Migrants in the UK labour market during the initial stages of the Covid-19 pandemic

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Abstract

This paper analyses the extent to which migrants and natives have been affected by the initial stages of the Covid-19 pandemic (and the measures to contain it) in terms of activity status, benefits take-up, hours worked, and pay. Unemployment has increased for both natives and migrants as has, consequently, the benefits which are aimed to support non-employed households. The rise in these outcomes is particularly important for EU migrants. EU migrants have also been more likely to experience a decrease in pay during the pandemic. Natives, EU, and non-EU workers, have all suffered similar decrease in hours worked. As migrants are likely to adjust to negative shocks through return or re-migration, these findings suggest that the recent increase in emigration from the UK can partly be explained by the negative effects of the pandemic on migrants labour market outcomes.

Keywords: Covid-19, migration, UK labour market.

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1 Introduction

Migration has become an increasingly important phenomenon in shaping the demographic composition of the UK. Net migration has been an essential driver of population growth over the past two decades. Since 1998 more than a half of the population growth can be attributed to it and the other half has been due to natural changes, i.e. births/deaths (The Migration Observatory, 2019). Moreover, if the births from non-UK born mothers are also considered as a migration outcome, then it has been estimated that 82% of population change was due to the phenomenon of migration between 2001 and 2016, fluctuating between 71% and 91%. Roughly 50% was due to net migration once accounting for deaths of immigrants, and 32% due to births from immigrant parents after accounting for deaths of people with immigrant parents (Migration Watch UK, 2018). Migration has also been an important factor for the economic growth of the country. Between 1996 and 2019, migrant workers accounted for 60 percent of the employment growth (Resolution Foundation, 2020).

Recent changes, such as the new migration regime post-Brexit and the global Covid-19 pandemic, are very likely to importantly affect the flows and the stock of immigrants in the UK. The media have indeed been reporting shortages of workers in the hospitality industry due to the lowering in the offer of migrants in these sectors, especially coming from EU countries (The Telegraph, 2021). Important changes in the inflows of migrants and on return behaviour will ultimately affect the UK labour market, its demographic composition and, possibly, in the longer-run, its socio-cultural aspects.

This paper shows the initial effect of the Covid-19 pandemic (and the measures implemented to stop it) on the labour market outcomes of natives and migrants in the UK. The UK has been badly hit by the pandemic with 128,000 total deaths to date caused by Covid-19 (Government data, 2021). Despite a relatively successful roll-out of the vaccination programme, Covid-19 cases have been increasing in the summer 2021 due to the spreading of the Delta variant. The impact of the pandemic on the economy has been significant.

Unemployment has risen, although to a lower level than we might have feared, mainly due to the introduction of the furlough scheme. Over the course of the pandemic, the entire UK workforce has been off work for four weeks and one day (Wadsworth, 2021). Layoffs have also been increasing and hiring has severely shrunk. Although vacancies have started increasing again, in quarter 2 of 2021 there were still 3 million workers either furloughed or out of work (Resolution Foundation, 2021). The migrant dimension is relevant to study in this context as we would expect natives and migrants to be affected differently by the Covid-19 pandemic. This is mainly because native and migrants have different employment rates and select into different jobs (Dustmann and Frattini, 2014; Migration Advisory Committee, 2014).

Surprisingly, there has been little analysis on the interplay of migration and the pandemic, despite migrants representing a large share of the workforce in several countries and being more likely to suffer from fluctuations in the business cycle (Dustmann et al., 2010; Orrenius and Zavodny, 2010). A notable exception is the analysis of Fasani et al. (2020). By using the most recent waves of the EU Labour Force Survey (2018) on 14 EU countries and the UK they identify four main dimensions determining workers' employment risk due to Covid-19. These are: whether working in a key occupation, whether having a fixed-term contract, whether the job could be performed remotely, and the resilience of the industry to shocks. They build an index based on these characteristics which they validate with the European labour market data in 2020. They simulate the impact of the pandemic on native and migrant employment. After conditioning on occupation and industry, non-EU migrants are still more likely to be unemployed compared to natives by 4 percent, while the initial gap of 7 percent of EU migrants disappears. Overall they find that young, low educated and non-EU workers are those most exposed to employment risk and they predict that 9.3 million workers are at high or at very high risk of losing their job because of the pandemic. The other paper studying the experience of immigrants in the pandemic is Borjas and Cassidy (2020). They find that in the US immigrants are particularly affected in terms of job losses

and that this is mainly explained by the nature of the job in which they sort into, which is less likely to allow for remote working. Indeed, illegal migrants are those most negatively affected among the migrant group.

The consequences of the pandemic on immigrants are important to understand as negative changes in their economic situation could alter their return or re-emigration intentions. Immigrants have a high propensity overall to move, and this is heightened during downturns (Cadena and Kovak, 2016). Barker et al. (2020) document the relevance of return migration due to the Covid-19 pandemic from the perspective of sending countries. Despite the difficulty of available reliable data on current numbers of migrants residing in the UK (ESCOE, 2021; Wadsworth, 2020; Resolution Foundation, 2020) there is already suggestive evidence that the Covid-19 pandemic has caused an exodus of non-UK born citizens, mainly EU workers, from the UK. ESCOE (2021) estimates an outflow of 1.3 million residents between 2019 and 2020, with London being particularly affected.

By using the Labour Force Survey, this paper first shows descriptively the contribution of migrants in the UK workforce and where they sort in terms of occupation and industry. Since the UK migration regime was characterized as a dual system until the end of 2020, EU and non-EU migrants (defined by their country of birth) are analysed separately. In 2019 migrants represented about 25% and 20% of the workforce in the lowest and highest occupations. They also represented 34% of the workforce in the hospitality industry, a sector hit particularly badly by the pandemic, and 20% of the workforce in the health industry, a sector which has been essential in fighting an unprecedented health emergency. The different job sorting of migrants and natives results in a different pay distribution. Indeed, controlling for industry-occupation fixed effects in a regression setting explains most of the native-migrant pay gap in the pre-pandemic period (2011-2019), at least for EU migrants.

Second, this paper estimates the immediate effect of the first peak of the pandemic and lockdown measures on several labour market outcomes of migrants in the UK. As the

pandemic has affected mainly young people, London, and the hospitality sector (ONS, 2021), we would expect that migrants would be particularly affected due to their young age, their high propensity to reside in London and their likelihood of being employed in the hospitality sector. A difference-in-differences-type strategy is implemented where the labour market outcomes in year 2019/20 are compared to those in the previous four years (2015/16 to 2018/19). Furthermore, to account for seasonality, quarters 2 (April-June) and 3 (July-September) in calendar year t are compared to the labour market outcomes in quarter 1 (January-March) in calendar year t and quarter 4 (October-December) in calendar year $t-1$. This analysis is run separately for natives, EU migrants and non-EU migrants.

In April-September 2020, the unemployment rate increased for natives by 12.5 percent compared to the pre-pandemic mean value and for EU migrants and non-EU migrants by 67 and 24 percent, respectively. EU migrants were more likely to be unemployed than natives by 2 percentage points (pp from now on). The change in employment rates of non-EU is instead not statistically significantly different from that of natives. The take-up of Universal Credit, which has been the main benefit available for non-employed households, increased for natives, EU and non-EU migrants by 67, 160, and 100 percent compared to the pre-pandemic means, respectively.

On average, both migrant and native employees worked about 5 hours less per week. This is mainly driven by those sectors in the economy which have been mostly negatively affected, such as accommodation and food services, arts and recreation, construction, retail and wholesale trade. For EU workers only we see a decrease in gross weekly pay by 7.4%, once we condition on occupation and industry.

Interestingly, of the several traits considered, such as age group and whether residing in London, gender is the only one that is consistently statistically significant across different outcomes. Among natives, women have been less likely to enter unemployment and among natives, EU, and non-EU workers, women have also been lees likely to decrease working

hours and to suffer a decrease in pay.

The negative changes in the economic situation of migrants in terms of employment and pay, especially for EU citizens, due to the pandemic and the measures used to contain it, could be an important factor in changing the trade-off of staying in the UK. This, combined with the end of the free movement regime for EU citizens, could importantly affect the trends in EU migration.

Section 2 considers the recent migration trends in the UK and Section 3 describes the dataset used for the analysis. Section 4 shows the sorting of natives and migrants across different industries and occupations and investigates the extent to which these differences in job sorting can explain the migrant-native pay gap. Section 5 describes the identification strategy to assess the initial impact of the pandemic on the labour market outcomes of natives and of migrants and discusses the main results. Section 6 concludes the paper.

2 Recent trends in migration to the UK

The UK joined the European Union (or better its predecessor the European Communities) on 1st January 1973. From 1992 free movement was guaranteed for EU citizens while non-EU migration has been mainly dealt with a visa system. Following the 2016 Brexit referendum, in January 31st 2020 the UK withdrew from the European Union and since January 2021 a new points-based immigration system has been in vigor. Given the different migration rules applied to EU and non-EU migrants until 2020, the trends of these two types of migrations in the last (pre-pandemic) twenty years are described separately.

