Office for National Statistics

Article

Productivity flash estimate and overview, UK: October to December 2024 and July to September 2024

Productivity flash estimates for Quarter 4 (Oct to Dec) 2024, based on the GDP first quarterly estimate and labour market statistics, and productivity overview for Quarter 3 (Jul to Sep) 2024.

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Correction

19 February 2025 12:04

An error was found in Figure 6. It resulted in the "Total" contribution being incorrectly shown as -0.26%. The correct contribution for "Total" is -2.6% This error has been corrected and the figure updated. The data in the output per hour dataset was not affected. The ONS apologises for this error.

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1 . Main points

Flash estimate of labour productivity for Quarter 4 (Oct to Dec) 2024

- Estimates based on the Labour Force Survey (LFS) indicate that output per hour worked in Quarter 4 (Oct to Dec) 2024 increased by 1.6%, compared with pre-coronavirus (COVID-19) pandemic levels (2019 average level), while output per worker increased by 0.9% over the same period.
- Estimates produced using experimental methods, incorporating Pay As You Earn (PAYE) Real Time Information (RTI) and LFS data sources, indicate output per hour and output per worker increased by 1.5% and 0.7%, respectively, compared with pre-coronavirus (COVID-19) pandemic levels (2019 average level); this suggests there is consistency in trends over the longer term.
- Based on the LFS, market sector output per hour initially grew more strongly than the whole economy during the pandemic but has tracked the whole economy measure more closely in recent years; market sector output per hour has increased 2.4% as a result, compared with pre-pandemic levels (2019 average level).

Labour productivity by industry section for Quarter 3 (July to Sept) 2024

- The transport and storage industry made the biggest upward contribution to productivity growth over the previous year, caused by an upward revision in gross value added (GVA).
- The wholesale and retail industry made the biggest negative contribution to productivity growth over the previous year.
- The transport and storage and mining and quarrying industries saw the biggest growth in output per hour worked over the previous year.

Productivity measures using Real Time Information (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 4 2024

Flash estimate using the Labour Force Survey

Further reweighting of our Labour Force Survey (LFS) estimates is due to begin in 2025, to incorporate 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: February 2024 bulletin, should be considered with this forthcoming revision in mind.

We recommend users place less weight on the quarter-on-year metric for this quarter because the base period Quarter 4 (Oct to Dec) 2023 is affected by low response rates in the LFS.

Output per hour worked was 1.6% above its pre-coronavirus (COVID-19) pandemic levels (2019 average level) in Quarter 4 2024, as shown in Table 1. This growth was caused by an increase in gross value added (GVA) of 3.8% and an increase in hours worked by 2.1% over the period.

Output per hour worked was lower (negative 0.8%) in Quarter 4 2024 than in the same quarter a year ago. This is because hours worked increased more than GVA (2.2% and 1.4%, respectively).

Table 1: Flash estimate of labour productivity
UK, Quarter 4 (Oct to Dec) 2023 to Quarter 4 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 (%)**
2023 Q4	2.5	-0.8	-0.9	1.0	-1.1	-0.4
2024 Q1	2.2	-0.4	-0.3	2.0	0.4	1.0
2024 Q2	2.1	-0.7	-0.1	1.9	0.5	0.0
2024 Q3	1.0	-2.3	-1.1	1.1	-0.2	-0.8
2024 Q4	1.6	-0.8	0.7	0.9	-0.1	-0.3

