Office for National Statistics

Article

Productivity flash estimate and overview, UK: July to September 2024 and April to June 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.

Contact:
Productivity team
productivity@ons.gov.uk
+44 1633 582563

Release date:
15 November 2024

Next release:
18 February 2025

Table of contents

1. Main points

2. Flash estimate of labour productivity for Quarter 3 2024

3. Flash estimates, produced using experimental methods, with different data sources

4. Labour productivity by industry section for Quarter 2 2024

5. Data on productivity flash estimate and overview

6. Glossary

7. Data sources and quality

8. Related links

9. Cite this statistical bulletin

1 . Main points

Flash estimate of labour productivity for Quarter 3 (July to Sept) 2024

- Preliminary estimates based on the Labour Force Survey (LFS) indicate output per hour worked decreased by 1.8% while output per worker increased by 0.3% in Quarter 3 (Jul to Sept) 2024, compared with the same quarter a year ago.
- Estimates produced using experimental methods, using Pay As You Earn (PAYE) Real Time Information (RTI) and LFS data sources, indicate output per worker increased by 0.5%, compared with the same quarter a year ago.
- Output per hour worked was weak, when compared with medium-term trends, based on the LFS estimates.

Labour productivity by industry section for Quarter 2 (Apr to June) 2024

- The education industry made the biggest upward contribution to productivity growth over the previous year, caused by an upward revision in Gross value added (GVA).
- The mining and quarrying industry saw the biggest growth in output per hour worked over the previous year.

Productivity measures using RTI data are statistics produced using experimental methods and published for comparison purposes. Users should note the added assumptions for these comparable estimates and use caution.

2 . Flash estimate of labour productivity for Quarter 3 2024

Flash estimate using the Labour Force Survey

As detailed in our Labour market transformation article, work is under way to carry out reweighting of our Labour Force Survey (LFS) estimates to reflect the most up-to-date population and migration data. The results in this article, while consistent with labour market data from our Labour market overview, UK: November 2024 bulletin, should therefore be considered with this forthcoming revision in mind.

Considering these caveats, in Quarter 3 (July to Sept) 2024, output per hour worked was lower (minus 1.8%) than the same quarter a year ago, because hours worked increased more than GVA (2.8% and 1.0%, respectively).

Output per hour worked was 2.0% above its pre-coronavirus (COVID-19) pandemic levels (2019 average level) in Quarter 3 2024, as shown in Table 1. This growth was caused by an increase in GVA of 3.6% and an increase in hours worked increased by only 1.5% over the period.

Table 1: Flash estimate of labour productivity
UK, Quarter 3 (July to Sep) 2023 to Quarter 3 (July to Sep) 2024

	Output per hour worked growth rates			**Output per worker growth rates**		
Period	**Quarter vs 2019 pre-pandemic levels (%)**	**Quarter-on-year (%)**	**Quarter-on-quarter (%)**	**Quarter vs 2019 pre-pandemic levels (%)**	**Quarter-on-year (%)**	**Quarter-on-quarter (%)**
Q3 2023	3.9	0.7	0.8	1.8	-0.2	0.1
Q4 2023	2.9	-0.3	-1.0	1.2	-0.7	-0.6
Q1 2024	2.7	0.1	-0.2	2.4	0.9	1.2
Q2 2024	2.8	-0.3	0.2	2.6	0.9	0.2
Q3 2024	2.0	-1.8	-0.8	2.1	0.3	-0.5

