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ORIGINAL ARTICLE

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How do tuition fee increases affect international mobility? The case of European Union students in England

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Edinburgh, UK.Email: alice.lopes@ed.ac.uk**Abstract**

This paper presents a descriptive analysis of the impact of tuition fee increases in England on the full-degree mobility of undergraduate students from the European Union. First, we investigated whether the increase in tuition fees reduced the number of EU students in English higher education institutions. Our analysis shows that, on average, English universities suffered a sudden drop in EU enrolments in 2012/13 but recovered and then expanded their pre-2012 enrolment levels in subsequent academic years. We observe that those English universities regarded as less prestigious experienced the sharpest decline and took longer to recover their pre-2012 numbers. Second, we examined how changes in enrolment are associated with EU countries' macro-level characteristics, using the push-pull model framework. While there was a significant decrease in the number of students from Northern and Western European countries attending English universities after 2012, the tuition fee increase did not impact the number of students coming from Southern Europe. We found an association between EU countries' youth employment rates and higher education system characteristics with changes in enrolment in English universities. By examining the effect of changes in the tuition fee policy on international

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student mobility, our research provides new evidence on how tuition fee policies might change the behaviour of students.

KEYWORDS

England, European Union, higher education, student mobility, tuition fees

1 | INTRODUCTION

Full degree mobility of students between a home country of origin and a destination country of study is a prominent feature of contemporary higher education systems. The phenomenal expansion of higher education worldwide (Schofer & Meyer, 2005), has been accompanied by an increasing volume of internationally mobile students. In 2019, for instance, OECD countries reported more than 4 million international students enrolled at the tertiary level (OECD, 2022).

International student mobility has a long history in Europe. Since its inception, the European university has been an international one, with the mediaeval universities in Bologna, Paris and Prague divided into different 'student nations' according to scholars' origins (Rüegg, 2004). Nowadays, OECD reports that 7.5% of tertiary students enrolled in European countries are internationally mobile (OECD, 2022). Eurostat reported 1.3 million international students in the EU27 in 2018, with 44 per cent of those students from another EU27 country. While student mobility in most parts of the world is unprompted, international student mobility within the European Union is characterized by organized schemes that allow students to pursue part of the degree abroad (Brooks & Waters, 2013). Moreover, these organized schemes are part of a European political and economic project, aiming to create a European identity necessary for the integration project and to increase the region's competitiveness on the international stage (King & Ruiz-Gelices, 2003). For full degree mobility, funding rules within the EU give students from any member state rights to the same level of support for tuition as if they were a national of the destination country. This means mobile EU students have greater rights than some internally-mobile tertiary students in federal states (notably Germany, the USA and the UK¹).

The UK – and specifically England – represents an interesting case to understand the impact of tuition fees on international student enrolment. From a situation in the second half of the Twentieth century where domestic students did not pay tuition fees for undergraduate study, the UK has seen a sustained increase into the Twenty-first century in the student contribution to undergraduate tuition costs in three phases, alongside a divergence in student funding policies across its devolved administrations. In 2012, tuition fees in England trebled, to reach the highest level for domestic undergraduates in the world (OECD, 2022). The controversial expansion of fees in England has come under significant scrutiny and prompted considerable public and scholarly debate as to its impacts. Alongside the decision of the UK, following a referendum in May 2016, to leave the European Union ('Brexit'), many commentators have suggested that EU students would be dissuaded from enrolling in undergraduate studies in England by the higher fees. Somewhat surprisingly though, the actual changes in EU student enrolment following the most recent (2012) tuition fee changes have not been subject to systematic social scientific analysis.

In this article, we present a descriptive analysis of the impact of recent increases in tuition fees in England on the incoming full-degree mobility of undergraduate students from the European Union. Our analysis is motivated by two research questions. First, we wish to understand to what extent patterns of mobility before and after the tuition fee increases matched patterns that might be expected were narrow economic rationality the principal factor influencing student behaviour. In other words, did increased price lead to reduced demand? Second, we

investigate how any enrolment changes associated with increased fees vary across countries of origin. We use existing migration frameworks – mainly the ‘push-pull’ model – to try to identify ‘structural factors shaping migration’ (Van Hear et al., 2018, p. 928) that might explain differences in European Union undergraduate student mobility to England. However, we recognize that students’ decision to migrate to study is complex and cannot be described only by macro-level factors.

To provide further insight, we supplement our analysis with consideration of patterns across institutional status hierarchies. International students are a “primary source of discretionary revenues” for UK higher education intuitions (Marginson, 2018, p. 33). Therefore, we are interested in understanding whether high-status higher education institutions, which charge higher tuition fees and are more likely to attract domestic students from higher socioeconomic status, are more likely to attract EU undergraduate students. International student mobility patterns might thereby have an indirect effect on equality of opportunity in higher education in the UK.

Our results show that, while there was an initial decrease in the number of EU undergraduate students in English higher education institutions following the year in which the tuition fees trebled in the country, the number of EU students starting a degree in England quickly returned to their previous trend after the change in the policy. Moreover, the change in tuition fee policy did not have a clear and uniform impact on demand across EU countries. We found a decrease in the number of students coming from EU countries with less prestigious and underinvested higher education systems. Moreover, we found a positive association between youth unemployment and the percentage increase in enrolment in English higher education institutions after the change in tuition fee policy. By examining the effect of changes in tuition fees policy on international student mobility, our research provides new evidence on how high deregulated tuition fees might change the behaviour of the students, forcing them to the marketplace, which can only be accessed by those who have the necessary resources or by those who have access to financial support.

2 | STRUCTURAL FACTORS IMPACTING STUDENT MOBILITY

Push and pull models identify structural forces as the main drivers of migration, including macro-level factors such as economic, political, social, and demographic factors. These factors push students out of their country of origin and pull them to their country of destination (Mazzarol & Soutar, 2002). Push-pull models are commonly used in the literature on international student mobility to understand the forces that shape students’ decisions to study abroad. (Agarwal, 2008) identify different push-pull factors of international mobility, including educational, political, social, and economic factors, such as higher education opportunities, diversity of the higher educational system, cost of study, language, cultural ties, human resource development index, and employment opportunities.

