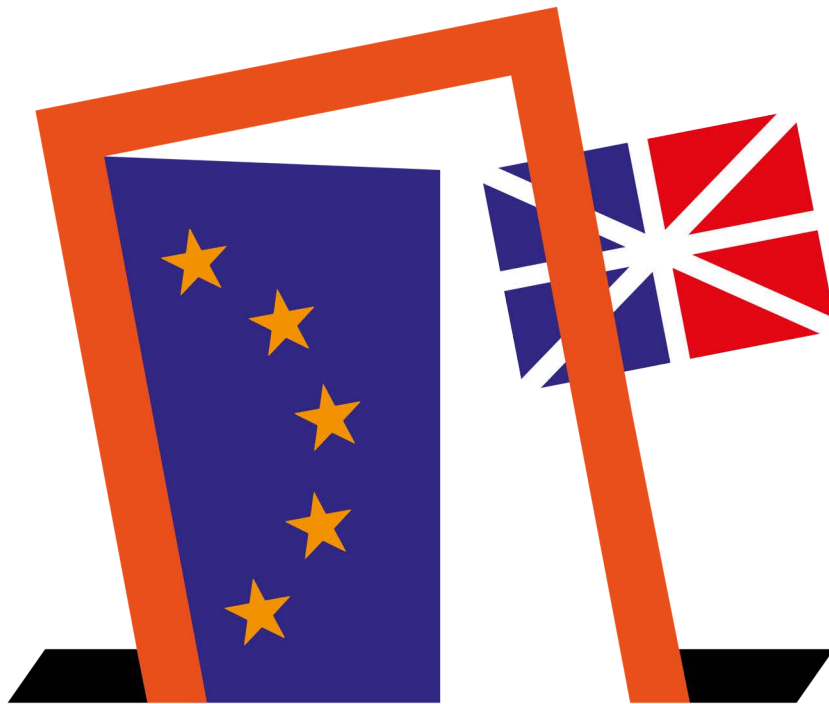


Brexit and the Impact of Immigration on the UK

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#CEPBREXIT



CEP BREXIT ANALYSIS No. 5

Brexit and the impact of immigration on the UK

- Between 1995 and 2015, the number of immigrants from other European Union (EU) countries living in the UK tripled from 0.9 million to 3.3 million. In 2015, EU net immigration to the UK was 172,000, only just below the figure of 191,000 for non-EU immigrants.
- The big increase in EU immigration occurred after the ‘A8’ East European countries joined in 2004. In 2015 29% of EU immigrants were Polish.
- EU immigrants are more educated, younger, more likely to be in work and less likely to claim benefits than the UK-born. About 44% have some form of higher education compared with only 23% of the UK-born. About a third of EU immigrants live in London, compared with only 11% of the UK-born.
- Many people are concerned that immigration reduces the pay and job chances of the UK-born due to more competition for jobs. But immigrants consume goods and services and this increased demand helps to create more employment opportunities. Immigrants also might have skills that complement UK-born workers. So we need empirical evidence to settle the issue of whether the economic impact of immigration is negative or positive for the UK-born.
- New evidence in this Report shows that the areas of the UK with large increases in EU immigration did *not* suffer greater falls in the jobs and pay of UK-born workers. The big falls in wages after 2008 are due to the global financial crisis and a weak economic recovery, not to immigration.
- There is also little effect of EU immigration on inequality through reducing the pay and jobs of less skilled UK workers. Changes in wages and joblessness for less educated UK-born workers show little correlation with changes in EU immigration.
- EU immigrants pay more in taxes than they take out in welfare and the use of public services. They therefore help reduce the budget deficit. Immigrants do not have a negative effect on local services such as crime, education, health, or social housing
- European countries with access to the Single Market must allow free movement of EU citizens whether in the EU (like the UK) or outside it (like Norway and Switzerland).
- The refugee crisis has nothing to do with EU membership. Refugees admitted to Germany have no right to live in the UK. The UK is not in the Schengen passport-free travel agreement so there are border checks on migrants.

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Professor John Van Reenen who joined the CEP as Director in 2003, did not (and does not) support joining the Euro.

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Introduction

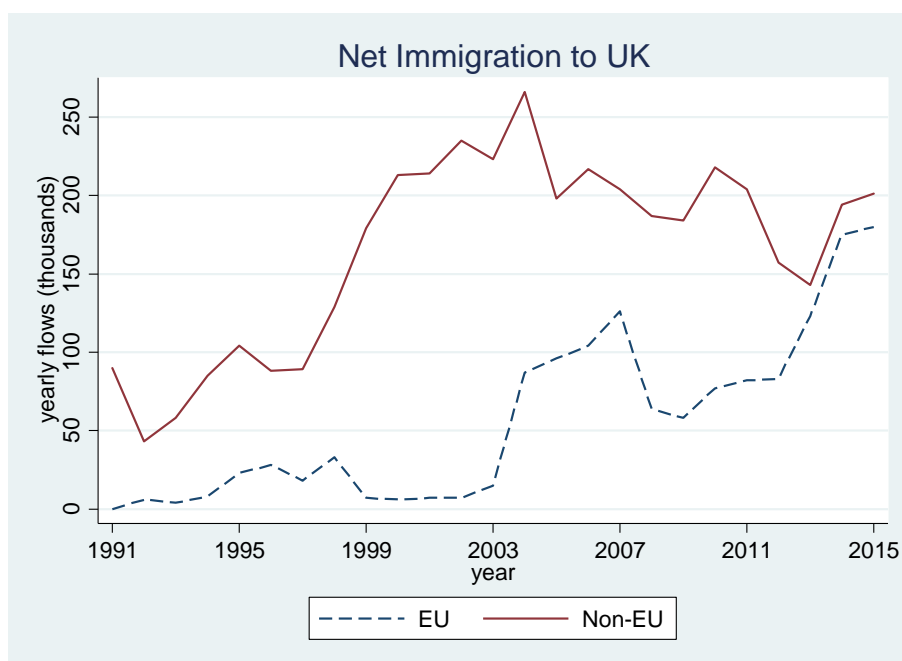
In the referendum debate about the UK's membership of the European Union (EU), a major argument of the Leave campaign is that Brexit would allow more control over the flow of immigrants to the UK from the rest of the EU. Many people are concerned that high levels of immigration may have hurt their jobs, wages and quality of life.

Immigration has grown a lot in the last 20 years and a significant fraction of this growth has been from other EU countries, especially after 2004 and the accession of eight East European countries (the 'A8'). Between 1995 and 2015, the number of immigrants from other EU countries living in the UK tripled from 0.9 million to 3.3 million. The share of EU nationals grew from 1.5% to 5.3% of the total population and from 1.8% to 6.3% of the working age population (adults aged 16-64).

Higher immigration has increased overall national income (more workers will generate more GDP) and has benefited the immigrants who have come to the UK since, by and large, they are better off than in their country of origin. But has it been economically harmful to people born in the UK? In this Report, we present a new analysis of the most recent data to examine whether EU immigration has affected the income prospects of the UK-born.

EU immigration to the UK

Figure 1: Net immigration to the UK, 1991-2015



Source: CEP analysis of ONS (2016) <http://bit.ly/1Tz5WbW>.

