course, nobody can predict the outcome and full implications of the referendum with absolute certainty. However, it is often said that to foretell the future one has to invent it. To be able to invent the future is precisely the dividend that basic research pays. By voting for Brexit, the UK will be cutting its investment into its own future — and therefore its capacity to control its own destiny. □

References

1. *UK Research and the European Union: The Role of the EU in Funding UK Research* (The Royal Society, 2015); <http://go.nature.com/gAUXbH>
2. Hook, D. & Szomszor, M. *Examining Implications of Brexit for the UK Research Base* (Digital Science, 2016); <http://go.nature.com/MZUkqm>
3. *Nature Phys.* **10**, 891 (2014).