Research on intra-European student mobility shows that variables such as expenditure on tertiary education (Restaino et al., 2020), expenditure per student, GDP per capita (Caruso & de Wit, 2015), and employment opportunities (Van Mol & Timmerman, 2014) are key factors in student mobility in the region. Caruso and de Wit (2015) also found that students pursue mobility in a richer country independently of the cost of living. However, other research demonstrates that the cost of living has a negative impact on mobility among EU students (Beine et al., 2014; Lörz et al., 2016; Rodríguez González et al., 2011). The prestige of the destination country’s higher education system has also been found to be a determinant pull factor. The country’s number of higher education institutions in the Shanghai ranking and the relative publication impact are associated with the size and direction of flows of EU students (Rodríguez González et al., 2011; Van Bouwel & Veugelers, 2013). The language of the destination country and students’ language competence are also push-pull factors (Di Pietro & Page, 2008; Findlay et al., 2006; Rodríguez González et al., 2011), which been influenced by the prevalence of English as the “Academic Language” (Altbach, 2007) and consequently favoured English-speaking countries. Examining the labour market returns of study mobility among 13 European countries through human capital and signalling theories, Jacob et al. (2019) found that the returns of student mobility were larger in countries with “lower poorer university

quality, lower international trade volume, higher graduate unemployment, and with relatively few students going abroad" (p. 500). Therefore, there is extensive research showing an association between countries' macro-level factors and the mobility patterns of EU students.

Push-pull models have been criticized for being an ambiguous list of factors that may explain mobility and for not allowing for individual agency (de Hass, 2011). While we recognize this criticism (de Hass, 2011; Van Hear et al., 2018), we believe that this conceptual framework is intuitive, effective, and suitable for our exploratory and descriptive analysis. Therefore, using this framework, we try to understand how EU countries' macro-level characteristics are associated with changes in mobility after the changes in tuition fee policy in England.

3 | THE IMPACT OF TUITION FEE CHANGES ON STUDENT ENROLMENTS

In recent decades, there has been a substantial increase in academic attention to higher education funding regimes and their impact on student behaviour. This has coincided with changes in the political economy of higher education finance brought about by austerity drives, the growing costs of expanding higher education systems and the emergence and consolidation of neoliberal economic discourses (Marginson, 2013). Under this discourse, higher education is perceived 'as a private good, which benefits individuals, and which individuals should therefore pay, rather than a public good, which benefits societies and economies' (Wilkins et al., 2013, p. 125). Inter alia, governments inspired by neoliberal policy frameworks have progressively shifted the cost of higher education from the state to the student (Miller, 2010) and have favoured targeted rather than universal subsidies to address inequities in access (Leslie & Brinkman, 1987; Shattock, 2012).

It is important to highlight that existing research on student finance shows substantial differences between (and often within) countries in the tuition fee levels that students must pay and, equally important, the subsidies or loans students may have access to while in higher education. These cross-country differences in tuition-subsidy regimes might be the reason why evidence about the effect of tuition fee changes and increases on shaping students' decision-making processes is mixed, particularly because some of the potential negative effects of tuition fee changes on participation cannot be disentangled from the ameliorating effects of support packages, including student loans. There is some evidence that this applies within England to the fee changes we discuss here (Murphy & Wyness, 2020).

Research on the potential impact of tuition fee changes on enrolment in England mushroomed since the introduction of variable fees of up to £3000 (€3500/\$4000) ⁱⁱ in 2006 (Foskett et al., 2006) and gained further momentum when it was announced, in 2010, that the cap on tuition fees would be raised to £9000 (€10,500/\$11,500) ⁱⁱⁱ starting in 2012 – the policy being investigated in this article. This controversial decision triggered student protests across the country and considerable public debate. One of the first pieces of research looking at the impact of this policy was produced by Wilkins et al. (2013), who surveyed 1549 high school students about to make the decision to apply to university when the £9000-fee policy was introduced. The researchers concluded that financial issues were 'the most important factor' for students' study choices, 'with a quarter of respondents considering postponing university studies and almost one-fifth considering cheaper higher education options' (p. 136). Wilkins et al. (2013) conclusion is backed up by later research. Geven (2015), using a quasi-experimental design comparing enrolment rates between students who did not have to pay fees in 2012 in the UK – e.g. Scottish students – and those who did, found that 'enrolment declined by 15% in treated groups as a result of the tuition fee increase' (p. 479). According to Geven (2015), this effect was particularly important among older students and, interestingly, for those from 'the middle and service class' (p. 495). Similarly, Sá (2014) found that the £9000-fee policy has a smaller effect on 'non-white students and for students from local authorities with low rates of participation in higher education' (p. 2), and she offers a potential explanation for why this might be the case: that fees are subsidies via government-backed income-contingent loans and that,

under the current arrangements, 'universities that charge higher fees need to have access agreements [...] to attract and support students from disadvantaged backgrounds' (ibid.). Murphy et al. (2019) also demonstrated that the changes in the tuition fees policy in England *increased* participation substantially. Moreover, the policies did not increase inequalities, on the contrary, the enrolment of students from disadvantaged socioeconomic backgrounds grew over the years.

While the effect of changes in tuition fee policies on domestic student enrolment is well-documented in the literature, little is known about the direct impact on international student enrolment.^{iv} Nevertheless, existing research on the topic reached a similar conclusion: changes in tuition fee policies might have an effect on the decision but they do not straightforwardly discourage international student mobility. Looking at recent tuition fees reforms changes in Denmark, New Zealand and Sweden, an OECD report (2017) shows that the policy change initially decreased the number of foreign students in Denmark and Sweden and had no effect on New Zealand, where international students had access to loans and grants. Beine et al. (2014) analysing data from 13 OECD countries, suggested that grants offered to international students and the high demand for a higher education degree in an OECD country might explain the lack of effect of tuition fees on international enrolment. Using a quasi-experimental design Zullo & Churkina (2023) examined the re-introduction of tuition fees in seven German states between 2006 and 2014 on international student enrolment. The authors demonstrated that international students did not 'reallocate from free-charging states to states that kept their higher education free of charge' (p. 18). However, Vortisch (2023) found a very small decrease (about 2%) in international enrolments in Hamburg State, Germany, relative to others, after the introduction of fees for international students. Regarding the UK context, Soo and Elliott (2010) examined factors that influenced undergraduate international students' decisions to study Business Studies and Engineering, using the Universities and Colleges Admissions Service (UCAS) data between 2002 and 2007. The authors concluded that international students' decisions were influenced by quality indicators, such as university rankings and league tables, and not by tuition fees. Lastly, Wakeling and Jefferies (2013), looking at the impact of changes in tuition fee policies in the UK nations and the Republic of Ireland on mobilities, found that students did not 'behave in an economically rational manner' (p. 508). Regional mobility did not significantly decrease when tuition fees were higher at home than in other UK nations and the Republic of Ireland.

4 | DATA AND METHODS

4.1 | Data

We use Higher Education Statistics Agency (HESA) data for first-year EU undergraduate students who attended a higher education institution between the academic years 2007 and 2020 in England. HESA collects and quality controls extensive data on all student enrolments in almost all UK institutions offering higher education qualifications. We also looked at the data from UCAS to check whether the number of the HESA dataset approximated to the number of EU students applying and accepting offers to higher education institutions in the UK. The tables and graphs presented in this paper follow the HESA standard rounding methodology (HESA, 2023a, 2023b) which prevents identification of individuals in the data. The HESA dataset also contains information on the higher education institution where EU students were enrolled and their field(s) of study.