Figure A1 shows that migrant inflows to the UK have importantly increased towards the end of the 90s, especially from non-EU countries: their entries raised from about 150,000 in 1997 to more than 350,000 in 2002. An important part of this was played by the favourable changes in immigration policies in both the origin countries and the UK (Hatton, 2005).

Non-EU migration stabilised in the period 2000-2011 just above 300,000. It did fall due to the restrictions on work, study and family immigration rules implemented in 2010-2012 but it has since then increased again. This rise in non-EU net migration since 2013 could be mainly explained by some pulled factors, notably the increase in the demand from the UK of international students and of non-EU workers, especially in the health sector (COMPAS, 2020).

Since 2004 there has been an increase in the EU migration due to the free movement rules being extended to the EU8 countries: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. These countries were joined by Bulgaria and Romania (EU2) in 2007. EU8 citizens were initially subjected to some restrictions to work (and to access some benefits) in the UK through the Worker Registration Scheme which terminated in April 2011. Also EU2 citizens have been initially affected by some transnational restrictions which, however, lasted for a shorter period of time since their accession as they ended in 2013. Figure A1 shows more pronounced upward trends in the migration inflow of EU2 citizens after 2013 - for EU8 migrants, instead, the restrictions imposed until 2011 did not particularly limited their inflow.

In years 2004 and 2015 the EU migration overtook the non-EU migration. However, the pattern reversed since 2016. EU migration has been falling, especially from EU8 countries while non-EU migration has been rising. The main factor explaining the former trend is the 2016 referendum vote to leave the EU. Net migration from EU countries has indeed decreased since June 2016, and this has been mainly driven by a fall in the number of EU migrants arriving in the UK with the intention of staying for 12 months or more for work-related reasons (ONS, 2020). The net migration in the period 2016-2019 fell from 84,000 to 44,000 for EU15 citizens, from 42,000 to -12,000 for EU8 citizens, and from 62,000 to 18,000 for EU2 citizens (The Migration Observatory, 2020).

The decrease in EU migration seem to have been accelerated by the pandemic. EU

migrants, most of which are employed in the hospitality sector, have been at a higher risk of being furlough or of loosing their job. The trade-off of staying in the UK (where the living costs are overall high, especially in London) or returning to the home country has consequently been importantly affected by the pandemic. According to ESCOE (2021), due to the pandemic, the total UK population fell by 1.3 million and the resident population of London might have fallen by nearly 700,000.

Another important factor which is likely to affect migration trends in the near future is the new migration system introduced in January 2021. We cannot assess its effect yet because it has just been implemented and any effect of it is confounded with the ones of the pandemic. The new migration regime put into place a visa system for skilled workers, i.e. employers can sponsor foreign workers in jobs that require at least an upper secondary education qualification (A-level) with a minimum salary of £25,600 p/y. Not regulating an entry visa system for non-skilled workers could potentially be a problem as these jobs heavily rely on migrants. This is why the government decided to relax some restrictions in a list of certain areas suffering from shortage of native workers, e.g. the health sector has a sector-specific visa. However, this might not be sufficient to cover the workforce of migrant currently coming from the EU, even accounting for the fact that the new visa system relaxes some parameters for non-EU migrants (in the visa system that was in place until December 2020, the education qualification for a skilled-worker visa was a degree-equivalent qualification and the minimum annual salary was £30,000 p/y). The Resolution Foundation (2020) reports that in some occupations which are ineligible for skilled-worker visas, one-in-ten workers is a recently-arrived EU citizen, and that 57 percent of EU workers (over-26 years old) are employed in occupations not eligible for a skilled worker visa. However, others are more optimistic about the ability of the new migration system of covering the relevant labour shortages by offsetting the decrease in EU migration with non-EU migration (see references in Portes, 2021).

3 The data and the sample

I use the Quarterly Labour Force Survey (LFS). The sample of this survey is composed of approximately 40,000 UK household and 100,000 individuals per quarter. These are interviewed five successive waves at 3-monthy intervals and 20% of the sample is replaced every quarter. The sample is weighted to the most recent ONS population estimates and is thus representative of the UK population.

I consider the LFS quarters of the years 2011-20 to give us a picture of the integration of migrants in the UK labour market. Only individuals aged 22-65 are retained.

The migration status is defined by country of birth. EU migrants represent about 6% of the UK population and migrants from the rest of the world constitute about 10% of the UK population (5% from South, East, South-East Asia and Oceania, 3% from Africa, 1% from the American continent, and 1% from the rest of Europe and central Asia).

Table 1 shows the mean value of the main characteristics among the UK and the foreign born population. Migrants are younger and more likely to have a university degree than natives (29.6% of natives have a degree vs. 39.1% of EU and 44.6% of non-EU migrants). The large majority of migrants arrived in the UK in the last 20 years. The employment rate is the highest for EU migrants (82.6%) followed by natives (77.2%) and non-EU migrants (69.6%). Non-EU migrants are those with the highest unemployment and inactivity rates. Migrants are disproportionally concentrated in London.

4 The occupation and industry concentration of UK, EU and non-EU workers and their pay

4.1 Descriptive statistics

Figure 1 shows that foreign workers in 2019 represent about 25% (15% EU and 10% non-EU) and 21% (9% EU and 12% non-EU) of workers in routine and semi-routine occupations, which are the lowest categories in the SOC classification. However, they also represent 20% of workers (8% EU and 12% non-EU) in the higher managerial and professional sector, so that their contribution to the UK labour market is not concentrated in just one end of the jobs distribution. This is consistent with some new research on UK tax data showing that among low-income groups, about one in six people are immigrants and among the top percentile of the income distribution, one in four people are immigrants (Advani et al., 2020).

The percentage of foreign workers is heterogeneous across different industries. Figure 1 reports the percentage of migrants and natives within each industry in 2019. Migrants represent about 45% (9% EU and 36% non-EU) of the workforce in jobs which have a household as employer, and 34% (17% EU and 17% non-EU) in the accommodation and food services, i.e. the hospitality sector. About 20% of the workforce in sectors such as health and wholesale is composed of migrants.

Finally, figures A2 and A3 show the time trends in occupation and industries by UK, EU, and non-EU born workers in the period 2019-2020. The most popular jobs differ across the three different groups (e.g. 10% of EU and non-EU workers are employed in the hospitality industry vs. 3% of natives, see Figure A3), however the time trends in the last ten years have been stable across all groups considered.

4.2 The migrant-native pay gap

On average, in 2019, UK workers earned £564, EU workers £559, and non-EU workers £610 per week. Figure 2 shows that the gross pay distribution of EU workers is the least spread and the most skewed towards the left, while the pay distribution of non-EU workers is more similar to the one of UK workers. To investigate the extent to which these differences in pay can be explained by the different sorting of natives and migrants in different jobs I implement a regression analysis where the log of the gross weekly payment for foreign employees is compared to the one of natives.

This analysis is run in the pre-pandemic period 2011-2019. In a first naive specification, I do not condition on any characteristics of workers. I then introduce socio-demographic characteristics to improve the comparison between migrant and native workers. More precisely, I condition on: gender, age and age squared, whether tertiary education is the highest qualification obtained, years since arrival in the UK (to proxy migrants education/work experience in the UK), and region of residence. In the latter specifications I then additionally include detailed occupation (N=369) and industry (N=601) fixed effects (FEs) and their interaction to investigate whether the type of job in which migrants and natives sort into can explain the difference in their pay.[1] Given that natives, EU and non-EU workers sort into different jobs, this specification should take into account the majority of the migrant-native pay gap. However, as we cannot be sure that we observe all relevant determinants of pay, some part of the gap could still remain unexplained, as it is discussed at the end of this section.

The estimates from this analysis are reported in Table 2. Column 1 shows that, on average, EU employees earn 2.5 percent less than natives while the coefficient of non-EU migrants is 1.9 percent. Both these estimates are statistically significant different from zero

[1] When industry and occupation are interacted I use a lower digit definition which comprises 21 industries and 7 occupations. Notice that when including these controls a few observations get dropped. When this is the case (in this and the other regressions in this paper), the same analysis is run for the same observations also without the industry and occupation fixed effects to check that the sample selection does not drive the results in the model with the richest list of fixed effects.

at 1% level. Once we condition on individual characteristics (column 2), such as gender and whether obtained a degree, migrants earn much less than natives, -15.7 and -27 percent for EU and non-EU migrants, respectively. However, additionally conditioning on industry and occupation (column 3) changes the estimates remarkably. EU migrants earn more than natives by 1.4 percent and non-EU migrants still earn less, although the magnitude of the pay-gap decreases to 7.3 percent. Allowing the comparison of migrants and natives within the same industry-occupation makes the EU workers pay not differing to the one of natives. However, non-EU migrants still earn 9.5 percent less. Relative to the median pay (£442 p/w), the native-non-EU pay gap is equivalent to £42 p/w. These results suggest that migrants and natives importantly select into different jobs as by conditioning on the type of job importantly decreases the migrant-native pay gap for non-EU migrants and cancels it for EU migrants.[2]

As much as these findings could be driven by institutional settings, such as discrimination, it is also important to recall that these estimates are indicative as they might omit important characteristics which bias the estimated pay-gap. For example, with the current version of LFS data it is not possible to identify whether the degree has been acquired in the UK or in the origin country, and this might increase the noise in the findings, as UK employer are likely to value a UK degree more than a foreign one. Indeed, it is often the case for migrants, especially upon arrival, to be overqualified in their jobs (Dustmann et al., 2013). Other important elements that are omitted in this analysis are language proficiency, and actual skills of workers, which we know are well reworded in the labour market (Dustmann and Fabbri, 2003; Kosse and Tincani, 2020). Withstanding these drawbacks, this analysis is nevertheless informative of the importance of the difference in occupation and industry

[2]The finding that the migrant-native pay gap goes into different directions for EU and non-EU migrants also speaks to a recent literature on migrant selection, which suggests that a free-movement system (the one to which EU workers were subjected to in the period considered) does not imply an incoming labour force which is less valued than natives in the labour market compared to a non-free movement regime (the one to which non-EU workers were subjected to in the period considered), see Luthra and Platt (2021).

sorting among natives and migrants which is also relevant to investigate the effects of the pandemic on their labour market outcomes.

