

Article

Impact of reweighting on Labour Force Survey key indicators: 2024

Indicative estimates of the impact of Labour Force Survey (LFS) reweighting methodology on key indicators for the UK, between July to September 2022 and September to November 2023.

Contact:
Tom Evans
labour.market@ons.gov.uk
+44 1633 455400

Release date:
5 February 2024

Next release:
To be announced

Table of contents

1. [Main points](#)
2. [Background](#)
3. [Overview of Labour Force Survey reweighting](#)
4. [Impact of reweighting](#)
5. [Interpretation of recent LFS data](#)
6. [Addressing uncertainty and future volatility in LFS estimates](#)
7. [Longer-term solution](#)
8. [Reweighted LFS data – selected datasets](#)
9. [Future developments](#)
10. [Related links](#)
11. [Cite this article](#)

1 . Main points

- From 13 February 2024, we will be reinstating reweighted Labour Force Survey (LFS) estimates enabling us to respond to the user need for having wider labour market information that only the LFS is able to provide.
- The new reweighted LFS estimates incorporate our latest estimates of the size and composition of the UK population, improving the representativeness of our LFS estimates - these will replace the experimental estimates we have been publishing since October 2023.
- We show the indicative impacts of this reweighting from the period July to September 2022 onwards for the headline levels and rates of employment, unemployment and economic inactivity; the publication on 13 February will include revised historical estimates back to 2011 for these measures.
- Taking on the latest population data results in higher estimates of the number of people who are employed, unemployed and economically inactive, while the increase in the rates of economic inactivity and unemployment have been offset by a decrease in the employment rate.
- Relative increases in the population aged between 16 and 24 years explain the increase we have seen in the unemployment and economic inactivity rates, with an increase in the relative number of women also contributing to higher rates of economic inactivity and lower employment rates.
- Reweighting does not address the volatility we have seen in recent periods, which we expect to reduce in the coming months so we would advise caution when interpreting short-term changes in headline rates and recommend using them as part of our suite of labour market indicators alongside Workforce Jobs, claimant count data and Pay As You Earn Real Time Information (PAYE RTI) estimates.
- The reweighted estimates suggest that over the last five months, though the employment rate has remained broadly flat, the unemployment rate may have fallen, offset by an increase in the rate of economic inactivity; however, some uncertainty remains in these estimates.
- We expect to see improvements to response levels and rates because of the reintroduction of face-to-face interviews and the sample boost in October 2023 and January 2024, respectively; however, as these improvements will take time to materialise in the LFS data, LFS statistics will be badged as "official statistics in development" until further review.
- Our longer-term solution remains the replacement of the LFS with the Transformed Labour Force Survey (TLFS); the TLFS will become the primary source of information on the labour market from September 2024.

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. Given that the LFS is a sample, its responses must be weighted to the latest estimates of the UK population to produce representative estimates of the labour market. Typically, we would reweight the LFS every two years to reflect the updated population estimates and projections, which would incorporate any changes to the level and composition of the UK population.

However, the coronavirus (COVID-19) pandemic led to practical challenges for all national statistical institutes in collecting survey information. One example is that household surveys could no longer be conducted in a face-to-face environment. This led to changes in the composition of responses to the LFS, which has had implications for how the LFS has been weighted in recent years. This partly explains why the latest LFS estimates have not been fully aligned with the latest population estimates.

Given there have been changes in the level and the composition of the UK population, reflecting these more recent demographic changes will affect estimates of the levels and rates of employment, unemployment, and economic inactivity in the labour market.

More recently, we have also faced challenges around the falling number of responses to the LFS, which led to increased sampling variability. This increase in the volatility in the estimates of employment, unemployment, and economic inactivity led to the suspension of the usual suite of LFS-based labour market statistics from October 2023 through to January 2024, while further improvements were implemented to tackle some of these challenges, including a review of the LFS weighting approach.

This article sets out the latest reweighting exercise that has taken place, which we will be implementing as part of the next publication of labour market statistics in February 2024. We explain the indicative impacts on headline labour market estimates over the last 15 months, and how we will be making further adjustments to ensure the long-term comparability of these headline series.

