

The Best and the Brightest

EU students at UK universities and as highly skilled graduate workers in the UK

Academic performance and labour market outcomes of EU domiciled students in higher education

What is the impact of EU migration at the higher end of the skill spectrum, among graduates and postgraduates, especially in sectors of particular instrumental importance, such as science, technology, engineering and maths?

Dr Renee Luthra and Greta Morando

Institute for Social and Economic Research, published 20 May 2016

The economic impact of EU migration is a central point of contention in the debate on the upcoming EU referendum. Yet while the majority of this debate focuses on how many EU migrants claim state benefits or whether migration drives down the wages of low skilled British workers, the positive contribution of EU migrants at the higher end of the skill spectrum receives much less attention.

In 2014, the UK Commission for Employment and Skills concluded that the UK's "key strength" in terms of international competitiveness "lies in the size of its pool of high skilled labour."¹ This key strength is strongly linked to immigration. In 2014, 23% of UK graduates were born abroad – and a third of these were born in the EU². Particularly in finance and tech, UK employers rely on foreign graduates,³ to fill shortages of graduates with skills in science, technology, engineering and maths (STEM)⁴. While many of these graduates will have come to the UK after finishing their degrees, a sizeable proportion are likely to have arrived as students: 16% of the working age immigrant population in the UK originally arrived for study, and more than half of these have at least one UK degree⁵. When we look at the future of the graduate workforce by examining those still in training, we see that foreign born representation in this population is likely to remain high: the most recent statistics from the Higher Education Statistics Agency (HESA) show that foreign students continue to comprise one in five of those studying in British higher education. And of the nearly half million foreign students studying in the UK in 2014/2015, 124,575 are from the EU.

Understanding what Brexit would mean for EU domiciled⁶ students in higher education, and the knock on effects on the graduate labour force, is a complicated question. We do not know how leaving the EU would affect fees and visa requirements for EU students wanting to study in the UK, nor how hard it would be,

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/470017/skill_levels_2014.pdf

² Labour Force Survey 2014

³ <http://www.independent.co.uk/news/business/news/foreign-graduates-migrant-workers-eu-referendum-finance-tech-skills-shortage-a6889151.html>

⁴ <https://www.gov.uk/government/news/new-report-shows-stem-workers-twice-as-likely-to-miss-job-opportunities-due-to-lack-of-skills>

⁵ <http://repec.ioe.ac.uk/REPEc/pdf/qsswp1414.pdf>

⁶ Defined as those whose normal residence prior to commencing their programme of study was in countries which are current European Union members.

post-Brexit, for EU domiciled students that had been allowed to study in the UK to then stay on after graduation to work here. However, we can safely assume that the process of negotiating exit from the EU would create a period of significant uncertainty, complicate the procedures of recruitment for education and work, and could well make the UK a less desirable place to study during the period of transition.⁷ The UK government makes significant investments in higher education with the goal of adequately supplying a strong demand for graduate workers. Understanding the position of EU domiciled students, and the contribution they place to providing a skilled UK workforce, is therefore a critical part of the Brexit immigration story.

The goal of this research brief is to demonstrate the importance of EU domiciled students for the higher education sector and the graduate labour market, and to provide insights into the potential repercussions of a decline in EU student recruitment and graduate retention due to Brexit related complications. We use data from the HESA Destination of Leavers of Higher Education (DLHE) survey, and find that EU domiciled students comprise more than one in twelve of the students in postgraduate taught programs, nearly one in eight in postgraduate research, and around 1 in 20 of all undergraduates. Among those pursuing postgraduate research degrees (mostly PhDs), two thirds of EU students are concentrated in highly desired STEM fields: in 2011/2012 alone, 5,446 EU undergraduates and 6,941 postgraduates graduated with a STEM degree.

Besides constituting a sizeable proportion of graduates in higher education, EU domiciled students go on to contribute to the UK economy: more than half remain in the UK six months following graduation. And those who stay perform well: EU domiciled students are more likely than UK students to continue on with further study and to obtain a job commensurate with their training. EU undergraduates, in particular, are very high performers, and are more likely to obtain a first, less likely to be unemployed, and earn higher salaries, on average, than their UK domiciled peers even when we consider those that graduated from the same universities, with the same marks, in the same year, and with the same degree subjects.