5 The initial effect of the pandemic on migrants and natives

5.1 Empirical strategy

To investigate the short-term effect of the pandemic on the labour market outcomes of natives and migrants, a difference-in-differences-type analysis is implemented. The estimated equation is the following:

$$Z_{i\tau} = \alpha + \beta_1 Q2Q3_\tau + \beta_2 Q2Q3_\tau * Y2020_\tau + X_i'\beta_3 + \phi_\tau + \epsilon_{i\tau} \quad (1)$$

$Z_{i\tau}$ represents the outcome of interest. The outcomes considered are: activity status (whether unemployed vs. employed, whether inactive vs. active),[3] benefit take-up, hours worked, and gross hourly pay for employees. Only recent years are considered in this analysis (2015 to 2020) to have a similar labour market, also in terms of composition of migrants, to the one in 2020.[4] Quarters 2 and 3 (Q2Q3) correspond to April-June and July-September, respectively; these two quarters in calendar year 2020 (Y2020) are the *treated* period of interest, as it is the period affected by the pandemic.[5] Thus, the coefficient of interest is β_2

[3]Due to the negative impact of the pandemic on certain workers in particular, such as women and those with low education and less attachment to the labour market (e.g. Adams-Prassl et al., 2020), it is important to investigate at the transition in/out inactivity status.

[4]Varying the length of the pre-2020 years considered does not affect the findings. See the robustness check implemented later - additional results are available upon request.

[5]The period considered, from October 2015 to September 2020, allows us to investigate the short-run effect of the first wave of Covid-19 and of the national lockdown. The UK Health and Social Care Secretary Matt Hancock announced that all unnecessary social contact should cease on 16th March 2020. However, it was not until 23rd March that the Prime Minister Boris Johnson announced that people must stay at home and certain businesses must close. Thus, we consider that the first national lockdown started on 23rd March. This means that the first week of lockdown is included in Q1 Y2020, which could downward bias the

which represents the average change in the outcome in the period April to September 2020 (i.e. quarter 2 and 3 in 2020) vs. the period ranging from October 2019 to March 2020 (i.e. quarter 1 in 2019 and quarter 2 in 2020) compared to the difference in those quarters in the previous four years. Note that year is defined as Q2, Q3, Q4 in calendar year t and Q1 in calendar year $t-1$, e.g. Y2020 is composed of Q2 to Q4 in year 2020 and Q1 in 2019. The comparison of transitioning from Q4Q1 to Q2Q3 allows to consider seasonality. The difference between these quarters in 2020 vs. those in the previous years is interpreted as the immediate effect of the first pick of the pandemic and the consequent lockdown measures adopted. The specification conditions on year (as just defined) fixed effects, ϕ_τ.

To test the validity of the identification strategy just outlined, I implement an event study. For two main outcomes (unemployment and weekly hours worked), the quarters Q1, Q2 and Q3 in calendar year t are compared to those in Q4 of calendar year $t-1$. This is done separately by each year considered (Y2016-Y2020). This exercise is meant to support the difference-in-differences-type method just discussed by showing that if the pandemic had any effect at all on the outcomes considered, we should see the coefficients for Q2 and Q3 in Y2020 (the *treated* quarters in the *treated* year) behaving significantly differently from Q2 and Q3 in the previous years when they are compared to their respective Q4.

Figure 3 shows that the unemployment rates in Q1, Q2 and Q3 do not statistically significantly differ from that one in Q4 for Y2016-Y2019 (except for Q3 in Y2017, although the estimates magnitude is small). However, in Q3 Y2020 (i.e. July-September 2020), the unemployment rate has statistically significantly increased by 1pp compared to Q4 in Y2020 (i.e. October-December 2019). On the other hand, the hours worked have decreased in an unusual manner (compared to previous years) in Q2, and to a smaller extent in Q3 Y2020, by about 7 and 2 hours p/w respectively. This suggests that the adjustments to the decrease in the demand due to the pandemic has initially been dealt with a decrease in hours worked and

estimates of the immediate impact of the pandemic and lockdown.

then with an increase in unemployment. Overall, these findings support the identification strategy outlined above and are consistent with the statistics on the response of the UK labour market to the pandemic (Wadsworth, 2021).

5.2 Results

Activity status, benefits, hours worked and pay

The difference-in-differences-type analysis is implemented for the whole population, and then for the population divided by country of birth, i.e. UK, an EU country, and the rest of the world. Table 3 shows that in April-September 2020 the unemployment rate for the entire population increased by 0.6pp equivalent to a 17.6 percent rise compared to the pre-pandemic mean. Unemployment rose among natives (or UK born) by 0.4pp (12.5 percent) and among EU and non-EU migrants by 2pp (67 percent) and 1.3pp (24 percent), respectively. This is despite the furlough scheme aimed to limit the negative impact of the pandemic on job losses. Controlling for factors such as gender and region of residence, does not affect importantly these findings. The higher increase in unemployment for EU migrants relative to the other groups is not surprising, given that we have already documented that they are concentrated in sectors which have been badly hit by the pandemic, such as accommodation and food services and wholesale and manufacturing industries which all together employe about 40 percent of EU migrants (see Figure A3). Interestingly, we see that the inactivity rate increased in the period affected by the pandemic for natives (by 0.6pp or 3 percent relative to the pre-pandemic mean), it has not been affected for EU migrants, but it has decreased for non-EU migrants (by 1.4pp or 5.6 percent relative to the pre-pandemic mean). Natives, EU and non-EU born increased their likelihood of getting financial support from the Universal Credit scheme by 61.5, 160 and 100 percent relative to the pre-pandemic mean, respectively. This was the main safety net in place for non-employed household in the period considered.

Table 4 reports the results for other types of benefits take-up.[6] We see a statistically significant increase only among natives in housing benefits, jobseeker's allowance, sickness/disability benefit, and carer's allowance which ranges from 6 to 22 percent compared to the pre-pandemic means.

Table 5 shows that among those employed, there has been a decrease in actual hours worked of almost 5 hours per week in April-September 2020 across all the groups considered. Notice, however, that at baseline EU migrants work, on average, more hours than natives and non-EU migrants. Adding detailed controls of industry and occupation[7] only slightly decreases the magnitude of the estimates. EU migrants have also been negatively affected in terms of pay, loosing 7.4 percent of their average weekly pay. Interestingly, the decrease in pay for EU workers becomes statistically significant only when introducing industry and occupation fixed effects (the opposite is true for non-EU migrants). This suggests that the negative effect on earnings is driven by EU workers mainly working in sectors which suffered the most from the the pandemic and the measures meant to limit it.

The effects of the pandemic here estimated capture the initial period of the pandemic, so we would expect that any important adjustments in terms of UK resident population composition are unlikely to have occurred in such a short time. However, as suggested by ESCOE (2021), already just after the first pick of the pandemic we acknowledge a decrease in the population. This indicates that migrants replied very quickly to the bad economic situation experienced in the UK by emigrating. It might be hence the case that when the analysis is run separately for the migrant groups the estimated impact of the pandemic could

[6]Here notice that the entitlement to certain benefits depends on the activity status of other members of the households and on their migration status (Brewer, 2020). For example, non-EU residents subject to immigration control (i.e. all non-EEA people granted work, study and family visas) cannot access most benefits, such as Universal Credit, until they get the indefinite leave to remain (no Recourse to Public Funds condition). However, here we are interested in the changes in benefit uptake within each migration category. The analysis does not condition on any eligibility characteristic as these are unlikely to have immediately changed as a result of the pandemic. Thus we expect that a change in benefit uptake in the period affected by the pandemic is driven by a change in the economic situation of individuals.

[7]Note that in Table 5 I do not report the results when interacting industry and occupation as they are the same as when including the most detailed industry and occupation fixed effects in column 3.

be downward biased, i.e. some migrants that would otherwise be unemployed already left the UK.

Natives vs. EU and non-EU migrants

When comparing the main outcomes for natives vs. EU and non-EU migrants (see Table 6) we find that unemployment increased for EU migrants by 1.9pp more than natives, that non-EU migrants have been less likely to become inactive than natives by 2.8pp and have earned 3.2 percent more than native employees during the initial stages of the pandemic. Universal Credit has increased by 1 and 0.6pp more for EU and non-EU migrants, respectively, compared to natives.

