

Article

Changes in payrolled employments held by non-UK nationals during the coronavirus (COVID-19) pandemic and EU Exit periods

Using new Experimental Statistics from HMRC Pay As You Earn (PAYE) Real Time Information (RTI) data linked to Migrant Worker Scan (MWS) to explore changes in payrolled employments in the labour market by nationality, region and industry from July 2014 to June 2021.

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1 . Main points

- The payrolled employment counts from HM Revenue and Customs (HMRC) data used in this article are a measure of payrolled employee jobs; therefore, a single employee might have multiple concurrent payrolled employments across different 2007 Standard Industrial Classification (SIC) code groupings.
- These statistics only include payrolled employments from the Pay As You Earn (PAYE) system, they do not include employments from non-payrolled sources such as self-employment.
- Between June 2019 and June 2021, payrolled employments held by EU nationals fell by 6% (171,100) whereas those of non-EU nationals increased by 9% (186,300).
- While coronavirus (COVID-19) and the UK's exit from the EU has affected people's decisions to work in the UK, there have been differences between industries, with some having experienced growth and others decline.
- The largest decline in total payrolled employments was seen in accommodation and food services; this was driven by a 25% (98,400) fall in payrolled employments of EU nationals during the two years up to June 2021.
- The health and social work sector experienced the largest growth in total payrolled employments; driven by an increase in those of UK and non-EU nationals, which were up 5% (178,400) and 19% (75,900) respectively during the two years to June 2021.

2 . Overview

People's movements and decisions to migrate to or stay in the UK for work has been affected by the coronavirus (COVID-19) pandemic and the UK's exit from the EU. Previous research using the Annual Population Survey and the Labour Force Survey has explored the [changing trends and recent shortages in the labour market](#) over the coronavirus pandemic.

This article builds on new data and analysis from HM Revenue and Customs (HMRC) Experimental Statistics on [payrolled employments in the UK by region, industry and nationality, from July 2014 to June 2021](#) to explore, in more detail, how this has changed for non-UK nationals.

These statistics are based on a count of all payrolled employee jobs that were active in a given month using HMRC's Real Time Information (RTI) for Pay As You Earn (PAYE) data.

Payrolled employments cannot be directly compared with payrolled employees. As payrolled employees can have multiple payrolled employments, payrolled employment counts will be higher. These statistics only include employments from the PAYE system, they do not include employments from non-payrolled sources such as self-employment. For more information see [Data sources and quality](#).

As individuals who were furloughed as part of the Coronavirus Job Retention Scheme (CJRS) should still have their payrolled employments reported through the PAYE system, they should feature in these data and contribute toward the payrolled employment statistics for the relevant period.

These statistics show the number of payrolled employments undertaken by non-UK nationals who registered for a National Insurance number. They cannot be used as a count of monthly or annual migration to the UK, or to show the number of non-UK nationals who are currently living in the UK.

Nationality breakdowns are determined using HMRC's Migrant Worker Scan (MWS). Nationality is reported by individuals when they register for a National Insurance number through the adult National Insurance number registration process. If an individual has subsequently naturalised or changed nationality, this will not be reflected in these statistics. For example, someone with a non-EU nationality in the data may since have gained British citizenship.

Throughout this article we have used the term "pandemic period" for the period from March 2020 (when the first coronavirus lockdown began) to June 2021 (the latest time point for which data is available). We have also used June 2019 as a pre-pandemic reference point, two years prior to the latest point in the data. Considering seasonality in some industries, it helps to assess the recovery of payrolled employments by comparing the same months in each year.

3 . Changes in payrolled employments vary by nationality and industry

The number of payrolled employments of EU nationals continued to rise after the vote to leave in June 2016, following the trend among UK and non-EU nationals since July 2014.

The introduction of the first UK-wide coronavirus (COVID-19) lockdown in March 2020 coincided with a decline in payrolled employments for all nationality groups. These have each experienced different trends and patterns of recovery up to June 2021, a time period which includes both the pandemic period and the EU exit transition period (Figure 1).