3 . Overview of Labour Force Survey reweighting

Typical LFS reweighting

Before the coronavirus (COVID-19) pandemic, a typical reweighting exercise for the Labour Force Survey (LFS) centred around taking on the latest subnational population projections. This in turn would reflect the latest official mid-year population estimates with an additional adjustment to align the coverage of the population projections with the coverage of the LFS, for example, removing those living in communal establishments.

Reweightings would take place at either a one- or two-year interval, depending on an assessment of the likely impacts from one set of population projections to the next. Each reweighting exercise typically affects LFS data back to the point in time at which population projections are unrevised. Each exercise would also take place over a period of months, working through the various versions of LFS and Annual Population Survey datasets and the specific weights within each.

LFS reweighting since the coronavirus pandemic

In recent years, the weighting approach for the LFS has had to incorporate tactical methodological changes, reflecting the challenges in conducting household surveys and measuring population change through a pandemic. In particular, the enforced change from face-to-face interviewing to telephone interviewing led to an increase in non-response bias in survey responses.

Changes were made to LFS weighting for data from 2020 onwards to mitigate against these bias risks. In late 2020, we introduced housing tenure into the weighting strategy. This was in response to the sharp changes in the housing tenure mix seen in survey responses following the move to telephone-only interviewing. Then from mid-2021, we began to incorporate data from the PAYE RTI payroll tax system into our population totals to better reflect changes to the population arising from international migration and address a perceived increase in non-response from those with a non-UK country of birth or nationality. Alongside this, we also introduced a non-response bias adjustment, which makes use of data on indices of multiple deprivation to improve the representativeness of LFS estimates.

However, these changes to the LFS weighting were not envisaged to be long-term solutions. For example, the tenure adjustment has forced the tenure mix of responding households since 2020 to mirror that which was seen in the LFS through 2019. Meanwhile the way in which tax data were incorporated into the weighting meant that the total weighting population for the LFS did not consider any changes in migration flows and held age proportions constant from June 2021 onwards. The longer these changes to the LFS weighting were left in place, the more likely that this would lead to some bias, as underlying demographic changes were not being fully reflected in estimates of the rates of employment, unemployment and economic inactivity in the UK labour market.

Reweighting changes in 2024

In November 2023, we published updated 2022 mid-year population estimates for England and Wales. We have been able to project these forwards for England and Wales and combine them with population estimates for Scotland and Northern Ireland to produce updated UK population projections specifically for the purpose of LFS reweighting.

The availability of these data presents an opportunity to revert to a more typical approach to population weighting for LFS, either removing the need for adjustments or allowing us to update these adjustments with more timely and robust data. Weighting against the latest mid-year population estimates brings the benefits of using our most up-to-date data on the population of the UK following on from the 2021 Census of England and Wales, where we also incorporate our best estimates of international migration up to mid-2022.

We are also able to use data from the 2021 Census of England and Wales to update and improve the assumptions underlying our tenure weighting. The socio-economic non-response bias adjustment remains unchanged from the previous weighting approach.

Additionally, we have reviewed the weighting calibration groups considering the latest challenges with low response levels. Where appropriate, groups have been adjusted to guard against instances of having insufficient responses to robustly estimate weights that would otherwise need to be addressed through manual intervention.

Constraints on reweighting

A reweighting exercise would usually be carried out back to a point in time at which population estimates are unrevised, as this ensures that there is no discontinuity in the resulting LFS data. This is particularly the case for reweighting following a census, which causes revisions further into the back series. However, given time constraints, we have only been able to reweight the last 15 months of LFS data.

Recognising the importance of maintaining our time series, as part of the 13 February 2024 publication of labour market statistics, we will be implementing an adjustment to the levels of each of the three labour market statuses by sex and age-band. Totals and rates will then be calculated from these adjusted components back to mid-2011 to ensure that the headline rates and levels of employment, unemployment and economic inactivity can be assessed without a discontinuity.