Net immigration is the difference between the number of people entering the UK and the number of people leaving. Figure 1 shows how these have increased for EU and non-EU immigrants. When the East European A8 countries¹ joined the EU in 2004, immigration rose

¹ The A8 countries are the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

significantly, but it then fell back during the recession after 2007. In the last few years, net inflows have again risen significantly as the economy has recovered. In the year to September 2015, net EU immigration was 172,000, comprising 257,000 EU nationals arriving and 85,000 leaving. This is only just below the figure of 191,000 net immigration for non-EU nationals.

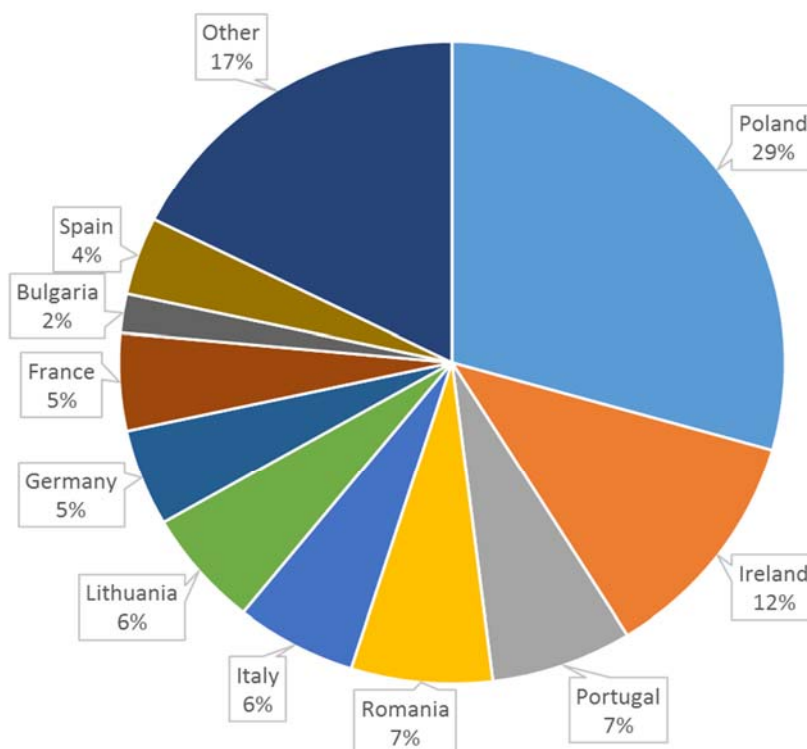
The best source of data to explore the impact of immigration is the Labour Force Survey (LFS). This is because it makes it possible to measure the economic circumstances of people born in the UK and compare them with immigrants from the EU and other countries. The Annex gives more details and compares the LFS with other data sources, such as National Insurance numbers. The conclusions of this report are robust to using other data sources such as NI numbers for migration and the Annual Survey of Hours and Earnings for wages.

In 2015, there were around 3.3 million EU immigrants living in the UK up from 0.9 million in 1995 - a rise to 5.3% of the population from 1.5%. Around 2.5 million of these migrants are aged 16-64 and two million are in work.² EU countries now account for 35% of all immigrants living in the UK. While 29% of EU nationals are Polish and 12% are Irish, the nationalities of other EU immigrants are quite evenly spread across the other 25 countries in the EU (Figure 2).

As with other immigrants, there is a greater concentration of EU nationals in London than in the rest of the country (Figure 3). A third of EU nationals live in London compared with only 11% of UK nationals.

Figure 2: EU immigrants by nationality, 2015

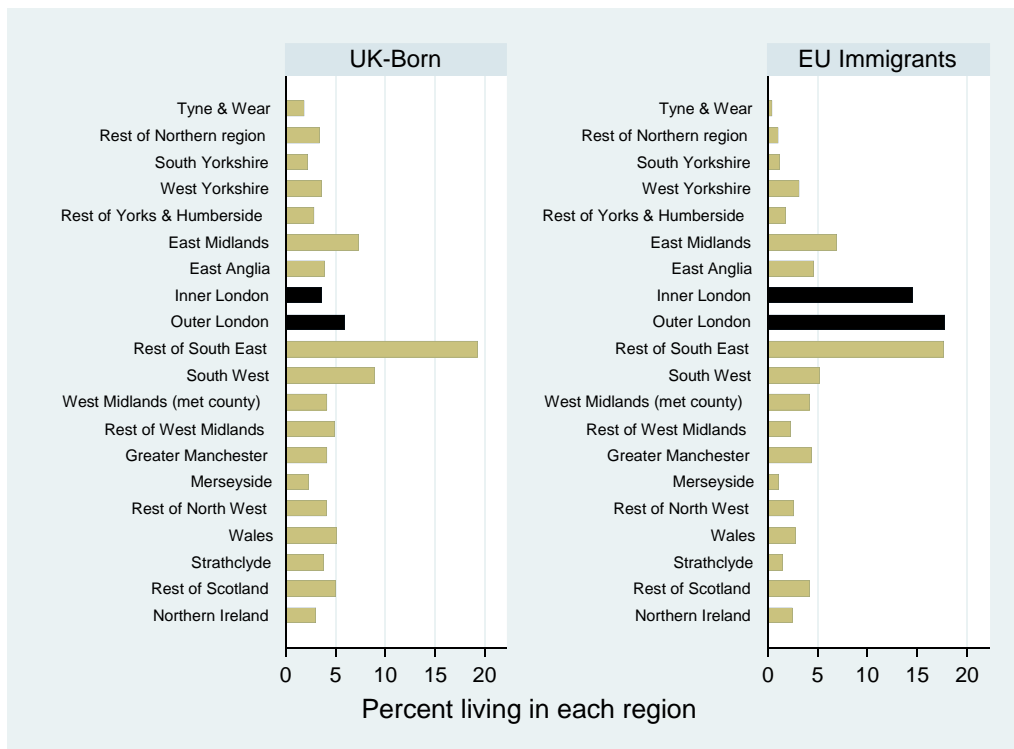
Share of EU Nationals by Country of Origin, 2015



Source: CEP analysis of Labour Force Survey.

² The focus is on EU nationals (self-defined) rather than country of birth, since any decision to restrict entry would presumably be based on nationality and not country of birth.

Figure 3: Proportion of UK and EU nationals in each region, 2015



Source: CEP analysis of Labour Force Survey.

Notes: London is marked in black. This is where immigrants are disproportionately concentrated.

EU immigrants are on average more educated than the UK-born (Table 1) – almost twice as many of them have some form of higher education (43% compared with 23% UK-born). Only 15% of EU immigrants left school at 16 compared with 44% of the UK-born.

Table 1: Education and immigrant status (working age population) 2015

Age finished education	UK-Born	EU immigrants	A8 immigrants	All immigrants
High (21 or older)	23%	43%	36%	45%
Medium (17-20)	33%	42%	55%	36%
Low (16 or under)	44%	15%	9%	19%
All	100%	100%	100%	100%

Source: CEP analysis of Labour Force Survey.

Notes: The A8 countries are the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, all of which joined the EU in 2004. Working age population is all individuals between the ages of 16 and 64.

