

89 International Research Collaborations in the Post-Brexit Era: Implications for the scientific connectivity between the UK, EU and MENA Science

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Research Domains

International contexts and perspectives (ICP)

Abstract

The UK is a productive science system internationally in terms of both scientific publication numbers and citation recognition. However, UK's productive science system has not been an individual endeavour, as it used to be strongly embedded into the European scientific infrastructure. Brexit has the potential to shape UK science and its international research collaborations (IRC) with other systems globally. This study uses bibliometric data to examine whether Brexit had an effect on the IRC between (1) the UK and the EU science system and (2) the UK and the Middle East and North African science, (UK's closest neighbouring region beyond Europe) and (3) the world overall. The findings indicate that there is a slowdown in UK's IRC with the EU and the world overall after Brexit. On the contrary, UK's IRC with MENA countries gained momentum post-Brexit, with a 2% uptick in the rate of increase.

Full paper

Background

The United Kingdom is a leading science-producing country globally. However, UK's productive science system has not been an individual success in the increasingly interconnected global research system (Wagner, 2018): it used to be strongly embedded into the European scientific infrastructure. Being embedded to a union of science systems that are highly collaborative with each other is an important factor. Indeed, international research collaborations (IRC) has been shown to be a major driving force explaining the increasing number of research publications across Europe (Kwiek, 2021).

However, the recent macro development of Brexit referendum in 2016, which led to UK leaving the European Union (EU) has the potential to shape British science and its IRC with other countries globally. In such a situation, it is worth investigating the UK's scientific connectedness with other regions and countries. A quick geographical investigation would show that the UK's closest neighbouring region beyond Europe is the Middle Eastern and North African (MENA) region alongside the Mediterranean Sea. As part of the global trend of pluralisation of science systems (Marginson, 2021), countries in MENA region have rapidly developed more productive science systems (Oldac, 2022). Brexit's potentially negative effect on the British scientific connectivity with the EU may have implications for IRC between UK-based scientists and the scientists in the immediate neighbours beyond Europe, the MENA countries.

Investigating Brexit's effect on the scientific connectivity between the UK, EU, and MENA countries bears significant value for research, but no previous research has investigated it in detail using scientometric analyses. Existing research has mostly focused on mobility of peoples and uncertainty about research funding matters (E.g. Highman et al, 2023). An in-depth investigation of change in research connectivity, scientific influence and funding patterns as a result of Brexit is highly important for researchers, policymakers and practitioners.

Against this backdrop, this study aimed to examine whether Brexit had an effect on the IRC between (1) the UK and the EU science system and (2) the UK and the Middle East and North African science, (UK's closest neighbouring region beyond Europe) and (3) the world overall.

Summary of methods

The study used bibliometric data for its analyses. It included the analysis of (a) the total and discipline-based collaborative research publication patterns between the UK, the EU and the selected MENA countries specifically focusing on pre- and post-Brexit years, (b) the citation recognition and impact of the collaborative research output, and (c) potential patterns in research funding bodies over the years. The study used Web of Science (WoS) database as a data source.

Summary of findings

The quantitative trends of IRC

The analysis indicated that there is a slowdown in UK's IRC with the EU and the world countries after Brexit, compared to the pre-Brexit period. The biggest drop is with EU countries: the rate of increase slows down with 7,4% when compared to pre-Brexit trends. This is a significant macro-level change. The drop in the rate of increase in IRC with all countries globally is at 2%. On the contrary, UK's IRC with MENA countries gained momentum post-Brexit, with a 2% change in the rate of increase.

Citation recognition of UK's IRC

Striking differences in citation recognition differences before Brexit starts taking effect and after five years of the Brexit vote in 2016. This analysis uses Category Normalised Citation Impact (CNCI) values, which are normalised for each year based on research area and document type of all documents covered by WoS.

UK -based publications' (IRC excluded) citation recognition drops post-Brexit, when compared to 2016. UK's research is above the world average of 1 (1.24), but the drop is visible.

There is a significantly increased citation premium for UK publications co-authored with MENA countries after Brexit. By contrast, there is a slight drop in citation premium gained from IRC with EU27. IRC with MENA now yields more citation premium for UK-based researchers when compared to IRC with EU countries. UK's citation premium of IRC with all countries globally also is on a downward trend.

Research funding related findings

EU-funded research publications start fluctuating after Brexit. There is a visible decrease immediately after the Brexit vote year (2016), but the trend turns upward leading to the five years after Brexit, in 2021. Uncertainty continues, UK scholars cannot officially apply to EU Horizon, which started in 2021. MENA funding sees a sharp increase, especially from 2019 onwards. However, the biggest increase is in the number of Chinese research funding reported in the publications.

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