4.2 | Institution

To examine whether the effect of the increase in tuition fees on EU enrolment was the same across English higher education institutions, we have used the following hierarchical categorisation, which has been used

extensively as a measure of the prestige of UK higher education institutions. We explicitly do not endorse this categorisation as a judgement of universities' worth or value but rather employ it as a measure which reflects prestige hierarchies as they manifest both in empirical patterns and public discourse (Boliver, 2015; Wakeling & Savage, 2015).

- Golden Triangle: comprises Oxford and Cambridge universities, Imperial College, King's College, University College London, and the London School of Economics
- Other Russell Group: higher education institutions that are part of this self-selecting membership group, except the Golden Triangle institutions.
- Pre-1992: higher education institutions established before the Further and Higher Education Act 1992 that are not part of the Russell Group.
- Post-1992: higher education institutions that were awarded the university title after the 1992 act, mainly converted from being a polytechnic or college of higher education.

4.2.1 | EU country characteristics

To examine EU countries' specific patterns in enrolment in English higher education institutions, we use the information on countries' macro-level characteristics as a proxy of the three push factors of international mobility proposed by Agarwal (2008).^v Following the literature on EU student mobility, we used GDP per capita purchasing power standard (PPS) to measure the cost of living and the Gini Index to measure income inequalities of the EU country of origin to understand the association between economic factors with EU mobility after the change in the tuition fee policy in England. The PPS is an artificial currency unit used in the EU that removes differences in purchasing powers by obtaining a weighted average of the relative price ratios of a standardized basket of goods and services that are comparable and representative of each country. We did not include GDP per capita in the analysis due to the substantial recession within the analysed period. To measure the political, social and cultural factors, we used the percentage of youth not in employment, education or training (NEET) to measure employment opportunities in the country of origin and average trust in institutions and public services as a proxy for public administrations' performance and the functioning of democracy. Last, to measure the educational factors, we used government expenditure in Higher Education (% of GDP per capita) and the Universitas ranking score as a proxy for higher education prestige. Because we are focusing on EU students moving to England only, we did not consider pull factors. Table 1 shows the EU country macro-level variables for the type of push factor.

TABLE 1 EU countries' push factors.

Push factors	Variables	Source	Year
Economic	GDP per capita PPS	Eurostat	Between 2010 and 2020
	Gini index	World Bank	Between 2007 and 2019
Political/social/cultural	Percentage of youth NEET	Eurostat	Between 2009 and 2020
	Trust in institutions and social services	Eurostat	2013 only
Educational	Government expenditure in HE (% of GDP per capita)	Eurostat	Between 2009 and 2020
	Prestige of the Higher Education System	Universitas	Between 2012 and 2020

4.3 | Methods

First, we analyse the effect of changes in the cost of higher education in England on EU student enrolment in English higher education institutions. Second, we look at EU countries' differences in social and economic characteristics using bivariate analysis. Following the research on tuition fee policies in England (Murphy et al., 2019) and the research on cross-country variation in labour market outcomes for mobility students in Europe (Jacob et al., 2019), we also relied on low-inference and low-assumption methods to overcome the challenges of using data from different sources and the small number of cases ($N=26$). Therefore, we use only descriptive statistics and measure association using the Pearson product-moment correlation coefficient (r). We also rely on graphical representation to examine our data. The data were analysed using R (R Core Team, 2022).

5 | RESULTS

5.1 | Patterns of mobility before and after the tuition fee increase in England

Figure 1 shows the enrolment of all incoming EU undergraduates at English institutions by the prestige of the higher education institution. The vertical red dashed line marks the year the £9000 fee policy was introduced in England. The total enrolment of EU students (orange line) has followed an upward trend throughout the period, interrupted in 2012. Between 2007 and 2011, numbers grew by about 20%, from 18,685 to 22,335. However, after the introduction of £9000 in tuition fees, incoming EU student numbers reduced by about 22%, from 22,335 to 17,365, although numbers started to grow again immediately after. Between the academic years 2012 and 2020, numbers increased by 75% from 17,365 to 30,560, surpassing 2011 levels in 2015. By 2020, the difference in the number of EU students from those observed at the beginning was about 64%. We only observe a plateau period between 2016 and 2017, the application cycle immediately after the Brexit referendum.^{vi} Therefore, the pattern of enrolment of EU students after the change in the tuition fee policy is

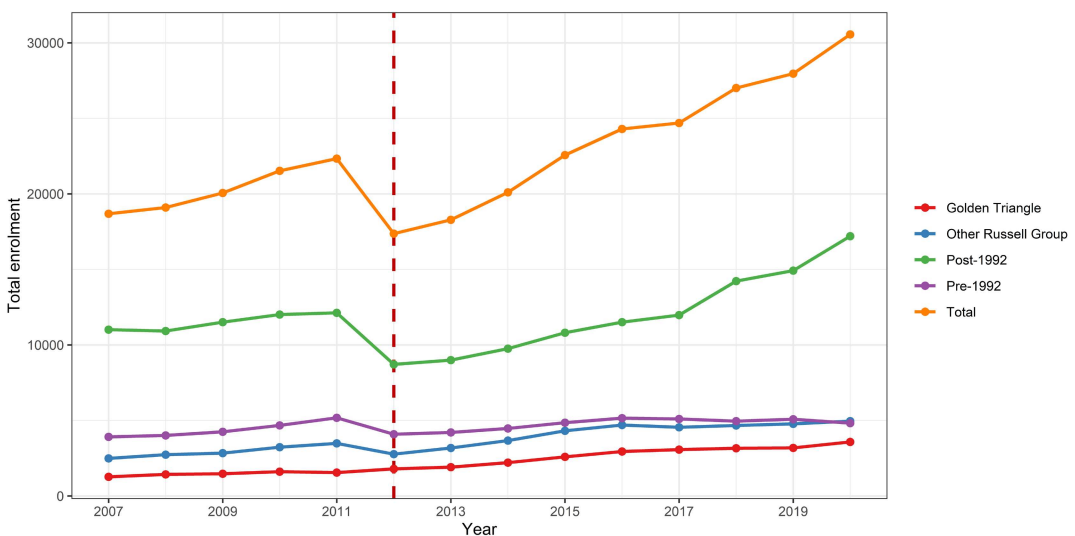


FIGURE 1 Total enrolment of first-degree EU students in English higher education institutions between 2007/08 and 2020/21 academic years by type of higher education institutions.

similar to the rates of domestic students in the same period (Murphy et al., 2019): an initial shock, followed by recovery to the *ex ante* trend.