Table 2 shows that EU immigrants are not only more educated, but they are also more likely to be in work (78.2%) than UK-born individuals (72.5%) and less likely to be unemployed or economically inactive. This is particularly true of A8 immigrants: almost 82% of them are in work.

Table 2: Employment, unemployment, students and economic inactivity by immigrant status (working age population) 2015

	UK-born	EU immigrants	A8	All immigrants
<i>% of whom:</i>				
Employed	72.5%	78.2%	81.9%	69.9%
Unemployed	3.3%	3.2%	2.65%	4.2%
Student	7.7%	7.1%	5.1%	7.6%
Inactive	16.5%	11.6%	10.5%	18.3%

Source: CEP analysis of Labour Force Survey.

Notes: The A8 countries are the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, all of which joined the EU in 2004. Working age population is all individuals between the ages of 16 and 64.

EU immigrants are typically younger. Among the working age population, the average age of the UK-born is 40, the average western EU immigrant is 38 and the average A8 immigrant is 34.

Immigration, jobs and wages – national trends

About 70% of EU immigrants say they come to the UK because of work-related reasons, as opposed to study or joining their families (ONS, 2016). Since immigration increases the total number of people in work or looking for employment, does that mean that UK workers *must* have been harmed by this increased competition for jobs?

The short answer is ‘no’. Believing otherwise is called the ‘lump of labour fallacy’. There would be harm only if the total number of jobs is fixed and only where immigrants compete for a particular job. But since immigrants also consume local services and goods, this increases demand and so raises job prospects of those who produce those goods and services. Adding an immigrant raises the population, just like a rise in the birth rate or a fall in the death rate. Over the last 100 years, the UK population has grown by around 50% but the unemployment rate has not trended inexorably upward.

But even if there is no reason to think that immigration should increase unemployment, is it not obvious that an increase in the supply of workers must drive wages down? Again, it isn’t necessarily so. Alongside the increased demand that a rising population brings, greater movement of labour allows countries to specialise in what they are best at, just like increased trade. Firms will change the mix of their products to account for the new skills available to them. Immigrants, especially if they are more skilled, can boost productivity. All these effects will tend to *increase* wages.

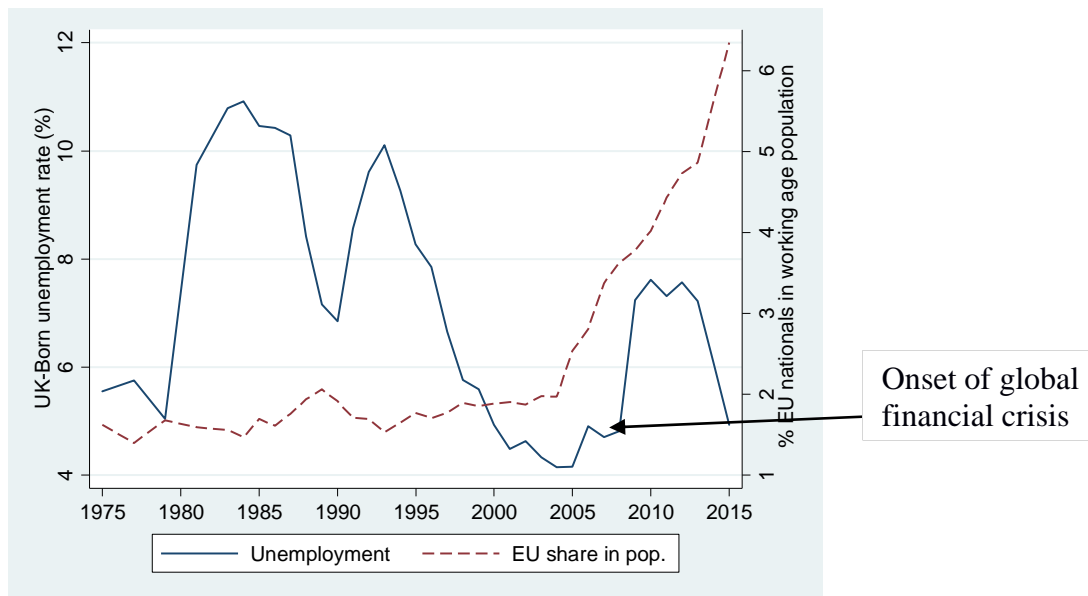
Consequently, the impact of immigration on UK-born workers is an empirical question and not a foregone conclusion. We need to look at data for evidence.

There is a huge amount of research examining the effect of immigration on jobs and wages (summarised in Wadsworth, 2015; Portes, 2016a; Centre for European Reform, 2016; Dustmann et al, 2005, among others). The conclusion of this research is that the large increase in immigration in the UK has *not* significantly harmed the job and wage prospects of UK-born workers.

Most of this work, however, was conducted prior to the global financial crisis and the Eurozone crisis. So it is reasonable to ask whether these findings have changed after the most severe economic downturn for 80 years.

Figures 4 to 6 plot the unemployment, employment and wage trends for individuals *born in the UK* alongside the trend in immigration from the EU. In Figure 4, at a time when EU immigration has been rising sharply (after 2004), UK unemployment *for those born in the UK* rose – but then fell back to a very low level, while EU immigration kept on rising. Indeed, despite the global crash, the rise in unemployment for UK-born workers was much less than in previous downturns when EU immigration was much lower.

Figure 4: Unemployment of UK-born and EU immigration, 1975-2015



Source: CEP analysis of Labour Force Survey.

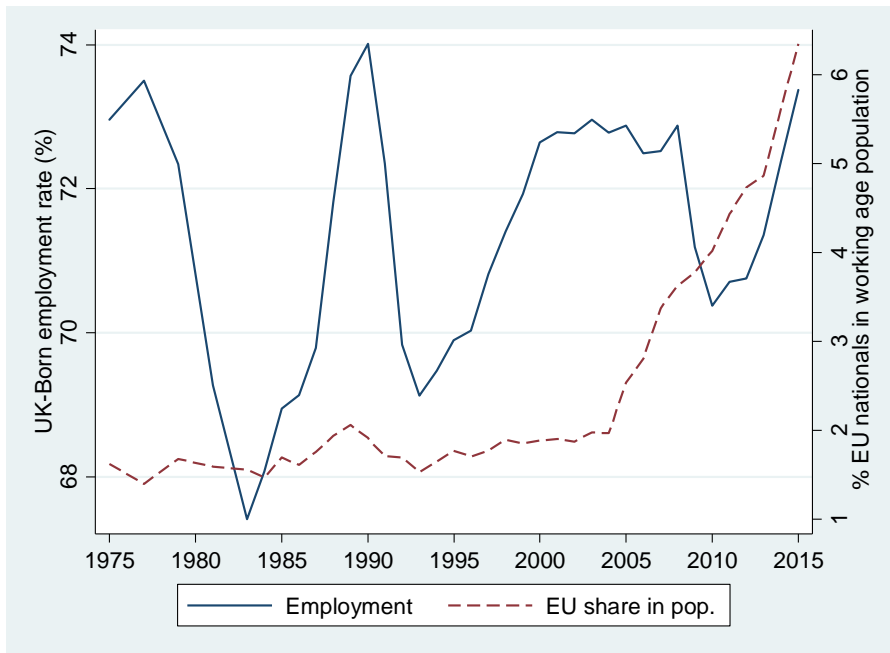
Notes: % EU is the proportion of EU nationals in the working age population (16-64 for men, 16-59 for women).