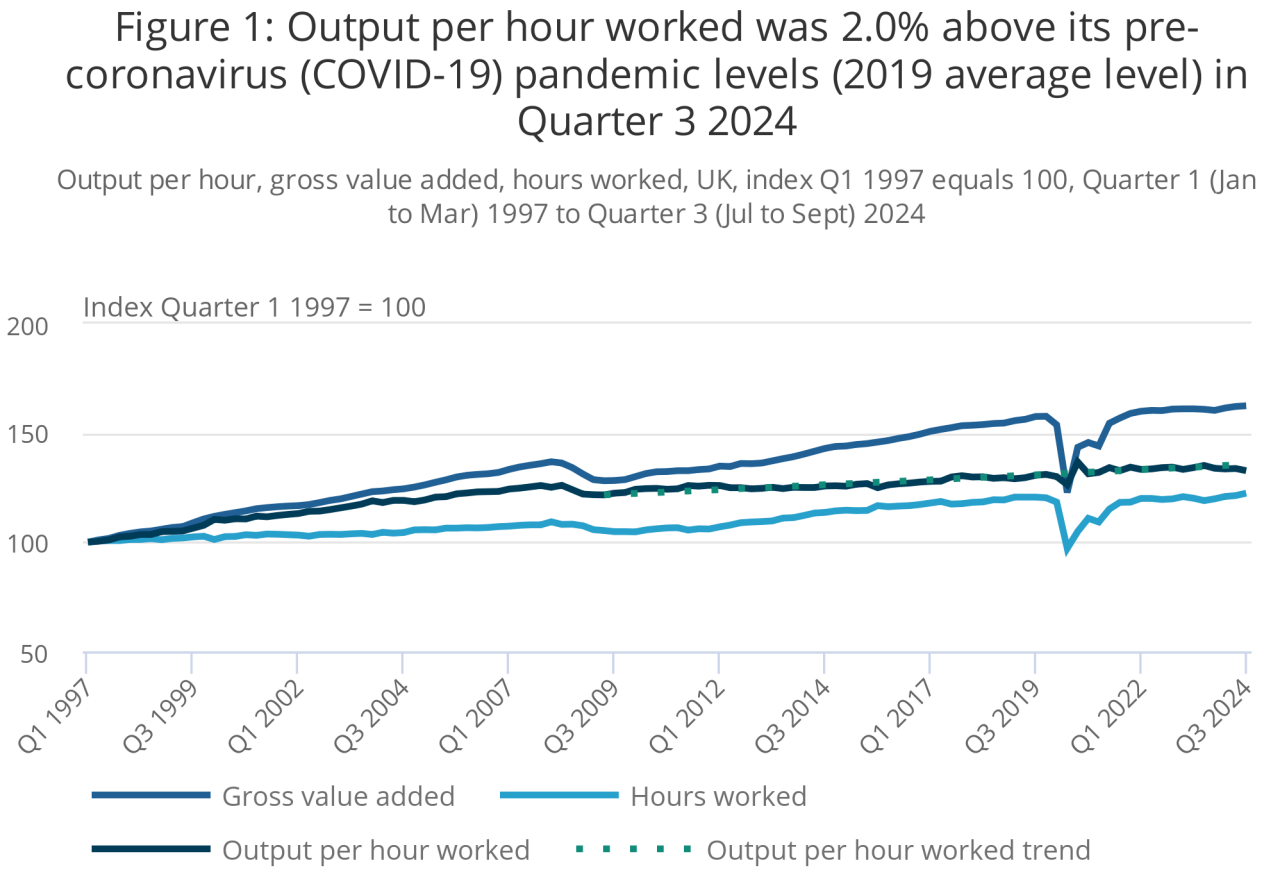
Source: Productivity flash estimate and overview, UK from the Office for National Statistics

While the pandemic had a substantial short-term effect on the growth rate of productivity, unlike most "standard" recessions that show a subsequent fall in productivity (such as the financial downturn in 2008 to 2009), the growth rate bounced back to the trend rate.

However, in more recent quarters it has slowed and begun to diverge from the trend, as shown in Figure 1 and Figure 2. This latter trend was historically weak and described as the "productivity puzzle". The recent movements in productivity since the pandemic suggest this underlying weakness in UK productivity growth remains.

Figure 1: Output per hour worked was 2.0% above its pre-coronavirus (COVID-19) pandemic levels (2019 average level) in Quarter 3 2024

Output per hour, gross value added, hours worked, UK, index Q1 1997 equals 100, Quarter 1 (Jan to Mar) 1997 to Quarter 3 (Jul to Sept) 2024



Source: Productivity flash estimate and overview, UK from the Office for National Statistics

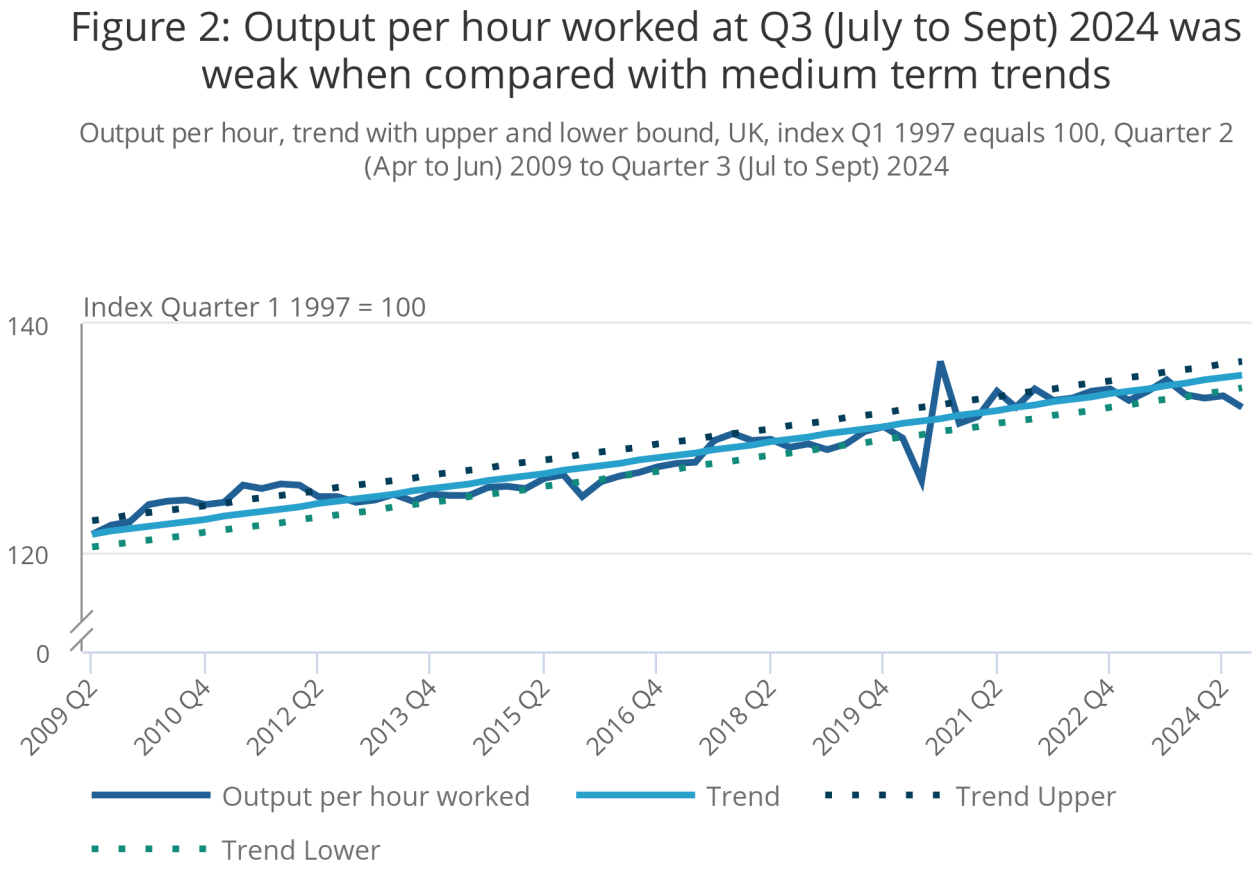
Notes:

