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UK workers competing with other European Union countries: the importance of education

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Abstract

UK has many migrants from other European Union countries. In this paper, attitudes to the European Union are investigated; many British people seem hostile to EU migrants. Some UK citizens see migrants as taking jobs which British people could do. Evidence in this paper show many immigrants are needed to meet skill shortages in UK: for example, many EU migrants are graduates. There are many unemployed people in Britain, who do not have the skills required by employers. There is a need for more education and training in the UK; this could be subsidised by the UK government, as a long-term investment.

Keywords: education; employment; migration; European Union.

Acknowledgements

Data from the 'Labour Force Survey' (LFS) was collected by the UK government, and made available to academics by the UK Data Archive and UK Data Service; LFS data are analysed by the author (for this paper) with permission. Other data analysed in this paper are publicly available from a Eurobarometer survey (downloaded from the Gesis website), and from UNESCO. If there are any errors in this paper, they are the responsibility of the author (not the organisations providing data).

Introduction

The need for a labour force to be well-educated is generally accepted. In Europe, modern technologies are transforming industries (Gordon, 2009: 10). In UK, "the nature of work is evolving at a rapid rate, with new technology and digitisation rapidly changing the skill requirements of the workforce" (Vivian et al., 2016: 139).

Europe has problems, according to EU Commissioner Thyssen: "There are still more than 20 million people unemployed in the EU […] Too much inequality hampers growth […] We are confronted with long term challenges like globalisation, ageing societies and changing work patterns" (European Commission, 2016a). European Commission (2010: 9) wrote "Serious deficits in qualified professionals, in management and technical, job-specific

skills are hampering Europe's sustainable growth objectives. This is also the case for shortages in areas critical for innovation […] In the automotive sector and shipbuilding, for example, demand for hybrid vehicles and offshore investment in sustainable energy already requires many skills other than those which workers in those sectors currently have. Indeed, significant investments in "green" skills need to be made to ensure Europe lives up to its ambition of having 3 million green collar workers by 2020."

Many writers suggest the European Union can help countries such as UK (Storey & Tether, 1998). In Europe, Higher Education is expected to help people succeed during periods of economic and technological change (Powell, Bernhard & Graf, 2012: 248).

Literature review

Education is important for long-term economic development (Pissarides, 2011). Gordon (2009: 3) claimed "An emerging Cyber-Mental Age will give the well-educated person the power to innovate products and services by using very advanced technologies". Holland et al. (2013: 60) estimate that a 1% increase in the fraction of the workforce with a university education tends (on average) to increase productivity by 0.2% to 0.5%, in the long run. They also summarise previous research, reporting that "The empirical evidence clearly supports the assertion that the human capital embodied in higher education strengthens economic growth prospects" (Holland et al., 2013: 25). University education increases productivity (Simister, 2014a); government spending on education tends to help economic growth (Hanushek and Wößmann, 2007: 7).

In Europe, "There are 4.5 million young unemployed, yet at the same time 2 million vacancies across Europe remain unfilled. One in four employers report that they have difficulties finding people with the right skills" (Vincenti & Jacobsen, 2015). Commissioner Thyssen stated "Employers in Europe are searching for qualified workers. Many workers are searching for a job that fits their talent and education. We must make the ends meet by investing in skills. Up- and re-skilling of the unemployed is key to bringing them back into jobs" (European Commission, 2016). Others agree that unemployment can coexist with shortage of appropriately-qualified people: research from 32 countries indicates that many employers have difficulty filling jobs (Gordon, 2009: 1-2). Gordon (2009: 10) claimed that in Europe, "new tech breakthrough product or service industries are lagging behind due to significant talent shortages. Fewer younger workers are enrolling in educational programs that prepare them for these emerging careers and job opportunities". Skill shortages in Europe also occur in UK. According to a UK government survey, skills shortages in UK increased between 2013 and 2015: "impacts of skill-shortage vacancies continued to be significant for employers. Over two-thirds of employers that had difficulty filling their vacancies solely as a result of skill shortages had experienced a direct financial impact through either loss of business to competitors, increased operating costs, or having to outsource work" (Vivian et al., 2016: 13). KPMG (2014: 19) warn that "Long-term prosperity requires a suitably skilled and experienced workforce. There is a shortage of qualified scientists, engineers and technologists (SET) in the UK". Vivian et al. (2016: 143) report that skill shortages limit the ability of many UK firms to develop new products, or to improve existing products. OECD (2012: 68) state that a 10% improvement in education would raise growth rates for national income, commenting that "Policies to address the plight of the low skilled may thus be as important, or even more, for growth as policies aimed at expanding higher education". Many people applying for jobs in UK firms lack the required computer skills, complex numerical/statistical skills, or specialist skills (Vivian et al., 2016: 158). UK productivity "stalled" in recent years, and remains behind other EU countries (Vivian et al., 2016: 138). Comparing UK productivity with G7 (the most advanced economies) in 2014, UK output per worker per hour was 18% less than the average of the other six G7 countries – the widest productivity gap since comparable estimates started, in 1991 (ONS, 2016: 2).

The EU approach to universities – clarified in the Bologna process – is that Higher Education should mainly be state-financed (Powell, Bernhard & Graf, 2012: 249). In recent decades, UK governments changed from providing grants to university students, towards demanding payment from students for tuition fees (Lunt, 2008). There have been student loans in since 1990 (Callender & Jackson, 2005: 510); initially, costs to students were relatively low, but increased over time (Hubble, 2010). Student loans became the main source of financial support in England and Wales when the 1998 'Teaching and Higher Education Act' was implemented: mandatory maintenance grants for student living costs were abolished (Callender & Jackson, 2005: 510). In October 2010, the Conservative/Liberal-Democrat government announced that each university student must pay about £9,000 per year tuition fees; government funding for universities fell – this was expected to reduce UK government spending by £3 Billion per year (BIS, 2011: 15). Charging students to study has been controversial (Hubble, 2010; Prince & Porter, 2010); tuition fees appear to discourage many people from attending university (Callender & Jackson, 2005: 533; Crawford et al., 2014). Changes in UK Higher Education are too complex to explain fully in this paper: Lunt (2008: 741) reports there were at least 43 government policy changes on universities, in ten years of Tony Blair's Labour government from 1997. There are also geographical complications – for example, university education is different in Scotland to other parts of the UK.