A similar pattern can be seen using the fraction of the working population in jobs (the employment rate) for UK-born workers (Figure 5).³ The employment rate *of UK-born workers* goes up and down with the economic cycle, but has risen recently in the period when EU immigration is also rising. It is almost back to levels seen at the peak of previous recoveries.

Median real wages for those born in the UK were growing from the late 1990s until the global financial crisis. Since then, wages have fallen by about 10%. Such falls in real wages are unprecedented in the post-war period. The story of the latest recession was not that many more people lost their jobs, but that most people’s wages fell. Figure 6 confirms that this fall happened while EU immigration was rising – but equally the big gains in real wages for UK workers were experienced at a time when EU immigration was also rising. So the cause of the fall of wages is the impact of the Great Recession – not immigration.

³ The employment count in Figure 5 excludes any students in work – but the trends are very similar if any students in work are added back in to employment.

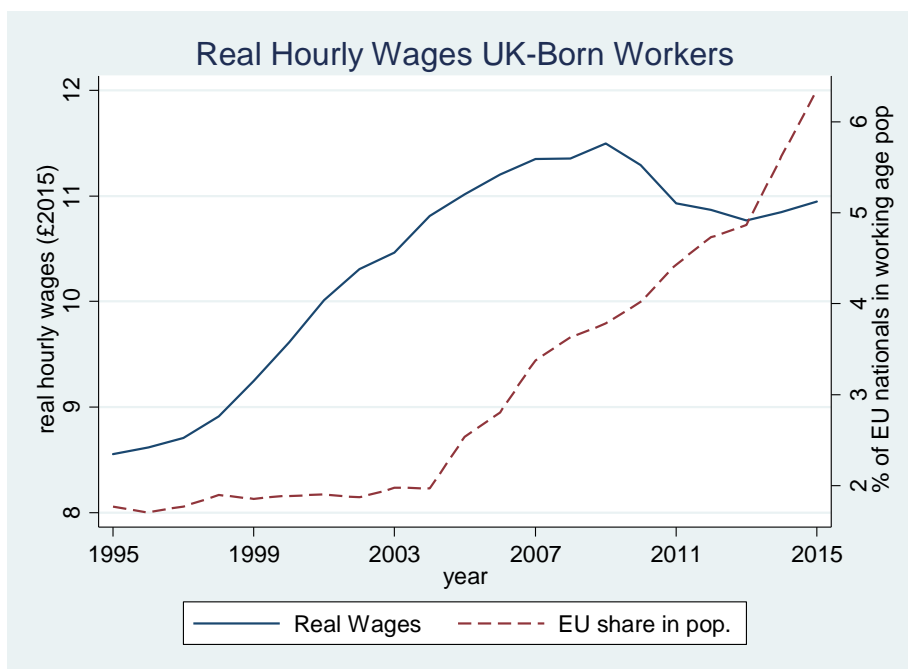
Figure 5: Employment rate of UK-born and EU immigration, 1975-2015



Source: CEP analysis of Labour Force Survey.

Notes: % EU is the proportion of EU nationals in the working age population (16-64 for men, 16-59 for women).

Figure 6: Median real hourly wages for the UK-born, 1995-2015



Source: CEP analysis of Labour Force Survey.

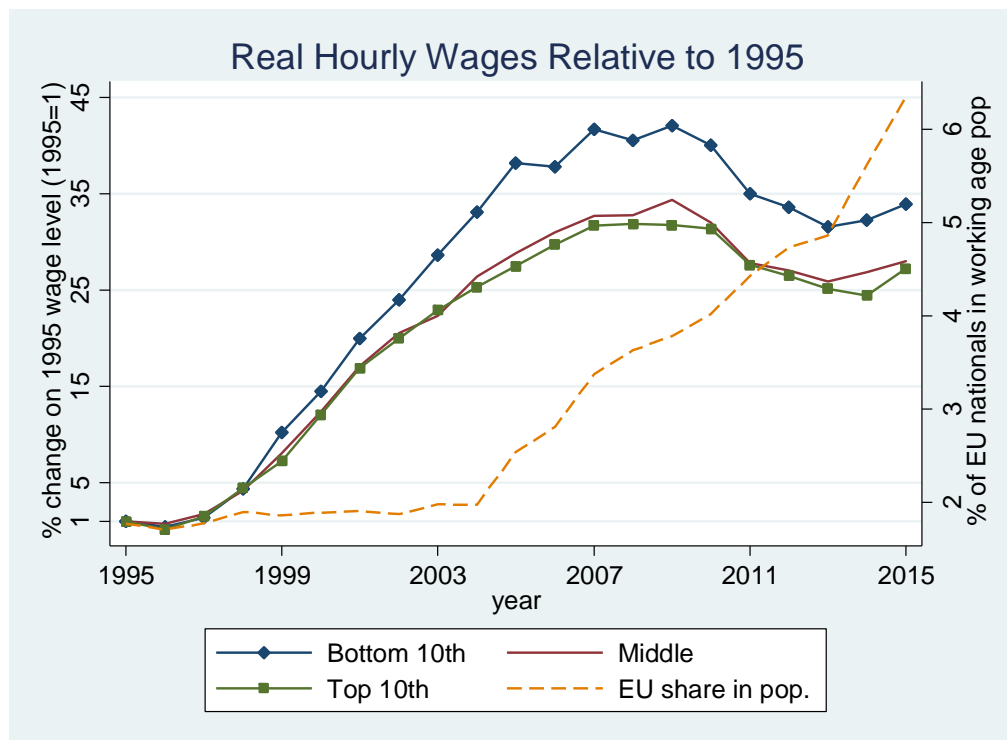
Notes: Median wage is deflated by the CPI.

Immigration, jobs and wages – local trends

Although there appears to be little correlation between EU immigration trends and the average worker’s jobs or wages, what about an impact on certain types of workers? Even if no one loses on average, could there be certain groups who do suffer badly?

The fact that EU immigrants are more educated would suggest that, if anything, they put downward pressure on the wages of higher waged people, thus reducing inequality. No one will shed many tears for bankers or university professors facing stiffer competition for their services. But there is concern that less skilled workers are hurt if educated immigrants are willing to accept low paying jobs (Migration Advisory Committee, 2014). For example, according to 2015 data, a third of EU nationals are in the relatively low skilled ‘elementary and processing occupations’ compared with 10% of UK nationals in work. Given that immigrants are more highly educated, this may be because they are not using their skills fully. But it may also reflect the fact that they are younger and so less likely to be in more senior managerial and professional roles.

Figure 7: Wage inequality for UK-born workers and EU immigration 1995-2015



Source: CEP analysis of Labour Force Survey.

Notes: The Figure tracks growth in real wages (deflated by CPI) relative to level of wages in 1995 for the bottom 10th percentile, the median (50th) and top 10th (90th percentile) of UK-Born workers. For example a value of one indicates the same level as 1995 and a value of 10 indicates real wages 10% above 1995 level. % EU is the proportion of EU nationals in the working age population (16-64 for men, 16-59 for women).