For remaining LFS series, between June to August 2022 and July to September 2022 this reweighting exercise creates a discontinuity where there will effectively be a step change in LFS estimates. This step change will also feed through into other labour market outputs which make use of LFS estimates, principally Workforce Jobs and the public and private sector split in Public Sector Employment.

In light of these constraints, Section 9: Future developments sets out in detail what we will and will not be publishing from February onwards. In summary, this reweighting is limited to the "person" LFS datasets, and the "person" weights included in them. The publication of household and longitudinal datasets, and the statistics derived from these data, will continue to be suspended. Annual Population Survey datasets will continue to be produced but will be based on the old weighting approach.

4 . Impact of reweighting

Demographic changes

We would expect there to be changes to the levels of employment, unemployment, and economic inactivity from a reweighting exercise. This reflects taking on updated population estimates that reflect changes in the flows in and out of the UK population relative to early projections, incorporating the latest information on birth rates, death rates, inward migration, and outward migration.

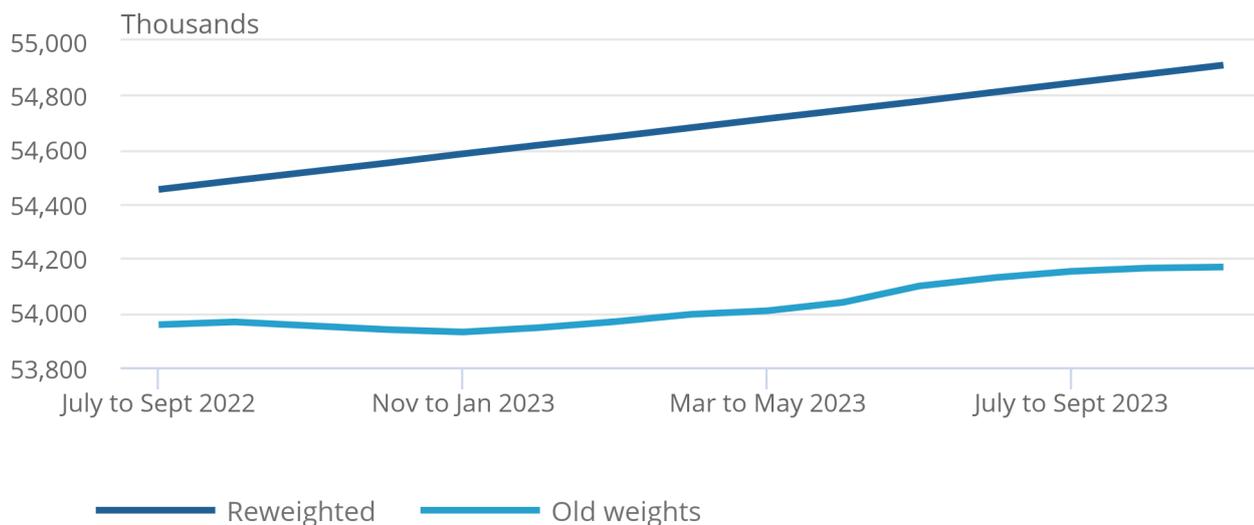
For example, the UK population is now estimated to have increased since mid-2021 by more than assumed in the Labour Force Survey (LFS) (Figure 1). For all periods reweighted, we see an increase in the size of the UK population aged 16 years and over by between 500,000 and 750,000. This shows that the population is estimated to have increased more quickly over time than was originally thought in the LFS population estimates. This means that the total number of people estimated to be in employment, unemployment and outside of the workforce in the UK, would be revised up by the reweighting.

Figure 1: New weighting methodology increases the Labour Force Survey population over the last 15 months

Population used in the weighting of the LFS, UK (aged 16 years and over), seasonally adjusted, July to September 2022 and September to November 2023

Figure 1: New weighting methodology increases the Labour Force Survey population over the last 15 months

Population used in the weighting of the LFS, UK (aged 16 years and over), seasonally adjusted, July to September 2022 and September to November 2023



Source: Labour Force Survey from the Office for National Statistics

Revisions to labour market levels and rates would also reflect changes in the composition of this population, given that the rates of employment, unemployment, and economic inactivity can vary by demographic characteristic. For instance, older people will typically be more likely to be economically inactive. If the new population estimates show that there are relatively fewer older people in the UK population, this would lead estimates of the level and rates of economic inactivity to be lower.