Heterogeneity

To investigate the role that region of residence, age,[8] and industry,[9] have played in explaining the findings just discussed I interact the Q2Q3*Y2020 with the characteristic of interest, e.g. whether resident in London. As the pandemic has also had a differential impact by gender (e.g. Resolution Foundation, 2021), I also consider the gender dimension, to see whether it has interacted differently for natives and migrants.

Table 7 shows the main results. The younger group of individuals is less likely to become inactive for the pooled sample and for non-EU migrants. Working in the most affected industries mainly explains the decrease in hours worked across all groups studied. Most interestingly, gender seems to be the characteristic where we find more significant heterogeneity in the effect of the pandemic. Females are on average less affected by the pandemic in terms of unemployment (for natives), inactivity status (natives and non-EU migrants), working hours and pay (across all groups considered). Overall, only some demographic characteristics (age and gender) have been more relevant in explaining the effects of the pandemic

[8] I define the group 22-39 years old as young workers.

[9] I create an indicator of the most affected industries following a report from the Bank of England (Bank of England, 2020). These are: Accommodation and food services, Arts and recreation, Construction, Retail and wholesale trade, Manufacturing, Electricity, gas, air cond supply, Water supply, sewerage, waste, and Information and communication.

among natives compared to migrants and this is valid only for activity status outcomes.

Robustness check

As a robustness check, I additionally condition on the composition of EU and non-EU migrants and on their specific time trends. This to make sure that changes in the composition of migrants do not confound the effect of the pandemic.[10] Table 8 shows that the main findings are not affected when additionally considering changes in levels and trends of migrant composition within the EU and non-EU samples.

6 Conclusion

This study contributes to the current debate on the consequences of the pandemic and the measures implemented to limit it on the population of natives and migrants in the UK. It first shows that these two populations, where migrants are additionally divided into EU and non-EU born, differ at baseline in their occupation and industry sorting. This is an important feature to consider when interpreting the results in relation to the effect of the pandemic, as migrants, especially from EU countries, are highly represented in the sectors which suffered the most because of the pandemic and the lockdown.

By applying a difference-in-differences-type approach this paper shows that migrants, especially those coming from EU countries, have been badly affected by the pandemic especially in terms of a decrease in employment rates. The worsening of the economic situation of migrants is relevant to consider also in light of the newly implemented migration system which ends the free-movement rule for EU migrants. Indeed, there has recently been an increase in emigration from the UK. This could imply a long-term change in the migration patterns which will affect not only the UK labour market but also its social, demographic and cultural aspects.

[10] This is possible only for years 2017-2020 given data availability with the current version of the LFS.

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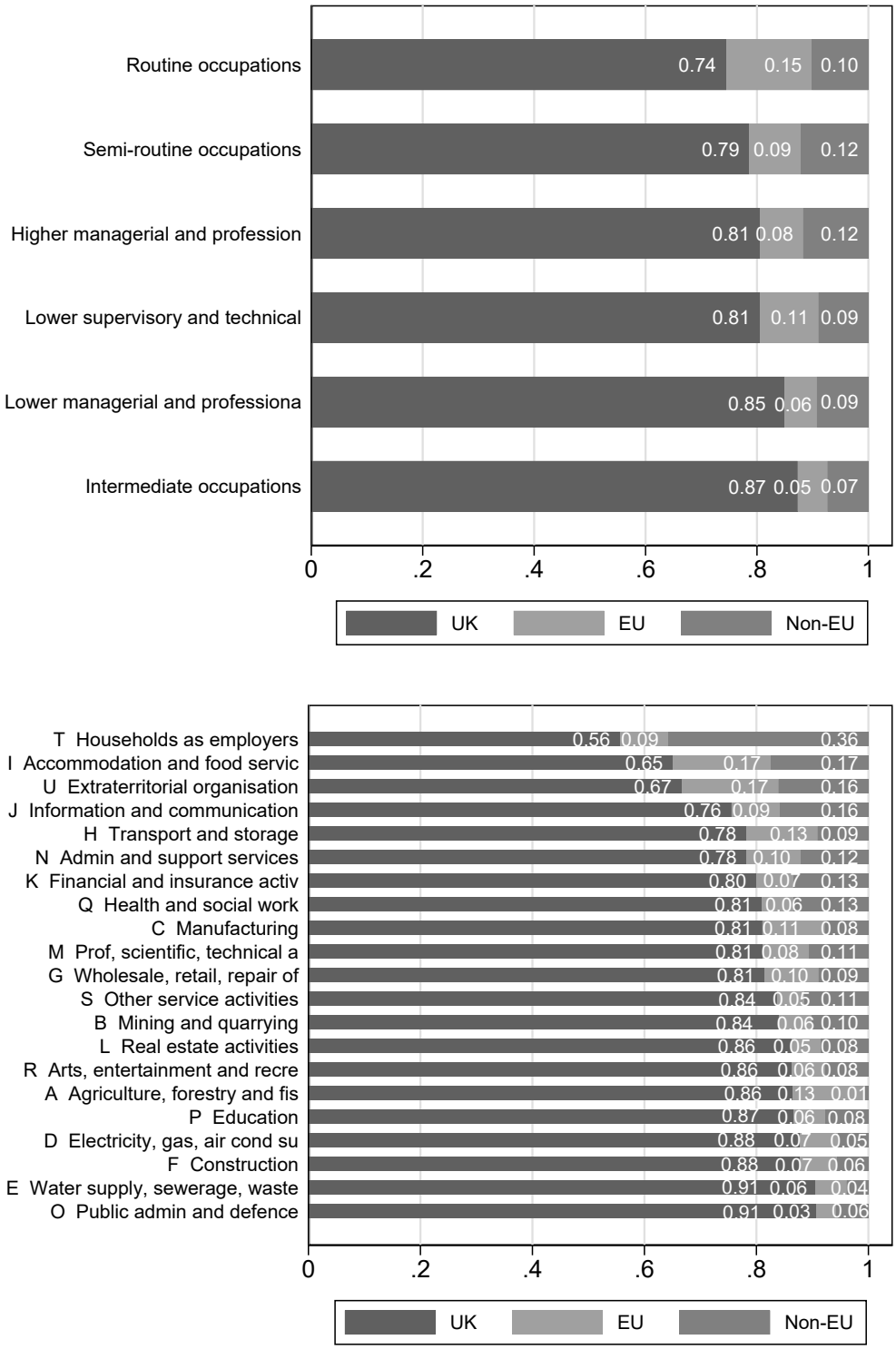
Table 1: Summary statistics

	(1) UK	(2) EU	(3) UK vs. EU	(4) Non-EU	(5) UK vs. Non-EU
Age	43.626	38.009	-5.617***	41.362	-2.264***
Male	0.498	0.472	-0.026***	0.479	-0.019***
Arrived in the UK: before '60		0.018		0.011	
Arrived in the UK: '60-'80		0.087		0.141	
Arrived in the UK: '80-2000		0.167		0.277	
Arrived in the UK: >2000		0.728		0.571	
University degree	0.296	0.391	0.094***	0.446	0.149***
Activity status: in employment	0.772	0.826	0.054***	0.696	-0.076***
Activity status: ILO unemployed	0.035	0.036	0.001**	0.051	0.016***
Activity status: inactive	0.193	0.138	-0.056***	0.253	0.060***
Region: North East	0.045	0.016	-0.029***	0.016	-0.029***
Region: North West (inc Merseyside)	0.117	0.069	-0.048***	0.074	-0.043***
Region: Yorkshire and Humberside	0.087	0.058	-0.030***	0.054	-0.034***
Region: East Midlands	0.074	0.067	-0.006***	0.053	-0.021***
Region: West Midlands	0.089	0.065	-0.023***	0.084	-0.005***
Region: Eastern	0.094	0.098	0.004***	0.072	-0.022***
Region: London	0.095	0.310	0.215***	0.417	0.322***
Region: South East	0.136	0.134	-0.002**	0.126	-0.011***
Region: South West	0.087	0.066	-0.021***	0.042	-0.045***
Region: Wales	0.052	0.023	-0.029***	0.017	-0.035***
Region: Scotland	0.092	0.066	-0.026***	0.038	-0.053***
Region: Northern Ireland	0.031	0.027	-0.004***	0.007	-0.024***
Observations	1,745,241	118,454	1,863,695	206,833	1,952,074