If we track the wages of UK-born workers across the pay distribution over time (Figure 7), we see that wages for those in the bottom tenth have, if anything, held up better than wages of UK-born workers elsewhere in the pay distribution. The sharp fall in real wages since the recession has hit everyone. So most people are equally worse off. The introduction of the minimum wage in 1999 gave a boost to pay growth at the bottom, which continued through to the late 2000s.

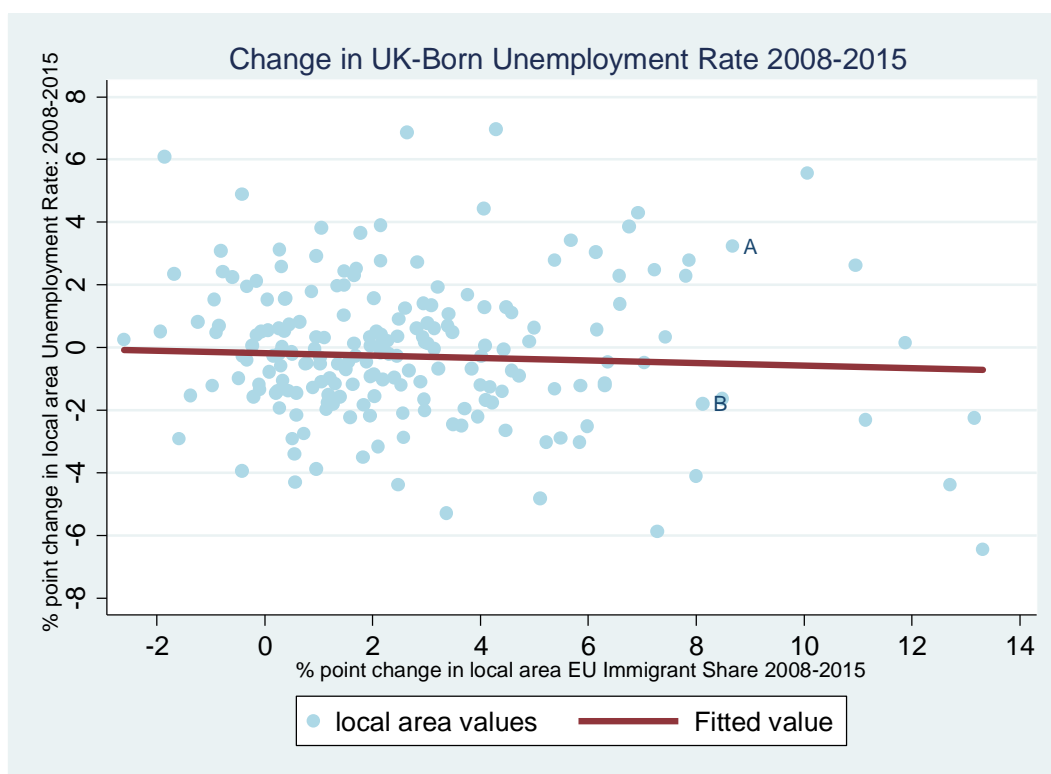
Again, the rise in EU immigration happened in periods of relative wage growth at the bottom wage levels and in periods of relative wage stability at the bottom. So it is hard to see evidence of relative wage falls for low paid UK workers when EU immigration is rising.

On the face of it, it would seem that the recession coincides with much of the recent bad experiences of UK-born workers with regard to jobs and pay rather than rising immigration.

Looking at economy-wide changes might disguise effects in local areas where immigration has gone up by a lot. The most straightforward way to investigate this issue is to examine whether areas of the UK that had larger influxes of EU immigrants also had worse job and wage outcomes for the UK-born relative to other areas. Looking at the change over time controls for lots of other features of the local labour market that could also explain unemployment and wages in those areas.

Figure 8 considers changes in the unemployment rates of the UK-born across local authorities in relation to changes in EU immigration between 2008 and 2015 (one dot for each of the 201 local authorities). The solid red line summarises the relationship between immigration and UK-born unemployment rates. If immigration increased unemployment, we would expect a strong upward sloping line: more EU immigrants would mean more unemployment for local workers. In fact, the line indicates that a 10 percentage point increase in the share of EU immigrants in a local area is associated with a 0.4 percentage point *reduction* in the unemployment rate in that area. But it is very clear from the graph that there is absolutely no statistically significant relationship (negative or positive) of EU immigration on unemployment rates of those born in the UK.

Figure 8: Unemployment rates of UK-born & EU immigration



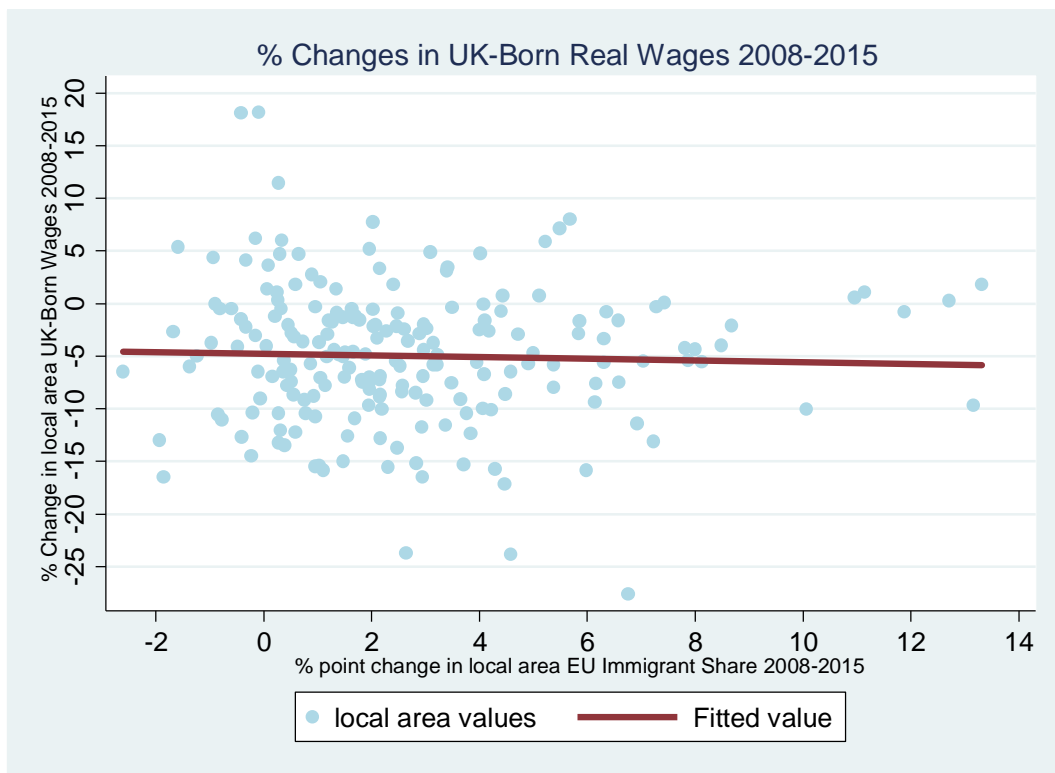
Source: CEP analysis of Labour Force Survey.

Notes: Each dot represents a UK local authority. The solid line is the predicted ‘best fit’ from a regression of changes in unemployment on the change in share of EU immigrants in each UK local authority. These are weighted by the sample population in each area. Slope of this line is -0.04 with standard error of 0.05, statistically insignificantly different from zero.

