

Article

# Impact of reweighting on Labour Force Survey key indicators: December 2024

Indicative estimates of the Labour Force Survey (LFS) reweighting methodology on key indicators for the UK, up to and including April to June 2024.

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# 1 . Main points

- The Labour Force Survey (LFS) has been reweighted from January to March 2019, to use more recent population estimates, increasing the UK population of those aged 16 to 64 years by 484,000 (1.1%) in April to June 2024.
- The stronger growth in population estimates since mid-2022 has resulted in increased levels' estimates across most of the labour market series, although rates and averages have generally seen little change.
- The changes in population have increased the seasonally adjusted estimates of the employment level by 402,000, the unemployment level by 30,000 and the economically inactive level by 60,000, for April to June 2024.
- The employment rate is revised up 0.1 percentage points to 74.6% in April to June 2024, meanwhile, the unemployment rate is largely unchanged at 4.2% and the economic inactivity rate is down 0.1 percentage points to 22.1%.
- The reweighted LFS employment data reduce the gap between LFS and payroll estimates of the number of employees. The new data also show that the overall employment level is now 313,000 above pre-coronavirus (COVID-19) pandemic levels, rather than at a similar level as current data do.
- Looking at the countries of the UK, Scotland shows the biggest revisions owing to population change as we are using information from their 2022 Census; revisions to Northern Ireland are mainly because of the correction of an error in the weighting method used.
- Indicative estimates of growth for both output per hour worked, and output per worker, were revised downwards by 0.6 percentage points for April to June 2024 compared with a year ago. Growth for output per hour worked was revised down from -0.3% to -0.9% and output per worker from 0.9% to 0.3%.
- This article contains indicative estimates of the impact of the reweighting on the headline Labour Market and Productivity estimates for periods up to April to June 2024; reweighted estimates of the latest periods will be incorporated into our next Labour Market release on 17 December 2024 and the Productivity Flash estimate and Overview release on 18 February 2025.
- An increased amount of volatility will remain in LFS estimates until the recent improvements that have been implemented fully feed through the survey; therefore, we continue to advise caution when interpreting changes in headline rates, and recommend using them as part of our suite of labour market indicators, alongside Workforce Jobs (WFJ), Claimant Count data and Pay As You Earn (PAYE) Real Time Information (RTI) estimates.

## 2 . Background

The Labour Force Survey (LFS) is a household survey, which is the basis for producing estimates of employment, unemployment, and economic inactivity in the UK along with many other labour market statistics. Given that the LFS is a sample, its responses are weighted to estimates of the UK population to produce representative estimates of the labour market.

In February 2024, we reweighted the LFS to be consistent with population estimates published in November 2023, along with forward population projections based on the latest estimates at that time. Only periods from July to September 2022 onwards were reweighted, with earlier periods, back to 2011, modelled for headline measures by age and sex only.

Since then, new population estimates and projections have been released, based on updated assumptions incorporating higher levels of net migration, along with the results of Scotland's 2022 Census. The population estimates used do not consider the most recent estimates of migration published by the Office for National Statistics (ONS) in November 2024.

We have now reweighted the LFS using this more recent population information, updating the population weights used for periods from January to March 2019 onwards. The reweighted LFS estimates incorporate information on the size and composition of the UK population, based on 2022 mid-year estimates. For England, Wales and Northern Ireland, they are projected forward using scaling factors from 2021-based national population projections, published in January 2024. For Scotland, they are projected forward using scaling factors from 2020-based national population projections, published in January 2023. This reweighting also revises the weighting methodology used for periods from January to March 2020, to June to August 2022, to align them with the methodology used for later periods. We have also made slight changes to the age groups used in the weighting methodology for Northern Ireland and moved to using more up to date geographies.

Along with aligning weighting methodology, an error was found in the weighting code used for Northern Ireland, relating to the calculation and application of design weights. This error has been corrected as part of this reweighting. This has resulted in larger revisions to Northern Ireland estimates, from January to March 2020 onwards, that are mainly because of the correction. This correction has minimal impact on the UK series.

### 3 . Population change

The revisions to populations and therefore the effect on estimates come under three distinct categories. These cover (1) June to August 2011 until December 2019 to February 2020, (2) January to March 2020 until June to August 2022, and (3) July to September 2022 onwards. This reflects the periods for which new population information is being incorporated as part of this new partial reweighting of the Labour Force Survey (LFS).

From June to August 2011 until December 2019 to February 2020, the only significant source of revision is Scotland's Census 2022. Previous population estimates have been realigned to be consistent with Census results, with historic estimates brought in line with this new benchmark. These revisions continue to affect later population numbers.

Revisions from January to March 2020 until June to August 2022 additionally reflect the replacement of previous populations. These are partially derived from Pay As You Earn (PAYE) Real Time Information (RTI) data and [accompanying LFS methodology](#), with the latest population estimates. As a result of this change, we have also revised our weighting methodology for these periods to be consistent with the methods already in use for later periods.

The revisions from July to September 2022 onwards reflect the higher population growth assumptions in the [National Population Projections bulletin, published in January 2024](#).

LFS data have been reweighted from January to March 2019 onwards. Therefore, this reweighting exercise creates a discontinuity between December 2018 to February 2019 and January to March 2019, where there will be a step change in LFS estimates. However, we have modelled the seasonally adjusted UK levels of employment, unemployment and economic inactivity by sex and age band back to June to August 2011. This is to ensure that headline rates and levels by sex and age band (datasets A02SA and A05SA) can be assessed without a discontinuity.