In the pages that follow, we will provide more detail on our evidence base and the analysis used to estimate these results. In our conclusion, we also discuss what these findings mean in the wider context of the Brexit debate.

The Evidence

To examine the academic performance and early labour market outcomes of EU domiciled students, we use nearly a decade of data from the Higher Education Statistics Agency Destination of Leavers of Higher Education (DLHE) survey. The DLHE survey collects data on all graduates of UK higher education six months after graduation, and is the largest source of information on UK and EU domiciled graduates and their early labour market outcomes.

In this study we restrict our analysis to respondents who graduated between 2003/4-2011/12 and were full-time students. We further focus on students in “typical” age ranges for the degree: those aged less than 24 at graduation for those studying for an undergraduate degree, between 21-29 in taught postgraduate courses, and between 25-35 for those in postgraduate research. In our analysis of degree qualification, job quality and wages, we exclude survey respondents who are working outside of the UK. The resulting sample contains 2 million higher education leavers, including over 20,000 leavers from the

⁷ <http://www.bbc.co.uk/news/education-36286057>

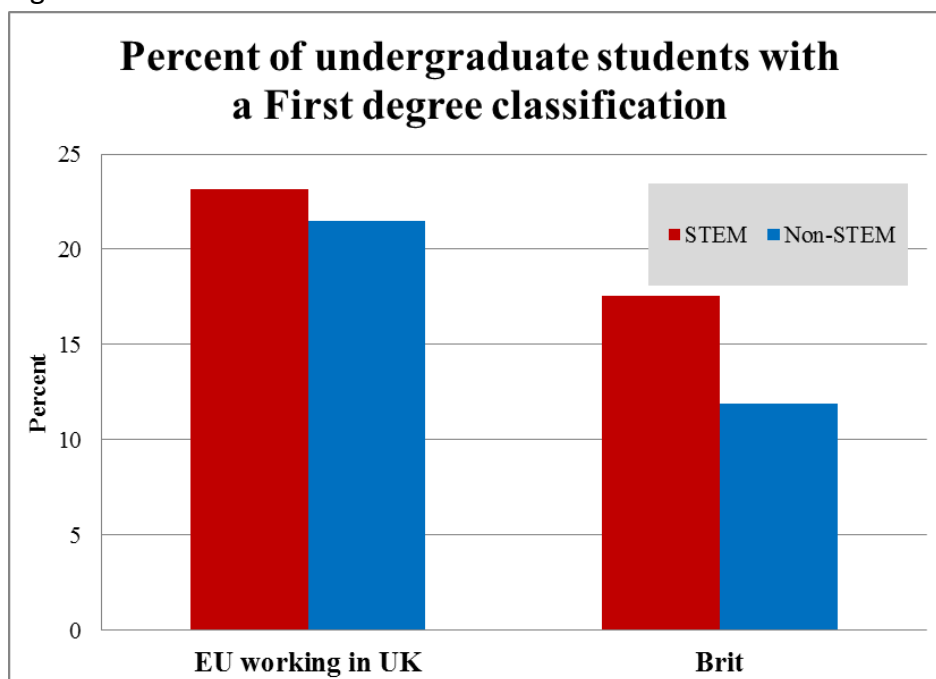
“new EU” countries that joined in 2004 and 2007 (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania Slovakia and Slovenia) and 96,000 leavers from “old EU” countries of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and Sweden.

This data is unique in providing detailed information on the labour market outcomes of over 75% of recent graduates in the UK. However, as is common with self-reported survey information, there is substantial non-response or non-disclosure for salaries. Moreover, following HESA guidelines, we restrict our analysis of earnings to those in full-time paid employment.

EU domicile undergraduates

The UK attract very high performing EU undergraduates– truly the brightest and the best. As can be seen in Figure 1, EU domiciled students are much more likely than British students to earn a first degree classification. Those who remain in the UK are 6 percentage points more likely to have a first class degree than British students within STEM fields, and 9 percentage points more likely to have a first within non-STEM fields.

Figure 1.



Their high performance translates into better outcomes and higher earnings. Six months after graduation, only 17% of British undergraduates are in further study, but 45% of EU domiciled undergraduates are pursuing a further degree. EU domiciled graduates are also less likely to be unemployed, and earn over £1,000 more per annum (in 2012 pounds) than their UK domiciled peers. Moreover, these differences are robust when we apply statistical controls to best compare “like to like.” In regression analyses controlling for age group, gender, disability, degree classification (for undergraduates), subject of study, year of graduation, and the higher education institution, the extremely positive performance of EU domiciled undergraduates remains. In Table 1 below, these findings are summarised.

