

Article

UK productivity flash estimate: October to December 2021

Flash estimate of labour productivity for Quarter 4 (October to December) 2021 based on the latest data from the gross domestic product (GDP) first quarterly estimate and labour market statistics.

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1 . Main points

- In Quarter 4 (Oct to Dec) 2021, output per hour worked was 2.3% above levels recorded prior to the coronavirus (COVID-19) pandemic (the 2019 average). See [Section 3](#).
- Output per worker was above the 2019 average level for the first time since the coronavirus pandemic began, growing 0.8% on 2019 and 1.1% quarter-on-quarter. See [Section 4](#).
- Total hours worked in the economy were unchanged in Quarter 4 2021 compared with the previous quarter, despite the end of the furlough scheme, as average hours fell, after adjusting for the effects of furlough. See [Section 5](#).
- Within-industry productivity growth contributed more to UK productivity growth than the between-industry reallocation for the first time since Quarter 3 (July to Sept) 2020. See [Section 6](#).

2 . Latest statistics

The labour productivity flash estimate uses the [latest labour market statistics](#) and the [gross value added \(GVA\) first quarterly estimates](#) to provide the first look at UK productivity for Quarter 4 (Oct to Dec) 2021.

We are continuing to compare our quarterly estimates with the most recent stable period before the coronavirus (COVID-19) pandemic, which is the 2019 average. Comparing Quarter 4 2021 with the 2019 average gives a more reliable perspective on the effect of the coronavirus pandemic. As a result of the coronavirus pandemic, productivity growth across 2020 and 2021 has been volatile. For this reason, we recommend looking at longer-term trends. Table 1 outlines the latest productivity statistics.

Table 1: The latest productivity statistics

Period	Output per hour worked			Output per worker		
	Quarter vs 2019 pre-pandemic levels (%)	Quarter-on-year (%)	Quarter-on-quarter (%)	Quarter vs 2019 pre-pandemic levels (%)	Quarter-on-year (%)	Quarter-on-quarter (%)
2020 Q1	-0.5	-0.1	-0.9	-3.1	-3.1	-2.9
2020 Q2	-2.3	-2.1	-1.7	-21.0	-20.9	-18.5
2020 Q3	5.9	5.7	8.3	-6.4	-6.7	18.5
2020 Q4	1.8	1.4	-3.9	-4.4	-4.1	2.1
2021 Q1	2.6	3.1	0.8	-5.6	-2.6	-1.3
2021 Q2	2.9	5.3	0.3	-0.5	26.0	5.4
2021 Q3	1.3	-4.3	-1.5	-0.3	6.5	0.2
2021 Q4	2.3	0.5	1.0	0.8	5.4	1.1

Source: Office for National Statistics – UK productivity flash estimate

Quarter 4 2021 was the first quarter since before the coronavirus pandemic in which there were no workers on the Coronavirus Job Retention Scheme (CJRS). Despite this, total hours worked in the economy were unchanged compared with the previous quarter, suggesting a fall in average working hours of those not on furlough (see Figure 3). Quarter-on-quarter productivity growth was driven by a 1.0% increase in GVA, with no change in hours worked.

In Quarter 4 2021, output per hour worked was 2.3% above pre-coronavirus pandemic levels, increasing by 1.0% compared with the previous quarter. See [Section 3](#) for more information.

Output per worker was 0.8% above pre-coronavirus pandemic levels in Quarter 4 2021. This is the first time that output per worker has been above the 2019 average since before the coronavirus pandemic period began. This reflects the end of the CJRS with all workers coming off the CJRS.

3 . Output per hour worked

Output per hour worked grew by 1.0% on the previous quarter in Quarter 4 (Oct to Dec) 2021. This growth was driven by a 1.0% increase in gross value added (GVA) as hours worked saw no movement quarter-on-quarter. Output per hour worked was 2.3% above the 2019 average.

Hours worked remained 2.4% below the 2019 average level, with no change quarter-on-quarter despite Quarter 4 2021 being the first quarter in the coronavirus (COVID-19) pandemic era to have no workers supported by the Coronavirus Job Retention Scheme (furlough). Quarter 4 2021 was the first quarter since Quarter 1 (Jan to Mar) 2021 not to show substantial growth in total hours worked.