Similarly, changes in the demographic composition can also affect average hours worked. For example, if there were a relative increase in the younger age groups where part-time working is more common, we would expect there to be a fall in average hours worked.

We can look at how the age composition of the population has changed between the old and new weighted LFS populations to understand the impact of reweighting. Figure 2 shows the percentage-point change in the share of the population within each age group between the old and new weights for September to November 2023.

Increases in the population share for those aged 16 to 17 years (from 3.5% to 3.7%) and those aged 18 to 24 years (from 12.9% to 13.1%) puts upward pressure on the overall unemployment and inactivity rates (and downward pressure on the employment rate) as these age groups typically have above average rates of unemployment and economic inactivity. A reduction in the shares of those aged 25 to 34 and 50 to 64 years has the same impact, as these age groups tend to have below average rates of unemployment and economic inactivity.

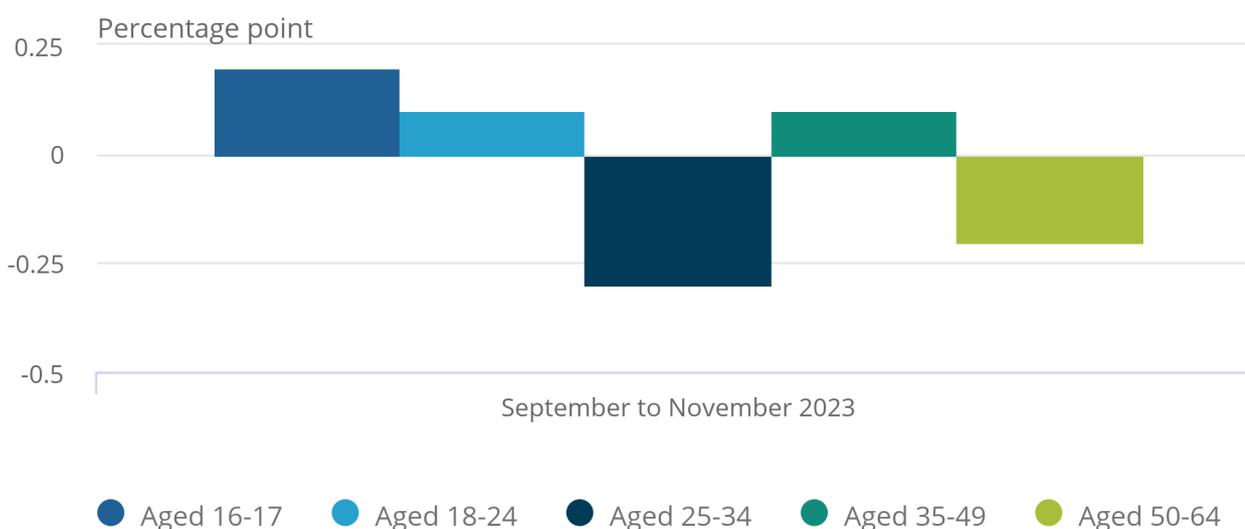
These changes are then partially offset by the increase in share for those aged 35 to 49 years. These changes in the age profile also explain why reweighting has led to downward revisions to our estimates of average hours worked. Though these figures represent the changes in one period, the direction of change is true for each age group in each of the 15 periods that have been reweighted, starting in July to September 2022.

Figure 2: Changes in the age profile of the population as a result of reweighting help us to understand the impact we see on headline labour market rates

Percentage point change in the share of the LFS population between reweighted and pre-reweighted data, by age group, UK, September to November 2023

Figure 2: Changes in the age profile of the population as a result of reweighting help us to understand the impact we see on headline labour market rates

Percentage point change in the share of the LFS population between reweighted and pre-reweighted data, by age group, UK, September to November 2023



Source: Labour Force Survey from the Office for National Statistics

Changes in the composition of the population by sex are also likely to cause revisions. Again, comparing the old and new populations (aged 16 to 64 years), this reweighting exercise has seen a proportionally larger increase in the number of women compared with men. In each reweighted period, the number of women in the population has increased by 2.7% to 2.8%, whereas the number of men has increased by no more than 0.2% in any period and declined slightly in the autumn of 2022.