1. The output per hour trendline is constructed by calculating the average growth between Quarter 2 (Apr to June) in 2009 (the GVA low point of the 2008 economic downturn) and Quarter 4 (Oct to Dec) in 2019 (the GVA high point before the coronavirus (COVID-19) pandemic).

Recognising the break in the trend rate of growth around the time of the Global Financial Crisis in 2008, we have extrapolated the 95% confidence interval around the trend in the period between the Global Financial Crisis and the pandemic to contextualise growth in the post-pandemic period, starting the trend at Quarter 2 (Apr to June) 2009. Output per hour worked is outside the lower bound of the 95% confidence interval for the third consecutive quarter.

Figure 2: Output per hour worked at Q3 (July to Sept) 2024 was weak when compared with medium term trends

Output per hour, trend with upper and lower bound, UK, index Q1 1997 equals 100, Quarter 2 (Apr to Jun) 2009 to Quarter 3 (Jul to Sept) 2024



Source: Productivity flash estimate and overview, UK from the Office for National Statistics

Notes:

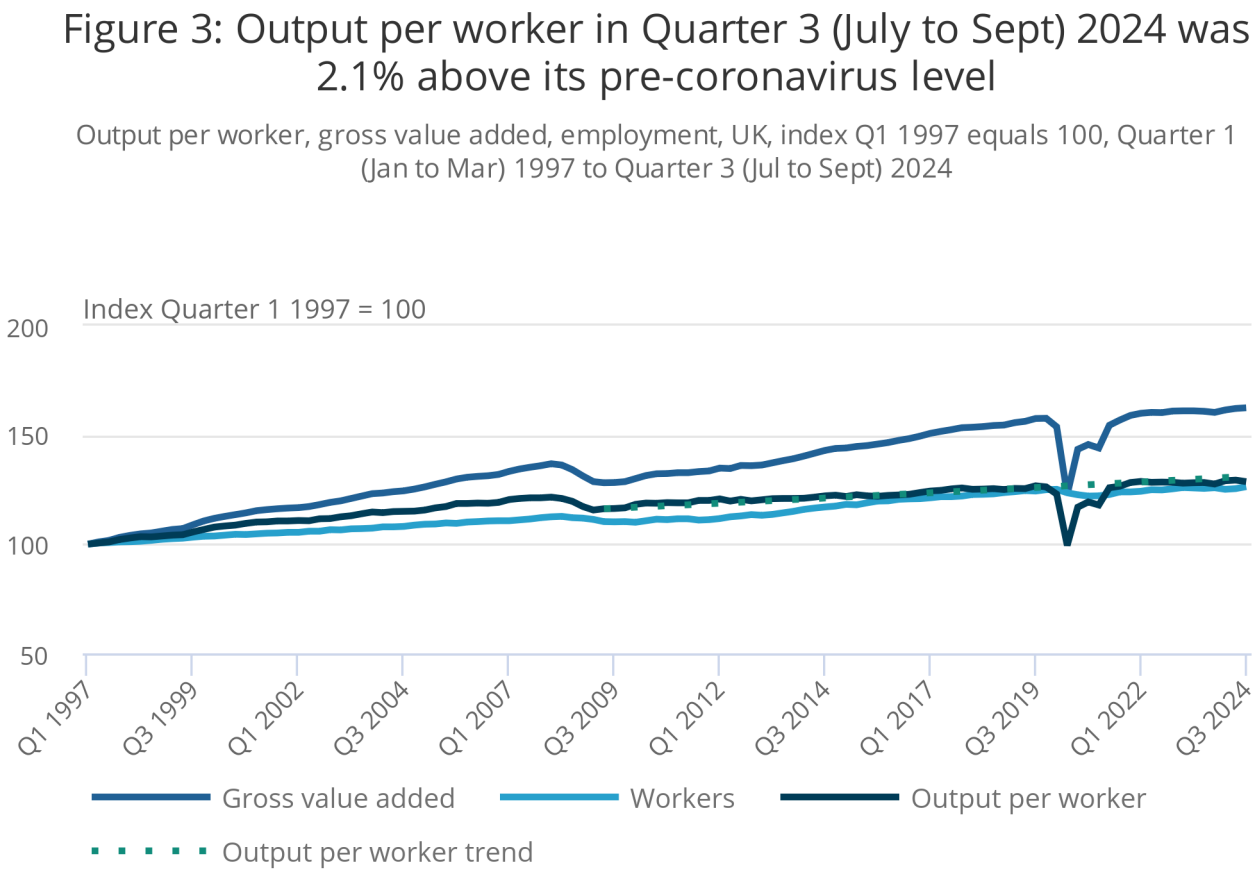
1. The trendline is constructed as in Figure 1.