So why does it feel like immigration hurts jobs? Think about two areas – dots A and B in Figure 8. Both have had increases in the EU immigrant share of over 8% - well above the national average. In area A unemployment for the UK-born has risen by over 3%, which is also above the national average. So in area A it feels like immigrants are bad for jobs. However, area B has had a similar increase in immigration rates, while unemployment rates have fallen by 2%. Therefore, just because immigration and unemployment both go up in an area does not mean that this is true nationwide, since it is quite easy to find areas where the opposite has happened. Something else must underlie the ill fortune of areas with rising unemployment.

Figure 9 provides the same analysis of the impact of EU immigration on pay. Again, there is no apparent link between changes in the real wages of UK nationals and changes in EU immigration. Wages of UK-born workers changed at much the same rate in areas with high EU immigration as in areas where the change in EU immigration was low.

Figure 9: Wages of UK-born & EU immigration



Source: CEP analysis of Labour Force Survey.

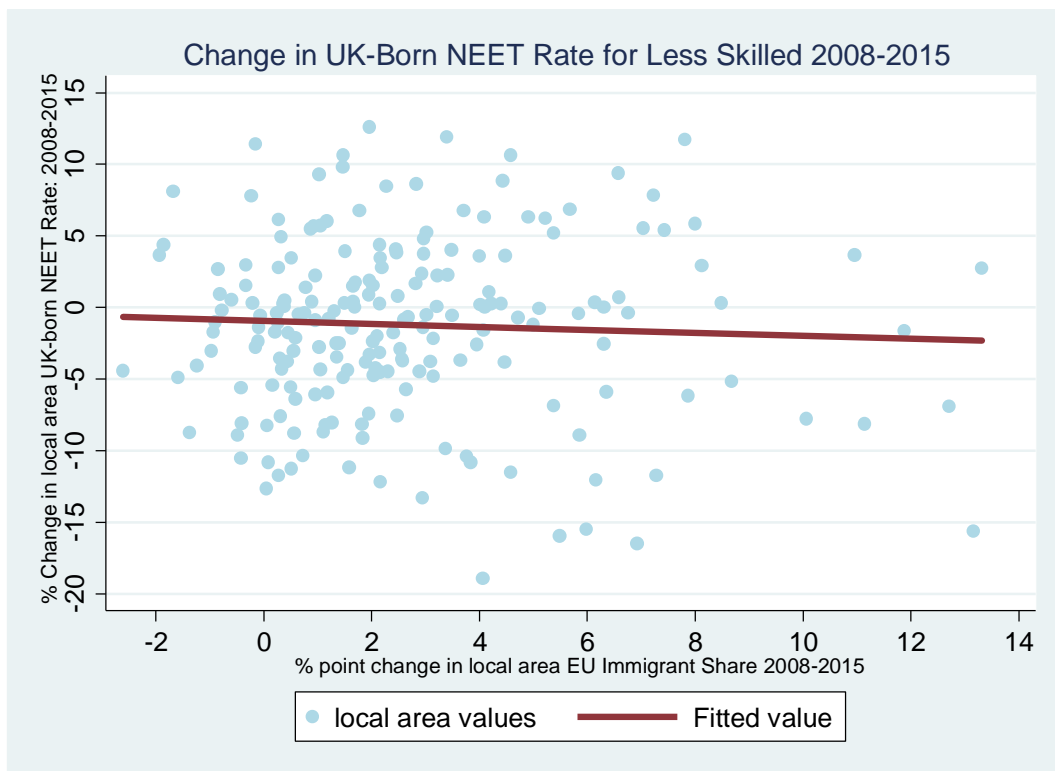
Notes: Each dot represents a UK local authority. The solid line is the predicted ‘best fit’ from a regression of local authority percentage change in wages on the local authority change in share of EU immigrants. These are weighted by the sample population in each area. Slope of this line is -0.08 with standard error of 0.15, statistically insignificantly different from zero.

To see if employment and wage prospects for *less skilled* UK nationals are associated with EU immigration, Figure 10 looks at the change in the NEET rate (‘not in education, employment or training’) for low skilled UK-born, defined as those who left school at the minimum leaving age or younger. There is again no effect of EU immigration on their job prospects. If anything, the relationship is negative – NEET rates fell furthest between 2008 and 2015 in areas where EU immigration rose faster. But the estimate, like all others, is statistically insignificant.

Likewise, Figure 11 shows no obvious link between the pay of less skilled UK-born individuals and changes in the local area population of EU nationals over this period.

The Technical Appendix presents a large number of variations of these graphs. For example, we repeat the analysis for other periods such as starting in 2004 when the A8 joined the EU or 2011 when the Eurozone crisis really worsened. We drop London to make sure that the capital is not biasing the relationships. Across all experiments, the results are essentially unchanged: *EU immigration does not seem to harm UK workers.*

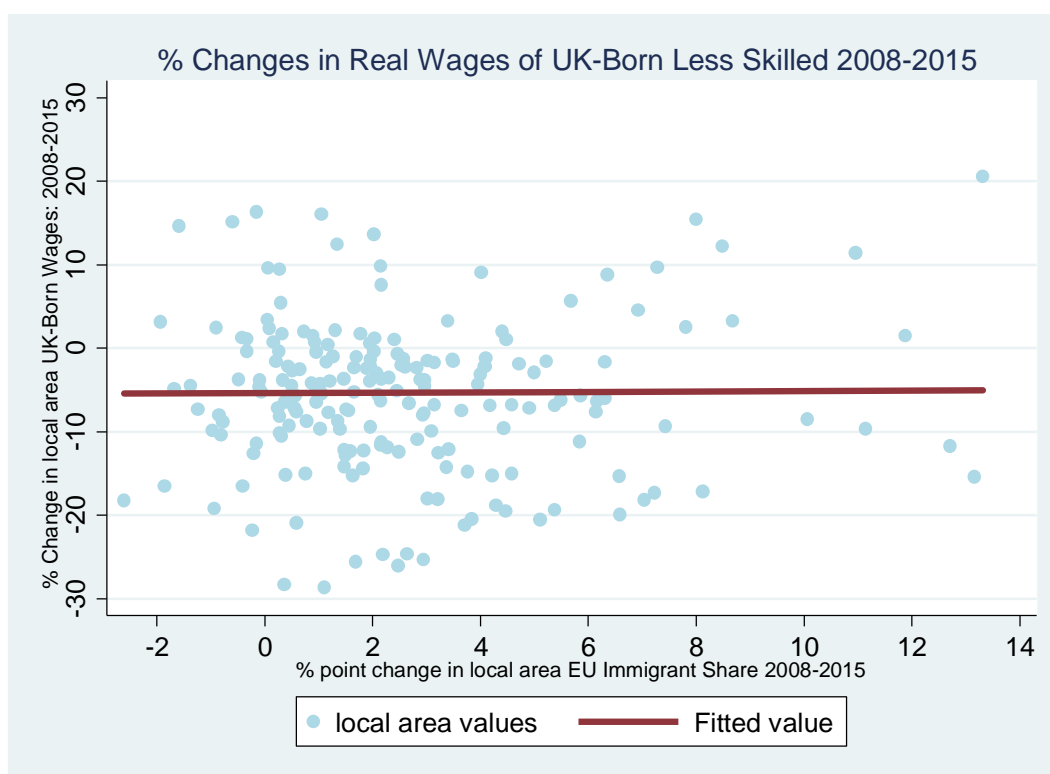
Figure 10: NEET ('not in education, employment or training') rates for less skilled UK-born & EU immigration, 2008-2015



Source: CEP analysis of Labour Force Survey.