Tuition fees are not the only limitation on UK student numbers. There are not as many university places as there are applicants: for example, in 2014, UK universities had to turn down 37,000 nursing applicants (BBC, 2015). Since 1992, the Higher Education Funding Council for England (HEFCE) on behalf of the UK Government limits the numbers of students who can be accepted by UK universities, using the 'Student Number Controls' (SNC) system; this may have reduced the number of UK students by 15 thousand in one year (Paton, 2012). These limits were imposed more strictly in recent years: "since 2009/10, controls have been in place for each institution covering full-time undergraduate entrants with penalties for those who over-recruited" (BIS, 2011: 48). Bowers-Brown & Harvey (2004: 253) claim that limiting the number of student harms UK; shortages of graduates may need to be met by more immigration from other EU countries. Referring to 2015 data, EUROSTAT (2016b) report that in most EU countries, residents born in that country tend to have more tertiary education than foreign-born residents; but UK is unusual in having a higher level of tertiary education among immigrants from other EU countries, than among UK-born citizens. UCLAN, a UK university, does not accept applications from UK citizens for its medicine degree: only foreigners can become doctors there (UCLAN, 2016).

There is disagreement on why the UK government limits the number of graduates: the government states that it must ensure that students "do not create a cost liability for Government" (BIS, 2011: 51), but Bowers-Brown & Harvey (2004: 253) claim that capping student places "seeks to keep university education exclusive". Powell, Bernhard & Graf (2012: 252) claim UK universities traditionally allow only a select few to become "educated gentlemen". Schütz, Ursprung & Wößmann (2008: 292) analysed data on 54 countries, and found education in England and Scotland is strongly influenced by family background: England had the "least equality of educational opportunity", followed by Taiwan and Scotland. For a school-leaver from a poor background, the UK loans system requires a student to borrow more than his/her parents earn in a year (Callender & Jackson, 2005: 535). Hutton (2012) claimed the £9,000 tuition fees, and other costs paid by students, makes UK "the most personally expensive system of university funding in the world". Many rich parents offer financial support to their children at university; unless the UK government does more to encourage meritocracy, UK universities "will remain the preserves of the middle classes" (Callender & Jackson, 2005: 537).

Universities are not the only form of elitism in UK. Simister (2011) reports that students are more likely to get into high-status universities in Britain if they have been to (expensive) private schools. Green et al. (2015: 614) comment on the large differences in skills within English-speaking countries; a possible explanation is that "better-off families can afford to buy higher-quality provision for their children". UK education inequality is reported by Serafino & Tonkin (2014: 9): "People are 7.5 times more likely to have a low educational outcome themselves if their father has a low level of education compared with having a highly educated father"; mother's education level also has an impact, but is less influential than their father. Green et al. (2015: 607) analyse publicly-available data such as the

'International Adult Literacy Survey' (IALS) and 'Program for International Student Assessment' (PISA). Comparing age groups 16-24 years and 55-65 years, the younger group have better numeracy and literacy skills than older group in almost all 24 countries they studied; but English education is disappointing: numeracy and literacy rates are not better among younger people in England.

UK is increasingly dependent on exports to other EU countries, such as car components to Germany; Airbus wings to France; and detergent powder to many EU countries (Simister, 2016). European car producers compete with other countries such as USA; UK car engines will only continue to be used in European-built cars if UK makes engines which compete successfully on the global stage (KPMG, 2014). High-technology production is increasingly important in EU, based on highly skilled labour, and often using capital intensive methods (Timmer et al., 2014: 100); Needham (2013: 2) states that in the EU, 30% to 40% of employees in the car industry are highly skilled.

Research & Development (R&D) is vital for economic development (Martin & Nguyen-Thi, 2015: 1107-8). But HEFCE (2015: 2) report investment problems among UK Higher Education institutions: universities and other higher education institutions do not have enough income – they must borrow, and are expected to be in debt by about £4.1 Billion by 2018; this "trend of increasing borrowing and reducing liquidity is unsustainable in the long term" (HEFCE, 2015: 3). Many European science & engineering departments have closed in recent years (Rowlands, 2008); Milkround (2004) warns that closing science departments in UK universities harm UK. Lefrere (2007: 204) suggested that in Europe, only élite universities can afford adequate funding for science & engineering equipment: middle-ranking & low-ranking European universities are struggling to compete with Chinese universities. Dearing et al. (1997: 88) state "A decade ago we had fallen well behind many other countries of Western Europe in the provision of higher education". Western Europe is behind other countries such as USA, regarding access to universities (Simister, 2014b: 40).

Data and methods

The 'Labour Force Survey' (LFS) is a large household survey, carried out by the ONS (Office for National Statistics), on behalf of the UK government. The sample of people interviewed in every LFS survey is representative of the UK population. For this paper, weight variable PWT (supplied by ONS) is used for LFS charts and tables. LFS is based on household surveys, carried out each week (UK Data Archive, 2007). This paper uses LFS data from 1987 to 2015 (excluding the small number of interviews which were carried out in 2016, as part of the 2015 quarter 4 LFS survey).