Changes to the age and sex distribution are not the only factors or characteristics that influence revisions with geography and housing tenure also being used in the weighting approach. However, changes in the composition by age and sex offer a useful illustration of how weighting to these new population totals can affect labour market estimates.

Indicative impacts of reweighting on labour market estimates

We show the indicative impacts of reweighting on the levels and rates of employment, unemployment, and economic inactivity. The final estimates will be published on 13 February 2024. It should be noted that the revisions to the period from June to August 2023 will also pick up the effects of higher levels of volatility in the LFS. We recommend that wider indicators are looked at to understand movements in the labour market for this period (see [Section 5: Interpretation of recent LFS data](#)).

Given the impacts on the overall population of those aged 16 years and over, described in the previous section, it is not surprising that reweighting increases, to different extents, the numbers of people in all three labour market statuses.

Figure 3: New weighting methodology revises up the number of people in all three labour market groups compared with the pre-October 2023 weighting approach

Number of people employed (aged 16 years and over), unemployed (aged 16 years and over) and economically inactive (aged 16 to 64), UK, seasonally adjusted, July to September 2022 and September to November 2023

[Download the data](#)

This variation in the size of changes reflects the compositional changes in the population between the old and new population projections. The age and sex profile, but also composition by geography and housing tenure, will all have changed.

This variation also feeds through to revisions to our headline labour market rates. The employment rate for those aged 16 to 64 years has been revised down in most periods by around 0.5 and 0.6 percentage points. This is reflected in increases to the rate of economic inactivity (for those aged 16 to 64 years), which has been revised up by an average of 0.5 percentage points over the periods that have been reweighted. Lastly the unemployment rate (for those aged 16 years and over) has increased slightly in most periods, by 0.1 to 0.2 percentage points.

As with the population levels, the trends in headline rates, compared with the previous weights are largely unchanged by the reweighting, over the last 15 periods.

Figure 4: New weighting methodology revises down the employment rate, revises up the rate of economic inactivity, while the unemployment rate is revised up slightly

Rates of employment (aged 16 to 64), unemployment (aged 16 years and over) and economic inactivity (aged 16 to 64), UK, seasonally adjusted, between July to September 2022 and September to November 2023

[Download the data](#)

Revisions to total hours worked reflect the changes to the number of people in employment and their weekly average hours worked. The average number of hours worked in most periods has been revised downwards because of reweighting. This is explained by the increases we have seen in the shares of young people and women in the LFS population, both of which typically have lower average hours worked than the employed population as a whole. When looking at total hours worked, this fall in average hours is offset by the increase in the number of people who are employed. The net effect is a small increase in the total number of hours worked in all revised periods, by on average 0.5%.

Figure 5: New weighting methodology revises down average hours worked

Average hours worked on old and reweighted LFS data, UK, seasonally adjusted, July to September 2022 and September to November 2023

Figure 5: New weighting methodology revises down average hours worked

Average hours worked on old and reweighted LFS data, UK, seasonally adjusted, July to September 2022 and September to November 2023