However, the introduction of the £9000 tuition fee was not felt equally across the higher education sector. Between 2007 and 2011, the number of EU undergraduate students increased in all types of higher education institutions (respectively, 22% in Golden Triangle, 40 in other Russell Group, 32 in pre-1992 and 10 in post-1992). While the number of EU students enrolling in Golden Triangle institutions continued an upward trend in 2012, the number of EU students in other institutions reduced significantly in 2012. Other Russell Group institutions recovered their pre-2012 numbers in 2014, but post-1992 institutions recovered only in 2017. By the academic year of 2020, the number of EU students in post-1992 institutions almost tripled compared to the academic year of 2007.

5.2 | Patterns of mobility before and after the tuition fee increase EU country of origin

As can be seen in Figure 2, the increase in tuition fees in English higher education institutions was not uniform across EU countries. Considering the push and pull factors that might influence students' decision to pursue a degree abroad, this section aims to examine to what extent we can explain differences in the enrolment pattern in English higher education institutions using EU countries' macro-level measurements. Therefore, we examined whether the differences in enrolment might be associated with countries' economic, social and educational measurements.

To better understand how patterns of mobility varied between EU countries, we analysed the mean percentage change in enrollment after the tuition fee increase. We excluded Croatia from the analysis due to its recent entry into the EU. Figure 3 reveals that students from Portugal had the largest increase in enrollment, with an almost 300% rise compared to the average before 2012. Similarly, students from Romania, Italy, Spain, Czechia, and Hungary experienced an increase of over 100%, though the total number of students from the latter two countries was still relatively low. On the other hand, students from Malta, Latvia, Sweden, Ireland, Cyprus, and Germany had an average decrease of more than 20% in enrollment. Interestingly, despite the overall decrease in enrollment from Cyprus, a significant number of students still moved to England after 2012, possibly due to

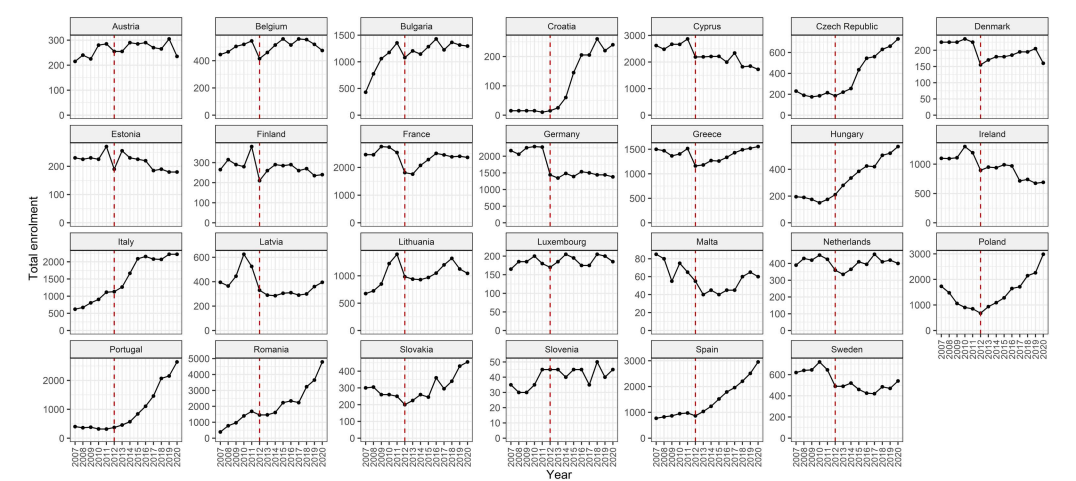


FIGURE 2 Total enrolment of first-degree EU students in English higher education institutions between 2007/08 and 2020/21 academic years by EU countries.

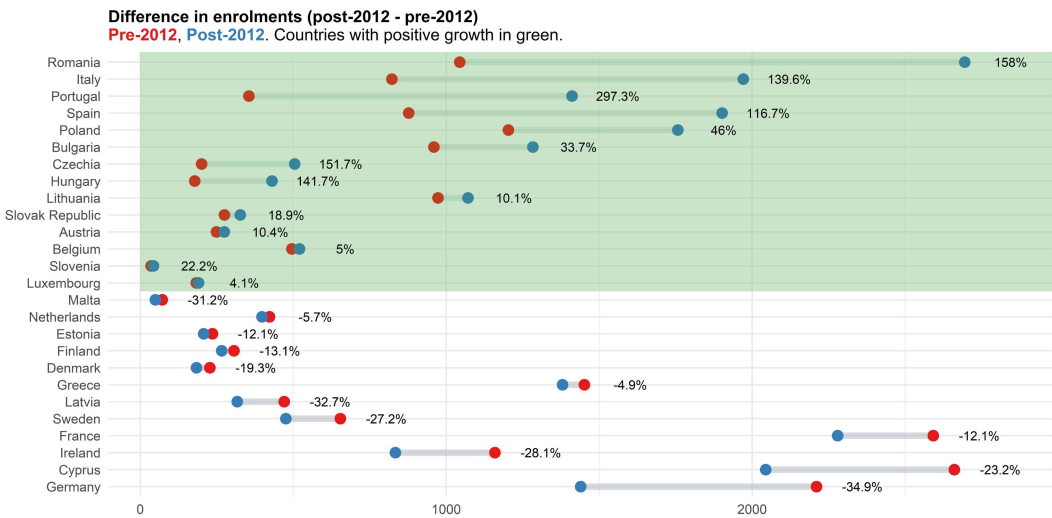


FIGURE 3 Percentage difference in the mean enrollment before and after the change in the tuition fee policy in England.

colonial ties. Following the literature on push and pull factors, we examined how the difference in the impact of the increase in tuition fees could be associated with EU country macro-level characteristics – economic, social, and educational factors – using bivariate analysis. In the following analysis, we excluded Portugal since the increase in the number of students differed significantly from the other EU countries. However, it represents an interesting case that requires further investigation.

Figure 4 illustrates the mean percentage change in enrolment after the introduction of the £9000 fees against the EU countries' economic factors. The correlation between the percentage change in enrolment after the change in tuition fee policy and GDP per capita PPS was negative ($r = -.40$). In other words, the average enrolment of students from countries with higher living costs decreased after 2012, corroborating with the research on EU student mobility that demonstrates that the cost of living has a negative impact on student mobility in Europe (Rodríguez González et al., 2011). However, the correlation coefficient was not statistically significant at the 5% significance level (p -value = .05). The correlation coefficient for the association between the percentage change after the introduction of the £9000 fees and the Gini Index was small and not statistically significant ($r = .13$, p -value = .51), indicating that income inequalities in the EU country of origin are not associated with changes in mobility. Our findings suggest that economic push factors are not associated with the change in mobility after the increase in tuition fees in England.