This paper uses the LFS classification of education levels in variable HIQUALD (and similar variables in other LFS surveys, such as HIQUAL8D), which has these categories:

degree or equivalent qualification, or postgraduate degree such as PGCE [codes 6 and 5A in ISCED 97]

Higher Education below degree, including teacher/nurse training [codes 4A, 4B, 4C and 5B in ISCED 97]

'A'-level or equivalent ('AS' or 'A2', in more recent years) [codes 3A and 3B in ISCED 97]

GCSE grades A to C or equivalent ('O' level, in earlier years) [codes 2A, 2B, 2C and 3C in ISCED 97]

no qualification

HIQUALD also has a category 'other qualification', which is excluded from analysis in this paper. In the above list, 'ISCED 97' is the 1997 version of the 'International Standard Classification of Education' (ONS, 2009: 106). The above classification for HIQUALD has complications – for example, UK nursing training is now degree level (RCN, 2016), so a recently-qualified nurse would be in the 'degree' category of HIQUALD. Variable HIQUALD is a useful way to simplify a complicated UK education system (for example, there are many types of BTEC qualification such as HND, HNC, and ONC).

UK government staff who collect and process LFS data convert (where possible) foreign qualifications to match the above UK education levels in HIQUALD. EU standardisation of higher education by the Bologna and Copenhagen initiatives (Powell, Bernhard & Graf, 2012) improves comparability of UK degrees with degrees from other EU countries; but there are limits to this comparability. Within UK, some degrees are more prestigious than others.

To compare LFS data with 'Gross Enrolment Rate' (GER) in UNESCO (2016a), the author processed LFS data using this method: "Divide the number of students enrolled in a given level of education regardless of age by the population of the age group which officially corresponds to the given level of education" (UNESCO, 2016c). For this paper, it is assumed all UK students take a 3-year degree: this assumes all university students are undergraduates rather than postgraduates, and ignores the fact that a Scottish degree usually takes 4 years (rather than 3 years, which is standard in the rest of UK). The author calculated GER as the fraction of the LFS sample who are 'students', divided by the fraction of LFS residents aged 18 or 19 or 20; divided by 3 (again, assuming a 3-year degree: if 3% of the population were at university, about 1% of 21-year-olds would become graduates). For this paper, the fraction of LFS respondents considered 'students' includes full-time and part-time university or polytechnic students, but excludes people on nursing training (unless they are on a degree course, which is now the usual way to become a nurse).

To assess unemployment using the ILO definition, LFS variable ILODEFR is used: coded as 1 for employed, or zero for unemployed (excluding 'inactive'). To assess unemployment, LFS respondents under 18 or over 60 are excluded from analysis in this paper.

Attitudes to the European Union are included, using 'Eurobarometer' survey 84.3 from November 2015 (European Commission, 2016b); there is a more recent Eurobarometer survey available on the Gesis website (84.4 from November/December 2015), but that contains different questions. For this paper, the Eurobarometer survey is limited to respondents living in UK.

Results

UK government support for students has varied; Table 1 reports EUROSTAT data, to put UK in context. The author combined EUROSTAT data (available from 1999, in most countries) into two periods: 1999-2009, associated with the Blair/Brown Labour government; and 2010-2011, associated with the Conservative/Liberal-Democrat coalition government. EUROSTAT reports education spending data after 2011, but use definitions which are incompatible with data up to 2011 (EUROSTAT, 2016a). In Table 1, rows are sorted by the right-hand column.

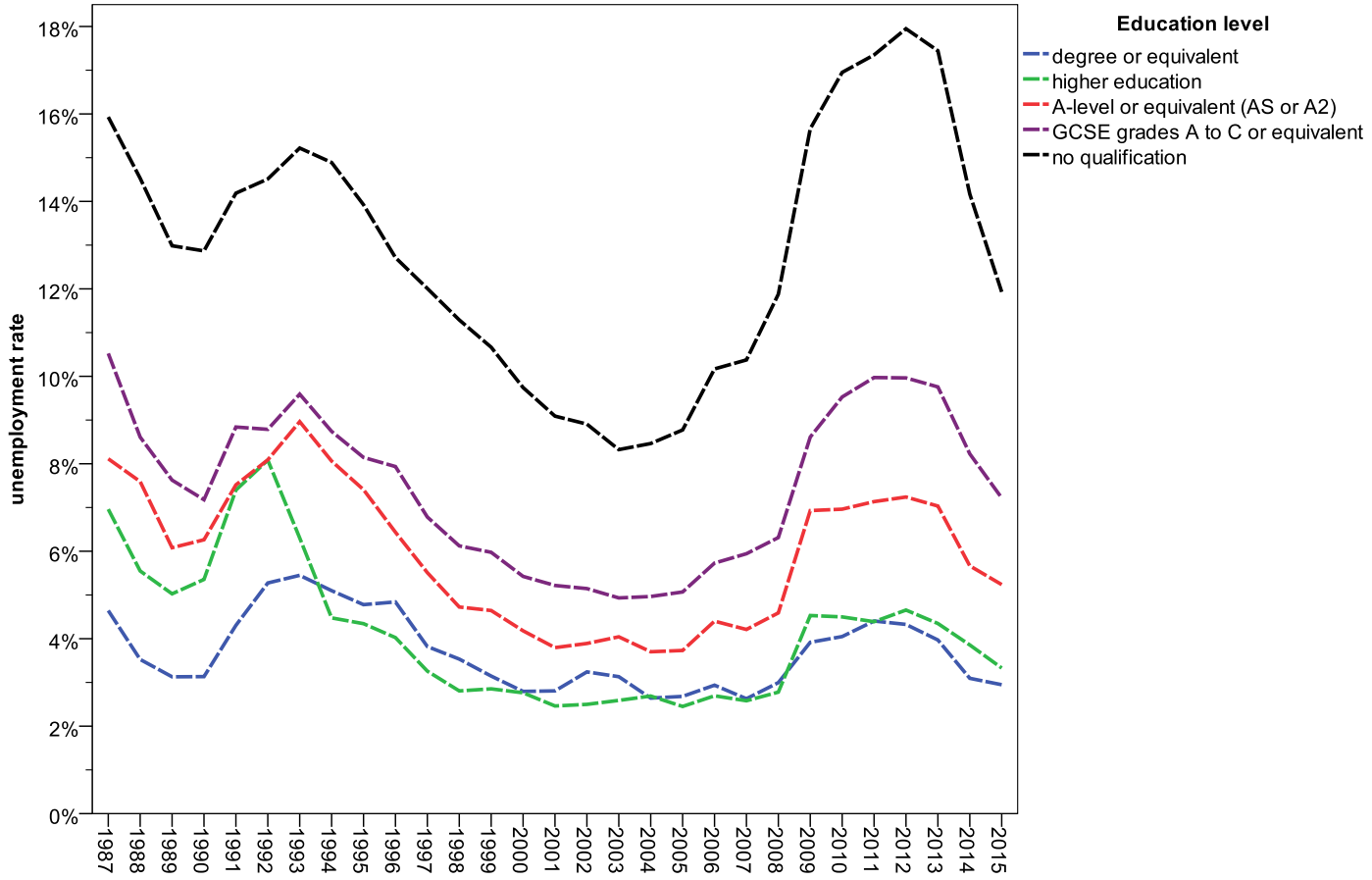
Table 1: government support for education (% of total education spending), by country and period.