Output per worker was 0.3% above its equivalent in Quarter 3 2023, as shown in Figure 3. This is because GVA increased by 1.0%, while the number of workers, increased by 0.6%.

Output per worker was 2.1% above its pre-COVID-19 level. This was caused by the growth in GVA of 3.6% being higher than the growth in the LFS number of workers of 1.5% over this period.

Figure 3: Output per worker in Quarter 3 (July to Sept) 2024 was 2.1% above its pre-coronavirus level

Output per worker, gross value added, employment, UK, index Q1 1997 equals 100, Quarter 1 (Jan to Mar) 1997 to Quarter 3 (Jul to Sept) 2024



Source: Productivity flash estimate and overview, UK from the Office for National Statistics

Notes:

1. The trendline is constructed as in Figure 1.

3 . Flash estimates, produced using experimental methods, with different data sources

The Pay As You Earn (PAYE) Real Time Information (RTI) published in our Earnings and employment from Pay As You Earn Real Time Information, UK: November 2024 bulletin, is an estimate of employees on the PAYE scheme from HM Revenue and Customs (HMRC). It does not include those who are employed but are not part of the scheme, or the self-employed.

Therefore, to generate a comparable estimate of total hours worked, we add the self-employed, as estimated by the Labour Force Survey (LFS) and published in our Full-time, part-time and temporary workers dataset. No adjustment is made for those that are employed but not part of PAYE, for example a domestic worker employed directly by a private household.

The addition of the self-employed from the LFS introduces an element of double counting. This is because self-employed individuals who are employees of their own firm, known as working proprietors, comprise around 10% of total self-employed workers. To address this, we subtract the working proprietors. It should also be noted that data on Real Time Information (RTI) workers are available only from Quarter 3 (July to Sept) 2014 onwards.

As the PAYE RTI counts individuals on PAYE, those individuals with two jobs on the PAYE scheme will be counted as one employee. Any individual who has a main job outside the PAYE scheme and a second job on the PAYE scheme will be categorised as having only a main job on the PAYE scheme.