Figure 5 illustrates the association between EU enrolment after the tuition fee increase in England and social, political and cultural factors. There was a positive and statistically significant association between the mean percentage change in enrolment after the introduction of the £9000 tuition fee and the percentage of youth (aged 15–29) who were neither in employment nor in education and training ($r = .48$, $p < .05$). In other words, the average enrolment of students from countries with a higher percentage of youth population not in employment, education, or training increased after 2012. This finding is consistent with research showing that mobility among EU students is associated with employment opportunities in their home country (Van Mol & Timmerman, 2014). Lastly, the association between the mean percentage change in enrolment after 2012 and trust in institutions and public services was negative and not statistically significant. Therefore, trust in the government and public services is not associated with the changes in mobility after the increase in tuition fees in England.

As depicted in Figure 6, there was a negative and statistically significant association between percentage change in enrolment after the tuition fee increase in England and EU country educational pull factors. The average

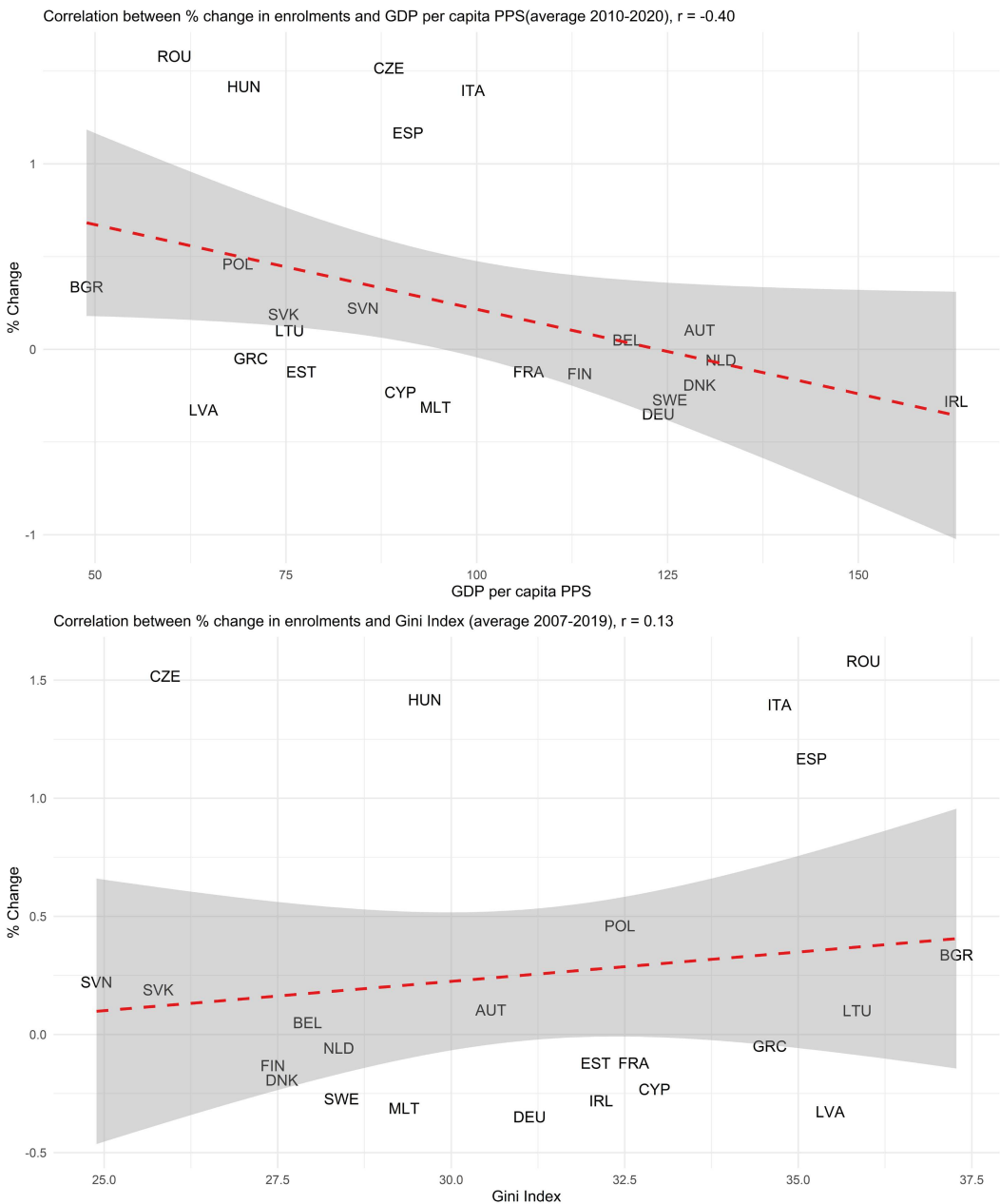


FIGURE 4 Correlation between mean percentage change in enrolment after the change in tuition fee policy in England and EU countries economic push factors. Luxembourg was excluded from the correlation between % change in enrolment and GDP per capita PPS due to the high values for the independent variable. The average GDP per capita PPS between 2010 and 2020 in the country was equal to 271.6.

enrollment of students from countries with higher investments in higher education decreased after the change in the tuition fee policy in England ($r = -.53, p < .01$). Furthermore, the number of students from countries with high-prestige higher education systems, measured using the Universitas ranking score, decreased after 2012 ($r = -.51, p < .05$). Research on EU students' mobility indicates that expenditure and prestige of higher education in the country of origin are crucial push factors (Restaino et al., 2020; Rodríguez González et al., 2011; Van Bouwel