Even comparing EU and UK graduates within the same institutions, with the same subject of study and at the same level of performance, EU domiciled undergraduates are between 26 and 30 percentage points

more likely to continue to study, are less likely to be unemployed, and those who stay in the UK are more likely to be in a job commensurate with their training. With the caveat that the salary information is perhaps less robust than the other measures, we also see that the those “Old EU” domiciled undergraduate degree holders who are in full-time employment in the UK earn, on average, 9% more than their British peers.

EU Domicile Postgraduates

EU domiciled students comprise a much larger share of postgraduate higher education than at the undergraduate level: 8% and 13% of taught postgraduate and postgraduate research degrees respectively.

Similar to undergraduates, EU domiciled postgraduates perform well, with outcomes that are similar to or better than British postgraduates, even after adjusting for university characteristics and subject of study. EU domiciled postgraduates are more likely than British postgraduates to continue in full-time education. Postgraduates in research programs who remain in the UK are also between 9 and 12 percentage points more likely to be in jobs where their training is required or is expected for their job, rather than being in a job where their training is not required, something that is often taken as a marker of over-qualification. However, they are slightly more likely to be unemployed, and earn about the same as their British equivalents.

Table 1.

Labour market outcomes for undergraduates 6 months after graduation, graduates remaining in the UK					
	In Study	Unemployed	Among those working		
			Job requires degree / degree expected	Professional / Managerial	Salary in 2012 Pounds
<i>Undergraduates</i>					
New EU	0.42	0.07	0.40	0.64	20,151
Old EU	0.46	0.06	0.48	0.70	21,504
British	0.16	0.08	0.40	0.61	19,712
N	1,547,197	1,547,197	760,791	908,322	400,603
<i>Postgraduate Taught</i>					
New EU	0.11	0.07	0.60	0.87	22,539
Old EU	0.13	0.08	0.63	0.91	23,813
British	0.08	0.05	0.64	0.89	23,295
N	322,546	322,546	178,849	216,406	109,284
<i>Postgraduate Research</i>					
New EU	0.09	0.05	0.71	0.97	30,212
Old EU	0.09	0.06	0.74	0.98	30,092
British	0.07	0.04	0.62	0.96	30,853
N	39,985	39,985	21,733	25,059	14,131

Note: Predicted probabilities presented as average marginal effects, controlling for gender, age group, disable, degree classification (only for undergrads), subject studied, year of graduation dummies, and higher education institution. Probabilities of further study or unemployment include all leavers regardless of location, whereas job quality and salary is restricted to those working in the UK. Salary information is self-reported with a high degree of missing (~46%)

Conclusion

This research brief has shown that EU domiciled students are high performers in UK higher education, and that they go on to occupy a strong position in the UK labour market, at both the undergraduate and postgraduate levels. There is no evidence of exploitation or lower wages: on the contrary, EU undergraduates that stay in the UK have the very best outcomes, even controlling for university and degree of study, and EU postgraduates that stay in the UK are also employed in well-paid jobs commensurate with their training. EU students therefore increase the size of the UK’s skilled labour force.

Moreover, there is evidence that this initial strong position in the labour market continues well after they settle in the UK⁸.

How might an exit from the EU impact this well-functioning university to skilled employee pipeline?

There is, of course, considerable uncertainty over how a UK outside of the EU would treat EU domiciled young people wanting to study or work in the UK. However, it is likely that Brexit would reduce the flow of these high performing students in a variety of ways:

- a) EU funding for research from 2007-2013 resulted in a net gain of £2.7 billion for the UK⁹. By reducing the availability of EU funding for research, there would likely be fewer EU-funded paid postgraduate posts.
- b) In the short term, EU students may be less likely to begin study in the UK, to continue on with study in the UK after graduation, or to work in the UK following graduation given the uncertainty that would result from a vote to leave the EU.
- c) In the longer term, the impact of Brexit would depend on how future UK governments changed university fees, the availability of loans to study, and visa requirements for EU citizens to study and work in the UK. However, given many of the arguments made in favour of Brexit, it would seem surprising if a UK outside the EU would make it easier for young people from outside the UK to study and work here.