Country	1999-2009	2010-2011
Greece	94.4	
Hungary	92.6	100.0
Finland	97.7	97.6
Sweden	97.2	97.4
Romania	92.9	96.5
Belgium	94.1	94.9
Denmark	94.5	94.5
Estonia	94.1	93.4
Croatia	93.0	92.7
Portugal	95.5	92.6
Ireland	93.4	92.4
Austria	92.5	91.1
Italy	91.6	89.7
France	90.9	89.6
Latvia	88.0	88.8
Slovenia	87.0	88.5
Lithuania	90.4	88.3
Czech Republic	89.3	87.9
Poland	90.1	86.7
Germany	83.1	86.2
Spain	87.3	85.0
Slovakia	89.3	85.0
Bulgaria	85.5	83.7
Malta	88.9	82.9
Netherlands	83.9	82.8
Cyprus	79.3	80.2
United Kingdom	79.0	71.8

Source: EUROSTAT 2016a (author's analysis); data are missing for Luxembourg.

In Table 1, UK has the lowest government funding of education, in both the 1999-2009 period (Labour government) and from 2010 (Conservative & Liberal Democrat government). According to Powell, Bernhard & Graf (2012: 253-4), Higher Education in UK increasingly emphasises tuition fees and individual responsibility – contrasting with state-financed universities for the benefit of society, in countries such as France & Germany.