GVA remained 0.2% below below the 2019 average level despite a 1.0% increase quarter-on-quarter. Quarter 4 2021 saw the third consecutive quarter of growth in GVA.

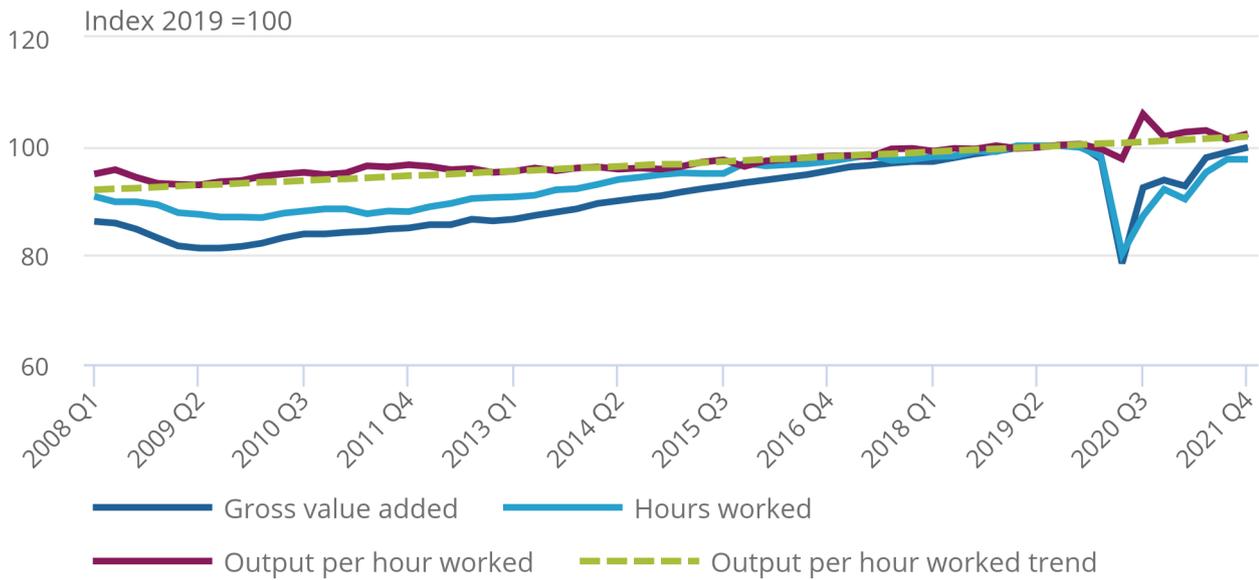
Figure 1 depicts GVA, hours worked and output per hour worked as well as a trendline. The trendline shows what output per hour worked would have looked like if the 2009 to 2019 average had continued. In the decade before the coronavirus pandemic (Quarter 2 2009 to Quarter 4 2019), the trend growth rate of output per hour worked was 0.7% per year. Output per hour worked in Quarter 4 2021 was 0.5% higher than it would have been, had the pre-pandemic trend continued.

Figure 1: Output per hour worked was 2.3% above pre-coronavirus pandemic levels in Quarter 4 2021

Index 2019 = 100, output per hour worked, gross value added, total hours worked, UK, Quarter 1 2008 to Quarter 4 2021

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Index 2019 = 100, output per hour worked, gross value added, total hours worked, UK, Quarter 1 2008 to Quarter 4 2021



Source: Office for National Statistics – UK productivity flash estimate

Notes:

1. Average growth between Quarter 2 2009 (the low point after the 2008 economic downturn) and Quarter 4 2019 (the highpoint before the coronavirus pandemic) is used as the trend as this is a long enough period to establish a trend line. Productivity growth has been consistently slower since the 2008 economic downturn, so using trend growth from earlier years would be inappropriate.

4 . Output per worker

Productivity measured as output per worker diverged away from productivity measured as output per hour worked throughout the coronavirus (COVID-19) pandemic period. This was because of the Coronavirus Job Retention Scheme (CJRS) limiting the change in the number of employees but lowering the total hours worked in the economy.

The CJRS supported an average of [1.42 million jobs in Quarter 3 \(July to Sept\) 2021](#), and that number fell to [1.16 million on 30 September 2021](#), when the policy ended. While many of those coming off the scheme re-entered employment or looked for work, some left the labour force. There are [several reasons why people might leave the labour force](#) including retirement, caring responsibilities, or returning to full-time studies.