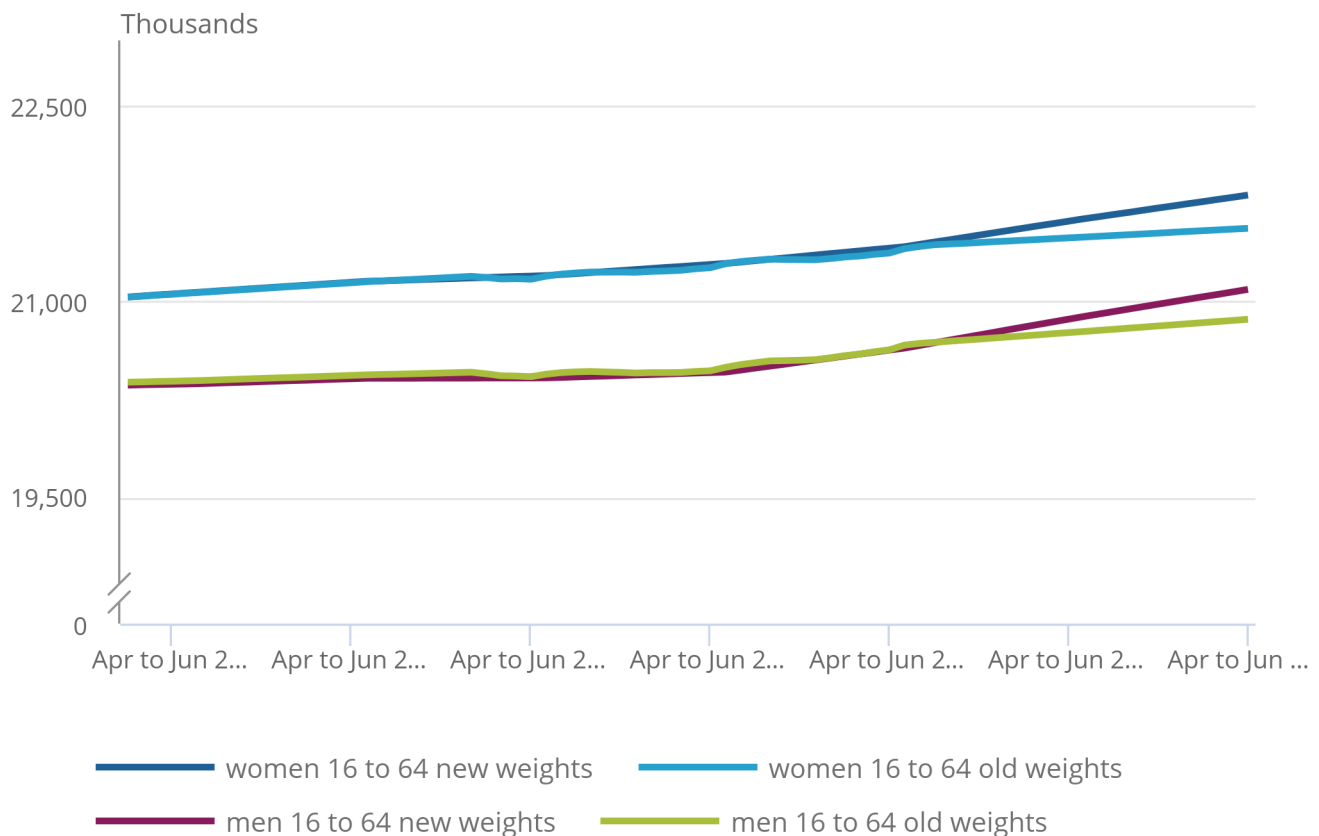
Figure 1 shows how this latest information records a higher increase in population for those aged 16 to 64 years, reflecting higher levels of net migration. This has increased the total UK population by 484,000 in April to June 2024, comprised of increases in the male population by 229,000, and the female population by 255,000.

**Figure 1: The new population estimates used for reweighting the Labour Force Survey show stronger growth since mid-2022 than the old population estimates and projections**

Comparison of old and new population estimates for men and women aged 16 to 64 years, UK, January to March 2018, to April to June 2024

Figure 1: The new population estimates used for reweighting the Labour Force Survey show stronger growth since mid-2022 than the old population estimates and projections

Comparison of old and new population estimates for men and women aged 16 to 64 years, UK, January to March 2018, to April to June 2024



Source: Labour Force Survey weighting populations derived from mid-year estimates and projections from the Office for National Statistics

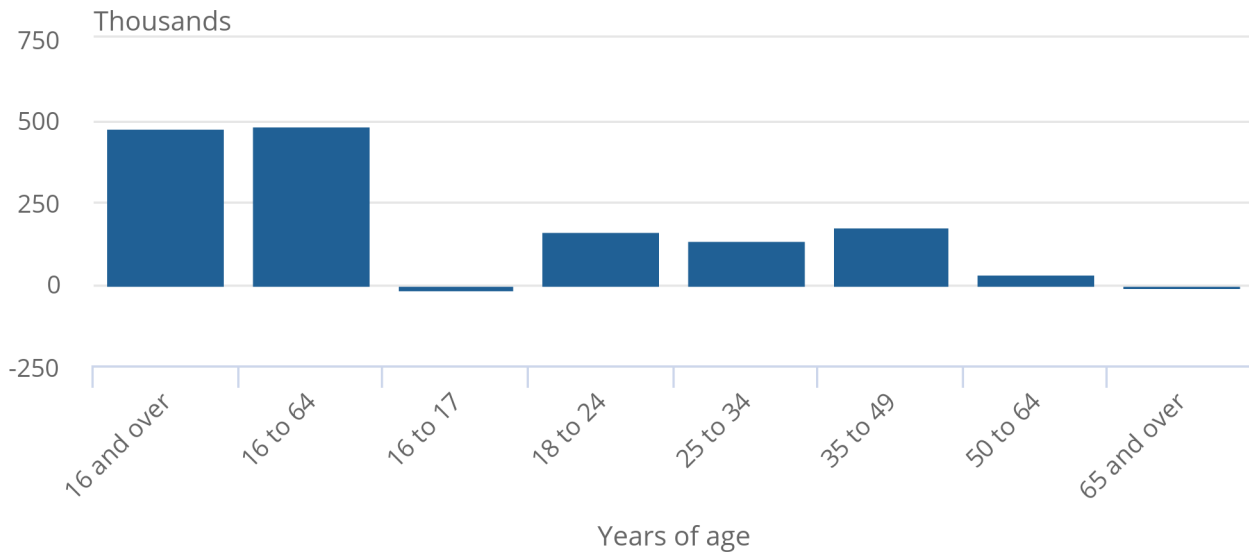
These revisions most strongly affect the populations for those aged 18 to 49 years – see Figures 2, 3 4 and 5. Younger (those aged 16 to 17 years) and older (those aged 50 to 64 years, and those aged 65 and over) age bands have been less affected. This primarily reflects the composition of the migration flows that these reweighted Labour Force Survey (LFS) estimates are now incorporating.