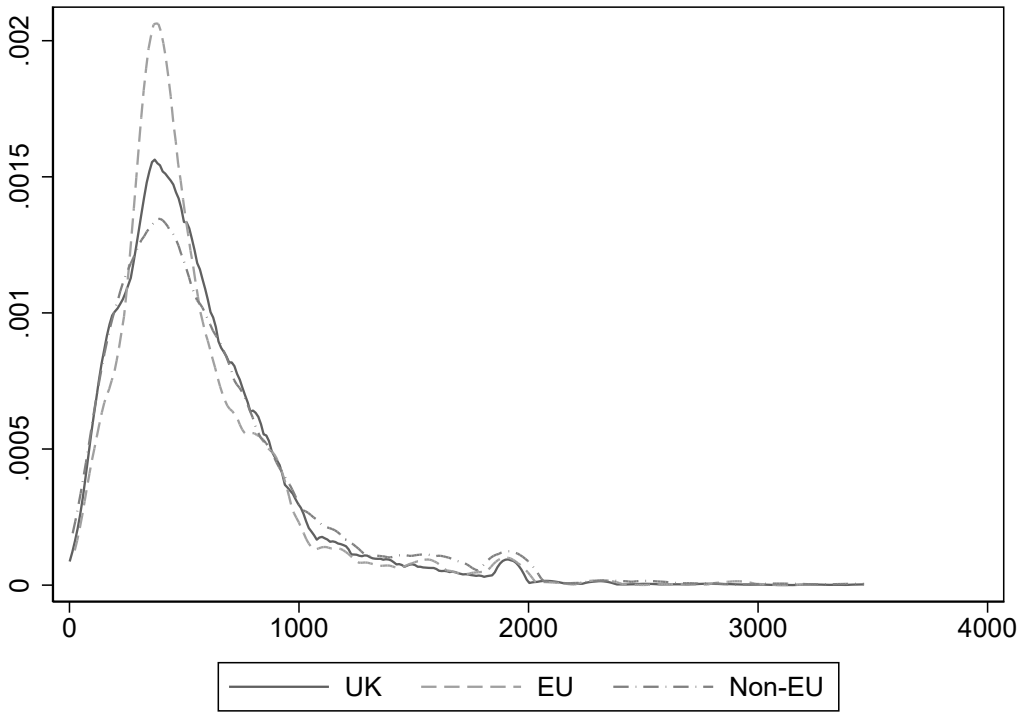
Source: Author's own elaboration of Labour Force Survey 2011-2019.
Notes: Main characteristics of 22 to 65 years old individuals by country of origin. Population weight applied.

Figure 1: Percentage of native and migrants within each occupation and industry, 2019



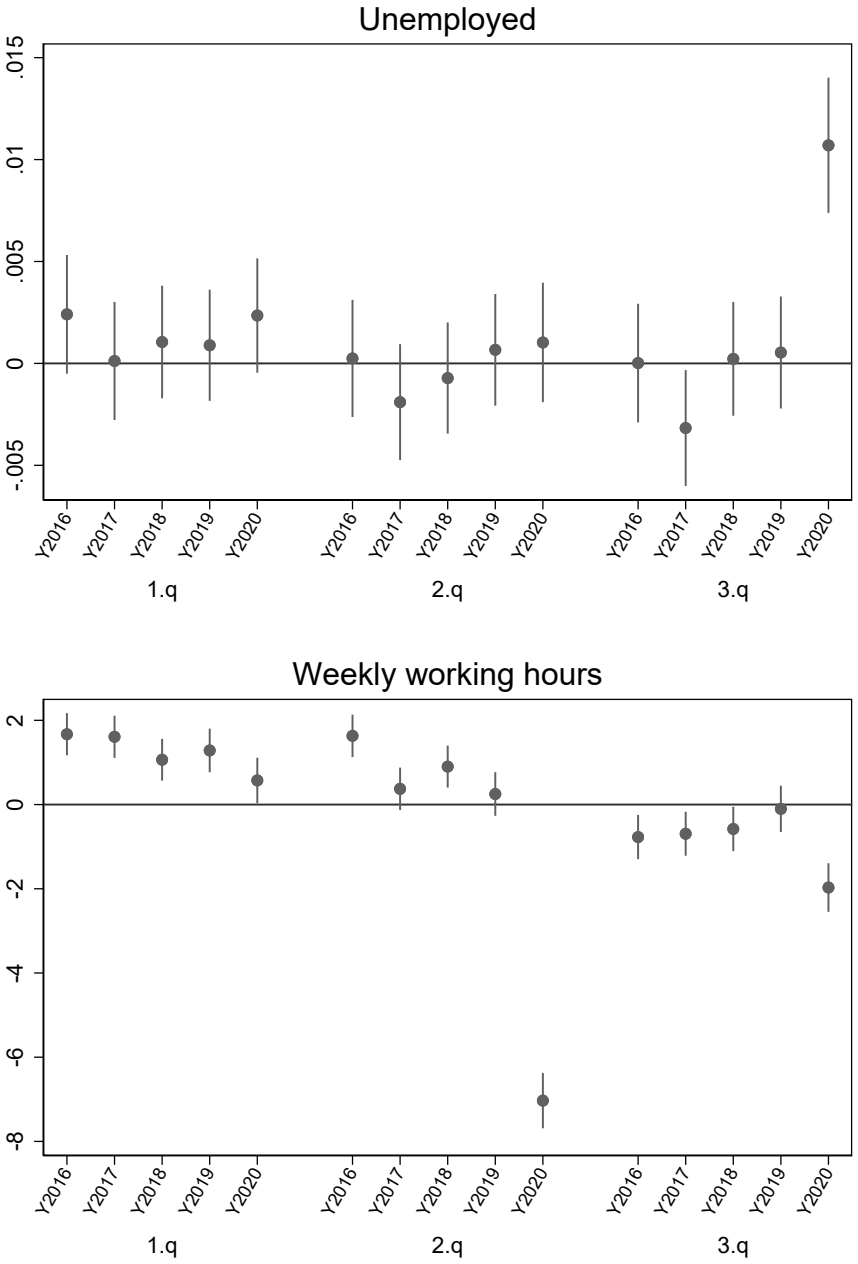
Source: Author's own elaboration of Labour Force Survey 2019.
Notes: Occupation and industry by country of origin (UK, EU, or non-EU country) in year 2019. Population weight applied.

Figure 2: Weekly pay of natives and migrants, 2019



Source: Author's own elaboration of Labour Force Survey 2019.
Notes: Kdensity of the gross weekly pay by country of origin (UK, EU, or non-EU country). Population weight applied.

Figure 3: Event study by each year



Source: Author's own elaboration of Labour Force Survey 2015-2020. Sample of 22-65 years old.

Notes: Quarters Q1 to Q3 vs. quarter Q4 of the previous calendar year. Each year is analysed separately in a linear probability model. 95% confidence intervals. Controls: age, age squared, gender, region of residence, whether obtained a degree qualification, years since arrival, and whether UK, EU or non-EU born. The regression on the outcome working hours also includes industry-occupation fixed effects. Robust s.e. and population weight applied.

Table 2: The migrant-native pay gap

	(1)	(2)	(3)	(4)
EU migrants	-0.025***	-0.157***	0.014***	0.006
	(0.006)	(0.006)	(0.005)	(0.005)
Non-EU migrants	0.019***	-0.270***	-0.073***	-0.095***
	(0.005)	(0.007)	(0.005)	(0.005)
Obs.	352,588	352,588	352,583	352,582
Controls		Y	Y	Y
Industry (N=369) and occupation (N=601) FE			Y	Y
Industry (N=21)*occupation (N=7) FE				Y

Source: Author's own elaboration of Labour Force Survey 2011-2019.
Notes: Log of the gross weekly payment (2019 CPI) for employees. Omitted category: UK born. Robust s.e. and income weight applied. Controls: age, age squared, gender, region of residence, years since arrival, whether obtained a degree qualification. *$\rho < 0.10$ **$\rho < 0.05$ ***$\rho < 0.01$.

Table 3: The effects of the pandemic: activity status and Universal Credit take-up

	(1)	(2)	(3)	(4)	(5)
	Unemployed vs. employed		Inactive vs. active		Universal Credit
Pooled sample					
Q2Q3*Y2020	0.006***	0.006***	0.003	0.005**	0.009***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Obs.	771,336	771,336	961,138	961,138	961,138
Mean Y	0.034	0.034	0.198	0.198	0.013
Natives					
Q2Q3*Y2020	0.004***	0.004***	0.005*	0.006***	0.008***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Obs.	643,765	643,765	801,633	801,633	801,633
Mean Y	0.032	0.032	0.197	0.197	0.013
EU migrants					
Q2Q3*Y2020	0.020***	0.020***	0.008	0.010	0.016***
	(0.006)	(0.006)	(0.008)	(0.007)	(0.006)
Obs.	53,717	53,717	61,709	61,709	61,709
Mean Y	0.030	0.030	0.130	0.130	0.010
Non-EU migrants					
Q2Q3*Y2020	0.013***	0.013***	-0.017**	-0.014*	0.013***
	(0.005)	(0.005)	(0.008)	(0.007)	(0.004)
Obs.	73,854	73,854	97,796	97,796	97,796
Mean Y	0.054	0.054	0.247	0.247	0.013
Year FE	Y	Y	Y	Y	Y
Controls		Y		Y	Y

Source: Author's own elaboration of Labour Force Survey 2015-2020.
Notes: Year defined as Q2, Q3, Q4 in calendar year t and Q1 in calendar year t-1. Controls: age, age squared, gender, region of residence, whether obtained a degree qualification, years since arrival, quarters, and whether UK, EU or non-EU born (the latter for the pooled sample analysis only). Mean Y reports the mean value of the outcome in the pre-pandemic period. Robust s.e. and population weight applied. *$\rho < 0.10$ **$\rho < 0.05$ ***$\rho < 0.01$.