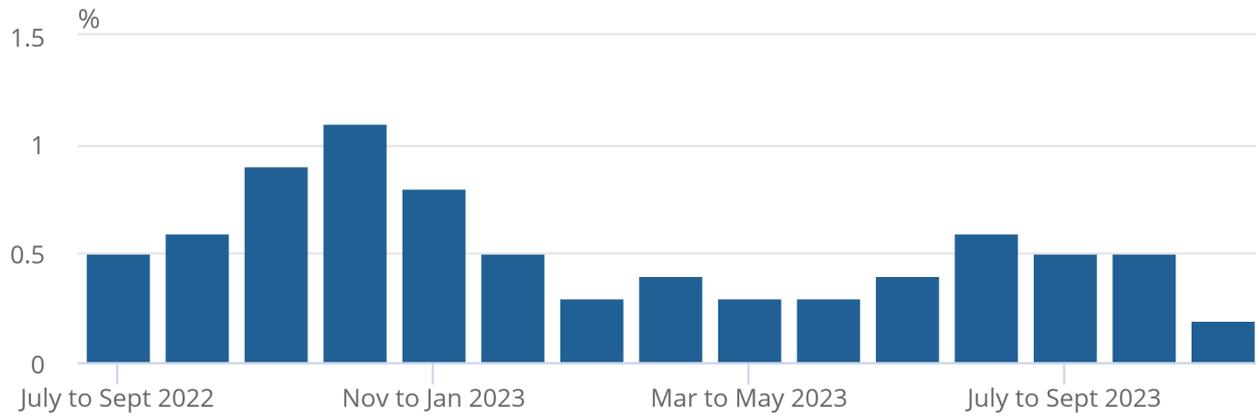
Source: Labour Force Survey from the Office for National Statistics

Figure 6: New weighting methodology revises up total hours worked

Percentage change in total hours worked between old and reweighted LFS data; UK, seasonally adjusted, July to September 2022 and September to November 2023

Figure 6: New weighting methodology revises up total hours worked

Percentage change in total hours worked between old and reweighted LFS data; UK, seasonally adjusted, July to September 2022 and September to November 2023



Source: Labour Force Survey from the Office for National Statistics

Table 1: Headline measures and changes, September to November 2023
 UK headline economic status levels and rates, total weekly hours, and redundancy levels and rates, seasonally adjusted, September to November 2023

	Level/Rate	Change on previous three-month period	Change on year
Employment (000s, aged 16+)	33,136	+108	+60
Employment rate (aged 16 to 64)	75.0%	+0.2pp	-0.2pp
Unemployment (000s, aged 16+)	1,355	-97	+48
Unemployment rate (aged 16+)	3.9%	-0.3pp	+0.1pp
Economically inactive (000s, aged 16 to 64)	9,254	+5	+92
Economic inactivity rate (aged 16 to 64)	21.9%	0.0pp	+0.1pp
Total weekly hours (millions)	1,046	+6.8	+1.5
Redundancies (000s, aged 16 years and over, not seasonally adjusted)	94	+2	-3
Redundancy rate (per thousand, aged 16+, not seasonally adjusted)	3.3	+0.1	-0.1

Source: Labour Force Survey from the Office for National Statistics

5 . Interpretation of recent LFS data

This reweighting exercise has improved the representativeness of our Labour Force Survey (LFS) estimates for the period July to September 2022, reducing potential bias in our estimates. Nonetheless, the ongoing challenges with response rates and levels mean that LFS-based labour market statistics will be badged as [official statistics in development](#) until further review. This is also in line with the [letter from the Office for Statistics Regulation \(OSR\)](#), stating that LFS statistics should not be published as accredited official statistics until OSR has reviewed them.

As reweighting is not designed to increase response levels, we expect to continue to see higher volatility in LFS data than might historically have been the case. However, our experimental measures, published since October 2023, also involved trade-offs, which would not be appropriate to continue having in place for any length of time.

Though less volatile, the administrative sources at our disposal do not align conceptually with what the LFS statistics measure. For example, the experimental employment level implicitly assumed that the change in both employee and self-employed populations would track the change in payrolled employees seen in our PAYE RTI data. Changes in the level of those on the claimant count would not necessarily translate exactly to changes in the International Labour Organization (ILO) concept of unemployment over time.

Similarly, levels of inactivity are calculated as the difference between the population total and other two labour market statuses. Reverting to the LFS allows us to more accurately measure the economically inactive population through our questionnaire.

Additionally, the levels for each of the headline experimental measures are dependent on the specific time period from which the growth rates from administrative sources are applied. Applying these administrative data growth rates from a starting point one period sooner or later could alter our understanding of the coherence between levels in the LFS and other sources.

We must also consider the wider usefulness of LFS statistics in telling the labour market story, beyond our headline measures. The suspension of these statistics in recent months has been a further trade-off. Given this re-weighting is the first of the proposed package of improvements to be reflected in the LFS estimates, we feel now is the right time to reintroduce our LFS-based labour market statistics.