Figure 1: Payrolled employments of EU nationals fell over the pandemic period, whereas those of non-EU nationals saw an overall rise

Monthly counts of payrolled employments by nationality, UK, July 2014 to June 2021

Notes:

1. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.
2. More information on the key dates in this chart can be found in the [Glossary](#).

Download the data

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Overall, payrolled employments of non-EU nationals increased during the pandemic period. By June 2021, there were 2.23 million, a rise of 9% compared with the same month in 2019.

Payrolled employments of EU nationals fell sharply over the pandemic period; in January 2021 they were at their lowest level since February 2017. By June 2021, there had been a slight recovery to 2.48 million, but they remained below pre-pandemic levels and were 6% lower than the same month in 2019.

During the same time period, payrolled employments of UK nationals also declined. By January 2021, they had dropped to their lowest level since February 2015, before recovering rapidly back towards pre-pandemic levels by June 2021 (25.79 million).

While COVID-19 and the UK's exit from the EU has affected people's decisions to work in the UK, it has not affected all industries equally (Figure 2).

Some industries have experienced growth in payrolled employments, particularly for non-EU nationals, such as the construction and health and social work industries. In contrast, the accommodation and food services and arts, entertainment and recreation industries experienced large declines over the pandemic period.

Figure 2: Accommodation and food services and arts, entertainment and recreation were among the industries with the largest decline in payrolled employments over the coronavirus (COVID-19) pandemic period

Change in payrolled employments, indexed to June 2019 by industry and nationality, UK, June 2019 to June 2021

Notes:

1. Agriculture, forestry and fishing has not been included here because of the large-scale changes associated with seasonal variability. A separate chart on this can be found in the agriculture, forestry and fishing section.
2. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.
3. Not all Standard Industrial Classification 2007 industries are covered here; please see HMRC's [payrolled employments in the UK by Region, Industry and Nationality, from July 2014 to June 2021](#) for more detail.

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It is important to consider the relative scales of these industries when interpreting the changes (Figure 3). For example, while the arts, entertainment and recreation industry experienced one of the largest proportional declines, this is a smaller industry compared with others. Non-UK nationals are also a small part of this industry where EU and non-EU nationals accounted for just 5% and 3% of payrolled employments in June 2021.

Figure 3: Both total payrolled employment counts and composition by nationality varies between industries

Count of payrolled employments by industry and nationality, UK, June 2021

Notes:

1. Not all Standard Industrial Classification 2007 industries are covered here; please see HMRC's [payrolled employments in the UK by Region, Industry and Nationality, from July 2014 to June 2021](#) for more detail.

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The largest decline was seen in the accommodation and food services industry. By June 2021, total payrolled employments in this sector were 5% (123,500) lower than the same month in 2019, driven by EU nationals. By this time, the sector accounted for around 7% of total payrolled employments.

The health and social work industry experienced the largest growth. By June 2021, payrolled employments in this sector were 6% higher (264,100) than the same month in 2019. This was driven by UK and non-EU nationals, payrolled employments of non-EU nationals increased by 19% (75,900) over the same time period (Figure 4).

We explore trends in some of these industries, with particularly large change in payrolled employments of non-UK nationals (Figure 4), in more detail in the sections below.

Figure 4: As of June 2021, payrolled employments of EU nationals were still below June 2019 levels for many industries, whereas those of non-EU nationals had mostly increased**Percentage change in payrolled employments between June 2019 and June 2021 by industry and nationality, UK****Notes:**

1. Not all Standard Industrial Classification 2007 industries are covered here; please see HMRC's [payrolled employments in the UK by Region, Industry and Nationality, from July 2014 to June 2021](#) for more detail.

Download the data

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4 . Accommodation and food services

The accommodation and food services sector accounted for approximately 7% (2.12 million) of all payrolled employments in June 2021. Of these, around 75% were held by UK nationals, 14% by EU nationals and 10% by non-EU nationals.