Table 4: The effects of the pandemic: benefit take-up

	(1) Housing	(2) Tax credit	(3) Income support	(4) Jobseeker's allowance	(5) Sickness/ disability	(6) Carer's allowance
Pooled sample						
Q2Q3*Y2020	0.004***	0.001	0.001	0.002***	0.003**	0.002**
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Obs.	961,138	961,138	961,138	961,138	961,138	961,138
Mean Y	0.071	0.091	0.017	0.009	0.064	0.018
Natives						
Q2Q3*Y2020	0.005***	0.000	0.001	0.002***	0.004**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Obs.	801,633	801,633	801,633	801,633	801,633	801,633
Mean Y	0.070	0.085	0.018	0.009	0.071	0.020
EU migrants						
Q2Q3*Y2020	0.005	-0.000	0.002	0.002	0.001	0.003
	(0.005)	(0.000)	(0.002)	(0.002)	(0.004)	(0.002)
Obs.	61,709	61,709	61,709	61,709	61,709	61,709
Mean Y	0.056	0.099	0.007	0.004	0.025	0.008
Non-EU migrants						
Q2Q3*Y2020	-0.002	0.003	0.001	0.000	0.001	-0.002
	(0.005)	(0.005)	(0.002)	(0.001)	(0.003)	(0.002)
Obs.	97,796	97,796	97,796	97,796	97,796	97,796
Mean Y	0.092	0.131	0.017	0.012	0.037	0.014

Source: Author's own elaboration of Labour Force Survey 2015-2020.
Notes: As in Table 3. *$\rho < 0.10$ **$\rho < 0.05$ ***$\rho < 0.01$.

Table 5: The effects of the pandemic: hours worked and pay

	(1)	(2)	(3)	(4)	(5)	(6)
	Total weekly hours			Log weekly pay		
Pooled sample						
Q2Q3*Y2020	-4.614***	-4.615***	-4.596***	0.017*	-0.002	-0.009
	(0.119)	(0.115)	(0.112)	(0.010)	(0.009)	(0.007)
Obs.	724,830	724,830	724,825	169,271	169,271	169,263
Mean Y	32.703	32.703	32.703	6.056	6.056	6.056
Natives						
Q2Q3*Y2020	-4.525***	-4.558***	-4.547***	0.011	-0.006	-0.007
	(0.129)	(0.124)	(0.120)	(0.010)	(0.009)	(0.007)
Obs.	607,635	607,635	607,630	143,286	143,286	143,277
Mean Y	32.523	32.523	32.523	6.057	6.057	6.057
EU migrants						
Q2Q3*Y2020	-5.008***	-4.977***	-4.926***	0.005	-0.048	-0.074**
	(0.479)	(0.469)	(0.443)	(0.040)	(0.035)	(0.030)
Obs.	50,440	50,440	50,420	11,490	11,490	11,396
Mean Y	34.448	34.448	34.448	6.026	6.026	6.026
Non-EU migrants						
Q2Q3*Y2020	-4.784***	-4.781***	-4.752***	0.099***	0.061*	-0.000
	(0.401)	(0.391)	(0.371)	(0.038)	(0.033)	(0.025)
Obs.	66,755	66,755	66,734	14,495	14,495	14,399
Mean Y	32.998	32.998	32.999	6.080	6.080	6.079
Time period FE	Y	Y	Y	Y	Y	Y
Controls		Y	Y		Y	Y
Occupation and industry FE			Y			Y

Source: Author's own elaboration of Labour Force Survey 2015-2020.
Notes: As in Table 3. *$\rho < 0.10$ **$\rho < 0.05$ ***$\rho < 0.01$.

Table 6: The effects of the pandemic: natives vs. EU and non-EU migrants

	(1) Unemployed	(2) Inactive	(3) Universal Credit	(4) Hours worked	(5) Log pay
Q2Q3*Y2020*EU	0.019***	0.005	0.010*	-0.389	0.002
	(0.006)	(0.006)	(0.005)	(0.372)	(0.024)
Q2Q3*Y2020*non-EU	-0.001	-0.028***	0.006*	0.138	0.032*
	(0.004)	(0.005)	(0.003)	(0.302)	(0.019)
Observations	771,336	961,138	961,138	724,825	169,263
Mean Y	0.034	0.198	0.013	32.703	6.056

Source: Author's own elaboration of Labour Force Survey 2015-2020.
Notes: As in Table 3 and Table 5. *$\rho < 0.10$ **$\rho < 0.05$ ***$\rho < 0.01$.

Table 7: The effects of the pandemic: heterogeneity

	(1) All	(2) UK	(3) EU	(4) NonEU
		Unemployed		
Q2Q3*Y2020*Young	0.002	0.002	-0.005	-0.003
	(0.002)	(0.002)	(0.010)	(0.007)
Q2Q3*Y2020*Female	-0.005***	-0.004**	-0.004	-0.008
	(0.002)	(0.002)	(0.011)	(0.007)
Q2Q3*Y2020*London	0.005	0.007*	0.013	-0.009
	(0.004)	(0.004)	(0.014)	(0.007)
Observations	771,336	643,765	53,717	73,854
		Inactive		
Q2Q3*Y2020*Young	-0.009***	-0.003	-0.004	-0.042***
	(0.003)	(0.003)	(0.011)	(0.010)
Q2Q3*Y2020*Female	-0.018***	-0.014***	-0.009	-0.044***
	(0.003)	(0.003)	(0.010)	(0.010)
Q2Q3*Y2020*London	-0.008	-0.003	0.002	0.000
	(0.005)	(0.006)	(0.012)	(0.011)
Observations	961,138	801,633	61,709	97,796
		Hours worked		
Q2Q3*Y2020*Young	-0.131	-0.261	0.060	0.883
	(0.170)	(0.183)	(0.693)	(0.569)
Q2Q3*Y2020*Female	1.699***	1.568***	1.968***	2.170***
	(0.165)	(0.176)	(0.692)	(0.561)
Q2Q3*Y2020*London	-0.014	0.331	-0.969	-0.663
	(0.281)	(0.350)	(0.828)	(0.604)
Q2Q3*Y2020*Industry	-3.185***	-3.368***	-2.009***	-2.421***
	(0.185)	(0.199)	(0.740)	(0.638)
Observations	724,830	607,635	50,440	66,755
		Log pay		
Q2Q3*Y2020*Young	0.008	0.008	0.023	0.029
	(0.010)	(0.011)	(0.050)	(0.037)
Q2Q3*Y2020*Female	0.050***	0.045***	0.106**	0.078**
	(0.010)	(0.010)	(0.051)	(0.036)
Q2Q3*Y2020*London	-0.014	-0.024	-0.062	0.006
	(0.018)	(0.021)	(0.069)	(0.040)
Q2Q3*Y2020*Industry	-0.011	-0.018	-0.032	0.085**
	(0.011)	(0.012)	(0.062)	(0.041)
Observations	169,263	143,277	11,396	14,399

Source: Author's own elaboration of Labour Force Survey 2015-2020.
Notes: For each outcome the last specification is implemented as in Tables 3 and 5. Robust s.e. and appropriate weight applied. *$\rho < 0.10$ **$\rho < 0.05$ ***$\rho < 0.01$.

Table 8: The effects of the pandemic: robustness check

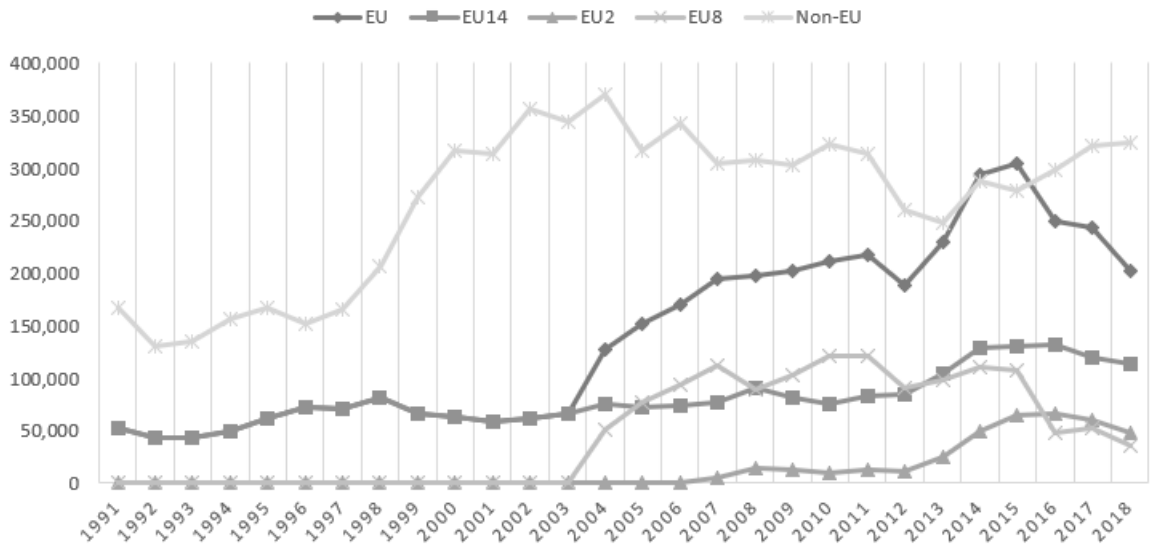
	(1) Unemployed	(2) Inactive	(3) Universal Credit	(4) Housing	(5) Tax credit	(6) Income support
EU migrants						
Q2Q3*Y2020	0.019***	0.010	0.013**	0.003	0.002	0.002
	(0.006)	(0.008)	(0.006)	(0.005)	(0.006)	(0.002)
Obs.	31,046	35,295	35,295	35,295	35,295	35,295
Mean Y	0.025	0.120	0.018	0.046	0.082	0.006
Non-EU migrants						
Q2Q3*Y2020	0.010*	-0.014*	0.008**	-0.002	0.009	-0.001
	(0.005)	(0.008)	(0.004)	(0.005)	(0.006)	(0.002)
Obs.	42,533	55,766	55,766	55,766	55,766	55,766
Mean Y	0.049	0.241	0.021	0.083	0.118	0.015