However, there has been elevated volatility in our LFS estimates over the last five months in particular. Therefore, through this period we will draw on a range of sources when interpreting the labour market, such as Workforce Jobs, HM Revenue and Customs (HMRC) Pay As You Earn (PAYE) Real Time Information (RTI) and Claimant Count data.

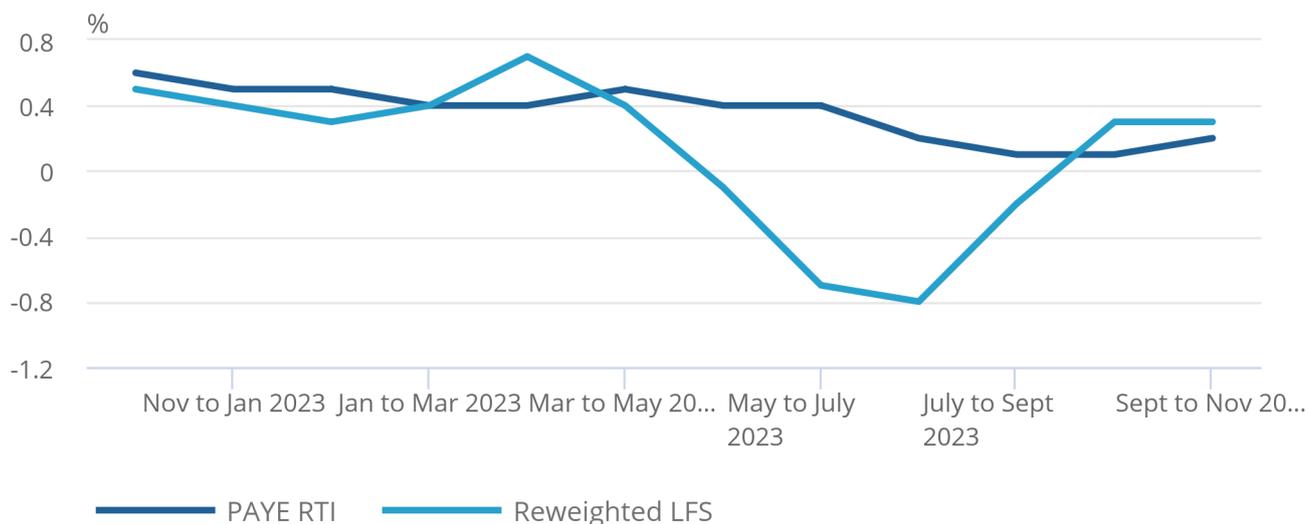
Figure 7 shows how we might use PAYE RTI data and longer-term comparisons to give a broader view of changes to the level of employment. Rather than placing too much emphasis on the sharp decline in LFS employment in June to August 2023 (Figure 7), we would consider the more modest slowing in growth from the PAYE RTI payrolled employees data and place less emphasis on the LFS data point.

Figure 7: Even after reweighting, headline estimates from the Labour Force Survey continue to see increased volatility

Three-month on three-month change in the reweighted employment level and number of payrolled employees (PAYE RTI), UK, seasonally adjusted, October to December 2022 and September to November 2023

Figure 7: Even after reweighting, headline estimates from the Labour Force Survey continue to see increased volatility

Three-month on three-month change in the reweighted employment level and number of payrolled employees (PAYE RTI), UK, seasonally adjusted, October to December 2022 and September to November 2023



Source: Labour Force Survey from the Office for National Statistics, Pay As You Earn Real Time Information from HM Revenue and Customs

Figure 8 shows a comparison between our reweighted data and the experimental data we have been publishing since October 2023 for all of our headline rates over the last six months. All three headline rates see differences in levels and trends to some extent over this period. The levels differences largely reflect that the starting point for experimental data is based on the old weighting approach. The trend differences are likely to have a range of causes including the drawbacks outlined previously, but also the elevated volatility of LFS data.