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

Notes

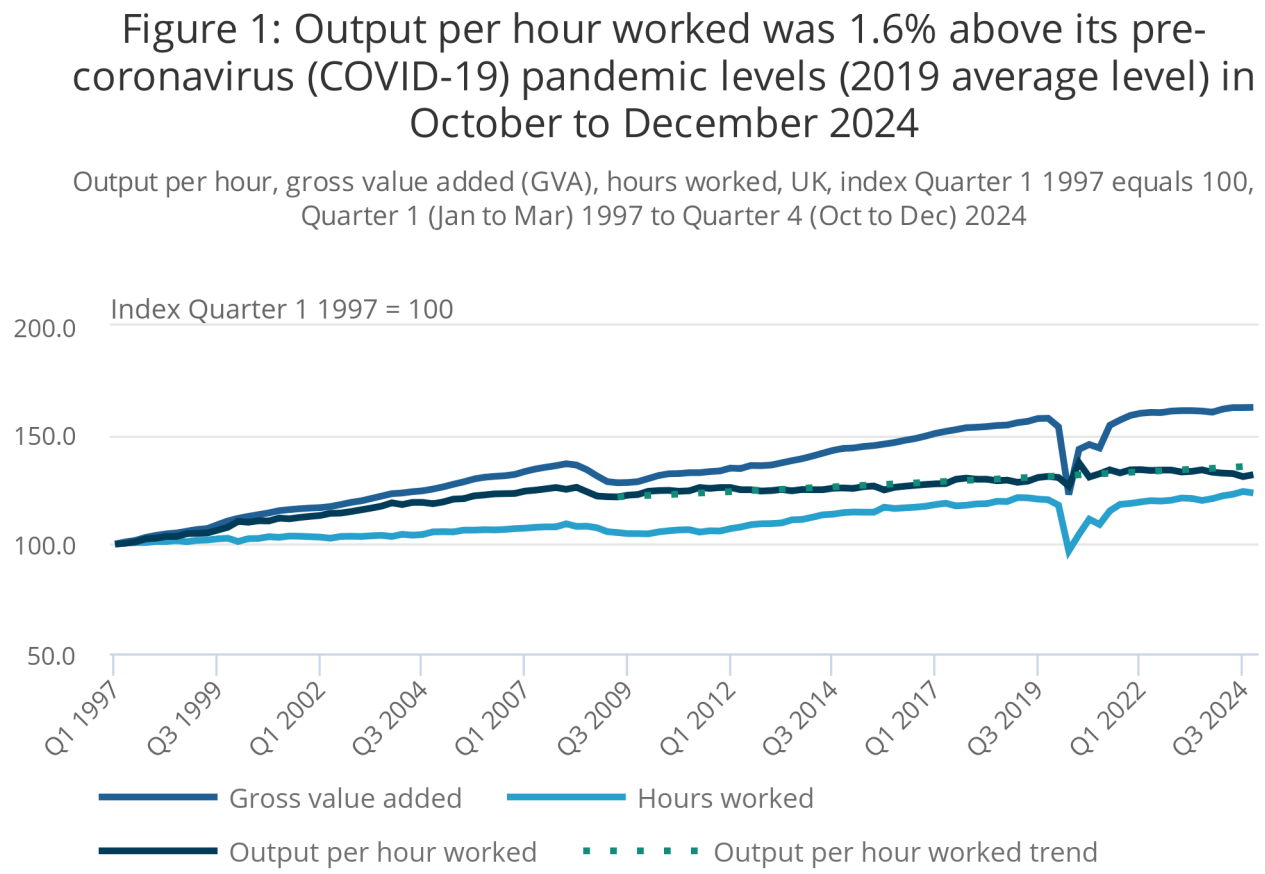
1. Comparisons with pre-coronavirus (COVID-19) pandemic levels use average 2019 levels as the base period.

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 1.6% above its pre-coronavirus (COVID-19) pandemic levels (2019 average level) in October to December 2024

Output per hour, gross value added (GVA), hours worked, UK, index Quarter 1 1997 equals 100, Quarter 1 (Jan to Mar) 1997 to Quarter 4 (Oct to Dec) 2024



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

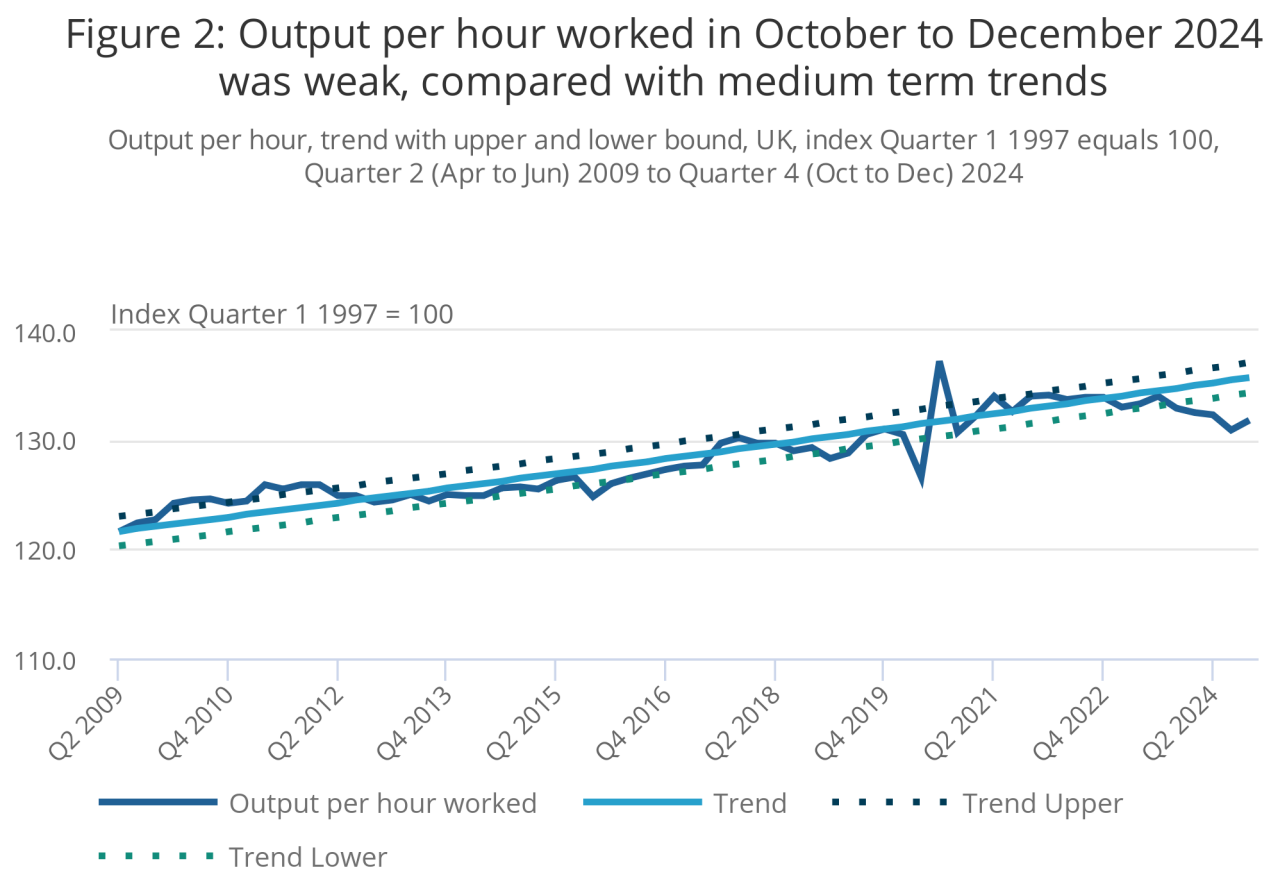
Notes:

1. The output per hour trendline is constructed by calculating the average growth between Quarter 2 (Apr to June) 2009, the GVA low point of the 2008 economic downturn, and Quarter 4 2019, the GVA high point before the 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 2008 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 fourth consecutive quarter.

Figure 2: Output per hour worked in October to December 2024 was weak, compared with medium term trends

Output per hour, trend with upper and lower bound, UK, index Quarter 1 1997 equals 100, Quarter 2 (Apr to Jun) 2009 to Quarter 4 (Oct to Dec) 2024



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

Notes:

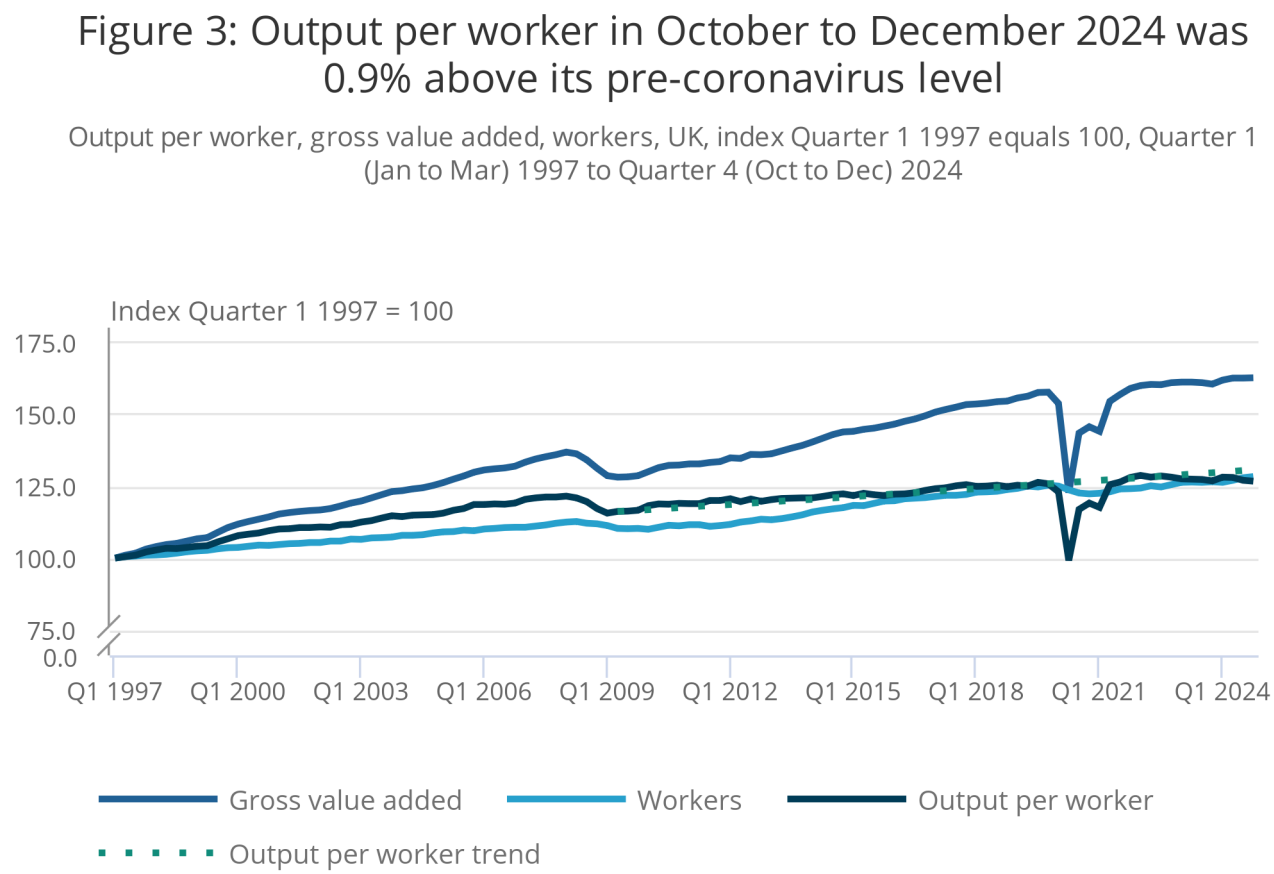
1. The trendline is constructed as in Figure 1.