Following a period of relative stability in payrolled employments in this sector, the onset of the coronavirus (COVID-19) pandemic and the end of the EU transition period coincided with a decline in payrolled employments across all nationality groups.

Payrolled employments of EU nationals fell to their lowest during the pandemic period in February 2021 and were 31% (125,000) lower than June 2019. Payrolled employments of UK and non-EU nationals also decreased by 19% (315,700) and 8% (17,500) respectively during this time.

By June 2021, payrolled employments among EU nationals were lower than pre-pandemic levels, despite a recovery among UK and non-EU nationals. While payrolled employments among all EU nationals saw a sharp decline over the pandemic period, this trend had begun earlier among some groups (Figure 5).

Since August 2016, shortly after the EU referendum, there has been a steady decline in payrolled employments among nationals from eastern European countries that joined the EU after 2004 (EU8). Among nationals from member states prior to 2004 (EU14), Bulgaria and Romania (EU2) growth in payrolled employments slowed.

During the pandemic period, payrolled employments of EU14 nationals were particularly affected. In February 2021, payrolled employments of EU14 nationals fell to their lowest since 2014; 31% (56,200) lower than June 2019 levels. By June 2021, these groups saw a slight recovery, though far below pre-pandemic levels.

Figure 5: While payrolled employments among all EU nationals saw a sharp decline over the coronavirus (COVID-19) pandemic period, this trend had begun earlier for EU8 nationals

Monthly counts of payrolled employments in the accommodation and food services sector by nationality, UK, July 2014 to June 2021

Notes:

1. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.
2. EU8 covers eastern European countries that joined the EU after 2004.

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Data on [vacancies by industry](#) shows that despite a recovery in payrolled employments of UK and non-EU nationals, vacancies in the accommodation and food services sector at the time remained high. For example, between April and June 2021, there were an estimated 109,000 vacancies, compared with 91,000 in the same period in 2019.

[Business Insights and Conditions Survey \(BICS\) data](#) also suggests more challenging conditions for employers in this industry. Results from the survey found 30% of businesses in this sector found it more difficult to fill vacancies between 12 July and 8 August 2021 (Wave 36), the highest across all industries sampled in BICS during this time. This was the earliest time that this question was asked on the survey and therefore most closely aligns to the time periods available in the HMRC payrolled employment statistics.

5 . Agriculture, forestry and fishing

The agriculture, forestry and fishing sector is one of the smallest UK industries, accounting for approximately 0.7% (204,900) of all payrolled employments in June 2021. Of these, around 82% were held by UK nationals, 17% by EU nationals and 2% by non-EU nationals. Despite a recent increase in payrolled employments of non-EU nationals in the agriculture, forestry and fishing sector, numbers are still quite low and therefore excluded from the analysis of this sector.

There is large seasonal variability in this sector, with summer peaks of payrolled employments, particularly among EU nationals. Payrolled employments of EU nationals in the summer peak in 2020 and 2021 were, respectively, 14% (6,700) and 28% (13,700) lower than June 2019 levels (Figure 6).

Figure 6: Payrolled employments of EU nationals in the summer peaks of 2020 and 2021 were lower than June 2019 levels

Change in payrolled employments, indexed to June 2019 in the agriculture, forestry and fishing sector by nationality, UK, June 2019 to June 2021

Notes:

1. Non-EU nationals have been excluded from this chart because of the low number of payrolled employments in this sector.
2. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.

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There is evidence some of the reduction in EU payrolled employments in this sector has been offset by UK nationals. Payrolled employments among UK nationals has remained more stable over the years, seeing increases over the busier summer periods. For example, in June 2021, payrolled employments of UK nationals were 7% (10,300) higher compared with the same month in 2019.

The seasonal variability in payrolled employments of EU nationals in this industry is largely driven by Bulgarian and Romanian (EU2) nationals (Figure 7). Between June 2015 and June 2019, payrolled employments of EU2 nationals in this sector increased by 18%, from 24,400 to 28,800.

By June 2021, there was a large fall in these payrolled employments to 18,600, the lowest number of June payrolled employments in the available data.