	(7) Jobseeker's allowance	(8) Sickness/ disability	(9) Carer's allowance	(10) Tot. hours	(11) Log weekly pay
EU migrants					
Q2Q3*Y2020	0.002	-0.000	0.001	-4.744***	-0.079**
	(0.002)	(0.004)	(0.002)	(0.467)	(0.034)
Obs.	35,295	35,295	35,295	29,781	6,573
Mean Y	0.002	0.024	0.008	34.292	6.063
Non-EU migrants					
Q2Q3*Y2020	0.000	0.000	-0.002	-4.878***	0.005
	(0.002)	(0.004)	(0.002)	(0.391)	(0.028)
Obs.	55,766	55,766	55,766	39,633	8,396
Mean Y	0.010	0.036	0.015	32.510	6.096

Source: Author's own elaboration of Labour Force Survey 2017-2020.
Notes: As in Table 3 additionally conditioning on area of origin (for EU migrants: EU15, EU8, EU2, other EU; for non-EU migrants: non-EU Europe, Middle East and Central Asia, East Asia, South Asia, South East Asia, Sub-Saharan Africa, North Africa, North America, Central and South America, Oceania) and area-specific time trends. For the outcomes hours worked and pay only employees are considered and the specification additionally conditions on industry and occupation. Year fixed effects included, robust s.e. and appropriate weight applied. Alongside those benefits for which entitlement depends on activity status and income, carer's allowance is also included as one could claim the latter if she provides care remotely during the coranavirus outbreak such as giving emotional support over the phone or online. $^{*}\rho < 0.10$ $^{**}\rho < 0.05$ $^{***}\rho < 0.01$.

A1 Appendix

Figure A1: Inflows of EU and non-EU migrants in the UK, 1991-2018



Source: Office for National Statistics.
Notes: EU14: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden; EU8: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia; EU2: Bulgaria, Romania.

Figure A2: Occupation time trends, 2011-2019
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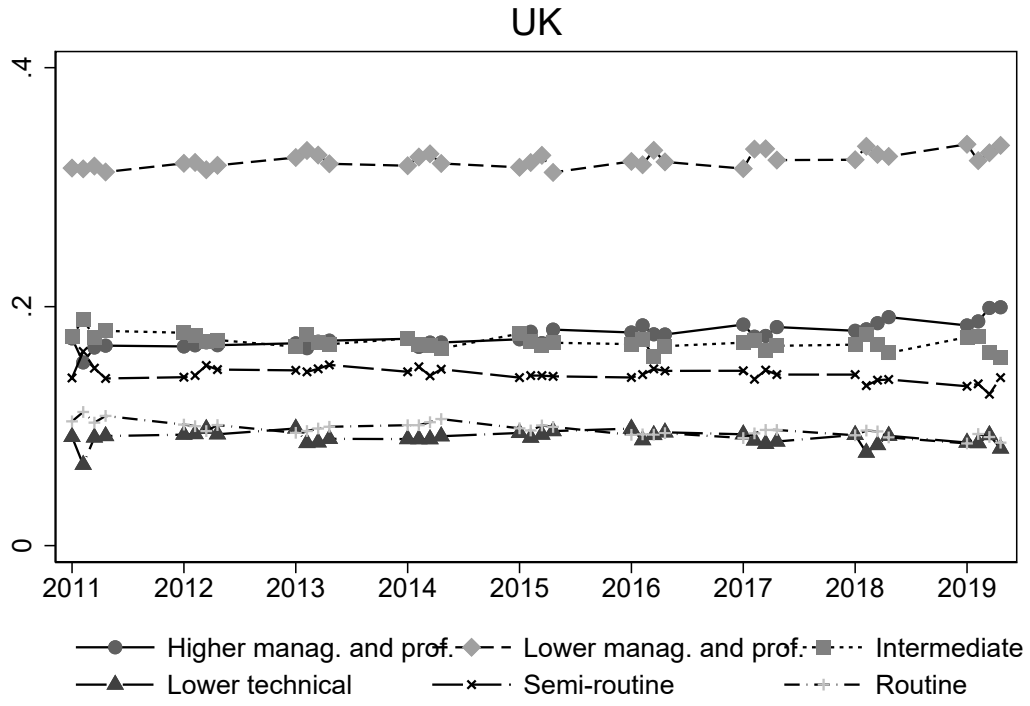


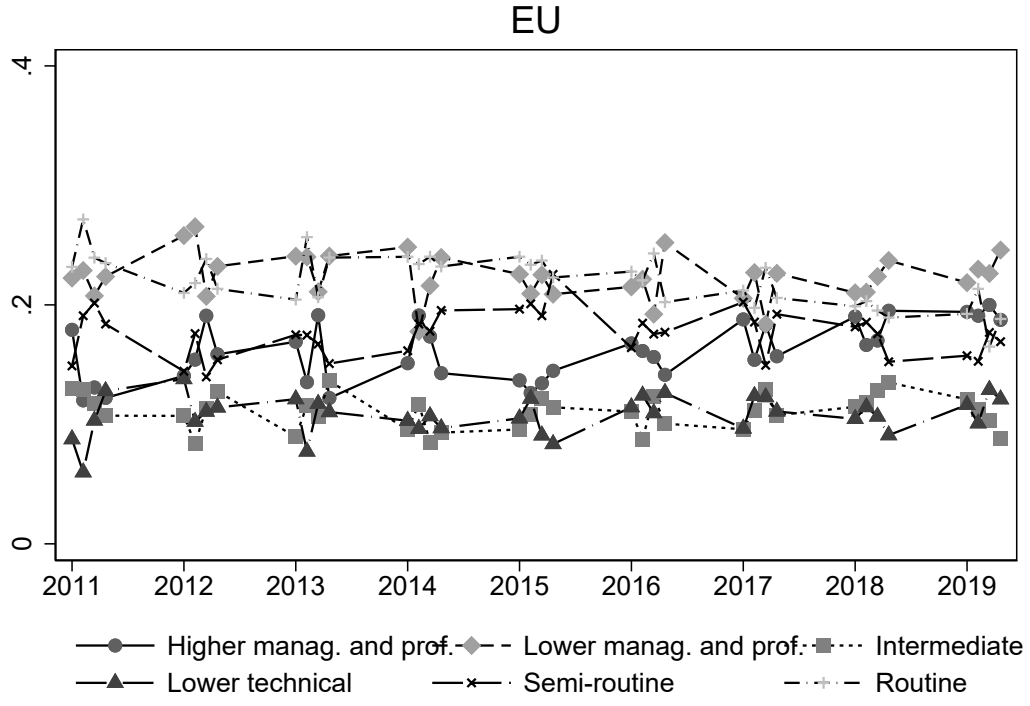
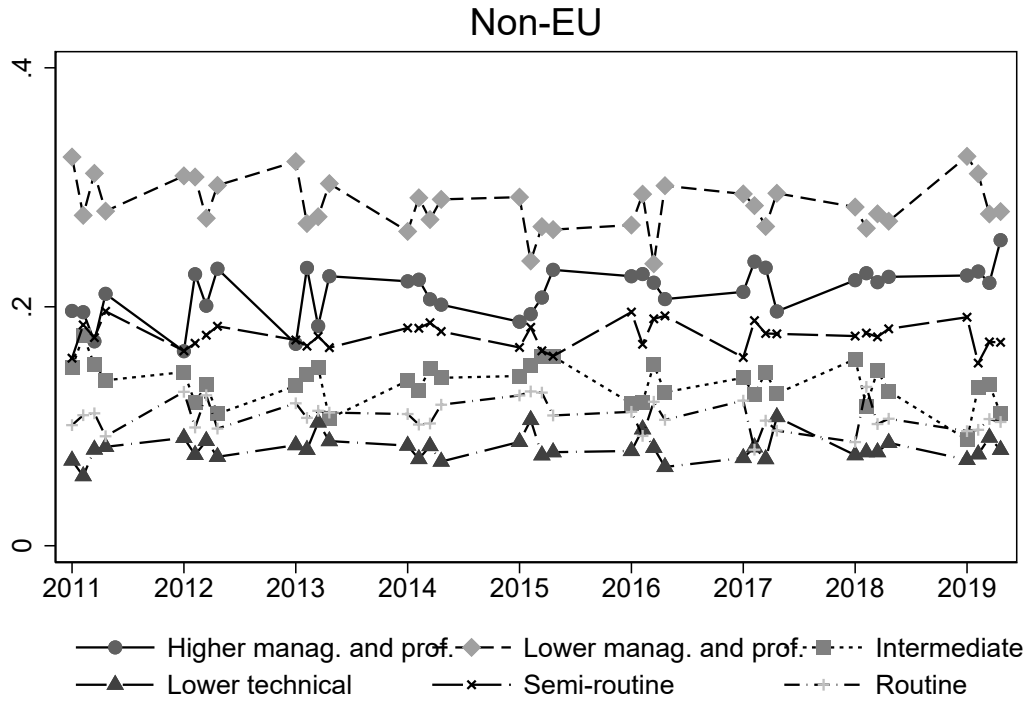
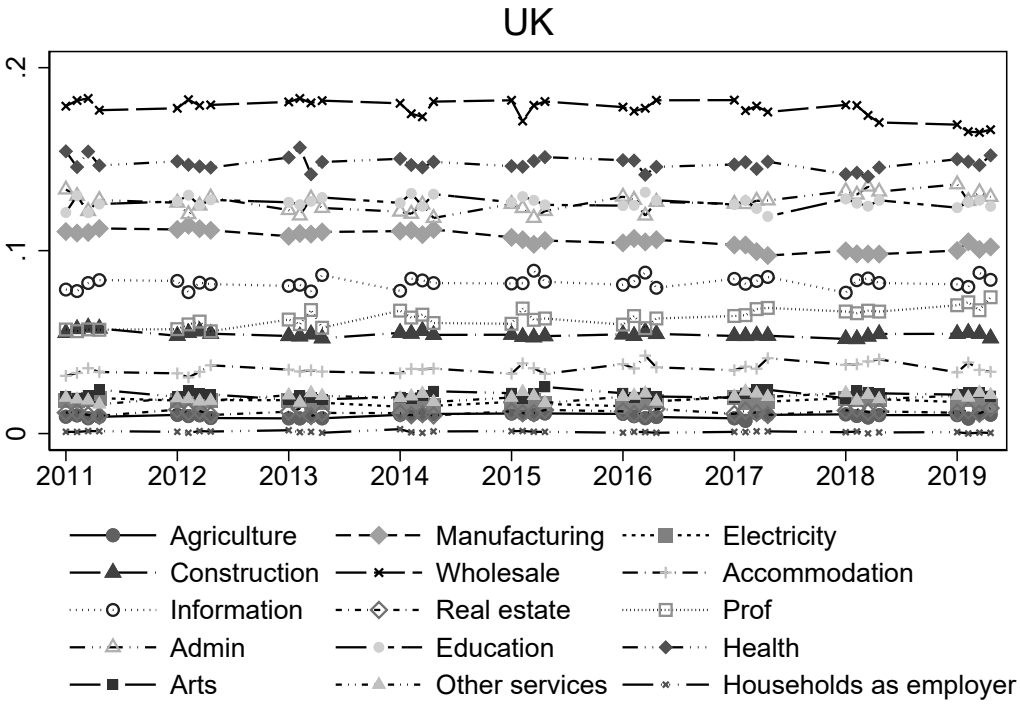