2. For information about how we construct confidence intervals in our figures, see Section 7: Data sources and quality.

Output per worker was negative 0.1% below its equivalent in Quarter 4 2023, as shown in Figure 3. This is because GVA increased by 1.4%, while the number of workers increased by 1.4%, both rounded to one decimal place.

Figure 3: Output per worker in October to December 2024 was 0.9% above its pre-coronavirus level

Output per worker, gross value added, workers, UK, index Quarter 1 1997 equals 100, Quarter 1 (Jan to Mar) 1997 to Quarter 4 (Oct to Dec) 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 PAYE RTI, UK: January 2025 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. Please note that data on RTI workers are available only from Quarter 3 (Oct to Dec) 2014 onwards.

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.

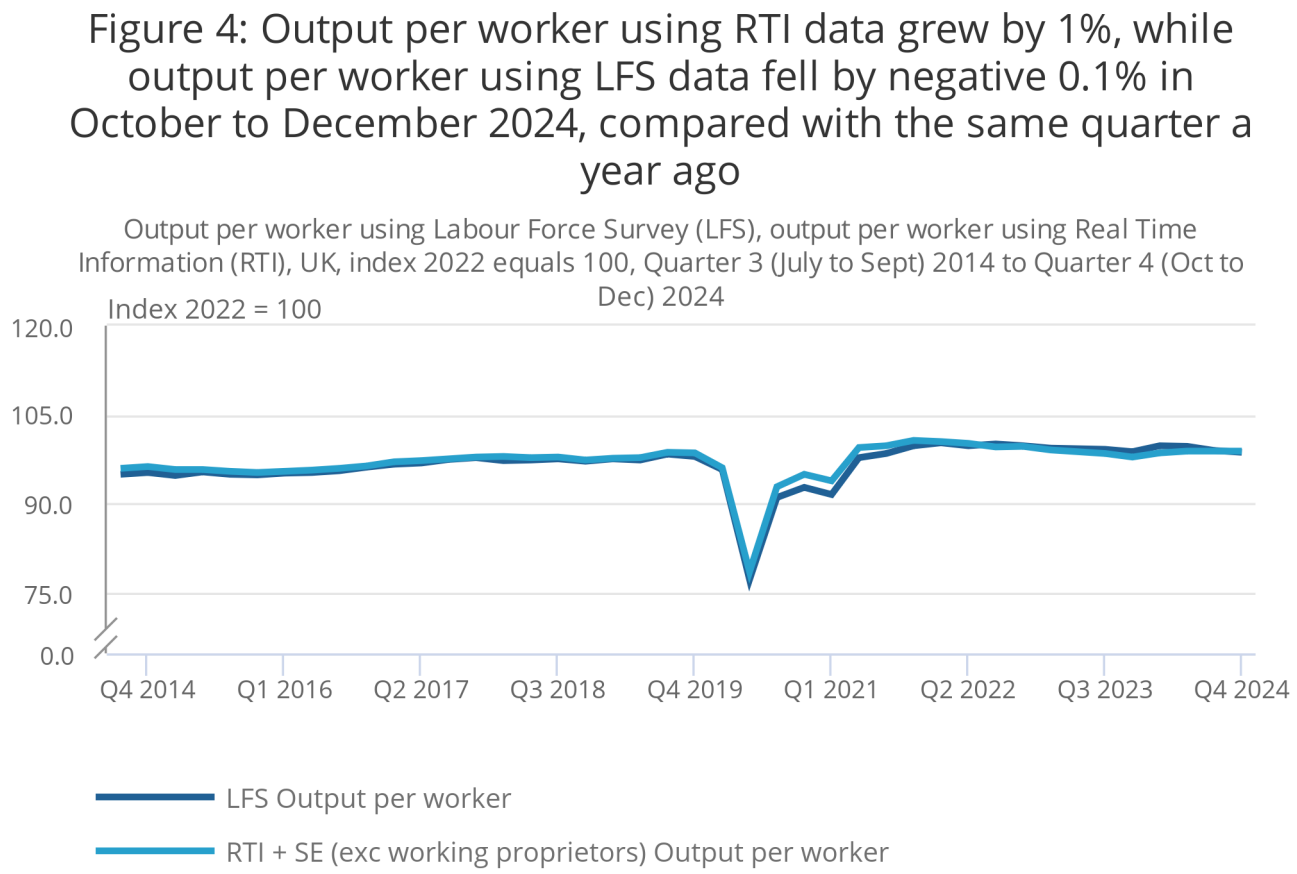
The addition of the self-employed from the LFS introduces a risk of double counting. This is because self-employed individuals who are employees of their own firm, known as working proprietors, make up around 10% of total self-employed workers. To address this, we subtract the working proprietors.