Figure 7: Payrolled employments of EU2 nationals in the agriculture, forestry and fishing sector were lower in the summer months over the coronavirus (COVID-19) pandemic

Monthly counts of payrolled employments in the agriculture, forestry and fishing sector by nationality, UK, July 2014 to June 2021

Notes:

1. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.
2. EU2 covers Bulgaria and Romania.

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Payrolled employments of nationals from eastern European countries that joined the EU after 2004 (EU8) in this sector has been decreasing year-on-year, with seasonal variation becoming less pronounced over the years (Figure 7).

6 . Construction

The construction sector accounted for approximately 4% (1.33 million) of all payrolled employments in June 2021. UK nationals held the majority of these (90%), whereas EU and non-EU nationals held 7% and 3% respectively.

Throughout 2020 and 2021, payrolled employments of EU and non-EU nationals in this sector increased, continuing a long-standing trend. By June 2021, payrolled employments of EU and non-EU nationals had increased by 13% and 20% respectively compared with the same month in 2019. In contrast, payrolled employments of UK nationals remained relatively stable over this period.

This increase in EU workers in the construction industry was also reflected in [Business Insights and Conditions Survey \(BICS\) data](#). Between 12 July and 8 August 2021, of the 8% of businesses that were struggling to fill vacancies in this sector, just 1% put this down to a reduction in EU applicants.

Figure 8 shows that the increase in payrolled employments of EU nationals in this sector has largely been driven by Bulgarian and Romanian (EU2) nationals, accounting for 59% of the rise since July 2014 in EU nationals. Experiencing rapid growth, payrolled employments of EU2 nationals increased from 6,300 in July 2014, to 37,100 by June 2021.

By June 2021, the composition of EU payrolled employments in construction had changed, with payrolled employments of EU2 nationals overtaking nationals from eastern European countries that joined the EU after 2004 (EU8) as the largest EU group in the construction sector.

Figure 8: Growth in payrolled employments of EU nationals in the construction sector has largely been driven by EU2 nationals

Monthly counts of payrolled employments in the construction sector by nationality, UK, July 2014 to June 2021

Notes:

1. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.
2. EU2 covers Bulgaria and Romania.

Download the data

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Payrolled employments of nationals from member states prior to 2004 (EU14) and EU8 nationals in the construction sector stabilised in recent years following a period of growth. For example, between July 2014 and June 2017, payrolled employments of EU8 nationals had increased by 10,700 (52%), whereas in the four years that followed this increased by just 2,200 (7%).

This growth in recent years has largely been driven by an increase in payrolled employments of EU and non-EU nationals in England alone. Between July 2014 and June 2021, payrolled employments in England accounted for 95% of the rise in payrolled employments of EU and non-EU nationals across the UK.

7 . Transportation and storage

The transportation and storage sector accounted for approximately 4% (1.35 million) of all payrolled employments in June 2021. Of these, around 81% were held by UK nationals, 13% by EU nationals and 6% by non-EU nationals.

Over 2020 and 2021, there is evidence of a decline in payrolled employments of UK nationals in this sector, resulting in a 5% (52,600) decrease by June 2021 compared with the same month in 2019. Meanwhile, payrolled employments of EU and non-EU nationals in this sector saw an increase over this time. By June 2021, payrolled employments of EU and non-EU nationals had risen by 9% (13,900) and 17% (12,200) compared with the same month in 2019.

When breaking down payrolled employments into EU subgroups, there has been an overall increase in payrolled employments for nationals from eastern European countries that joined the EU after 2004 (EU8), Bulgaria and Romania (EU2) and member states that joined prior to 2004 (EU14) since July 2014 (Figure 9). However, the rate of growth has varied between groups over time.

Since the end of 2020, growth in payrolled employments of EU14 and EU2 nationals has stabilised, while payrolled employments of EU8 nationals had already levelled off for several years by this point. Despite this, EU8 nationals still account for most of EU payrolled employments, at 47% in June 2021.