## Figure 2: Population revisions have been largest between the ages of 18 and 49 years

Revisions to population by age bands for April to June 2024, UK

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Revisions to population by age bands for April to June 2024, UK



**Source: Labour Force Survey weighting populations derived from mid-year estimates and projections from the Office for National Statistics**

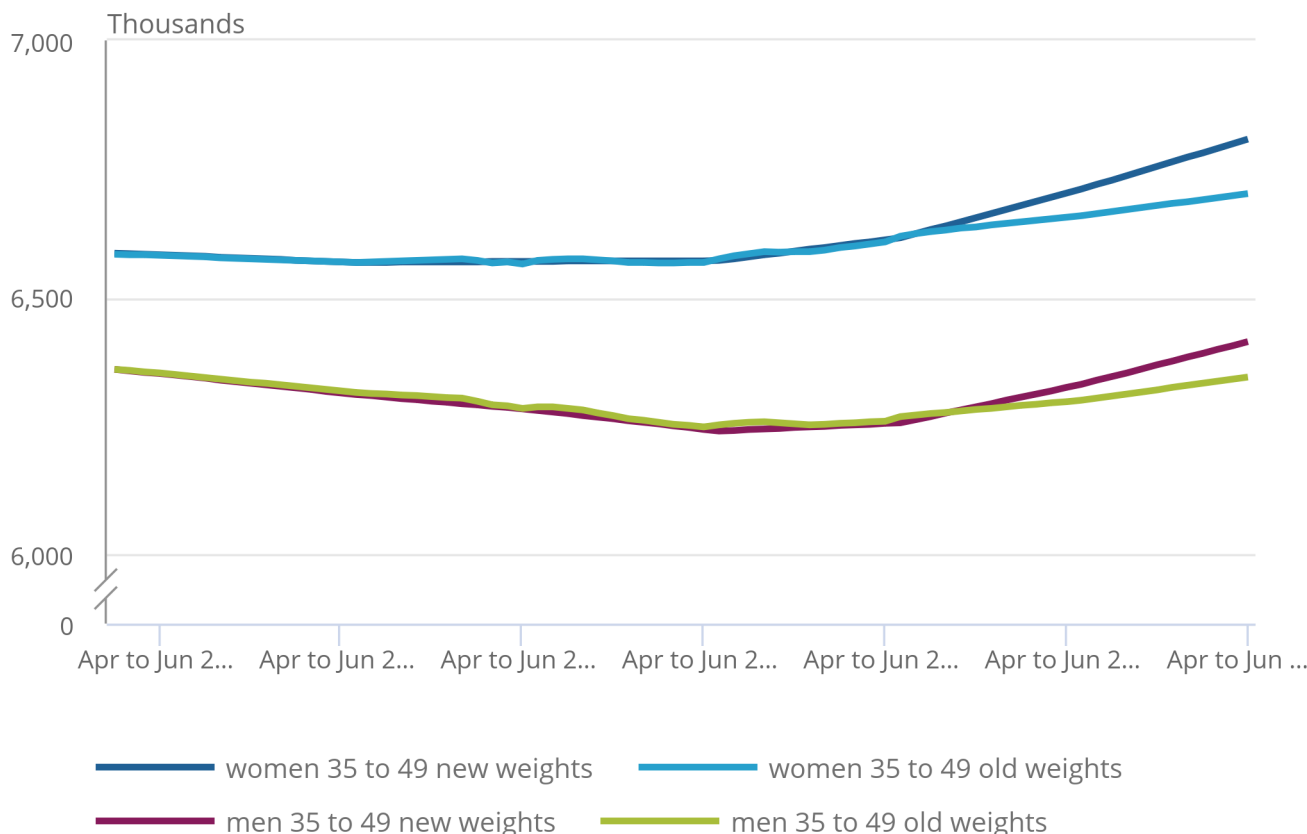
The population estimates for those aged 35 to 49 years show very little revision prior to the 2022 mid-year estimates. Revisions since mid-2022 are driven by the higher net migration assumptions in the 2021-based National Population Projections.

**Figure 3: The population estimates of people aged 35 to 49 years used for reweighting the survey show stronger growth since mid-2022 than the old population estimates and projections**

Comparison of old and new populations of men and women aged 35 to 49 years, UK, January to March 2018, to April to June 2024

Figure 3: The population estimates of people aged 35 to 49 years used for reweighting the survey show stronger growth since mid-2022 than the old population estimates and projections

Comparison of old and new populations of men and women aged 35 to 49 years, UK, January to March 2018, to April to June 2024



**Source: Labour Force Survey weighting populations derived from mid-year estimates and projections from the Office for National Statistics**