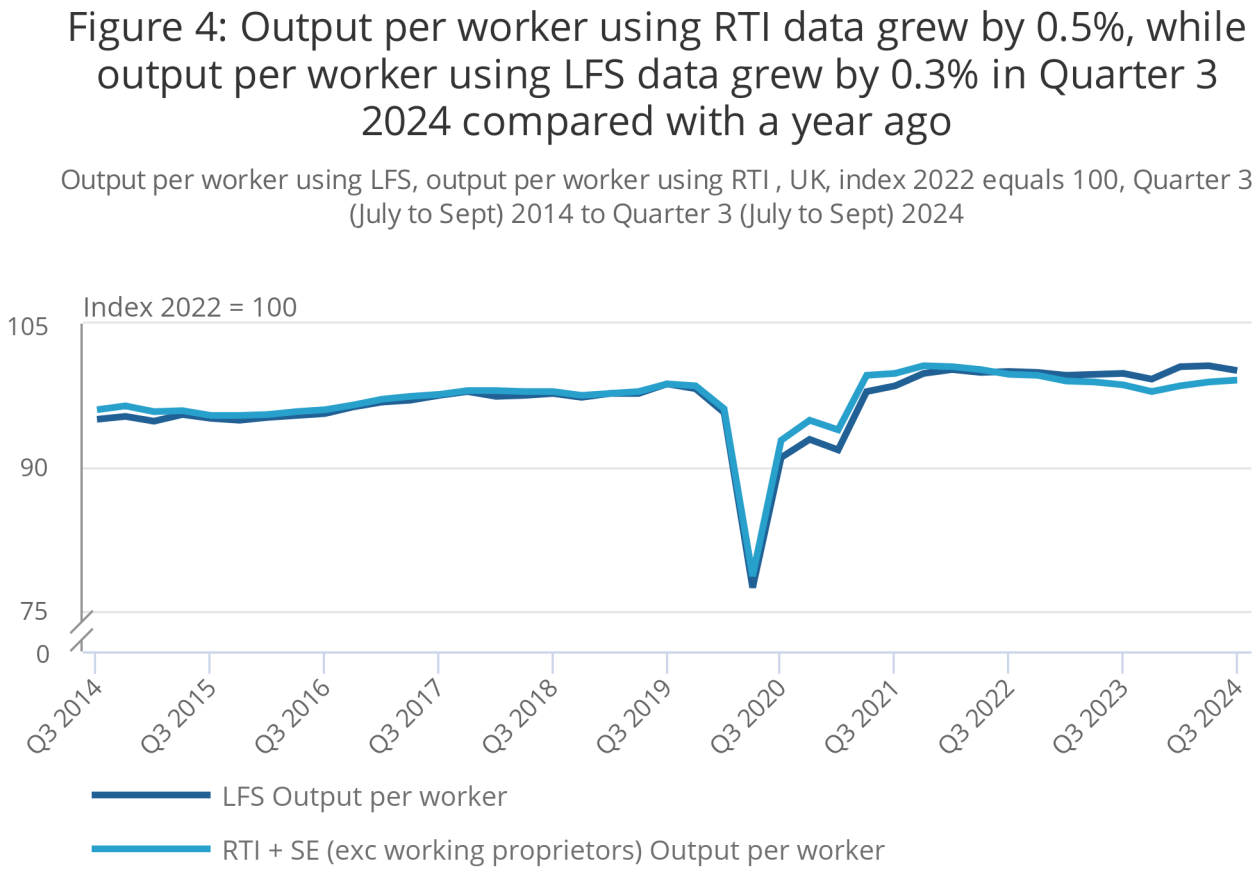
Therefore, the estimate of RTI workers will inherently include both main and second job counts.

Given the definition of self-employment in the LFS, an individual whose main income source is "self-employment" and whose secondary income is from "employment", will be counted as self-employed by the LFS and as an employee by the RTI. It should be noted that this double counting has not been adjusted for.

Quarterly estimates showed a divergence between output per worker calculated using the LFS, or the RTI series after the coronavirus (COVID-19) pandemic. This is demonstrated in Figure 4, which shows an initial difference in levels between both series but similar movements, before the RTI series decreased from Quarter 4 (Oct to Dec) 2021 onwards. When comparing Quarter 3 2024 for each series with the same quarter a year ago, the RTI increased by 0.5%, while the LFS increased by 0.3%.

Figure 4: Output per worker using RTI data grew by 0.5%, while output per worker using LFS data grew by 0.3% in Quarter 3 2024 compared with a year ago

Output per worker using LFS, output per worker using RTI , UK, index 2022 equals 100, Quarter 3 (July to Sept) 2014 to Quarter 3 (July to Sept) 2024



Source: Productivity flash estimate and overview, UK from the Office for National Statistics

Notes:

1. Real Time Information (RTI) worker estimate supplemented by Labour Force Survey (LFS) Self-employed data.

2. No adjustment is made for those that are employed but not part of Pay As You Earn (PAYE).

3. Any individual who has a main job outside of the PAYE scheme and a second job on the PAYE scheme will be indistinguishable from main job.