Chart 1: UK unemployment from 1987 to 2015, by education level

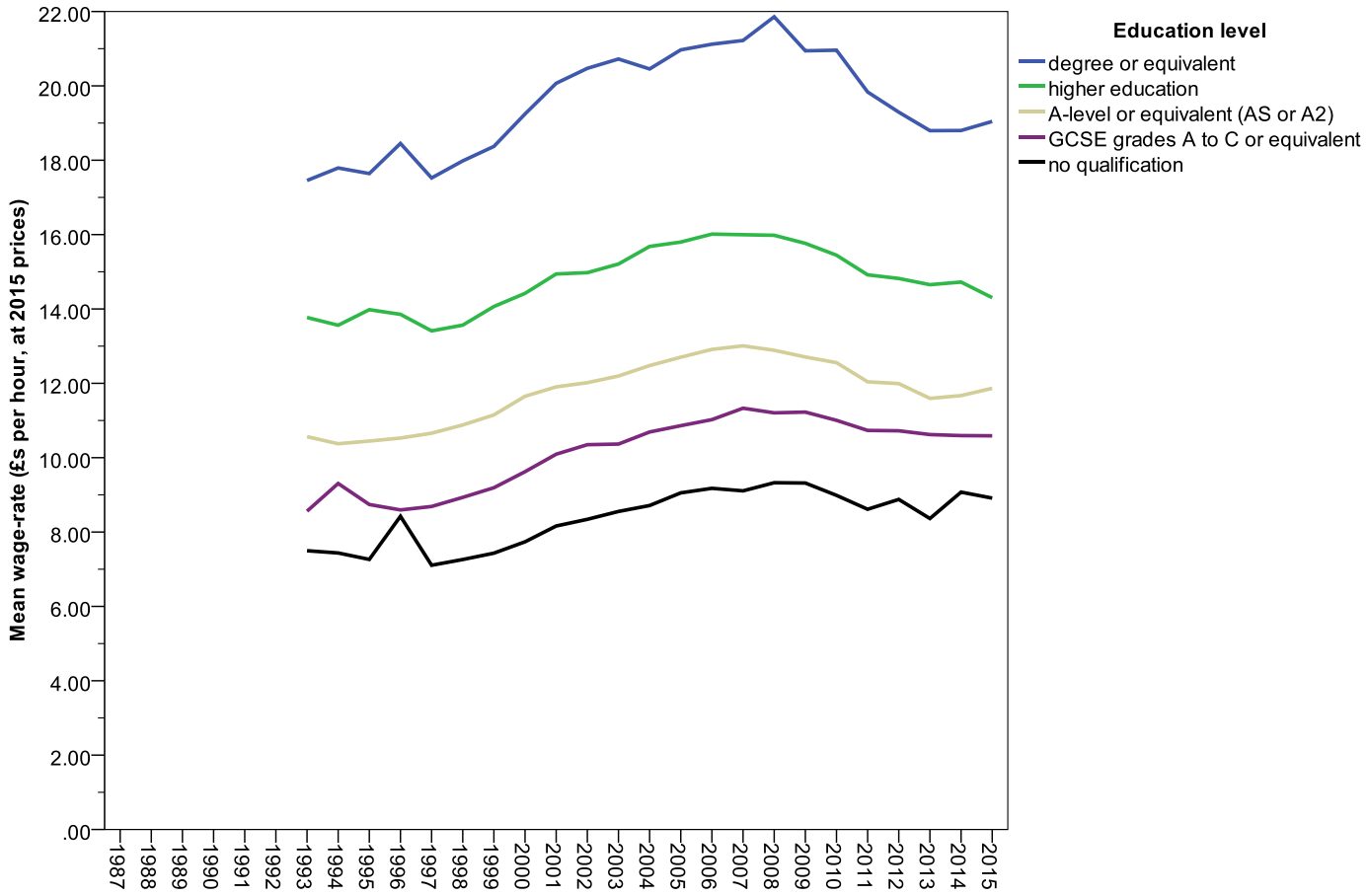


Source: author's analysis of LFS data

One of the questions relevant to this paper is: does UK have too many graduates? If so, we might expect to see unemployed graduates in Chart 1; but unemployment is generally low among graduates in Chart 1. There is also a tendency for low unemployment among people with 'Higher Education'. We would expect some unemployment – for example, if people relocate from one region to another within UK.

For all five types of employee in Chart 1, unemployment was high for several years after the global financial around 2008, and in recessions at about 1987 and 1993. Unemployment is very high among people with no qualifications (averaging around 13% from 1987 to 2015); hence, Chart 1 suggests UK has too many unqualified workers, and too few graduates. However, there are complications: if there were too many graduates, people with a degree or Higher Education qualification might seek a job requiring less expertise. Employers might choose to hire people who are overqualified, if there were surplus graduates. Hence, it can be argued that Chart 1 does not prove UK needs as many graduates as it now has; Chart 2 provides more evidence.

Chart 2: average UK wage from 1987 to 2015, by education level



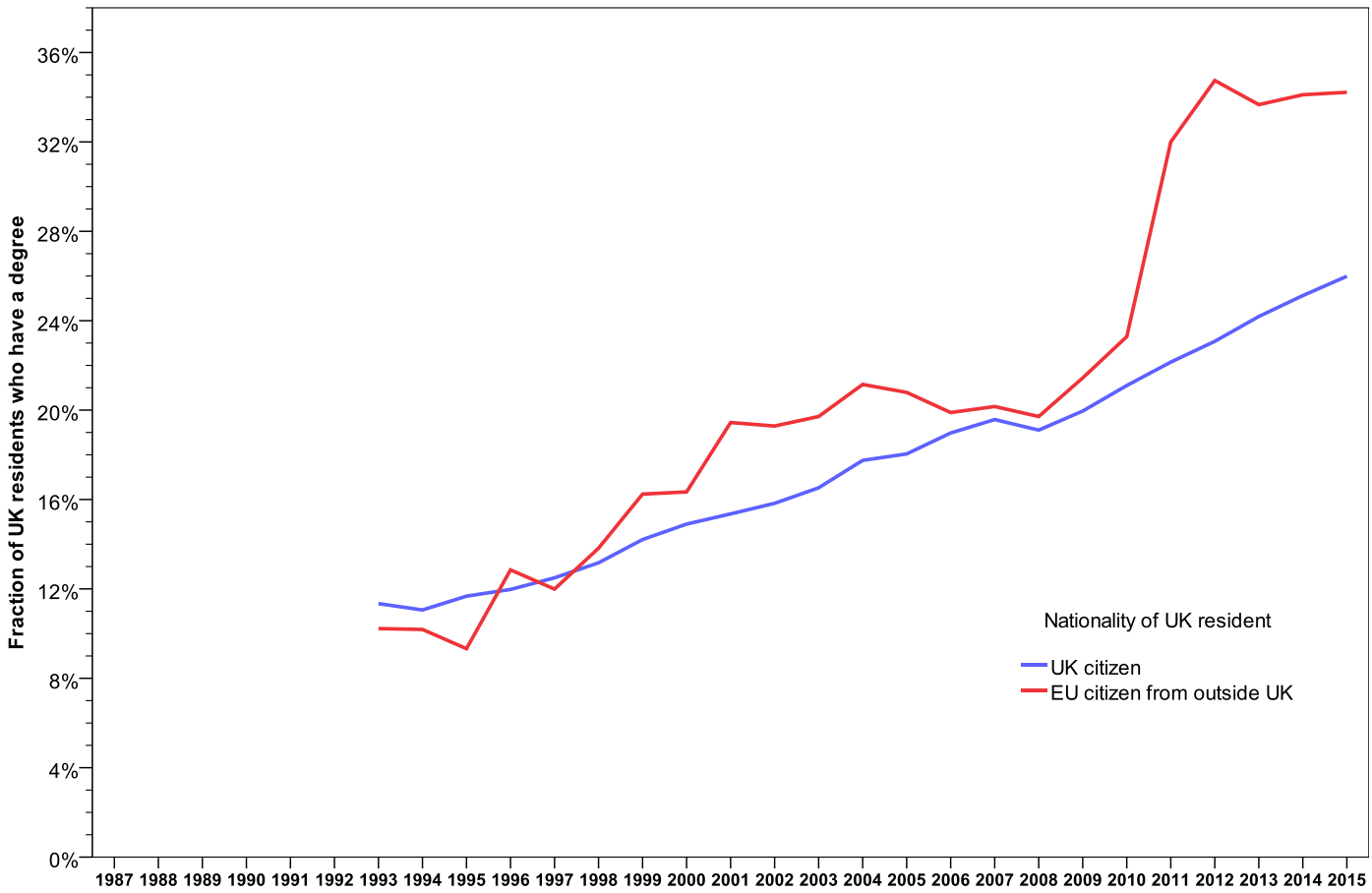
Source: author's analysis of LFS data

If we consider the supply and demand for graduates, do UK universities supply too many graduates to the labour market? Chart 2 shows how wages evolved in recent decades; there is a clear pattern that the pay gap between graduates and other employees has tended to remain stable, over decades. If universities were supplying more graduates than employers demand, we would expect graduate wages to fall relative to people with less education; but this is not seen in Chart 2. Hence, there seems no reason for the UK government to reduce the number of graduates. The literature review in this paper discussed UK government policies towards graduates: the end of maintenance grants, imposition of tuition fees, and limiting the number of students using 'Student Number Controls' all tend to reduce the fraction of UK citizens who obtain a degree.