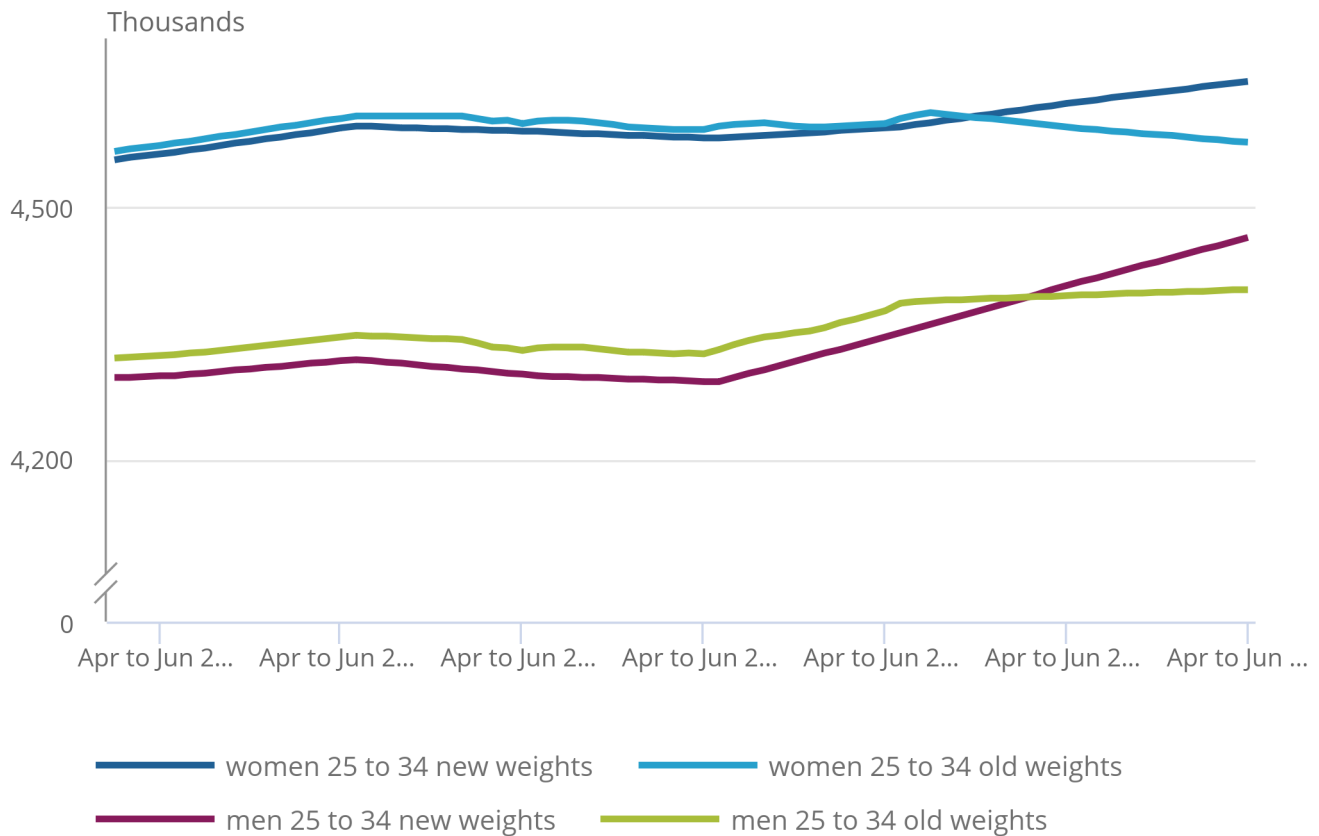
In addition to the increased growth since mid-2022, population estimates for 25- to 34- year-olds are the most affected by Scotland's Census 2022. This revised the population of this age group down prior to 2022, before the increased growth in more recent years.

**Figure 4: The population estimates of people aged 25 to 34 years used for reweighting the survey were lower before mid-2022, but have since shown stronger growth than the old population**

Comparison of old and new populations of men and women aged 25 to 34 years, UK, January to March 2018, to April to June 2024

Figure 4: The population estimates of people aged 25 to 34 years used for reweighting the survey were lower before mid-2022, but have since shown stronger growth than the old population

Comparison of old and new populations of men and women aged 25 to 34 years, UK, January to March 2018, to April to June 2024



**Source: Labour Force Survey weighting populations derived from mid-year estimates and projections from the Office for National Statistics**

In addition to the increased growth since mid-2022, the population figures for 18- to 24-year-olds show the biggest deviation from current estimates used from the start of 2020 to mid-2022. This highlights some limitations in the previous method, based on Pay As You Earn (PAYE) Real Time Information (RTI) data for this age group.