Notes: Each dot represents a UK local authority. The solid line is the predicted 'best fit' from a regression of local authority change in NEET rates for the less skilled on the local authority change in share of EU immigrants. These are weighted by the sample population in each area. Slope of this line is -0.10 with standard error of 0.14, statistically insignificantly different from zero. NEET stands for those 'not in education, employment or training.' Less skilled is defined by those who left school at 16 or earlier.

Figure 11: Wage rates for less skilled UK-born & EU immigration



Source: CEP analysis of Labour Force Survey.

Notes: Each dot represents a UK local authority. The solid line is the predicted ‘best fit’ from a regression of local authority percentage changes in the wages of the less skilled on the change in share of EU immigrants. These are weighted by the sample population in each area. Slope of this line is 0.02 with standard error of 0.21, statistically insignificantly different from zero. Less skilled is defined by those who left school at 16 or earlier.

One group that *does* seem to lose out from new immigration is the stock of other recent arrivals (Manacorda et al, 2011). So although there is no negative effect on UK-born workers, there might be some depressing effects on other immigrants who settled in the UK a few years back.

Dustmann et al (2013) find small wage losses for those in the bottom 10% of the pay distribution and larger wage gains for those in the middle of the pay ladder as a result of immigration. Their estimates imply that the wave of EU immigration between 2004 and 2015 reduced wages in the bottom decile by 1.03% and raised wages for the median worker by 1.24%. But the areas where the bottom 10% had relatively slow wage growth were places like London. London had big increases in immigration but also had the weakest bite of the rapidly rising minimum wage. Consequently, it is likely that even these small negative effects are overstated by not controlling for the minimum wage effects.

Nickell and Saleheen (2015) find small wage losses for occupations with fast increases in immigration. Their results imply that all EU immigration since 2004 has reduced semi/unskilled service sector wages by only about 0.7% (compared with a 4% increase in the minimum wage over the same period, Centre for European Reform, 2016). But they do not separate wages of the UK-born from immigrant wages as we do, so even their small effects of EU immigration on wages may be coming from its effects on other immigrants. Furthermore, the occupations that lose may be counterbalanced by the occupations that gain in a local area, meaning that the overall effect on the area’s wages is zero, just as we find.

The impact of EU immigration on public finances and public services

What is the fiscal impact of immigration on public finances and public services?

Public expenditure will be lower on one point since UK taxpayers have not had to finance the childhood schooling and healthcare costs of an immigrant adult as they would do for a UK-born adult. Second, we have documented above that EU immigrants are younger, more likely to work and less likely to be on benefits. While immigrants, like UK nationals, would not be eligible for contributory-related benefits until they have worked full-time for two years, they could be eligible for means-tested benefits should they apply. HMRC estimates that around 6% of tax credit claims are from households that include an EU national in line with the share of EU nationals in the UK (House of Commons, 2014).

After trying to account for the many possible ways in which individuals pay taxes or draw welfare, Dustmann and Frattini (2014) find that EU immigrants made a positive fiscal contribution: they paid more in taxes than they received in welfare payments. For example, A8 immigrants paid in about £15 billion more than they took out in public spending in the decade up to 2011. While this effect may seem small, the longer-run impact could be substantial. The central estimate of the Office for Budget Responsibility (2013) is that the UK's national debt will be 40 percentage points higher in 2062 if net immigration is reduced to zero from 140,000 per year. By contrast, UK nationals, as a whole, received more in benefits than they paid in taxes.

Given that EU immigrants are making net contributions, there is no reason to think that they should crowd out any public services. In fact, they are bringing extra resources that could be used to increase spending on local health and education for the UK-born. In other words, reducing EU immigration would generate the need for greater austerity. This would magnify the need for cutbacks caused by the slower growth of the economy due to reduced trade and investment identified by Dhingra et al (2016a, 2016b).

Although the fact that the government has been cutting back on public services cannot therefore be blamed on immigrants, it is still interesting to see whether immigration has led to worse local services.

If immigrants cause social disruption, we would expect this to be reflected in crime rates. Bell et al (2013) find no effect of the big 2004 increase in immigration from East European countries on crime.

Geay et al (2013) find no effect of immigration on aspects of educational attainment and actually some positive effect from Polish children on UK-born pupils. The disadvantage in having English as a second language seems to be outweighed by a stronger immigrant push to work hard at school.

For the NHS, Wadsworth (2013) finds no greater usage of doctors and hospitals by immigrants relative to the UK-born; and Giuntella et al (2015) find little effect on NHS waiting times. These studies do not distinguish between EU and non-EU immigrants, but since EU immigrants are younger than non-EU immigrants, they are less likely to use health services, so the results are likely to be stronger.

There is a general perception that immigrants are given better treatment when applying for social housing. Battiston et al (2013) show that controlling for demographic, economic and regional circumstances, immigrant households are *less* likely to be in social housing than their UK-born counterparts. Lack of access to social housing has more to do with the falling supply of social housing.

One area where we may be concerned is the effect of immigration on house prices. The UK's terrible track record of building insufficient houses does mean that the population increase generated by immigrants adds to housing pressure. But the failure to create enough housing supply would be a problem even in the absence of EU immigration. It is rooted in the failure of the UK planning system to make appropriate infrastructure decisions more generally (LSE Growth Commission, 2013; Hilber, 2015). Having said this, the empirical evidence does not find positive effects of immigration on local house prices (Sa, 2015).

Refugees

The Syrian refugee crisis is not related to the UK's continued membership of the EU. The total immigration figures will not be much affected as the government will admit only around 20,000 adult refugees over the next five years. Refugees given the right to remain in Germany or other EU countries have no right to live or work in the UK. It takes a number of years (usually between five and eight) before refugees are even allowed to apply for citizenship. Most of those who are settled are unlikely to seek work in the UK. The UK is not in the Schengen passport-free travel agreement, so there are border checks preventing entry of refugees. Stopping illegal entry to the UK would not be any easier after Brexit.

Could EU immigration really be restricted after Brexit?

At present, only work visas issued to non-EU nationals are restricted. If the UK were to leave the EU but wanted to remain a member of the European Free Trade Area or the European Economic Area, it may have to accept unrestricted EU immigration just as all other countries like Norway or Switzerland do. Only a looser trading agreement with higher trade costs would potentially enable the UK to restrict work-related EU immigration in much the same way as non-EU immigration is restricted.

If EU immigration were cut following Brexit, then something like the current visa scheme that applies to non-EU immigrants would have to be adopted to accommodate immigration from the EU. Current rules effectively exclude non-EU immigration from all but graduate jobs and limit numbers arriving on work visas each year to around 55,000, (5,000 in 'Tier 1' and 50,000 in 'Tier 2').⁴ This would mean decisions would have to be taken on whether to expand the current quotas and which skill groups to allow. It is likely then that after Brexit, skilled EU immigration would be cut and there is little realistic prospect of non-EU skilled immigration being expanded.