Our newly published reweighted estimates suggest that over the last five months, unemployment may have fallen more quickly than our experimental indicator has suggested, offset by an increase in the rate of economic inactivity. The trend in the employment rate appears to have evolved broadly in line across the two measures. However, there remains more uncertainty around these LFS estimates as outlined previously.

Figure 8: There are some level and trend differences between reweighted and experimental headline labour market rates

Rates of employment (aged 16 to 64), unemployment (aged 16 years and over) and economic inactivity (aged 16 to 64), UK, seasonally adjusted, between April to June 2023 and September to November 2023

[Download the data](#)

6 . Addressing uncertainty and future volatility in LFS estimates

Though we would normally caution against placing too much emphasis on a single Labour Force Survey (LFS) data point, all users of LFS data will need to be particularly vigilant in coming months, especially when looking at more detailed breakdowns. Mirroring our advice regarding the last five months of data, users should continue to assess headline LFS data alongside other data sources on the labour market such as Workforce Jobs, HM Revenue and Customs (HMRC) Pay As You Earn (PAYE) Real Time Information (RTI) and Claimant Count data.

Alongside our reweighting work, we have also been taking forward additional actions as outlined in our article [Labour Force Survey: planned improvements and its reintroduction](#) published in November 2023. Many of these actions are targeted at increasing both the level and rate of response for the LFS, including the reintroduction of face-to-face interviewing (from October 2023) and the reinstatement of a boost to the sample (from January 2024).

It should be noted however, that the rolling-wave structure of the LFS means that it will take time for improvements to materialise in the data.

We will continue to monitor measures of LFS quality in the coming months, including response levels and rates alongside measures of statistical quality. Progress on improving LFS quality will continue to be communicated to users through our regular publications. Additionally, users should continue to take note of our commentary around our statistics in coming months where we will be summarising our latest views on the labour market while considering ongoing quality challenges.

7 . Longer-term solution

Our long-term solution remains the replacement of the Labour Force Survey (LFS) with the Transformed Labour Force Survey (TLFS). Our current plan is to publish initial findings of the TLFS in July 2024. This will allow for the processing and analysis of six months of TLFS data on a consistent basis. The TLFS will then become the primary source of information on the labour market from the September 2024 Labour market publication.

8 . Reweighted LFS data – selected datasets

[Reweighted Labour Force Survey data summary table: Feb 2024](#)

Dataset | Released 5 February 2024

Reweighted Labour Force Survey data summary table.

9 . Future developments

Publication plan

The [Labour market](#) publication on 13 February 2024 will include Labour Force Survey (LFS) time series data and the usual suite of monthly and quarterly datasets, except:

- X01: [Labour Force Survey single-month estimates](#)
- X02: [Labour Force Survey flows estimates](#)
- EARN04: [Gross weekly earnings of full-time employees](#)
- EARN05: [Gross weekly earnings of full-time employees by region](#)
- EARN06: [Gross weekly earnings by occupation](#)
- EARN07: [Gross weekly earnings by industry](#)
- EARN08: [Distribution of gross hourly earnings of employees](#)

We will review what is possible with these datasets and keep users updated.

On 22 February 2024 we will publish [Young people not in education, employment or training \(NEET\)](#).

The [Working and workless household in the UK](#) publication scheduled for 28 February 2024 will be cancelled. We will review possible next steps for this publication.

Annual Population Survey estimates will continue to be published as scheduled, but will be based on the previous LFS weighting methodology.

10 . Related links

[Labour market overview, UK: January 2024](#)

Bulletin | Released 16 January 2024

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

[Labour Force Survey: planned improvements and its reintroduction](#)

Methodology | Released 2 November 2023

Planned data collection and methodological improvements to address quality concerns with Labour Force Survey estimates.

[Labour Force Survey performance and quality monitoring reports](#)

Methodology | Updated quarterly

Response rates, sample size and quality assessment of the Office for National Statistics quarterly Labour Force Survey.

11 . Cite this article

Office for National Statistics (ONS), released 05 February 2024, ONS website, article, [Impact of reweighting on Labour Force Survey key indicators: 2024](#)