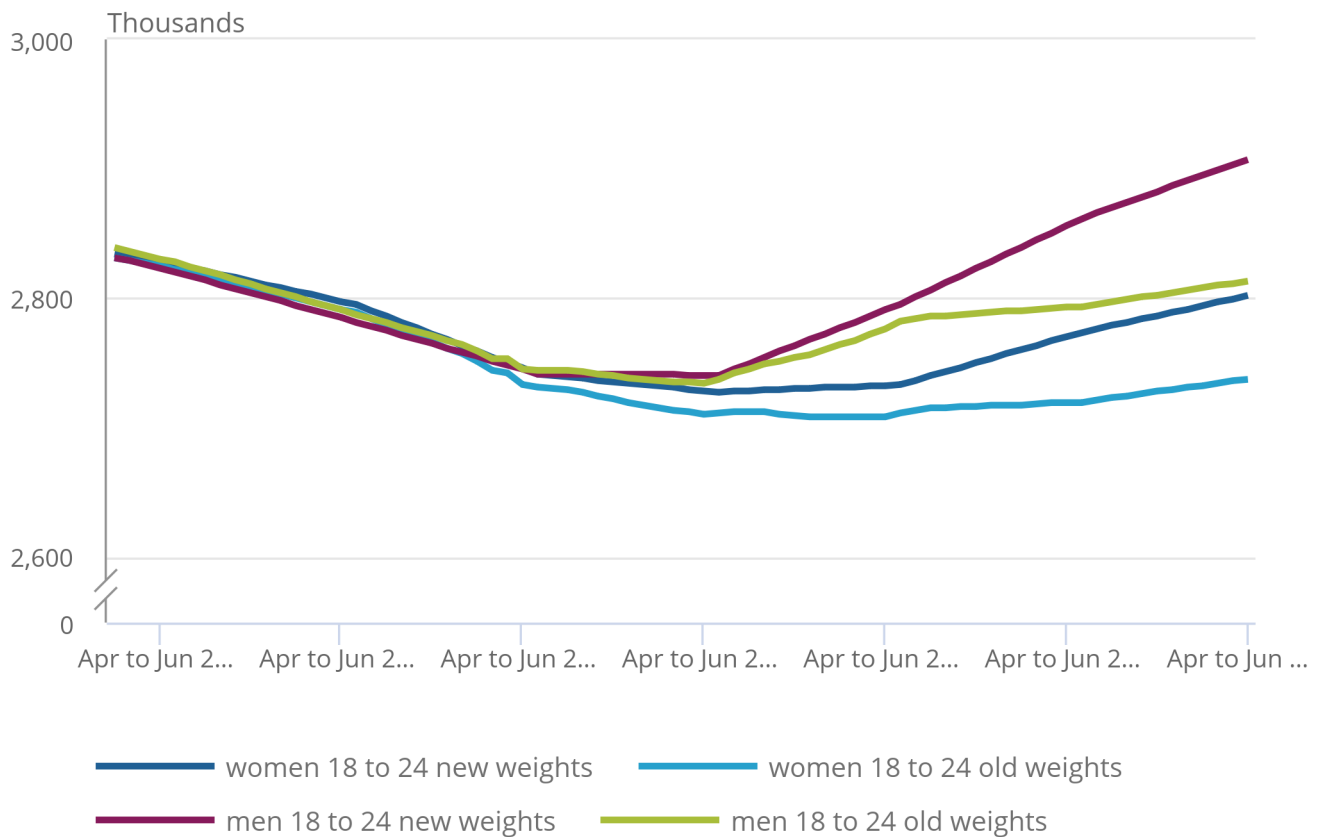


**Figure 5: The population estimates of people aged 18 to 24 years used for reweighting the survey have shown stronger growth since mid-2020 than the old population estimates and projections, with growth accelerating since mid-2022**

Comparison of old and new populations of men and women aged 18 to 24 years, UK, January to March 2018, to April to June 2024

Figure 5: The population estimates of people aged 18 to 24 years used for reweighting the survey have shown stronger growth since mid-2020 than the old population estimates and projections, with growth accelerating since mid-2022

Comparison of old and new populations of men and women aged 18 to 24 years, UK, January to March 2018, to April to June 2024



Source: Labour Force Survey weighting populations derived from mid-year estimates and projections from the Office for National Statistics

## 4 . Impact on labour market estimates

The stronger growth in population estimates since mid-2022 has resulted in increased levels estimates across most labour market series, although rates and averages have generally seen little change. Our revised population estimates also differ in composition by age, gender and geography. Therefore, lower-level Labour Force Survey (LFS) estimates might change both in levels (because of the higher overall population) and in rates (because the estimated composition of the population by age, sex or geography has changed).

## **Figure 6: The new weights revise up the number of people in all three labour market groups compared with old weights**

**Number of people Employed, Unemployed (aged 16 years and over) and Economically Inactive (aged 16 to 64 years), UK, seasonally adjusted, between January to March 2018 and April to June 2024**

### **Notes**

1. Increased volatility of Labour Force Survey (LFS) estimates resulting from smaller achieved sample sizes, means that estimates of change should be treated with additional caution.

### **Download the data**

The employment level for people aged 16 and over is 402,000 higher in April to June 2024, compared with the previously published level; the increase coming since the end of 2022. This means the employment level in April to June 2024 is now 313,000 above the pre-coronavirus (COVID-19) pandemic level compared with just 3,000 on the old weights. Meanwhile, the employment rate for people aged 16 to 64 years has not changed greatly, and in April to June 2024, is 0.1 percentage points above that previously published.

## **Figure 7: The new weights have minimal impact on the rates across all three labour market groups**

**Rates of Employment (aged 16 to 64), Unemployment (aged 16 years and over) and Economic Inactivity (aged 16 to 64), UK, seasonally adjusted, between January to March 2018 and April to June 2024**

### **Notes**

1. Increased volatility of Labour Force Survey (LFS) estimates resulting from smaller achieved sample sizes, means that estimates of change should be treated with additional caution.

### **Download the data**

The unemployment level for people aged 16 and over is 30,000 higher in April to June 2024, compared with the previously published level. The unemployment level in April to June 2024 is now 101,000 above the pre-pandemic level, compared with 35,000 on the old weights. Meanwhile, the unemployment rate for people aged 16 and over is unchanged in April to June 2024, compared with the previously published rate.

The economic inactivity level for people aged 16 to 64 years is 60,000 higher in April to June 2024, compared with the previously published level. The economic inactivity level in April to June 2024 is now 1.023 million above the pre-pandemic level, compared with 859,000 on the old weights. Meanwhile, the economic inactivity rate for people aged 16 to 64 years is 0.1 percentage point lower than previously published.

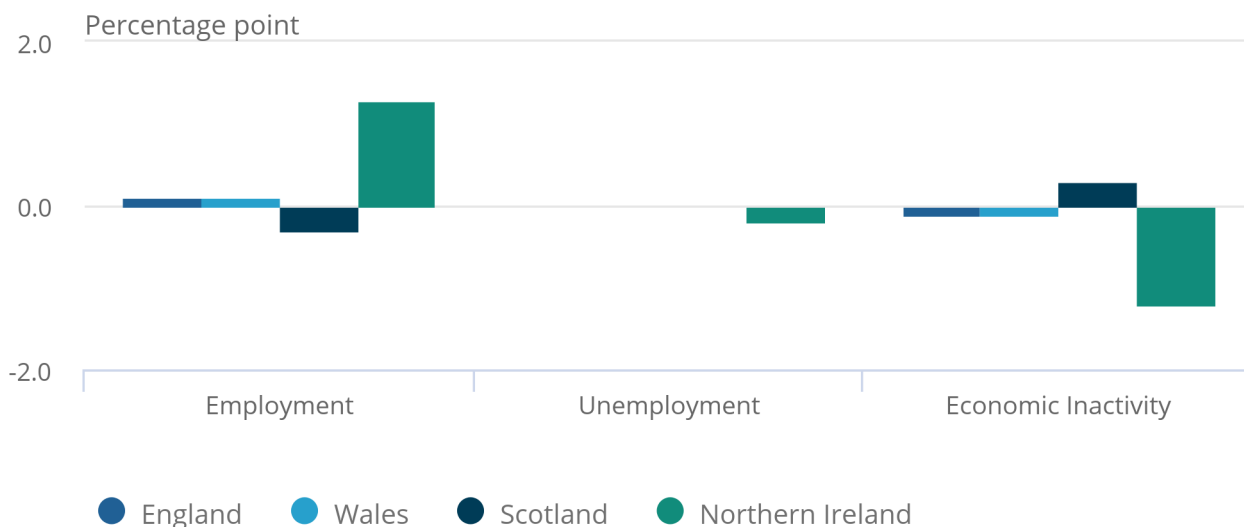
While the levels of all the main labour market indicators are higher, the increase in population is bigger in age groups from 18 to 49 years, which have a higher proportion of people in employment than the older or younger age groups. As such, the increase in the population level is affecting the employment level more than unemployment or economic inactivity.