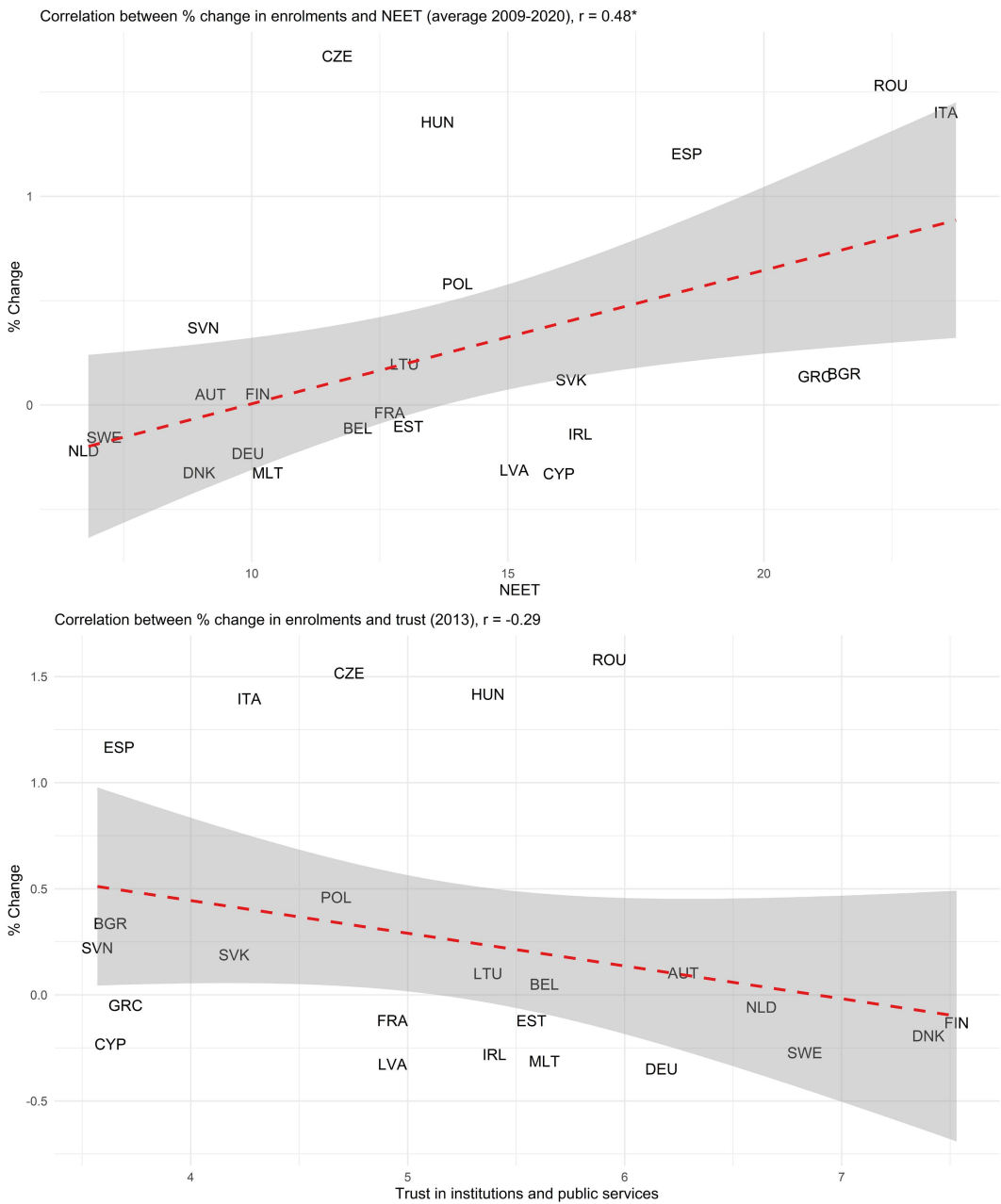


FIGURE 5 Correlation between mean percentage change in enrolment after the change in tuition fee policy in England and EU countries social, political and cultural push factors.

& Veugelers, 2013). This finding is significant when considering that students from countries with lower-quality higher education systems have a higher return, both in terms of income and social class, to mobility (Jacob et al., 2019). Therefore, our findings suggest that the quality and investment in the higher education system in the country of origin might be an important push factor that resulted in the increase in enrolment even after the introduction of £9000 tuition fees for students from countries with lower prestige and underinvested higher education systems.

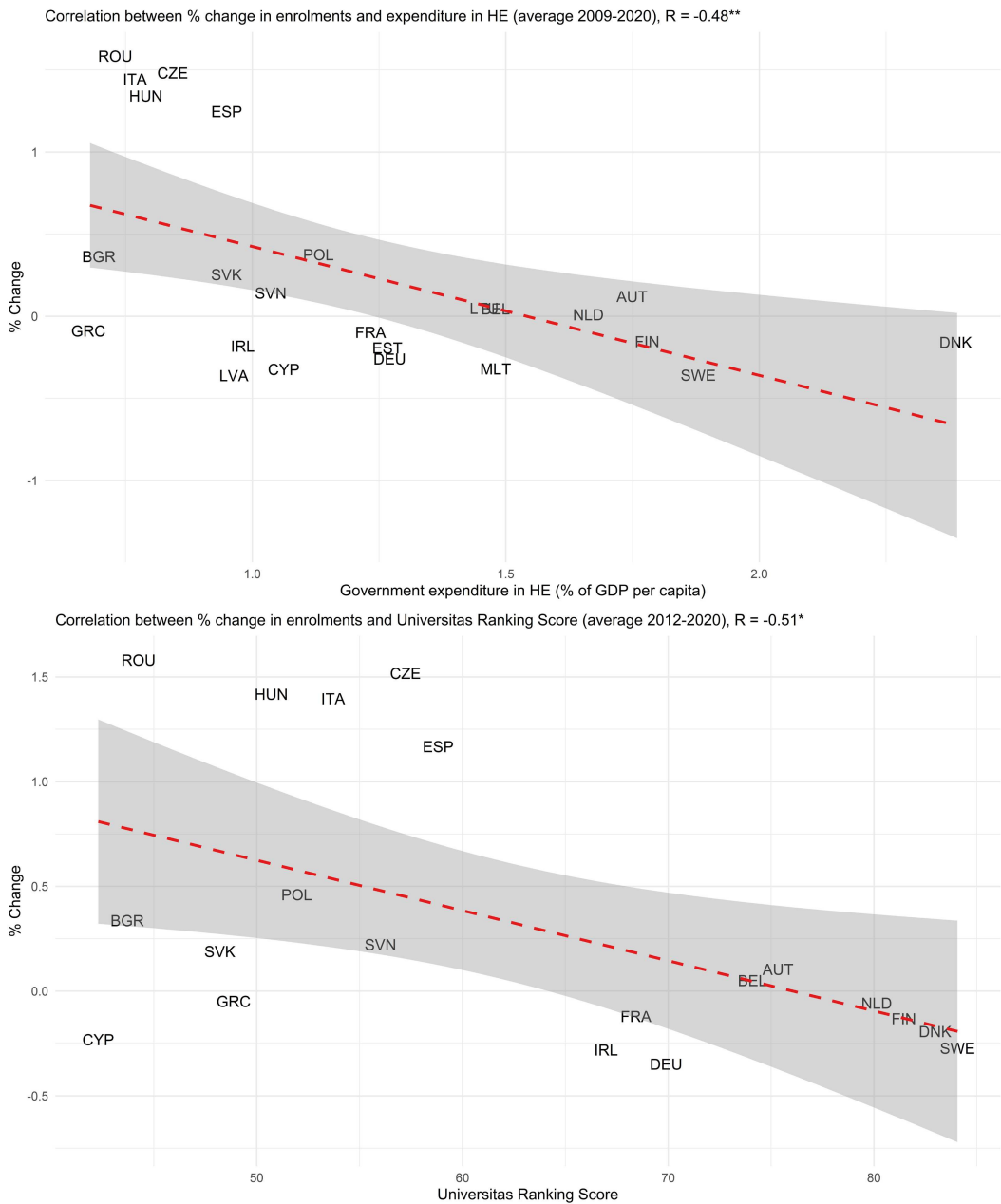


FIGURE 6 Correlation between mean percentage change in enrolment after the change in tuition fee policy in England and EU countries educational push factors. Lithuania, Luxembourg, Estonia, Malta and Latvia were excluded from the correlation between % change in enrolment and Universitas Ranking Score since they do not appear in the ranking.