Quarter 4 (Oct to Dec) 2021 was the first quarter since before the coronavirus pandemic period in which output per worker was above pre-coronavirus pandemic levels. Quarterly growth of 1.1% led to output per worker levels that were 0.8% above the 2019 average. Despite this return to pre-coronavirus pandemic levels for output per worker, gross value added (GVA) is still 0.2% below, and employment is 1.0% below.

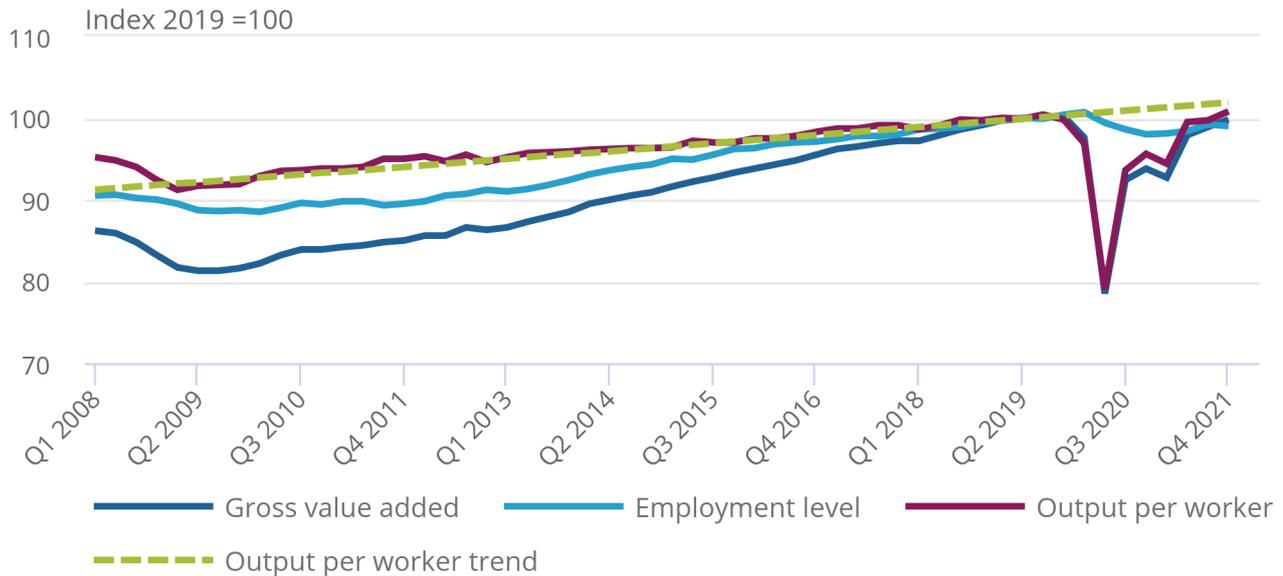
In the decade before the coronavirus pandemic (Quarter 2 2009 to Quarter 4 2019), the trend growth rate of output per worker was 0.8% per year. Output per worker in Quarter 4 2021 was 1.1% lower than it would have been, had the pre-pandemic trend continued.

Figure 2: Output per worker was 0.8 percentage points above pre-coronavirus pandemic levels in Quarter 4 2021

Index 2019 = 100, output per worker, gross value added, total hours worked, UK, Quarter 1 2008 to Quarter 4 2021

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Index 2019 = 100, output per worker, gross value added, total hours worked, UK, Quarter 1 2008 to Quarter 4 2021



Source: Office for National Statistics – UK productivity flash estimate

Notes:

1. Average growth between Quarter 2 2009 (the low point after the 2008 economic downturn) and Quarter 4 2019 (the highpoint before the coronavirus pandemic) is used as the trend as this is a long-enough period to establish a trend line. Productivity growth has been consistently slower since the 2008 economic downturn, so using trend growth from earlier years would be inappropriate.

5 . Average hours worked

Total hours worked in the economy were roughly the same in Quarter 4 (Oct to Dec) 2021 as in the previous quarter, despite many workers returning from being on furlough.