It can be argued that not everyone wants to pursue an academic career in university. Charts 1 and 2 suggest students with Higher Education tend to obtain much higher wages than unqualified staff; and unemployment rates are relatively low among people with Higher Education. The UK government's 'Education Maintenance Allowance' (EMA) system was designed to encourage people age 16 to 18 to increase their education (Callender & Jackson, 2005: 535); EMA has been abandoned in England (UK Government, 2016). The UK government also stopped some bursaries to students (BBC, 2015).

Chart 1 shows a problem of high unemployment rate among people with no qualifications: about 12% in 2015. UK unemployment has been slowly recovering from the 2008 global financial crisis, but historical experience suggests unqualified people will always have problems finding work (in Chart 1, unemployment never fell below 8%, even at the lowest point – 2003); their wages might be even lower if there was no UK minimum wage.

Chart 3: fraction of people resident in UK with a degree, by year and nationality



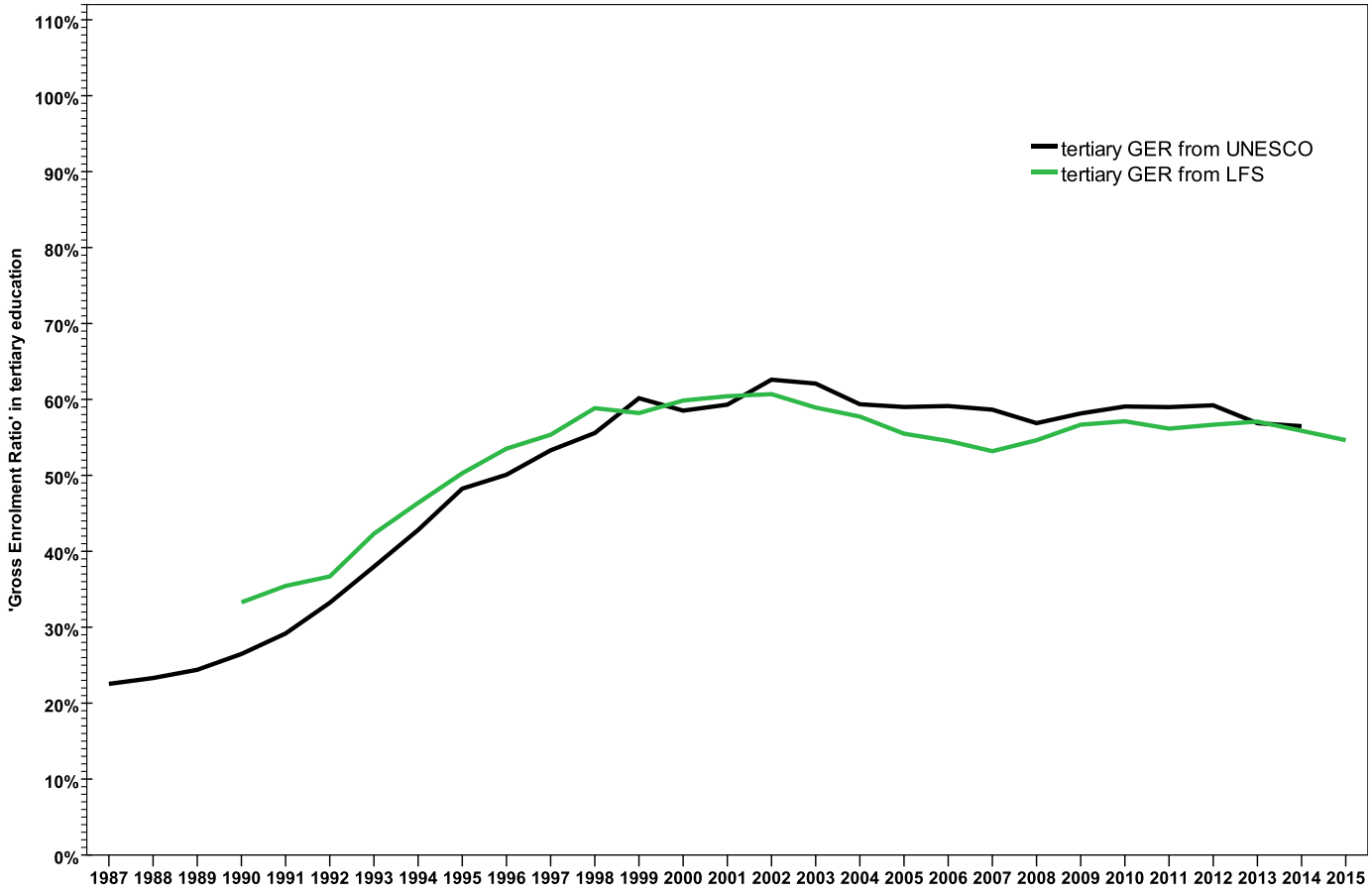
Source: author's analysis of LFS data

Chart 3 shows a fairly steady increase in the number of graduates from 1993 to 2015, among UK citizens. The LFS sample also includes people who live in UK but are citizens of another of the 28 EU countries (since 1993, several countries joined the EU; for simplicity, Chart 3 classifies people as being EU citizens if they came from a country which is now one of the 28 EU countries, even if that country had not yet joined EU at the time of the LFS interview).