**Figure 8: The reweighting exercise had a larger impact on rates for Scotland than for England and Wales**

Revision to employment, unemployment and economic inactivity rates by country of the UK, seasonally adjusted, April to June 2024

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Revision to employment, unemployment and economic inactivity rates by country of the UK, seasonally adjusted, April to June 2024



Source: Labour Force Survey from the Office for National Statistics

Notes:

1. The larger impact of this reweighting exercise on Northern Ireland estimates is because of the correction of an error.
2. Increased volatility of Labour Force Survey (LFS) estimates resulting from smaller achieved sample sizes means that estimates of change should be treated with additional caution.

An error was detected in the previous version of the coding used for weighting Northern Ireland data, whereby weights were multiplied by a design weight in two separate parts of the code. This has now been corrected, from January to March 2020, resulting in the larger impact of this reweighting exercise on Northern Ireland estimates than for the other countries of the UK. The revisions to the Northern Ireland data, are mainly due to the correction of the error, with very little impact due to the population data used.

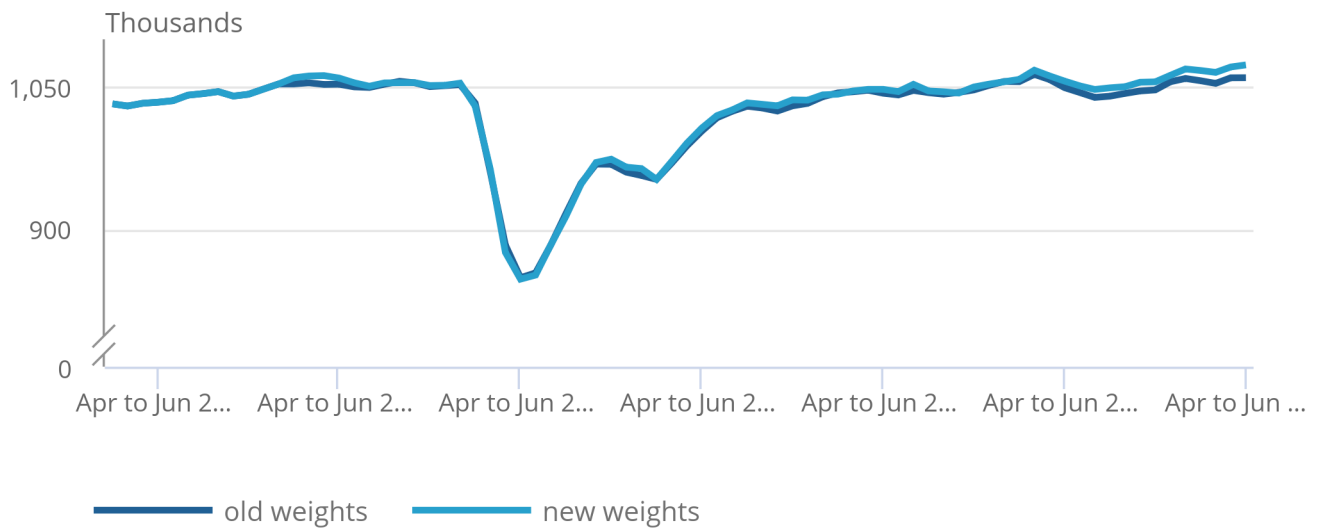
Aside from Northern Ireland, the impact of this reweighting exercise is bigger on rates for Scotland than for England or Wales. This is because the reweighting includes some restructuring of the population distribution for Scotland, based on the results of the Scotland Census 2022.

**Figure 9: The new weights revise up total hours worked because of the increase in the employment level**

Total hours worked, seasonally adjusted, UK, between January to March 2018, and April to June 2024

Figure 9: The new weights revise up total hours worked because of the increase in the employment level

Total hours worked, seasonally adjusted, UK, between January to March 2018, and April to June 2024



Source: Labour Force Survey from the Office for National Statistics

Notes:

1. Increased volatility of Labour Force Survey (LFS) estimates resulting from smaller achieved sample sizes, means that estimates of change should be treated with additional caution.

The average hours worked is little changed by this reweighting. Consequently, the increase in the number of people in employment since mid-2022 has a corresponding increase in the total hours worked.

## 5 . Impact on labour market statistics coherence

Reweighting increases the levels of all labour market statuses, including employment, and partially closes the gap between Labour Force Survey (LFS) and HM Revenue and Customs (HMRC) Pay As You Earn (PAYE) Real Time Information (RTI) estimates of the number of employees. Reweightings do not address the volatility that we are currently seeing in LFS estimates.

An increased amount of volatility will remain until the recent improvements that have been implemented fully feed through the survey. It will not be until the January to March 2025 period (published in May 2025) when our LFS estimates will include boosted cohorts in all five waves. Therefore, we continue to advise caution when interpreting changes in headline rates, and recommend using them as part of our suite of labour market indicators, alongside Workforce Jobs (WFJ), Claimant Count data and PAYE RTI estimates.

Understanding the coherence challenges around the LFS continues to be a priority. We are looking to refresh our work on reconciling estimates of employment from the LFS and WFJ. We are also considering how best to consider coherence between PAYE RTI data, LFS and WFJ, and will provide an update on our analysis in 2025.

More information on progress of the LFS recovery programme, and the transformation of LFS can be found in [our Labour market transformation - update on progress and plans: December 2024 article](#).