Figure A2: Occupation time trends, 2011-2019
(continued from previous page)



Source: Author's own elaboration of Labour Force Survey 2011/9.
Notes: Occupation by country of origin (UK, EU, or non-EU country) across the 2011-2019 period by each quarter. Population weight applied.

Figure A3: Industry time trends, 2011-2019
(to continue in next pages)



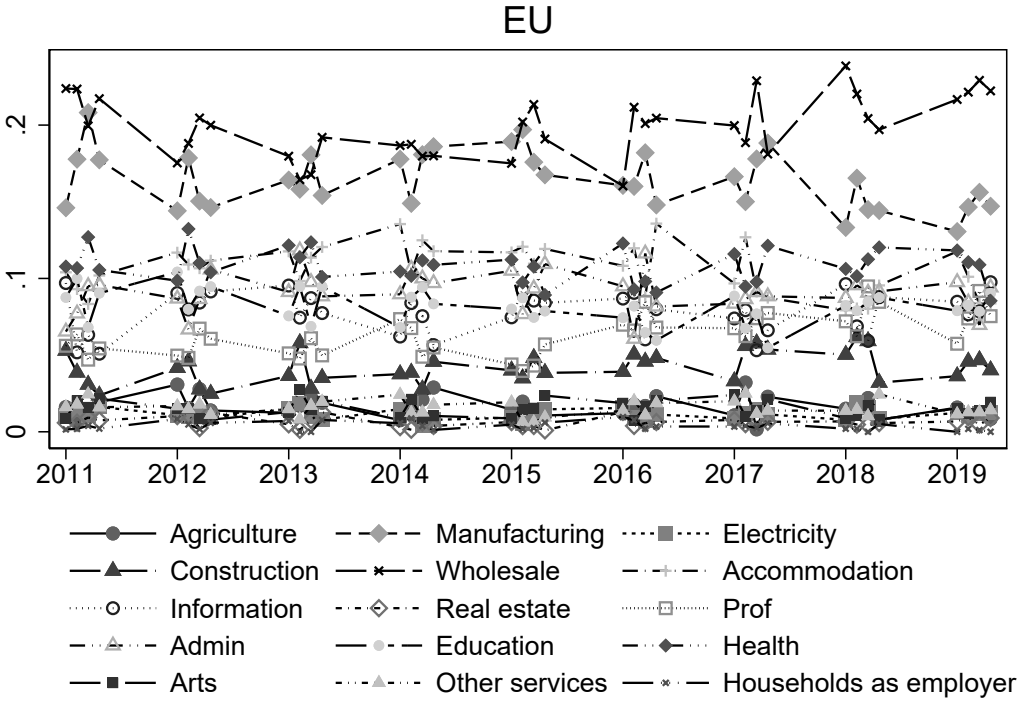
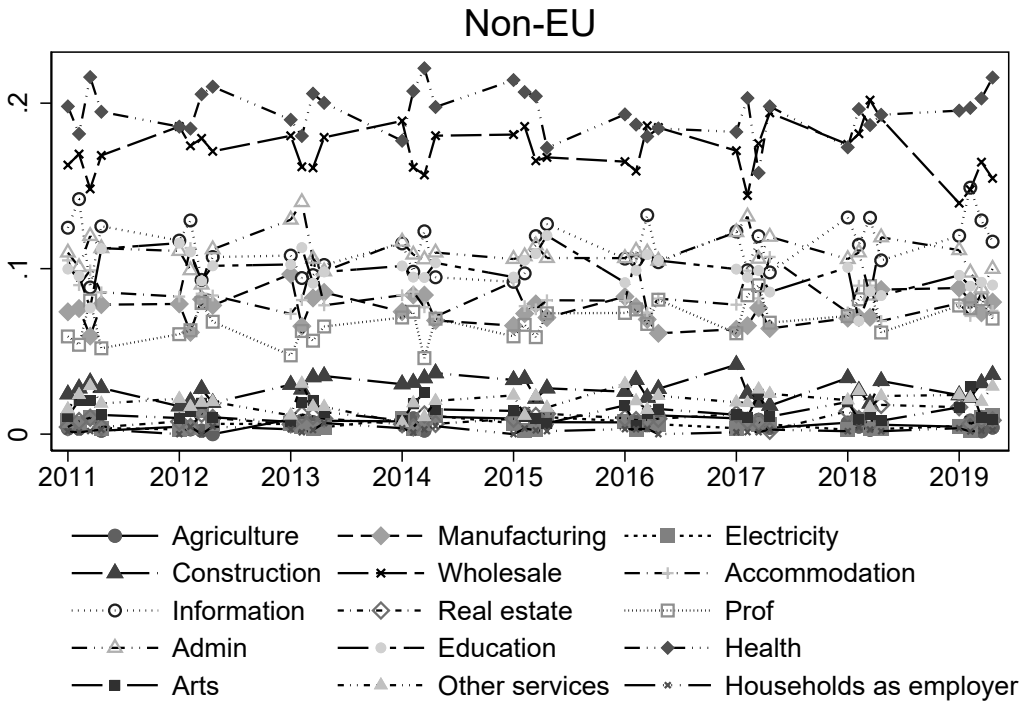


Figure A3: Industry time trends, 2011-2019
(continued from previous page)



Source: Author's own elaboration of Labour Force Survey 2011/9.
Notes: Industry by country of origin (UK, EU, or non-EU country) across the 2011-2019 period by each quarter. For readability industries have been grouped to 15 main ones. Some names of the grouped industries have also been shortened by using the first industry only: Agriculture, forestry, fishing, mining, and quarrying; Electricity, gas, air cond suppl, water supply, sewerage, and waste; Wholesale, retail, repair vehicles, transport, and storage; Information, communication, financial, and insurance activities; Prof, scientific, and technical; Admin, support services, public admin, defence; Health, social work; Arts and entertainment. Population weight applied.