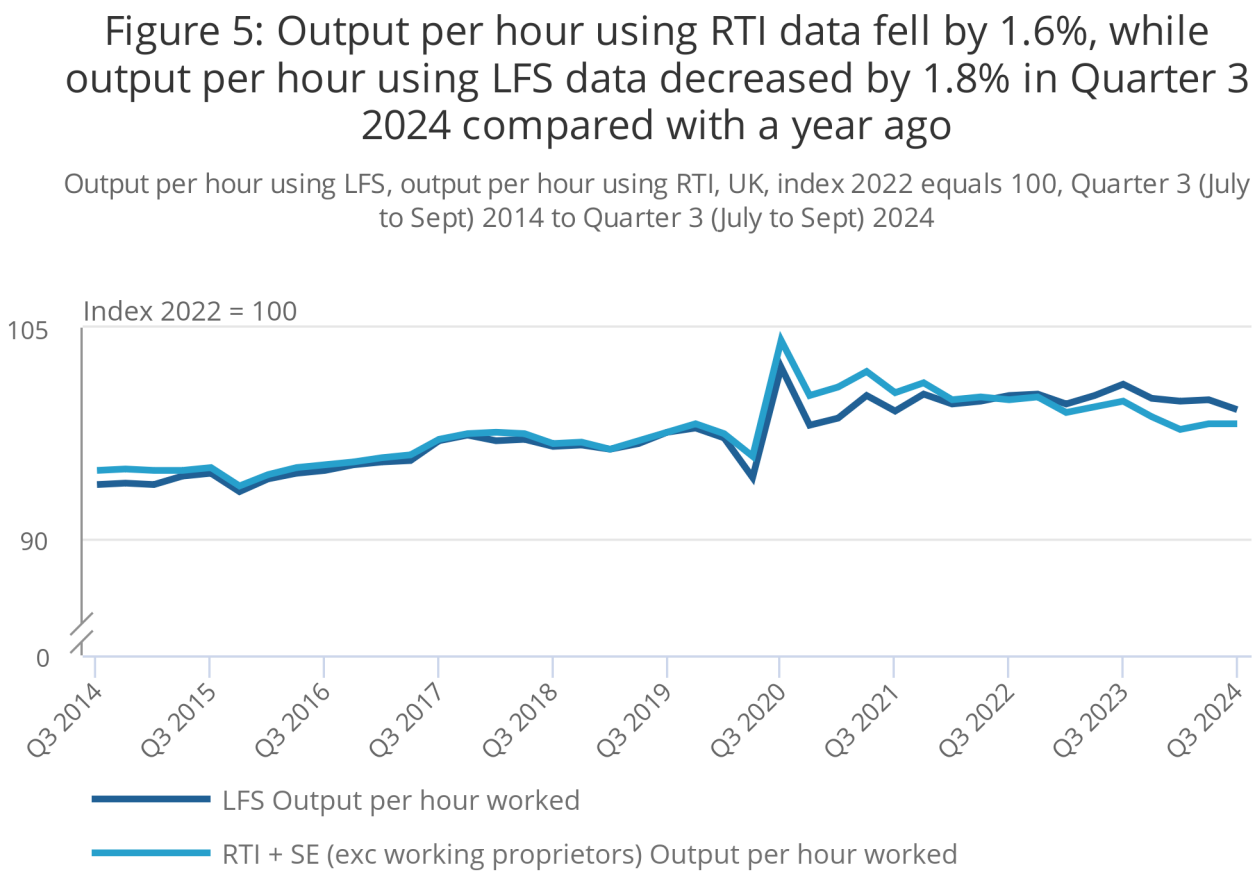
As RTI does not collect actual hours worked, the whole-economy hours worked for both the RTI and the LFS is calculated by multiplying LFS average hours worked with the number of workers, as shown in Figure 5. By varying the data source for workers, the impact on output per hour can be observed, given the differences in worker counts reported by each source.

A widening gap between LFS and the RTI can be seen starting in Quarter 2 2022. Comparing Quarter 3 2024 for each series with the same quarter a year ago, the output per hour calculated using RTI fell by 1.6%, while output per hour calculated using the LFS saw a larger decrease of 1.8%.

These estimates provide some evidence of alternative trends, with RTI demonstrating a more pronounced decline over the period than estimates resulting purely from the LFS. The two series share similar volatility patterns despite differences in trend growth rates.

Figure 5: Output per hour using RTI data fell by 1.6%, while output per hour using LFS data decreased by 1.8% in Quarter 3 2024 compared with a year ago

Output per hour using LFS, output per hour using RTI, UK, index 2022 equals 100, Quarter 3 (July to Sept) 2014 to Quarter 3 (July to Sept) 2024



Source: Productivity flash estimate and overview, UK from the Office for National Statistics

4 . Labour productivity by industry section for Quarter 2 2024

The contribution to growth in output per hour worked for 19 industries in Quarter 2 (Apr to June) 2024, relative to the same quarter a year ago, is shown in Figure 6.

The education industry made the largest upward contribution to productivity growth over the last four quarters. By contrast, over the same period, the real estate industry (excluding imputed rental) made the largest negative contribution to productivity growth.

Even if every industry sees zero productivity growth, the whole economy can see growth if higher productivity sectors grow, and weaker productivity sectors shrink. This movement, or "between-industry effect" has made a negative contribution to productivity growth over the past year. This shows that, on average, economic activity tended to shift from industries with higher productivity to industries with lower productivity. This is the third consecutive quarter a negative re-allocation effect has been measured.

Figure 6: The education industry made the biggest upward contribution to output per hour over the last year

Contribution to growth of output per hour worked, percentage points, relative to Quarter 2 (Apr to June) 2023

Notes:

1. Imputed rental is excluded from the real estate industry and the total.

2. The industry contributions may not add up to the total growth in output per hour. This is due to the National Accounts balancing value and the impact of rounding.

3. "Other services" industry includes: activities of households as employers, undifferentiated goods and services producing activities of households for own use, activities of membership organisations, repair of computers and personal and household goods and a variety of personal service activities not covered elsewhere in ourStandard Industrial Classification (SIC) 2007.