6 | DISCUSSION

Considering first the overall change in incoming EU student enrolments following the 2012 changes to student funding in England, a counter-intuitive – but familiar – pattern is observed. An initial shock registers in a significant, but not catastrophic decrease in enrolments, followed by a steady return to the prior enrolment trend.

Although this pattern is contrary to popular expectation – i.e. that increased tuition fees lead straightforwardly to decreased enrolment – it nevertheless very much mirrors the pattern seen in domestic enrolments in England of an initial dip and then subsequent bounce-back each time fees have increased.

Reviewing the observed patterns in more detail, we argue that some form of push-pull explanation remains useful. International student mobility is complex, not least when analysed across the diverse member states of the EU. However, certain key drivers emerge from the analysis. The findings suggest specific pull factors draw students in to English HE from the EU. A key attractor will be the relative standing of English universities as comparatively well-funded and with very strong reputations in global terms. While we do not have measures to confirm, it is likely that there are also strong cultural attractors, including, but not limited to English language, since the UK is the most popular destination for international students (from the EU and elsewhere) within the EU and second most popular in the world. The most prestigious English universities appear almost immune to any external influences on enrolment, with no change evident as a result of the change to tuition fees, nor other exogenous shocks such as the Brexit vote or the Covid-19 pandemic. These results resonate with wider academic and policy debates about the stratification of English higher education. Inequalities between institutions in England in terms of their wealth, perceived prestige and sensitivity to market dynamics (Raffe & Croxford, 2015) appear to be a key factor in explaining the impact of tuition fee changes in their enrolment numbers.

At a country level, the natural experiment of increased undergraduate tuition fees suggests changes to costs can nullify pull factors in the absence of strong push factors, but that elsewhere certain push factors remain influential. Changes to English fees apparently dissuaded students from systems with high quality and low cost, but not those from lower quality and low cost, especially where the national opportunity structure (evidenced through unemployment and lower social trust) was not positive. This suggests that mobility to England's institutions when prices increase does not decrease for those students that are 'vertically mobile', that is, those who 'move to a country and to an institution of higher education which is viewed to be superior in academic quality than the country and the institution where this mobile person comes from' (Teichler, 2017, p. 191). This, in turn, has implications in terms of reproducing and consolidating a global hierarchy of higher education systems, with high-fee Anglophone systems sitting at the top of the pecking order.

Relative national wealth did not appear to have an independent influence on the change in enrolment, although of course the costs of studying in England were already high for those from lower-income countries. Unfortunately, we lack data on individual students, so we do not know the extent to which they are from the most socio-economically advantaged groups, and hence insulated to some extent from price changes. We can suspect that many are from advantaged groups, given what we know about the distribution of English language skills among different groups (for instance, see the case of Korea in Jeon, 2012, China in Li, 2019, or Greece in Tsiplakides, 2018). Still, since the cost of tuition fees can be borrowed from the UK's national student lender, the upfront costs have not materially altered.

Again, contrary to the public discourse, we do not discern any noteworthy Brexit effect on mobility in our data. Both at the overall level and in considering individual countries, very little seems to have shifted in the trend lines after 2016 and there is certainly little evidence of a decline triggered by the vote. It is worth noting that, while our data covers the period after which the Brexit vote took place, the UK did not actually leave the EU until 31 January 2020. Only after that date did EU students lose entitlement to tuition fee funding on the same basis as domestic students. We can expect that the effects of actual Brexit – as opposed to the Brexit vote – will be different again since these will very substantially increase the direct upfront costs of study for EU students in the UK. With typical international student fees now upwards of £20,000 (€23,500/\$25,000), we would predict that national GDP/purchasing power emerges as a salient (non)push factor and that overall enrolments fall sharply. While we would expect a much less noticeable impact for the most prestigious 'Golden Triangle' institutions, for the English (and UK) sector as a whole this will have regrettable outcomes in terms of cultural and linguistic diversity and vibrancy.

7 | CONCLUSION

This article aimed to understand the association between tuition fee policy and international mobility, taking the increase in undergraduate tuition fees in English higher education institutions on EU student mobility as its case. In summary, we wish to highlight three findings in particular. First, we found an immediate decrease in the number of EU students entering English higher education institutions in the year after the £9000 tuition fees were implemented, which was quickly overturned. It is important to highlight that the impact of the increase in tuition fees was not the same across types of higher education institutions, demonstrating that institutional stratification also plays a role when considering student mobility in the EU. The change in the tuition fee policies did not affect the enrolment of EU students in the highest-status Golden Triangle universities. Therefore, supporting some previous research on the effect of tuition fees among domestic and international students, we found that the increased price did not lead to reduced demand and, at the aggregate level, did not deter EU undergraduate students from enrolling in higher education institutions in England.

The second part of the paper examined whether the effect of the tuition fee increase was different across EU countries. Considering the push factor for international student mobility, we looked at EU countries' economic, social and educational factors to try to explain why students from EU countries respond differently to the change in the tuition fee policy in England. While macroeconomic conditions did not appear to be associated with the change in the number of students in English higher education institutions, we found some indication that push factors such as the percentage of the population neither in employment nor in education and training and the investment and prestige of the higher education system. More broadly, our results show considerable heterogeneity on a country-by-country basis. ^{vii} While there are some overarching trends, a more complex understanding of the national context seems necessary to understand individual country patterns. This is contrary to policy discourses which typically anticipate fairly uniform consequences for changes to tuition fees.

Additionally, we would like to briefly discuss the impact of another exogenous shock to mobility flows: the health crisis caused by the COVID-19 pandemic. Besides the impact of COVID-19, and the heterogeneous institutional responses to the latter, on student experience (c.f. Moninoor Roshid & Seraj, 2023), recent evidence suggests that it may have not had an impact on EU student mobility to the UK, or that it may have been compensated by the announcement that EU students would have to pay full international fees from the academic year 2021/22. According to the latest HESA data (HESA, 2023a, 2023b), student enrolments in 2020/21, the academic year prior to the fee increase and the year with the hardest public health measures in place, EU enrolments in the UK actually increased from 64,150 to 66,680, followed by a sharp drop of over 30,000 the following academic year. It is reasonable to assume that this decline has been caused by the change in the fee status of EU students.