## 6 . Impact on labour productivity

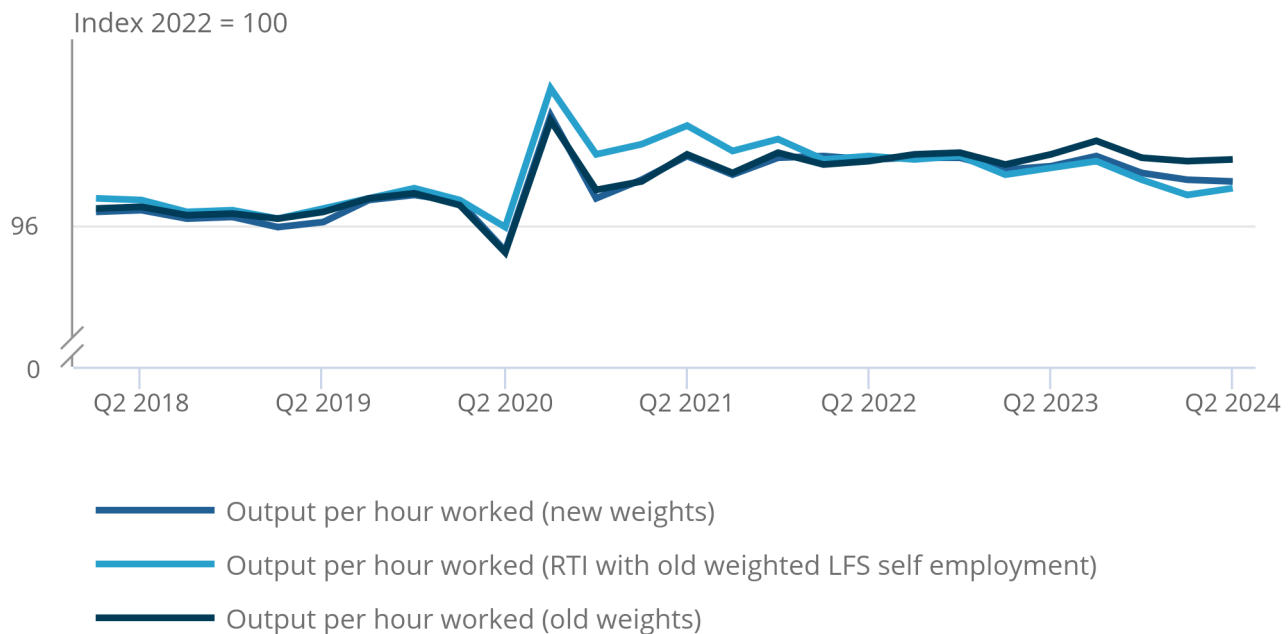
The reweighted estimates of output per hour worked, and output per worker, provided here are indicative. The Quarter 3 (July to Sept) 2024 estimates remain our lead measures until the next Productivity Flash Estimate and Overview publication on 18 February 2025.

### Figure 10: Output per hour worked has been revised down for the recent quarters up to April to June 2024

Output per hour worked: Labour Force Survey (LFS) old weights, LFS new weights, and Pay As You Earn Real Time Information (PAYE RTI) with old weighted LFS self-employment, UK, seasonally adjusted, Quarter 1 (Jan to Mar) 2018 to Quarter 2 (Apr to June) 2024

#### Figure 10: Output per hour worked has been revised down for the recent quarters up to April to June 2024

Output per hour worked: Labour Force Survey (LFS) old weights, LFS new weights, and Pay As You Earn Real Time Information (PAYE RTI) with old weighted LFS self-employment, UK, seasonally adjusted, Quarter 1 (Jan to Mar) 2018 to Quarter 2 (Apr to June) 2024



Source: Office for National Statistics

#### Notes:

1. Total hours worked have been adjusted for the time period before reweighting for productivity purposes. This is to ensure that headline productivity statistics can be assessed without a discontinuity and are not part of the labour market release. The adjusted productivity hours diverge slightly from estimates of hours worked in the labour market publications. For more details see Section 6: Measuring the data in our [Productivity flash estimate and overview, UK: October to December 2023 and July to September 2023 article](#).
2. The PAYE RTI is combined with self-employed workers with the working proprietors double count removed, this is estimated using the previously published LFS self-employed estimates. Average hours worked are estimated using previously published LFS weights. For more details see Section 3 in our [Productivity flash estimate and overview, UK: July to September 2024 and April to June 2024 article](#). Flash estimates produced using experimental methods, with different data sources. PAYE RTI estimates are included to provide an indicative look at the impact on Output per hour.
3. All productivity estimates use the latest published [Gross domestic product \(GDP\) quarterly national accounts, UK: April to June 2024](#) bulletin.

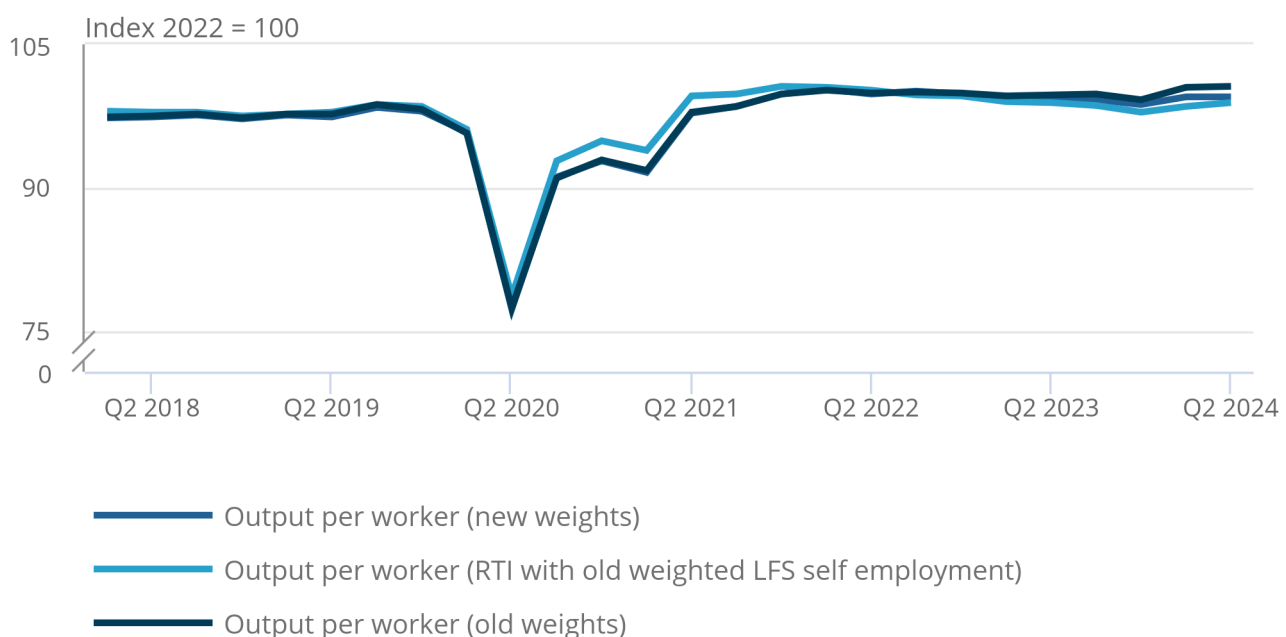
The total hours worked have increased with the reweighting. This has resulted in a lower output per hour worked, compared with previously published estimates. However, this is more in line with statistics produced using experimental methods with the PAYE RTI data. Indicative reweighted estimates of output per hour worked for April to June 2024 decreased by 0.9% when compared with the same quarter a year ago, while the previously published estimate shows a decrease of 0.3%. The reweighting has caused a downward revision of 0.6 percentage points.