PAYE RTI data count individuals who are paid via PAYE by at least one employer. Those individuals with two jobs on the PAYE scheme will only be counted as one worker. 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. 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.

Figure 4 shows that the latest quarterly estimates have converged in output per worker calculated using the LFS, and the RTI. The RTI increased by 1%, while the LFS decreased by 0.1%, when comparing Quarter 4 2024 for each series with the same quarter a year ago.

Figure 4: Output per worker using RTI data grew by 1%, while output per worker using LFS data fell by negative 0.1% in October to December 2024, compared with the same quarter a year ago

Output per worker using Labour Force Survey (LFS), output per worker using Real Time Information (RTI), UK, index 2022 equals 100, Quarter 3 (July to Sept) 2014 to Quarter 4 (Oct to Dec) 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 categorised as only having a main job.

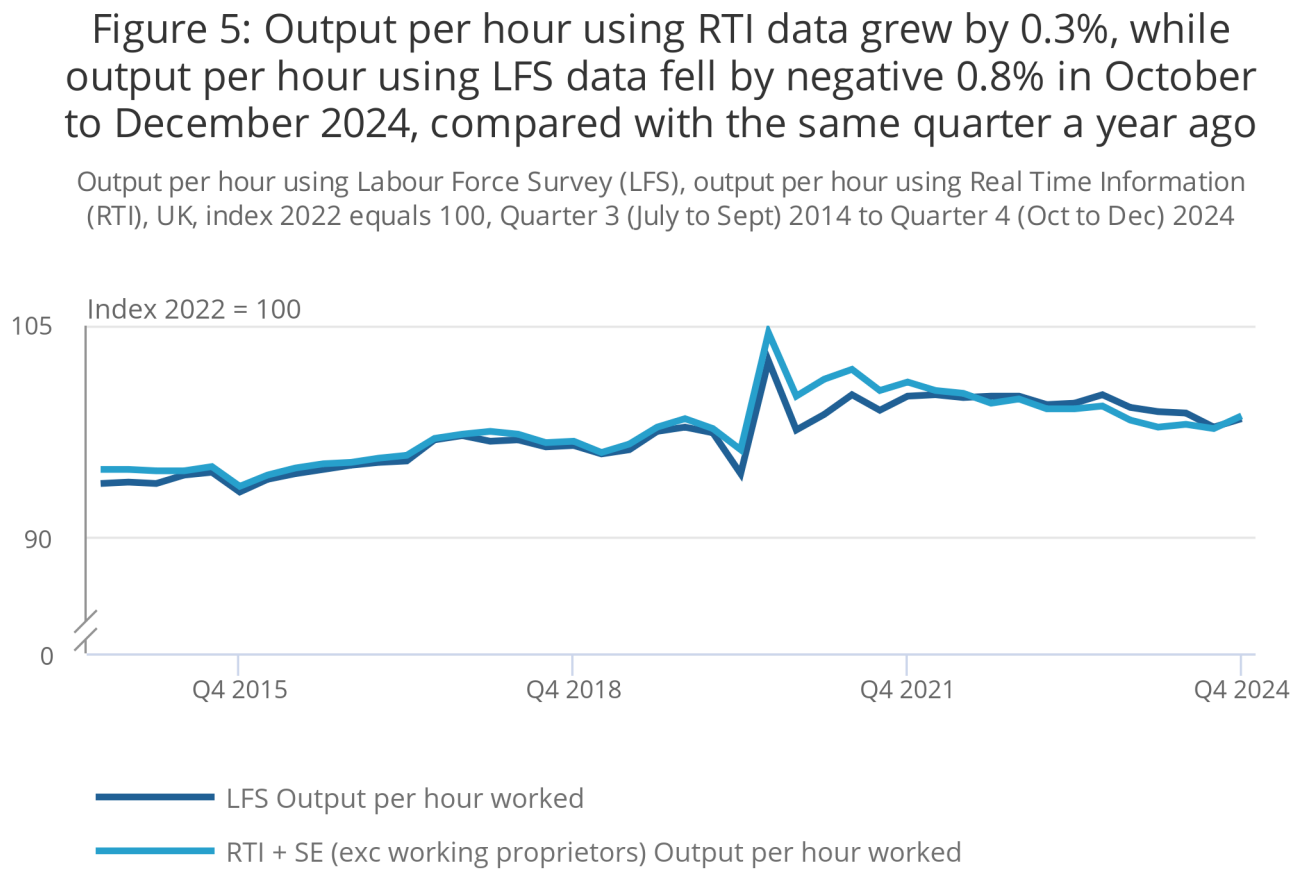
As RTI does not collect actual hours worked, the whole-economy hours worked for both the RTI and the LFS is calculated by multiplying LFS average hours worked with the number of workers, as shown in Figure 5. By varying the data source for workers, the impact on output per hour can be observed, given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