Chart 3 shows that an increasing number of EU migrants with degrees have been moving to UK. These graduates include people with skills vital for UK, such as doctors and engineers. To explain why so many graduates choose to come to UK (rather than stay in the country they are a citizen of), it seems that there are not enough UK-educated graduates to fill all graduate jobs in UK (as shown by the graduate wages remaining high in Chart 2).

Chart 4 considers the flow of new graduates into the UK labour force (unlike Charts 3, which focuses on the stock of graduates in one year). Chart 4 gives us insights into the future of the UK labour force: will Britain be able to compete with other countries, in terms of how well-trained employees are? Degrees are not the only form of education, but are a useful measure because data are available on degree-level education in many countries; whereas qualifications such as GCSEs in the UK are difficult to compare with qualifications awarded in other countries.

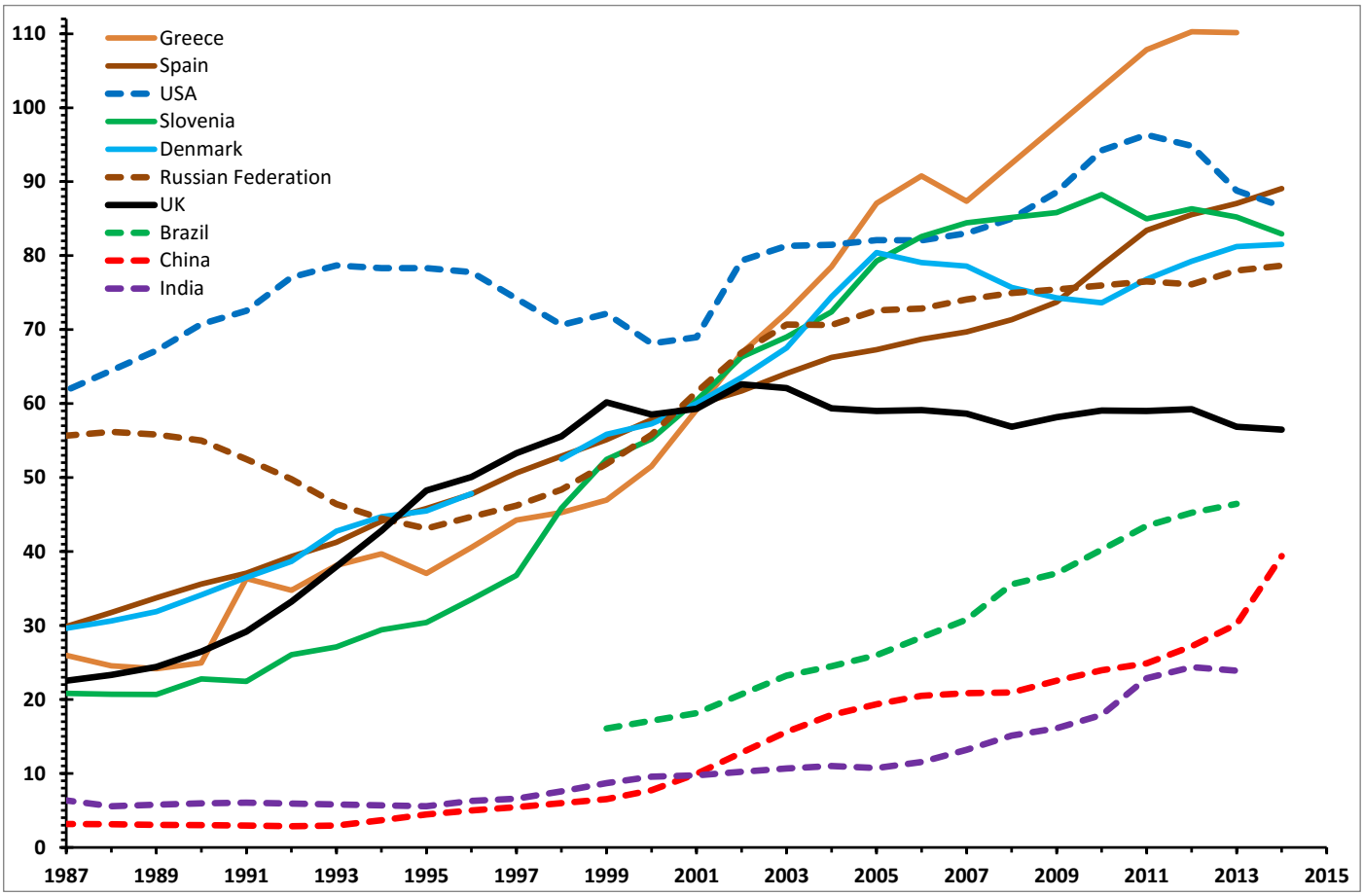
Chart 4: fraction of school-leaving-age citizens enrolled in UK universities, by year.



Source: LFS (author's analysis); UNESCO (2016a).

Introduction of tuition fees to UK is associated with the 1998 'Teaching and Higher Education Act'; fees were increased by the 2004 'Higher Education Act'; and the UK government raised the cap on tuition fees in 2012/13 from £3,375 to £9,000 (Callender & Jackson, 2005; Berry & Georghiou, 2011: 5). Hutton (2012) describes raising fees to £9,000 per year from 2012 as a "social experiment": do tuition fees discourage some people from going to university? Chart 4 suggests tuition fees have discouraged school-leavers from becoming students: there was a fairly steady fall in the Gross Enrolment Rate since 2002, and the decline appears to have accelerated from 2012. Callender & Jackson (2005) discuss several influences on whether or not a school-leaver decides to go to university; they conclude people from poor families are the most likely to be discouraged from attending university, because of fear of debt among people in low-income families.