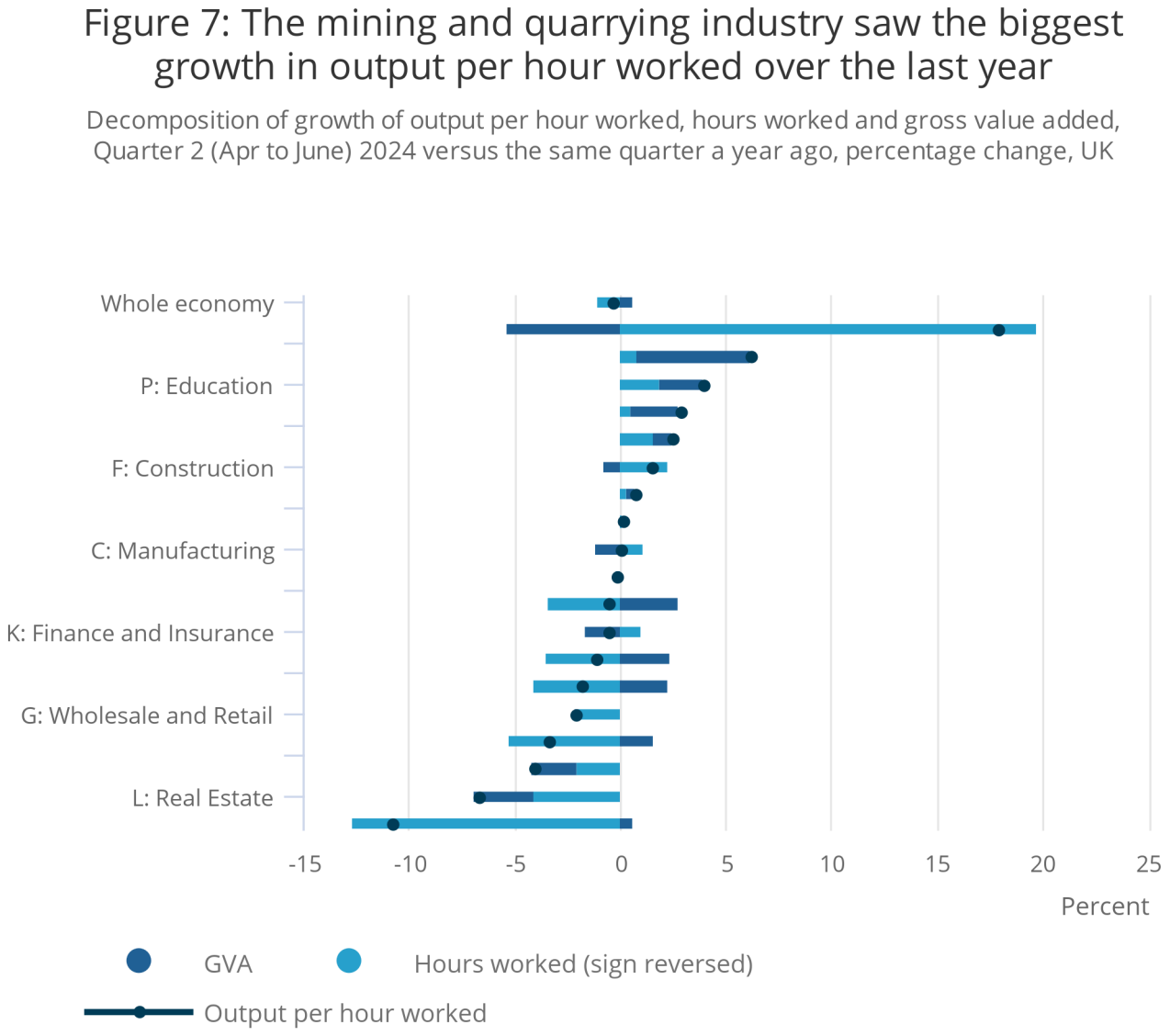
4. The relative size of an industry shown is based on the CP value from a year ago.

Download the data

The decomposition of growth of output per hour worked is shown in Figure 7. In the mining and quarrying industry growth in output per hour worked was caused by a decrease in hours worked and GVA. In the transport and storage, education, administrative services, and IT industries, growth in output per hour worked was caused by an increase in gross value added (GVA) and a decrease in hours worked.

Figure 7: The mining and quarrying industry saw the biggest growth in output per hour worked over the last year

Decomposition of growth of output per hour worked, hours worked and gross value added, Quarter 2 (Apr to June) 2024 versus the same quarter a year ago, percentage change, UK



Source: Productivity flash estimate and overview, UK from the Office for National Statistics

Notes:

1. Imputed rental is excluded from the real estate industry and the total.

5 . Data on productivity flash estimate and overview

Output per hour worked, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), hours worked and output per hour worked for whole economy and section level industry, as defined by the Standard Industrial Classification (SIC) 2007. Contains annual and quarterly statistics. Includes estimates for industry quarter on quarter, year on year and quarter on year contributions to whole economy output per hour worked.

Output per worker, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), workers, and output per worker for the whole economy and bespoke industry (market sector). Contains annual and quarterly statistics.

Output per job, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), jobs and output per job for the whole economy and by section level industry, as defined by the Standard Industrial Classification (SIC) 2007. Contains annual and quarterly statistics. Contains estimates for industry quarter on quarter, year on year, and quarter on year contributions to output per job.

Labour costs and labour income, UK
Dataset | Released 15 November 2024
Unit labour cost, average labour compensation per hour worked, labour share and unit wage cost for the whole UK economy, and unit wage cost for manufacturing.