We have seen a convergence between output per hour calculated using the LFS and output per hour calculated using RTI in the last two quarters.

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

Figure 5: Output per hour using RTI data grew by 0.3%, while output per hour using LFS data fell by negative 0.8% in October to December 2024, compared with the same quarter a year ago

Output per hour using Labour Force Survey (LFS), output per hour using Real Time Information (RTI), UK, index 2022 equals 100, Quarter 3 (July to Sept) 2014 to Quarter 4 (Oct to Dec) 2024



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

4 . Labour productivity by industry section for Quarter 3 2024

Figure 6 shows the contribution to growth in output per hour worked for 19 industries in Quarter 3 (July to Sept) 2024, relative to the same quarter a year ago.

The transport and storage industry made the largest upward contribution to productivity growth over the last four quarters. The wholesale and retail industry made the largest negative contribution to productivity growth over the same period.

Estimates from LFS are still affected by increased volatility and base effects. We have suppressed the Agriculture (A) and Real Estate (L) industries because we are comparing with periods of low response rates.

Even when every industry experiences zero growth, it is possible for the whole economy to grow 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 economic activity tended to shift from industries with higher productivity to industries with lower productivity on average. This is the fourth consecutive quarter that a negative reallocation effect has been measured.

Figure 6: The transport and storage 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 3 (July to Sept) 2023

Download the data

Downloac

Notes:

1. This quarter, we have suppressed the Agriculture (A) and Real Estate (L) industries because of a low level of responses in the Labour Force Survey (LFS).

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

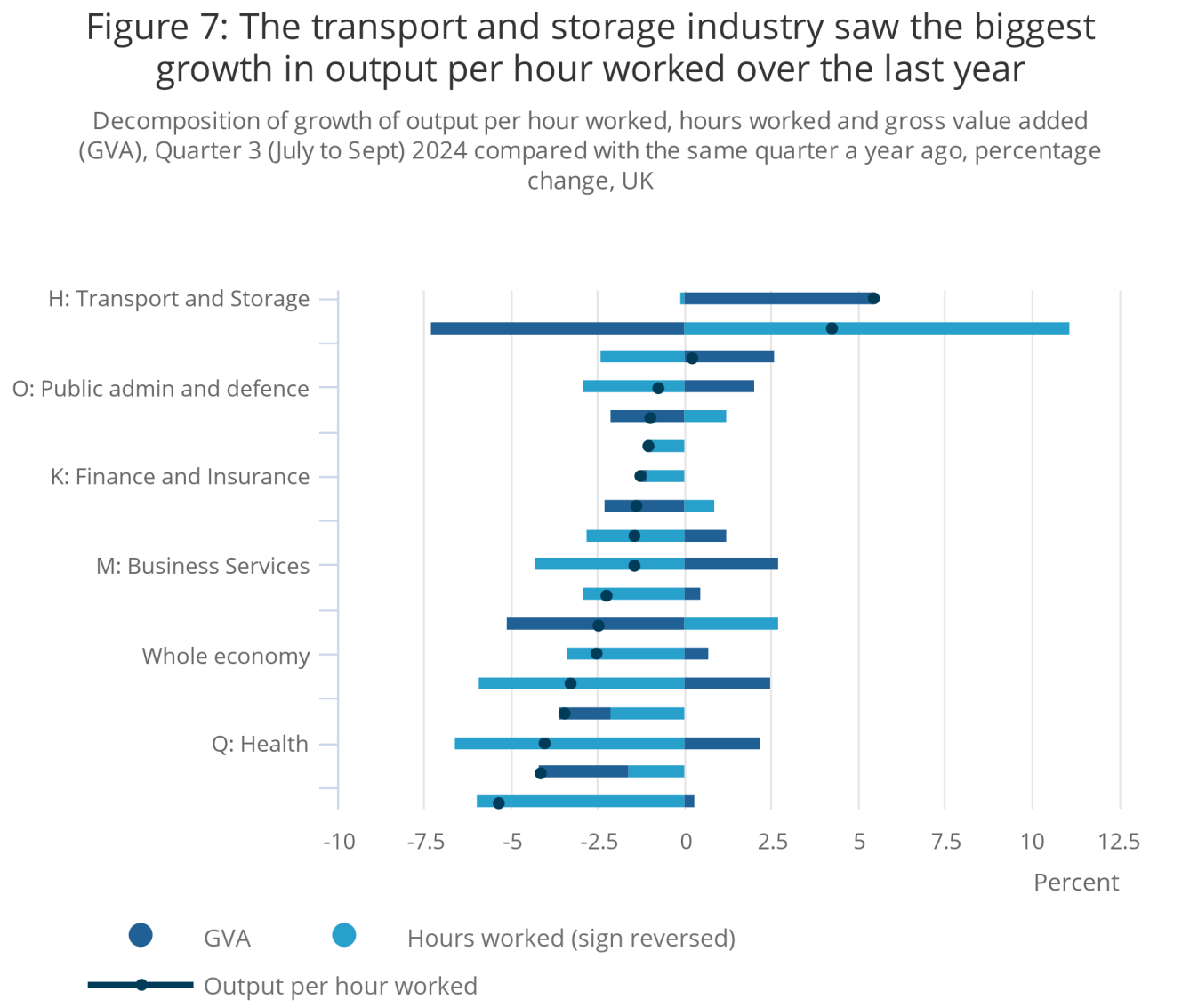
3. The "Other services" industry includes: activities of households as employers, undifferentiated goods and services producing activities of households for own use, activities of membership organisations, repair of computers and personal and household goods, and a variety of personal service activities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