Figure 9: Growth in payrolled employments of EU14, EU8 and EU2 nationals in the transportation and storage sector has varied in recent years

Monthly counts of payrolled employments in the transportation and storage sector by nationality, UK, July 2014 to June 2021

Notes:

1. Non-seasonally adjusted, therefore the effects of regular, or seasonal, patterns have not been removed from these series.
2. EU2 covers Bulgaria and Romania.
3. EU8 covers eastern European countries that joined the EU after 2004.
4. EU14 covers member states that joined the EU prior to 2004.

Download the data

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8 . Migration and the labour market data

[Payrolled employments in the UK by region, industry and nationality, from July 2014 to June 2021](#)

Dataset | Released 1 March 2022

Experimental statistics on counts of payrolled employments in the UK from HM Revenue and Customs' (HMRC) Pay As You Earn (PAYE) Real Time Information (RTI) data and HMRCs' Migrant Worker Scan (MWS).

9 . Glossary

Payrolled employment

Payrolled employment counts are a measure of payrolled employee jobs, therefore a single employee might have multiple concurrent employments across different 2007 Standard Industrial Classification (SIC) code groupings. Values for employee jobs are calculated based on the proportion of each month in which the employment was being worked (for example, if an employment started halfway through the month, then it would be counted as half an employment when aggregated up). This approach aligns with the methodology used in the monthly earnings and employment estimates from Pay As You Earn (PAYE) Real Time Information (RTI) data. Occupational pensions and income from non-payrolled sources such as self-employment are not included.

PAYE

PAYE is the system employers and pension providers use to take Income Tax and National Insurance contributions before they pay wages or pensions to employees and pensioners. It was introduced in 1944 and is now the way that most employees pay Income Tax in the UK. This publication relates to employments only, not employees or pensioners.

Pandemic period

In this article, we use the phrase "during the pandemic", or refer to the "pandemic period". When using HM Revenue and Customs' (HMRC's) PAYE RTI and Migrant Worker Scan (MWS) data, the "pandemic period" refers to the period March 2020 (when the first coronavirus (COVID-19) lockdown began) to June 2021 (the latest time point for which data is available).

Nationality

For most residents in the UK (including foreign nationals), National Insurance numbers are automatically issued when an individual turns 15 years and 9 months old. This standard registration process does not collate information on nationality.

Individuals who are not allocated a National Insurance number through the standard registration process (for example, those who come from abroad after the age of 16 years) are required to apply for a National Insurance number through the Department for Work and Pensions' (DWP) adult National Insurance number registration process. This process records nationality at the point of registration. Subsequent naturalisation (to UK citizenship), other changes in nationality and multiple nationalities are not recorded.

UK

The 4 countries of the United Kingdom; England, Wales, Scotland and Northern Ireland.

EU

The EU consists of the 27 countries of the European Union. All the individual countries that make up the EU are listed below.

Member states prior to 2004 (EU14)

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Republic of Ireland, Spain and Sweden.

Eastern European countries that joined the EU after 2004 (EU8)

Czech Republic, Estonia, Poland, Hungary, Latvia, Lithuania, Slovakia, and Slovenia.

EU2

Bulgaria and Romania.

EU Other

Malta, Cyprus and Croatia.

Non-EU

Non-EU countries excludes the UK and all EU countries identified above.

Industry

The industrial sectors in these statistics are based on the [UK Standard Industrial Classification \(SIC\) codes](#). These codes have been determined from both the [Inter-Departmental Business Register \(IDBR\)](#) and data from Companies House for each PAYE enterprise. For some payrolled employments, the high-level 2007 SIC code groupings are unknown. These employments are grouped with the household and extraterritorial organisations industries.

Region

Estimates in this publication are available for England, Wales, Scotland, Northern Ireland and the nine English regions, in accordance with the Nomenclature of Units for Territorial Statistics (NUTS) classification which came into force on 1 January 2015. NUTS provides a single uniform breakdown to produce regional statistics.