Technical notes

Description of the sample and main outcomes

Our sample is composed of 1,909,728 graduates (1,547,197 from undergraduate courses, 322,546 from postgraduate taught courses, and 39,985 from postgraduate research courses) who graduated in the years 2003/04-2011/12. These are EU domiciled and British students who enrolled in full-time courses.

We implement ordinary least squares regression analysis on the following outcomes (all measured at six months after graduation):

A) Activity status

This information is available for all students who responded at the questionnaire.

- 1) *Studying* vs. working, unemployed, working and studying, in a voluntary/unpaid job, other.
- 2) *Unemployed* vs. working, studying, working and studying, in a voluntary/unpaid job, other.

B) Type of job

When looking at these outcomes we restrict our sample to those students who work (full-time or part-time) in the UK only.

1) *Whether the degree was required or expected for the job*

In the questionnaire it is asked "Would you have been able to get the job you will be doing on [date] without the qualification you recently obtained (the actual qualification, not the subject of study)?"

We consider that students are in a matched job if they reply that their qualification was expected or required for that job. This information is missing for 16.48% of students in our sample.

2) *Whether in a managerial/professional occupation*

This variable is based on the SOC categories (Managers and senior officials, Professional occupations, and Associate professional and technical occupations vs. all other categories: Administrative and secretarial occupations, Skilled trades occupations, Personal service occupations, Sales and customer service occupations, Process, plant and machine operatives, and Elementary occupations). This information is missing for 0.11% of students in our sample.

⁸ <http://repec.ioe.ac.uk/REPEc/pdf/qsswp1414.pdf>

⁹ <http://www.theguardian.com/politics/2016/apr/20/brexit-could-cost-uk-science-millions-in-lost-research-funding-peers-warn>

3) Salary

This information is available for full-time employee graduates only. We excluded from the analysis the top and bottom 1% of the distribution within each degree type and we adjust the salary in terms of 2012 pounds. This information is missing for 46.54% of students in our sample.

We condition on: gender, age group, disability, degree classification (available for undergraduate students only), subject studied, year of graduation, and university attended.

We cluster the standard errors by university.

We also replicate the analysis by using other techniques of estimation such as Probit and Multinomial logit for the activity status outcomes. Results are robust across the different specifications.

Definition of groups

British: graduates domiciled in the UK prior university enrolment.

New-EU: graduates domiciled in A2 and A8 countries prior university enrolment. These include Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania Slovakia and Slovenia.

Old-EU: graduates domiciled in all other European Union countries prior university enrolment. These include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and Sweden.

Level of Study¹⁰

First degree includes first degrees (including eligibility to register to practice with a health or social care or veterinary statutory regulatory body), first degrees with Qualified Teacher Status (QTS)/registration with a General Teaching Council (GTC), postgraduate bachelors degree at level H, enhanced first degrees (including those leading towards obtaining eligibility to register to practice with a health or social care or veterinary statutory regulatory body), first degrees obtained concurrently with a diploma and intercalated first degrees.

Postgraduate (taught) includes doctorate, and masters degrees, postgraduate bachelors degrees at level M and postgraduate diplomas or certificates not studied primarily through research, including Postgraduate Certificate in Education (PGCE) at level M (unless shown separately), Masters in Teaching and Learning, level M Diploma in Teaching in the Lifelong Learning Sector, and professional qualifications.

Postgraduate (research) includes doctorate (incorporating New Route PhD), masters degrees and postgraduate diplomas or certificates (not Postgraduate Certificate in Education (PGCE) at level M) studied primarily through research.

STEM and non-STEM subjects

Subjects included in the STEM group: Medicine & dentistry; Subjects allied to medicine; Biological sciences; Veterinary science; Agriculture & related subjects; Physical sciences; Mathematical sciences; Computer science; Engineering & technology; Architecture, building & planning.

Subjects included in the non-STEM group: Social studies; Law; Business & administrative studies; Communication; Languages; Historical & philosophical studies; Creative arts & design; Education.



Dr Renee Luthra and Greta Morando
Institute for Social and Economic Research, published 20 May 2016 www.iser.essex.ac.uk

¹⁰ From HESA Definitional Support:
https://www.hesa.ac.uk/index.php?option=com_content&view=article&id=2880&limit=&start=#level