Output per job by division, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), jobs and output per job for for bespoke industries and division level industry, as defined by the Standard Industrial Classification (SIC) 2007. Contains annual and quarterly statistics.

Output per hour worked by division, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), hours worked and output per hour worked for bespoke industries and division level industry, as defined by the Standard Industrial Classification (SIC) 2007. Contains annual and quarterly statistics.

6 . Glossary

Gross value added

Gross value added (GVA) is the value generated by any unit engaged in production and the contributions of individual sectors or industries to gross domestic product (GDP).

Labour productivity

Labour productivity measures how many units of output are produced for each unit of labour input and is calculated by dividing output by labour input.

Labour inputs

The preferred measure of labour input is hours worked ("productivity hours"), but workers and jobs ("productivity jobs") are also used.

Output

Output refers to gross value added (GVA), which is an estimate of the volume of goods and services produced by an industry and in aggregate for the UK.

7 . Data sources and quality

Information on methods for the labour productivity data, its strengths and limitations, as well as the quality and accuracy of the data, is available in our Labour productivity Quality and Methodology Information (QMI).

On 2 November 2023, the Office for National Statistics (ONS) published our Labour Force Survey: planned improvements and its reintroduction methodology to enable the reintroduction of the Labour Force Survey (LFS) following its suspension in October, when falling response rates led to increased data uncertainty.

Following the development plan, we published our Impact of reweighting on Labour Force Survey key indicators: 2024 article on 5 February 2024. Our Labour market overview, UK: November 2024 bulletin reinstated reweighted LFS on 18 July 2024. This bulletin uses the latest published reweighted LFS data.

The reweighting exercise has improved the representativeness of our LFS estimates for the period July to September 2022 onwards, reducing potential bias in our estimates.

Productivity data in this release reflect reweighted LFS data consistent with our Labour market overview, UK: November 2024 bulletin. Whole-economy estimates of workers are in line with our Employment, unemployment and economic inactivity by age group dataset released on 12 November 2024, in our Labour market overview, UK: November 2024 bulletin. Whole-economy estimates of second jobs and total hours have been adjusted back to mid-2011 to ensure that headline productivity statistics can be assessed without a discontinuity, for the purposes of the productivity estimates, and are not part of the labour market release. Therefore, the adjusted productivity jobs and the adjusted productivity hours worked diverge slightly from the estimates in our Full-time, part-time and temporary workers dataset and our Actual weekly hours worked dataset, in time periods from 2011 to 2022.

Imputed rental is excluded from "Industry L: real estate" and for "Industry B: mining and quarrying", employee average hours are calculated at section level.

New estimates of gross value added (GVA) are more volatile on a quarterly basis, especially in production industries. This reflects the use of new data and methods, but also challenges in reconciling quarterly and annual data, as explained in ourRecent challenges of balancing the three approaches of GDP article. As productivity is a structural feature of the economy, we continue to advise users to focus on long-term trends of productivity.

The Pay As You Earn (PAYE) Real Time Information (RTI) comes from our monthly Earnings and employment from Pay As You Earn Real Time Information, UK: November 2024 with estimates of payrolled employees and their pay from HM Revenue and Customs (HMRC). More information on the methods used to derive monthly employee and earnings estimates from PAYE RTI administrative data can be found in our New methods for monthly earnings and employment estimates from Pay As You Earn Real Time Information (PAYE RTI) data: December 2019 article.

To help us meet user needs, please email productivity@ons.gov.uk with any feedback about our publication changes.

8 . Related links

GDP first quarterly estimate, UK: July to September 2024
Bulletin | Released 15 November 2024
First quarterly estimate of gross domestic product (GDP). Contains current and constant price data on the value of goods and services to indicate the economic performance of the UK.

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.

GDP quarterly national accounts, UK: April to June 2024
Bulletin | Released 30 September 2024
Revised quarterly estimate of gross domestic product (GDP) for the UK. Uses additional data to provide a more precise indication of economic growth than the first estimate.

Earnings and employment from Pay As You Earn Real Time Information, UK: November 2024
Bulletin | Released 12 November 2024
Monthly estimates of payrolled employees and their pay from HM Revenue and Customs' (HMRC's) Pay As You Earn (PAYE) Real Time Information (RTI) data. This is a joint release between HMRC and the Office for National Statistics (ONS). These are official statistics in development.

Output per job by division, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), jobs and output per job for for bespoke industries and division level industry, as defined by the Standard Industrial Classification (SIC) 2007. Contains annual and quarterly statistics.

Output per hour worked by division, UK
Dataset | Released 15 November 2024
Estimates for gross value added (GVA), hours worked and output per hour worked for bespoke industries and division level industry, as defined by the Standard Industrial Classification (SIC) 2007. Contains annual and quarterly statistics.

9 . Cite this statistical bulletin

Office for National Statistics (ONS), released 15 November 2024, ONS website, statistical bulletin, Productivity flash estimate and overview, UK: July to September 2024 and April to June 2024