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

Figure 7 shows the decomposition of growth of output per hour worked. In the transport and storage industry, growth in output per hour worked was caused by an increase in gross value added (GVA). In the mining and quarrying industry, growth in output per hour worked was caused by hours worked decreasing faster than GVA.

Figure 7: The transport and storage 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 (GVA), Quarter 3 (July to Sept) 2024 compared with the same quarter a year ago, percentage change, UK

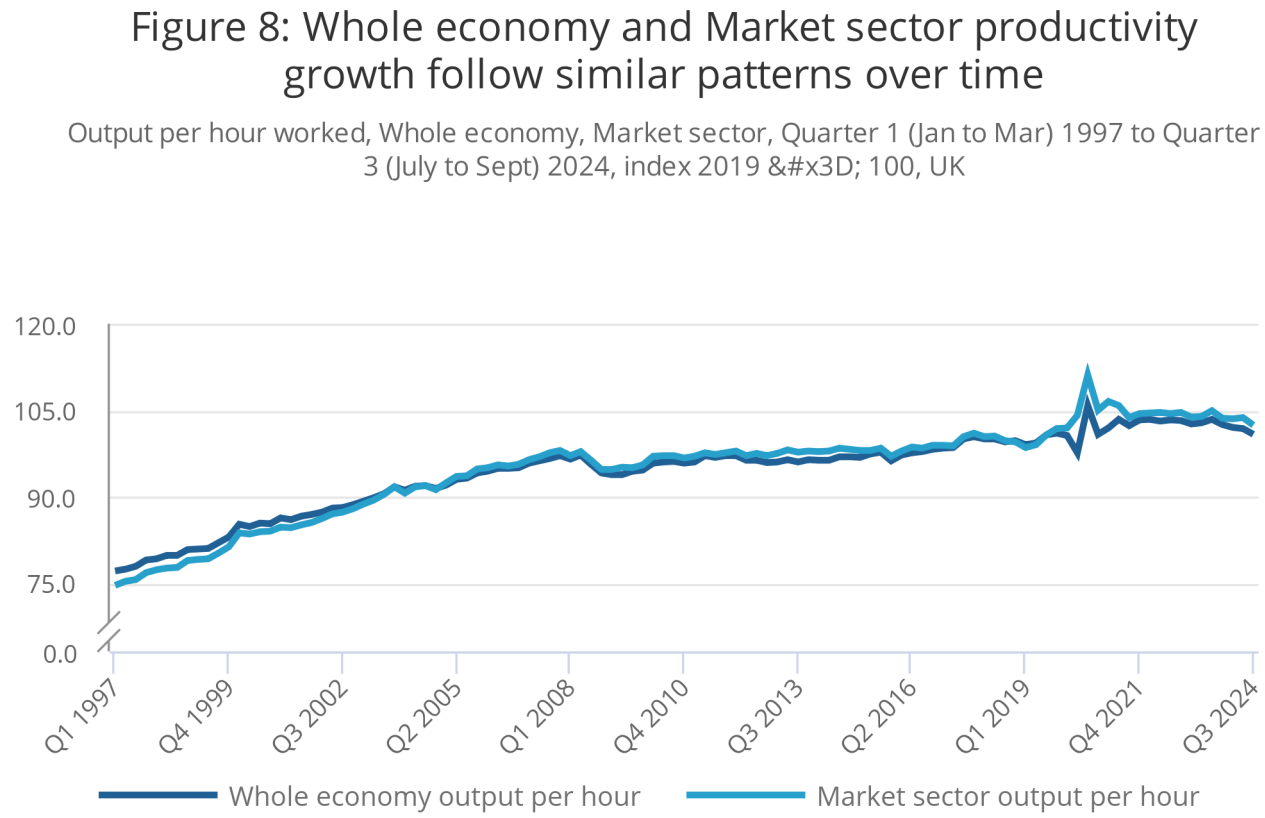


Source: Productivity flash estimate and overview, UK from the Office for National Statistics

Figure 8 shows several important insights about the whole economy and market labour productivity. The two metrics generally follow similar patterns over time. However, a noticeable divergence occurred around the coronavirus (COVID-19) pandemic period. This reflected both an increase in market productivity and a dip in non-market productivity. This is consistent with the fall in public service productivity over the same period, as shown in our Public service productivity, quarterly, UK: July to September 2024 bulletin. Users should note that some public services are provided by the market sector and not all non-market activities are public services. In the past three years, the two metrics have closely tracked each other once again, though some of the gap that emerged during the pandemic remains.

Figure 8: Whole economy and Market sector productivity growth follow similar patterns over time

Output per hour worked, Whole economy, Market sector, Quarter 1 (Jan to Mar) 1997 to Quarter 3 (July to Sept) 2024, index 2019 = 100, UK



Notes:

1. The index 2019 = 100 in this figure has been chosen to show how the two series have performed, relative to their pre-coronavirus pandemic levels.

5 . Data on productivity flash estimate and overview

Output per hour worked, UK
Dataset | Released 18 February 2025
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 18 February 2025
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 18 February 2025
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 18 February 2025
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 18 February 2025
Estimates for gross value added (GVA), jobs and output per job 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 18 February 2025
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).

Labour Force Survey reweighting

We published our Labour Force Survey: planned improvements and its reintroduction methodology on 2 November 2023. This enabled 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 LFS key indicators: 2024 article on 5 February 2024. Our Labour market overview, UK: November 2024 bulletin reinstated reweighted LFS on 18 July 2024. This article 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: February 2025 bulletin. Whole-economy estimates of workers are in line with our Employment, unemployment and economic inactivity by age group dataset released on 18 February 2024 in our Labour market overview, UK: February 2025 bulletin. Whole-economy estimates of second jobs and total hours have been adjusted back to mid-2011. This will ensure that headline productivity statistics can be assessed without a discontinuity, for the purposes of the productivity estimates; they 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 from 2011 to 2022.