Geographic location for employments is recorded based on where the corresponding individual lives, not where they work. Employments where the information is missing are assigned values based on proportions from historic trends.

Key dates

- EU Referendum: On the 23 June 2016, the UK held a referendum and 52% of those who voted chose to leave the EU.
- Article 50 triggered: On the 29 March 2017, Article 50 was triggered starting a countdown to the UK formally leaving the EU on 29 March 2019; after further extensions to this deadline, the UK left the EU on 31 January 2020 and entered a transition period.
- First UK coronavirus lockdown: On the 23rd March 2020 there was an announcement of COVID-19 lockdown and introduction of the Coronavirus Job Retention Scheme (CJRS).

10 . Data sources and quality

HM Revenue and Customs (HMRC) data sources

The data used in this article comes from the HMRC Pay As You Earn (PAYE) Real Time Information (RTI) system. It covers the whole population rather than a sample of people or companies and allows for more detailed estimates of the population.

As individuals who were furloughed as part of the Coronavirus Job Retention Scheme (CJRS) should still have their employments reported through this system, they should feature in these data and contribute toward the employment statistics for the relevant period.

HMRC's Migrant Worker Scan (MWS) is also used. It is an extract or subset of data, compiled from the National Insurance and Pay as You Earn Service (NPS) database system. The NPS system is owned by HMRC, with input from the Department for Work and Pensions (DWP). The July 2021 extract of the MWS was used for this analysis.

DWP register National Insurance numbers for those over 16 years through their adult registration process, which usually includes an interview to verify identity and right to residency in the UK. In some circumstances, DWP will allocate National Insurance numbers following a successful application through the Home Office (HO) for a Biometric Residence Permit (BRP) or another "fast path" application process. In all the above scenarios, DWP will allocate the National Insurance number and enter the information onto the NPS system, including details of their nationality at the point of application.

When Child Benefit is claimed on behalf of foreign national resident children, a National Insurance number is automatically allocated at the age of 15 years. These individuals will not appear on the MWS.

Comparability

Care needs to be taken when comparing these statistics to other sources. It is important to consider the coverage of these statistics.

Payrolled employments cannot be directly compared with payrolled employees. As payrolled employees can have multiple payrolled employments, payrolled employment counts follow the same trend as payrolled employee counts, but counts will be higher.

Employments from the PAYE system cannot be compared with all jobs. These statistics only include employments from the PAYE system, they do not include employments from non-payrolled sources such as self-employment.

For example, any comparisons with estimates from the Labour Force Survey (LFS) should be treated with caution. Differences between the two sources are possible for reasons including, but not limited to, sampling variability in the LFS, as well as definitional differences in nationality and payrolled employments as outlined above. For more information see [Comparison of labour market data sources](#).

For more information on the methodology and comparability of these statistics, please see HMRC's [Analysis of employments in the UK by region, industry and nationality, from July 2014 to June 2021](#).

Office for National Statistics (ONS) data sources

Information on the quality and methodology for the Business Insights and Conditions Survey (BICS), including information on strengths, limitations, appropriate uses, and how the data were created is available in the [BICS QMI, published on 20 May 2021](#).

Information on the quality and methodology for the ONS Vacancy Survey, including information on strengths, limitations, appropriate uses, and how the data were created is available in the [Vacancy Survey QMI](#).

11 . Related links

[Payrolled employments in the UK by region, industry and nationality from July 2014 to June 2021](#)

Article | Released 1 March 2022

This experimental statistics publication includes counts of payrolled employments in the UK from HM Revenue and Customs' (HMRC) Pay as You Earn (PAYE) Real Time Information (RTI) data and HMRCs' Migrant Worker Scan (MWS).

[Labour market overview, UK: February 2022](#)

Bulletin | Released 15 February 2022

Estimates of employment, unemployment, economic inactivity and other employment-related statistics for the UK.

[Changing trends and recent shortages in the labour market, UK: 2016 to 2021](#)

Article | Released 20 December 2021

Changing trends and shortages in the labour market and how this affects different occupations and demographic groups.