Figure 3 shows average weekly hours worked per worker, and an experimental analysis which adjusts for furloughed workers. Since those in furloughed jobs were treated as employed, but working no hours, this suppressed the output per worker and average hours worked per worker statistics during the coronavirus (COVID-19) pandemic.

In contrast, if we exclude those on furlough, average hours were higher during the coronavirus pandemic than before. Either workers who worked fewer hours were more likely to be furloughed (a composition effect), or workers who were not on furlough increased their working hours.

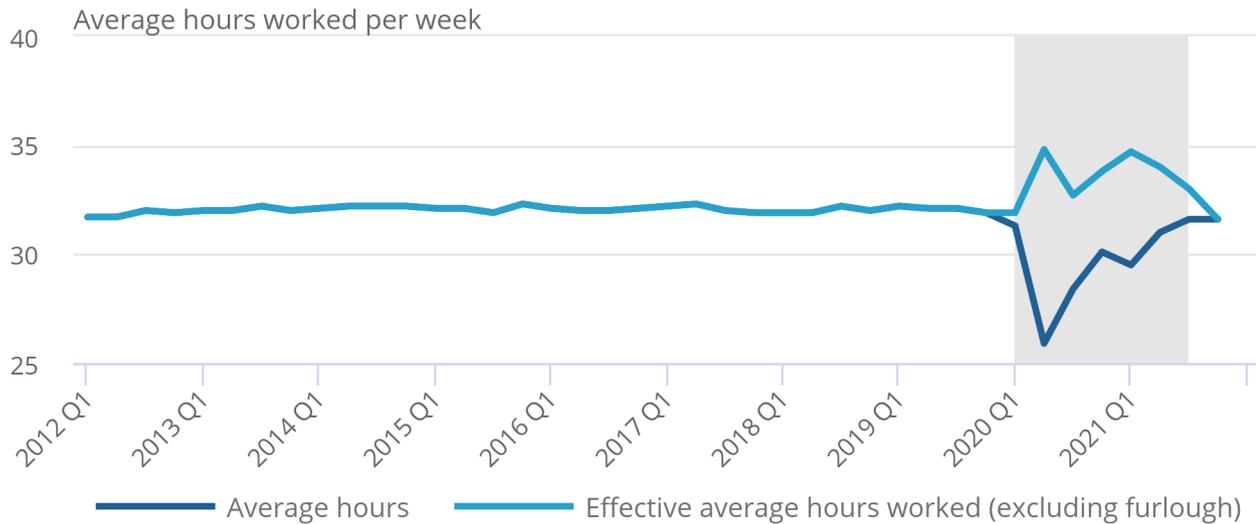
In Quarter 4 2021, after the Coronavirus Job Retention Scheme (CJRS) had finished, average hours worked were back to similar levels as before the coronavirus pandemic. The decline in effective average hours worked (adjusting for furlough) in the last two quarters could be because of the previous composition effect unwinding (those working shorter hours returning to work) or a decline in working hours of those who had not been furloughed. Also, Quarter 4 2021 included the initial effects of the Omicron variant of the coronavirus, which may have reduced working hours because of self-isolation and sickness.

Figure 3: Average hours worked per week and effective average hours worked per week diverged during the coronavirus pandemic

Average hours worked and effective average hours worked (adjusting for furloughed workers), Quarter 1 2012 to Quarter 4 2021

Figure 3: Average hours worked per week and effective average hours worked per week diverged during the coronavirus pandemic

Average hours worked and effective average hours worked (adjusting for furloughed workers), Quarter 1 2012 to Quarter 4 2021



Source: Office for National Statistics – UK productivity flash estimate

Notes:

- Adjustments for furloughed workers in this analysis use HMRC Coronavirus Job Retention Scheme (CJRS) data on employments, which do not distinguish between full and partial furlough. They also do not account for self-employed workers in receipt of Self-Employed Income Support Scheme (SEISS) payments, who may or may not be working hours. There is a small misalignment between workers and jobs in the adjusted series, so this should be treated as indicative only.

6 . Output per hour worked by industry

Figure 4 breaks the whole economy into four broadly defined industries. In all these industries, output per hour worked was higher in Quarter 4 (Oct to Dec) 2021 than the 2019 average.