Imputed rental is excluded from "Industry L: real estate". 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 and the challenges in reconciling quarterly and annual data, as explained in our Recent 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 bulletin, 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 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.

Trendlines and confidence intervals

We construct the 95% confidence intervals around the trendlines in our figures by first calculating the standard error (SE) by dividing the standard deviation of residuals by the square root of the number of periods. Then, we determine the critical value corresponding to the 95% confidence level (1.96) and multiply it by the SE. Finally, we use this value to create the interval by adding and subtracting the result from the predicted trendline value at each point, providing the upper and lower bounds of the confidence interval.

We are considering updating our trendlines, based on research we published in our Productivity trends in the UK: July to September 2024 article. Please email productivity@ons.gov.uk with your comments and views.

Accredited official statistics

Our gross valued added (GVA) estimates are accredited official statistics. These accredited official statistics were independently reviewed by the Office for Statistics Regulation in March 2015. They comply with the standards of trustworthiness, quality, and value in the Code of Practice for Statistics and should be labelled "accredited official statistics".

Official statistics in development

The labour market and productivity statistics in this article are labelled as “official statistics in development”. Until October 2023, these were called "experimental statistics". Read more about the change in our guide to official statistics in development.

8 . Related links

GDP first quarterly estimate, UK: October to December 2024
Bulletin | Released 13 February 2025
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: February 2025
Bulletin | Released 18 February 2025
Estimates of employment, unemployment, economic inactivity, and other employment-related statistics for the UK.

GDP quarterly national accounts, UK: July to September 2024
Bulletin | Released 13 February 2025
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: February 2025
Bulletin | Released 18 February 2025
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.

Public service productivity, quarterly, UK: July to September 2024
Bulletin | Released 10 February 2025
UK total public service and healthcare productivity, inputs, and output, to provide a short-term, timely indicator of annual productivity estimates. These are official statistics in development.

9 . Cite this statistical bulletin

Office for National Statistics (ONS), released 18 February 2025, ONS website, statistical bulletin, Productivity flash estimate and overview, UK: October to December 2024 and July to September 2024