⁴ See <https://www.gov.uk/government/publications/immigration-statistics-october-to-december-2015/work>. In addition to the 55,000 work visas, there were an additional 38,000 dependents. The total for Tier 2 includes a quota of 20,700 work visas with the rest made up of short-term Inter Company Transfer visas.

Immigration, welfare benefits and the National Living Wage

How much ‘benefit tourism’ from the EU is there? LFS data show that EU immigrants are *less* likely than UK nationals to claim unemployment benefit, housing benefit or tax credits (Centre for European Reform, 2016).

Another argument made in favour for Brexit is that the big increases in the minimum wage (the National Living Wage) planned over the next four years will draw in many more EU immigrants.⁵ It is unclear how big a draw this will be since it depends, in part, on what other countries do to their own wages and on the relative cost of living in each country. Office for Budget Responsibility, (2015), predicts an increase in unemployment of 60,000 which will also be concentrated among the less skilled.

Productivity and immigration

A disadvantage of focusing on outcomes in local areas is that they may miss out on the economy-wide effects of immigration. By enabling specialisation and raising productivity, immigration could also raise national wages.

Migration acts much like trade, as people tend to move to countries where they can be more productive and earn higher incomes. Migrants move from countries with lower productivity (and hence lower wages) to countries with higher productivity: this increases welfare through greater efficiency in labour allocation across the world. Immigrants also fill the gaps in the skill composition of the national workforce. This fosters specialisation, increases productivity, and raises the wages of national workers with complementary skills.

There is a consensus that there are positive effects of trade and foreign direct investment on UK productivity. But there is somewhat less of a consensus on the effect of immigration on productivity. There is strong evidence of positive effects for more educated immigrants (for example, Ottaviano et al, 2016, for UK service productivity; Ortega and Peri, 2014). Indeed, most studies show insignificant or positive effects of overall immigration.⁶ For example, Felbermayr et al (2010) concludes that a 10% increase in the immigrant stock leads to a per capita income gain of 2.2%.

Recent work by Boubtane et al (2015, Table 3) finds that a 50% decrease in the net immigration rate would reduce UK productivity growth by 0.32% per annum. Since EU immigration is half of the current UK total (see Figure 1), cutting EU immigrants to 80,000 per year is likely to shave 0.16% off productivity growth. So about a decade after Brexit, UK GDP per capita will be about 1.6% lower than it would have otherwise been.

Supporters of Brexit argue that economic benefits would flow from bringing EU immigration under the same rules as non-EU immigrants. Boubtane et al (2015) also look at how improving the average skill level of immigrants could increase productivity. To offset the productivity loss from halving EU net immigration, the UK immigration system would have to improve the

⁵ See <http://www.dailymail.co.uk/wires/pa/article-3554751/Brexit-camp-backlash-Obama-queue-warning.html>.

⁶ For example, <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/home-affairs-committee/immigration-skill-shortages/written/23066.pdf>.

relative education levels of EU immigrants by about a quarter. Since EU immigrants are already significantly better educated than the UK-born, this may be hard to engineer.

Conclusion

We cannot be precise about the size of the losses from restricting immigration following a Brexit. But we can confidently say that the empirical evidence shows that EU immigration has *not* had significantly negative effects on average employment, wages, inequality or public services at the local level for the UK-born. Nor, it should be said, are there large positive effects. Any adverse experiences of UK-born workers with regard to jobs and wages are more closely associated with the biggest economic crash for more than 80 years.

At the *national* level, falls in EU immigration are likely to lead to lower living standards for the UK-born. This is partly because immigrants help to reduce the deficit: they are more likely to work and pay tax and less likely to use public services as they are younger and better educated than the UK-born. It is also partly due to the positive effects of EU immigrants on productivity.

Our earlier reports reflect a wide consensus that trade and foreign investment will also fall after Brexit, both of which would reduce UK incomes. Lower immigration is a third channel that will push UK living standards even lower.

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Annex: Data Sources and Definitions

Labour Force Survey (LFS)

Most of this report is based on CEP analysis of the latest individual-level data from Labour Force Survey (LFS). The LFS is the best data source to use covering a representative sample of individuals living in the UK. For example, in 2015, it includes about 90,000 people. The analysis in Figures 8-11 uses the Annual Population Survey (APS) which is based on pooling the LFS quarterly panel over about a year. It has about 350,000 observations a year for the working age population. In the regression lines we weight by the sample population to correct the standard errors for small areas.

With the LFS, it is possible to separate out who is a UK-born individual from those who are EU nationals. This enables us to examine not just the reported trends in the labour market but also to break this down into the UK-born and immigrants.

National Insurance numbers

There is some discrepancy between the number of National Insurance (NI) numbers issued to EU nationals and survey estimates of the EU immigrant population and inflows based on the LFS and International Passenger Survey (IPS) respectively. Anyone should claim a NI number if they are in work, looking to work or wish to be eligible for tax credits or benefits. The NI count is based on these inflows. It has the advantage over the LFS that it is administrative data on the population of NI numbers and therefore not a sample. But compared with the LFS, it will underestimate the flows for EU immigrants who are working but do not have NI numbers or those who are not seeking to work.

A big disadvantage of NI numbers is that individuals keep their NI number when they leave the country. Consequently, we do not know the immigrant *outflows* using NI numbers. Thus, it is not possible to make a reliable calculation of the net immigration numbers using NI counts. According to the IPS, about 90,000 EU nationals leave the UK each year, taking their NI numbers with them. Another disadvantage of the NI numbers is that an immigrant may have one even if they are only in the UK for a short space of time. It is not simply the immigrants who are in the UK for at least a year.

Consequently, the LFS is a sample of *all* individuals living in the UK at any one time, so it is a better snapshot of the current immigration position in our view.

Definitions of immigrant status

The LFS asks people whether they were born in the UK and (except where noted otherwise) this forms the basis of our outcomes for the UK-born. For EU immigrants, we use the information on whether someone responded in the LFS that that they were a (non-UK) citizen of the EU. We use EU ‘nationals’ rather than EU-born because any post-Brexit policy would be to restrict people from entering the UK based on their citizenship rather than where they were born. But the results are similar using whether individuals were born in the EU as an

immigrant measure rather than an 'EU national', so nothing much hinges on this.

Definitions of working age population

In most of the text, we define the working age population as all those aged between 16 and 64. In the figures, we use a shorter age range for women of 16-59 since women retired at 60 for much of the period used in the graphs. Nothing materially changes if we use a higher age for women.

Alternative sources of data on labour market outcomes

As an alternative method to our local analysis, Portes (2016b) correlates constituency-level changes in labour market outcomes with changes in immigration rates based on National Insurance numbers. He uses NOMIS administrative data and ASHE to calculate numbers on Job Seekers Allowance, unemployment and employment rates and hourly wages. Like us, he finds no evidence of significantly negative effects of EU immigration on jobs or wages.

These alternative measures have the advantage over LFS of being administrative data rather than a survey. But these data cannot be used to distinguish the labour market outcomes of the UK-born from immigrants, which is an advantage of our study.