Chart 5: Gross enrolment rate in tertiary education by year: selected countries



Source: author's analysis of UNESCO (2016a)

Chart 5 shows the 'Gross enrolment rate' for tertiary education, in countries selected by the author. Some EU countries are included (Greece, Spain, Slovenia, Denmark and UK: unbroken lines), but Chart 5 would be confusing if all 28 EU countries were shown. The author used linear interpolation to fill gaps in the lines for Brazil, China, Greece, India, Russian Federation and USA. The USA is included because it has the highest GDP; BRICs countries (Brazil, Russia, India and China) are included because they are often considered likely to become important in the global economy. It is possible for a country (such as Greece, in recent years) to have a Gross Enrolment Rate over 100%, because students from different ages can attend university – some people begin their university degree when they are over 18.

The UK line in Chart 5 is identical to the 'tertiary GER from UNESCO' line in Chart 4. We can use Chart 5 to assess UK in a global context: until 2002, UK seemed fairly successful regarding tertiary education compared to other countries. But since 2002, UK has been falling behind many countries regarding education; and if present trends continue, it may not take long for Brazil and China to overtake UK.

Skills shortages are harming the UK economy (Vivian et al., 2016: 18). Chart 5 shows tertiary education in general; but in some types of degrees, UK seems to have lost the race to countries such as China. For example, the number of science researchers ('Full Time Equivalent') reported in UNESCO (2016b) in 2013: UK had 259,347 researchers, whereas China had 1,484,040 researchers.

The final evidence in this paper is based on Eurobarometer 84.3 from 2015; it does not report qualifications of respondents, so the age when the respondent left education is used. The author classified respondents into the four groups shown in Table 2. If we use these groups as a proxy for education level, it is likely the respondents who left education at up to 15 years have little or no formal qualifications; people who left at 16 or 17 may have GCSE or 'O'-levels; people who left at 18-20 may have a form of higher education; and people who left at 21 or older may have a degree. Note however that we cannot be confident about qualifications in this Eurobarometer survey: for example, a student may have stayed in school to take GCSEs at age 16, but failed them. In general, we would expect people who stayed longer in education tend to be more employable.

Table 2: age at which respondents left education (grouped)

age the respondent left education	number of respondents	%
up to 15	302	25
16 or 17	426	35
18 to 20	240	19
21 or older	264	21
Total	1232	100

Source: author's analysis of Eurobarometer 84.3

Table 3 considers attitudes of the Eurobarometer sample of British people, regarding their future. We see a general pattern that people who left education early have less confidence about the future: almost half of the sample disagree (tend to disagree, or totally disagree) with the statement that they have confidence in the future. Such confidence is influenced by many things; at the time of Eurobarometer 84.3, respondents may have expected UK to remain in the EU. But people who are pessimistic about the future may seek change: they might hope to be better off if UK left EU.

Table 3: Confidence in the future, by age at which respondent left education

Age the respondent left education	Agreement/disagreement: 'I have confidence in the future'			
	agree	*tend to disagee*	*totally disagee*	*total*
up to 15	55%	31%	14%	100%
16 or 17	63%	29%	9%	100%
18 to 20	77%	19%	4%	100%
21 or older	81%	17%	2%	100%

Source: author's analysis of Eurobarometer 84.3

Table 4 shows that people who left education earlier tend to be more negative about the EU: for example, among people who left education before their 16th birthday, almost half (45%) felt negative about the EU (in this sample from November 2015). People with more education tend to be more positive: among people who left education at age 21 (many of whom may be graduates), 47% felt positive about the EU. Campaigners wanting UK to remain in EU

(in the referendum on 23rd June 2016) might place their trust in educated respondents to vote against UK leaving EU; however, Table 2 shows that most (60%) of this UK sample left education below 18 years of age, so they are relatively uneducated.

Table 4: Attitude to the EU, by age at which respondent left education

Age the respondent left education	Respondent's attitude to the EU			
	positive	***neutral***	***negative***	***total***
up to 15	17%	39%	45%	100%
16 or 17	25%	35%	39%	100%
18 to 20	30%	38%	32%	100%
21 or older	47%	32%	22%	100%

Source: author's analysis of Eurobarometer 84.3

For educated Britons, it may seem natural to want to remain in the European Union: free movement within EU simplifies their foreign holidays, allows importing of luxuries, and (in many cases) provides their jobs. But things may seem different for less-educated people, who (according to Chart 2) are less able to afford foreign holidays or luxuries; and, according to Chart 1, have a high risk of unemployment.

Research summarised in the literature review shows that people from other EU countries must be allowed to continue to work in UK; this is confirmed by the large number of graduates travelling to UK, in Chart 3. Rather than exclude EU migrants to UK, it is appropriate to help British people who have been discouraged from increasing their education by government policies (such as imposition of tuition fees, and recent ending of the 'Education Maintenance Allowance' in England). Adult Education, Further Education, and Higher Education institutions can make more Britons skilled and employable, if more government funding were provided: this could reduce the number of unemployed non-qualified people in Chart 1.

Conclusion

Gordon (2009: 6-7) discusses emerging technologies such as nanotechnology, service robots (in factories and homes), and space travel. Other work innovations include 3D printing, mobile phone apps, and using drones to deliver products to consumers. Thyssen states "The world of work is rapidly changing. We are confronted with long term challenges like globalisation, ageing societies and changing work patterns. The digital revolution is full of opportunities, but also entails a number of challenges" (European Commission, 2016).

Vivian et al. (2016: 138) report that in UK, many job vacancies "are hard to fill because applicants lack the requisite skills. There are now nearly a million of these skill-shortage vacancies across the UK". "A rising tide of applicants does not meet the minimum qualifications for an increasingly sophisticated world of work" (Gordon, 2009: 8). More immigration to UK might help fill such vacancies, but would leave high unemployment among non-qualified Britons. An alternative is to educate people in UK – especially if they are currently unemployed. If the UK government gave adequate support to further and higher education, UK may be able to catch up with other EU countries such as Germany.

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