Finally, following the student mobility distinction highlighted by Teichler (2015), we argue that the increase in tuition fees in England seems to have promoted 'vertical' and depressed 'horizontal' mobility. That is, we observed an increase in the number of undergraduate students from countries with lower academic status studying in English higher education institutions and a decrease in the number of students from countries with a similar status to England. Unfortunately, we still do not have data to examine the impact of Brexit proper on EU undergraduate student mobility to England. From 2022, EU students will not have access to the same level of support for tuition as UK domestic students and will have to pay international student fees, which can vary between £10,000 and £37,000 per academic year and will not have access to UK student loan finance. Nevertheless, based on our findings, we predict that the effect of Brexit will not be the same across EU countries and we would anticipate that enrolment by EU students at the highest-status English universities will see the least impact from Brexit. It would be wise for policy to acknowledge that certain institutions are better equipped to handle market shocks than others. As a result, institutions established after 1992 may experience a greater impact from the decline of EU students, whether it be in the economic or cultural realm. We lack the microdata on mobile students to ascertain whether it is largely members of socio-economically advantaged classes who are mobile to the UK for undergraduate study – future research could usefully explore this question.

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CONFLICT OF INTEREST STATEMENT

No funding was received for conducting this study and the authors have no competing interests to declare relevant to the article's content.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from HESA. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from the author(s) with the permission of HESA.

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ENDNOTES

- ⁱ The UK is not, strictly-speaking a federal state; however there are different student funding regimes and entitlements across its four constituent nations.
- ⁱⁱ Currency conversion as at 26 May 2022 using Google's rates. Conversions are rounded to the nearest 500.
- ⁱⁱⁱ Fees rose to adjust for inflation to £9250, but have been frozen from 2017 onwards. For simplicity's sake, we refer to '£9000 fees' throughout.
- ^{iv} Some studies highlighted, that while changes in the tuition fees policies may not have an effect on the number of international students at the country level, it does have a negative impact at the higher education institution level, after taking into account the endogeneity of tuition fees (Beine et al., 2017, 2020).
- ^v Table A1 in Appendix A shows EU countries' year of membership to the EU, population in 2011 and a brief overview of their education and economic landscape.
- ^{vi} The Brexit referendum was held on 23 June 2016, approximately 6 months after the application deadline for most UK university courses. Therefore, if the Brexit referendum result had an impact on EU student recruitment, this would have been felt in the academic year 2017/18. From the academic year 2021/22, EU students are charged an overseas tuition fee.
- ^{vii} We lack the space to present an analysis of field of study differences, but it was clear that these varied considerably by country. For instance, Portuguese enrolments were disproportionately high in creative arts and design subjects, whereas Irish enrolments were high in subjects allied to medicine. However, the majority of EU students pursue an undergraduate degree in business and management.

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APPENDIX A

TABLE A1 EU countries' characteristics.

EU countries	Year of EU membership (1)	Population in millions (2011) (2)	GINI mean (2007–2019) (2)	GDP growth (% annual) mean (2007–2021) (2)	Gross enrollment ratio in tertiary education (2011) (2)	Percentage of fee payers for full-time students (2016/17) (3)	Most common fees (including tuition and administrative fees) (2017/18) (3)	Percentage of full-time students receiving universal or need-based grants (2016/17) (3)
Austria	1995	8.39	30.57	0.99	78.5	1%–24%	Between EUR 101–1000	11%–24%
Belgium	1958	11.04	27.93	1.28	69.84	75%–99%	Between EUR 101–1000	11%–24%
Bulgaria	2007	7.35	37.28	2.26	59.03	100%	Between EUR 101–1000	0.1%–10%
Cyprus	2004	1.12	32.93	1.79	46.54	No fees or less than EUR 100	No fees	0.1%–10%
Czech Republic	2004	10.50	25.88	1.77	65.57	1%–24%	Between EUR 1–100	0.1%–10%
Denmark	1973	5.57	27.56	1.08	76.76	No fees or less than EUR 100	No fees	75%–100%
Estonia	2004	1.33	32.08	2.07	70.37	1%–24%	No data available	11%–24%
Finland	1995	5.39	27.43	0.72	94.92	No fees or less than EUR 100	No fees	50%–74%
France	1958	65.34	32.63	0.87	55.63	25%–49%	Between EUR 101–1000	25%–49%
Germany	1958	80.27	31.13	1.12		No fees or less than EUR 100	No fees	25%–49%
Greece	1981	11.10	34.59	–1.51	109.16	No fees or less than EUR 100	No fees	No data available
Hungary	2004	9.97	29.62	1.69	62.59	25%–49%	Between 1001–3000	11%–24%
Ireland	1973	4.58	32.16	5.14	67.8	25%–49%	Between 1001–3000	25%–49%
Italy	1958	59.38	34.73	–0.29	65.56	75%–99%	Between 1001–3000	0.1%–10%
Latvia	2004	2.06	35.46	1.30	67.95	25%–49%	Between 1001–3000	No data available
Lithuania	2004	3.03	35.85	2.73	84.06	25%–49%	No data available	0.1%–10%
Luxembourg	1958	0.52	32.59	2.21		100%	Between EUR 101–1000	75%–100%

TABLE A1 (Continued)

EU countries	Year of EU membership (1)	Population in millions (2011) (2)	GINI mean (2007–2019) (2)	GDP growth (% annual) mean (2007–2021) (2)	Gross enrollment ratio in tertiary education (2011) (2)	Percentage of fee payers for full-time students (2016/17) (3)	Most common fees (including tuition and administrative fees) (2017/18) (3)	Percentage of full-time students receiving universal or need-based grants (2016/17) (3)
Malta	2004	0.42	29.32	4.58	40	No fees or less than EUR 100	No fees	No data available
Netherlands	1958	16.69	28.38	1.19	75.88	100%	Between 1001–3000	11%–24%
Poland	2004	38.06	32.43	3.73	74.66	No fees or less than EUR 100	Between 1–100	11%–24%
Portugal	1986	10.56	35.31	0.37	68.43	100%	Between 1001–3000	11%–24%
Romania	2007	20.15	35.94	2.90	58.19	25%–49%	Between EUR 101–1000	0.1%–10%
Slovakia	2004	5.40	25.78	2.75	56.25	1%–24%	Between 1–100	11%–24%
Slovenia	2004	2.05	24.89	1.75	86.02	No fees or less than EUR 100	Between 1–100	25%–49%
Spain	1986	46.74	35.19	0.36	80.04	25%–49%	Between 1001–3000	25%–49%
Sweden	1995	9.45	28.42	1.80	72.83	No fees or less than EUR 100	No fees	75%–100%

Note: Sources: (1) European Union, Countries Profile. Retrieved from: https://european-union.europa.eu/principles-countries-history/country-profiles_en. (2) World Bank Open Data. Retrieved from: <https://data.worldbank.org/>. (3) Eurydice (European Education and Culture Executive Agency), 2017. National student fee and support systems in European higher education 2017/18. Retrieved from: <https://op.europa.eu/en/publication-detail/-/publication/c052429f-b92e-11e7-a7f8-01aa75ed71a1/language-en/format-PDF/source-search>.