**Figure 11: Output per worker has been revised down for the recent quarters up to April to June 2024**

**Output per worker: Labour Force Survey (LFS) old weights, LFS new weights, and Pay As You Earn Real Time Information (PAYE RTI) with old weighted LFS self-employment, UK, seasonally adjusted, Quarter 1 (Jan to Mar) 2018 to Quarter 2 (Apr to June) 2024**

## Figure 11: Output per worker has been revised down for the recent quarters up to April to June 2024

Output per worker: Labour Force Survey (LFS) old weights, LFS new weights, and Pay As You Earn Real Time Information (PAYE RTI) with old weighted LFS self-employment, UK, seasonally adjusted, Quarter 1 (Jan to Mar) 2018 to Quarter 2 (Apr to June) 2024



**Source: Office for National Statistics**

**Notes:**

1. The PAYE RTI is combined with self-employed workers with the working proprietors double count removed. This is estimated using the previously published LFS self-employed estimates. For more details, see Section 3 in our [Productivity flash estimate and overview, UK: July to September 2024 and April to June 2024 article](#). PAYE RTI estimates are included to provide an indicative look at the impact on output per worker.
2. All productivity estimates use the latest published [Gross domestic product \(GDP\) quarterly national accounts, UK: April to June 2024](#) bulletin.

The increase in employment resulted in a lower output per worker, compared with published estimates. The previously published output per worker for April to June 2024 increased by 0.9% when compared with the same quarter a year ago, while the indicative reweighted estimate showed an increase of 0.3%. The reweighting has caused a downward revision of 0.6 percentage points.

The revisions in productivity since the coronavirus (COVID-19) pandemic suggest that the underlying weakness in UK productivity growth remains.

## 7 . Data on impact of reweighting Labour Force Survey estimates

### [Reweighted Labour Force Survey data summary table](#)

Dataset | 3 December 2024

Reweighted estimates of important Labour Force Survey indicators.

### [X08: Impact of LFS reweighting on key Labour Force Survey Indicators](#)

Dataset | 3 December 2024

This table includes estimates of key LFS indicators using both old and new weighting methodology, and the revisions between the two series.

### [X11: Labour Force Survey population estimates](#)

Dataset | 3 December 2024

This table gives information on the populations that have been used to weight Labour Force Survey data.

### [Productivity, indicative reweighted estimates, UK](#)

Dataset | 3 December 2024

Output per hour worked and output per worker, whole economy. Quarterly statistics and growth rates for output per hour worked and output per worker produced, using old and new weighting methodology.

## 8 . Future developments

The labour market publication on 17 December 2024 will include Labour Force Survey (LFS) time series data and the usual suite of monthly datasets. For further detail on the timetable of reweighted datasets, please see the Publication plan.

Although this reweighting makes use of newer population estimates, it is still sub-optimal for the most recent periods. This is because it makes use of population projections at a national level (NPPs), rather than the sub national level (SNPPs) that the LFS is designed to use. We intend to carry out a further reweighting once new SNPPs become available for each of the countries of the UK.

### Publication plan

On 17 December 2024, we will publish our monthly LFS datasets (including single month estimates). LFS data used within Workforce Jobs and Public Sector Employment outputs will also be reweighted.

On 18 February 2025, we will publish our quarterly LFS datasets. LFS earnings datasets will be reweighted for periods from October to December 2024, and LFS reweighted data will also be incorporated into the Productivity Flash Estimate and Overview release on 18 February 2025.

On 27 February 2025, we will publish [Young people not in education, employment or training \(NEET\)](#).

In spring 2025, we will extend this reweighting to two quarter longitudinal datasets, to allow the production of [Labour Force Survey flows estimates](#) on a reweighted basis. LFS two quarter longitudinal datasets will be reweighted back to January to March 2019.

The Working and workless households in the UK publication scheduled for 5 March 2025 will not be reweighted. The latest estimates in this publication will continue to be consistent with the population estimates published in November 2023. There are no current plans to reweight LFS household datasets until a fuller reweighting exercise.

Annual Population Survey (APS) estimates will continue to be published as scheduled, but will be based on the older LFS weighting methodology. They will use projected growth rates from Real-Time Information (RTI) data for EU and non-EU populations based on 2021 patterns. There are no current plans to reweight APS datasets until a fuller reweighting exercise.



## 9 . Related links

### [Labour market overview UK: November 2024](#)

Bulletin | Released 12 November 2024

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

### [Employment in the UK: November 2024](#)

Bulletin | Released 12 November 2024

Estimates of employment, unemployment and economic inactivity for the UK.

### [Labour market in the regions of the UK: November 2024](#)

Bulletin | Released 12 November 2024

Regional, local authority and parliamentary constituency breakdowns of changes in UK employment, unemployment, and economic inactivity and other related statistics. These are official statistics in development.

### [Productivity flash estimate and overview, UK: July to September 2024 and April to June 2024](#)

Article | Released 15 November 2024

Productivity flash estimates for Quarter 3 (July to Sept) 2024, based on the GDP first quarterly estimate and labour market statistics, and productivity overview for Quarter 2 (Apr to June) 2024.

### [Labour market transformation - update on progress and plans: December 2024](#)

Article | Released 3 December 2024

Labour market transformation overview, building on previous engagement on the transformed Labour Force Survey.

## 10 . Cite this article

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