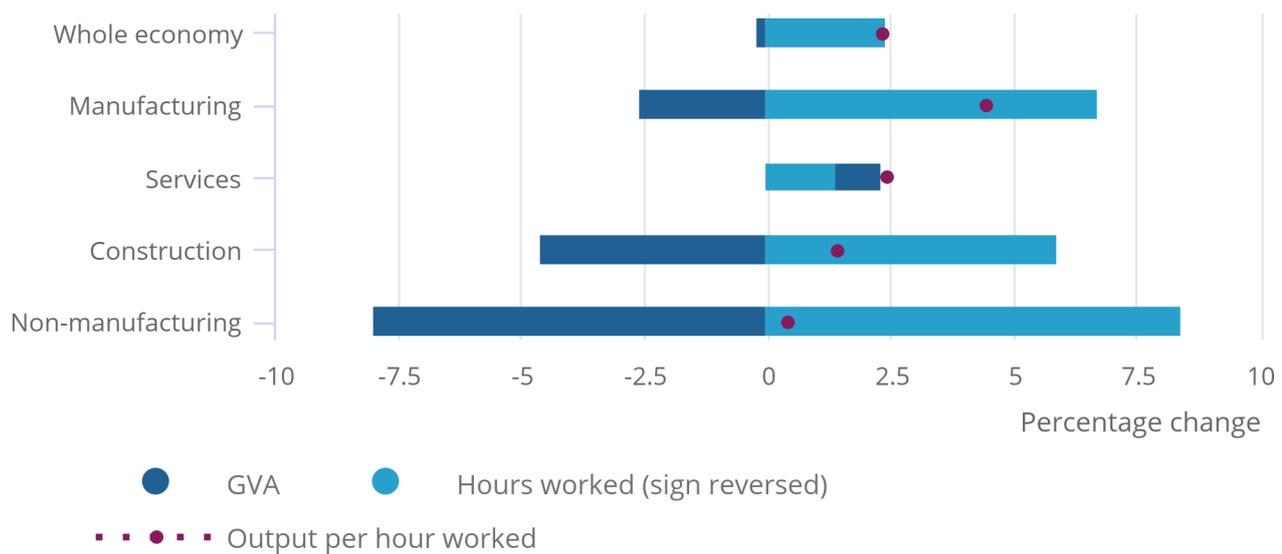
The increase over the 2019 average was driven by lower hours worked levels than gross value added (GVA) levels in all industries. GVA was lower for all industries except the services sector. Hours worked in the non-manufacturing industries were 8.4% lower than in 2019 (the hours sign is reversed in Figure 4) while GVA was 8.0% below.

Figure 4: Output per hour worked was higher than pre-coronavirus pandemic levels in all broadly defined industries in Quarter 4 2021

Output per hour, hours worked, and gross value added, quarter vs pre-coronavirus pandemic, percentage change, UK, Quarter 4 2021

Figure 4: Output per hour worked was higher than pre-coronavirus pandemic levels in all broadly defined industries in Quarter 4 2021

Output per hour, hours worked, and gross value added, quarter vs pre-coronavirus pandemic, percentage change, UK, Quarter 4 2021



Source: Office for National Statistics – UK productivity flash estimate

Notes:

1. Non-manufacturing production refers to sections A, B, D and E of the standard industrial classification (SIC 2007). This covers agriculture, mining and quarrying, energy, and water and waste industries.
2. Estimates of hours worked are sign reversed to reflect how they affect output per hour. An increase in hours worked will reduce output per hour, while a decrease in hours worked will lift output per hour.
3. Bars are not weighted by size in the economy, so do not represent contributions to growth.

Productivity growth for the UK can be because of productivity growth within industries or [a change in the structure of the economy towards higher-productivity industries](#). The contribution of the changing structure is a compositional effect, known as a “between-industry” or “reallocation effect”.

In Quarter 4 2021, the contribution of within-industry productivity growth increased for the third consecutive quarter and was larger than the between-industry reallocation effect for the first time since Quarter 3 (July to Sept) 2020. Within-industry productivity growth contributed 1.5 percentage points to aggregate growth since 2019, while industry reallocation accounted for 0.8 percentage points. Throughout the coronavirus (COVID-19) pandemic, output per hour worked was pushed up substantially by a positive allocation effect.

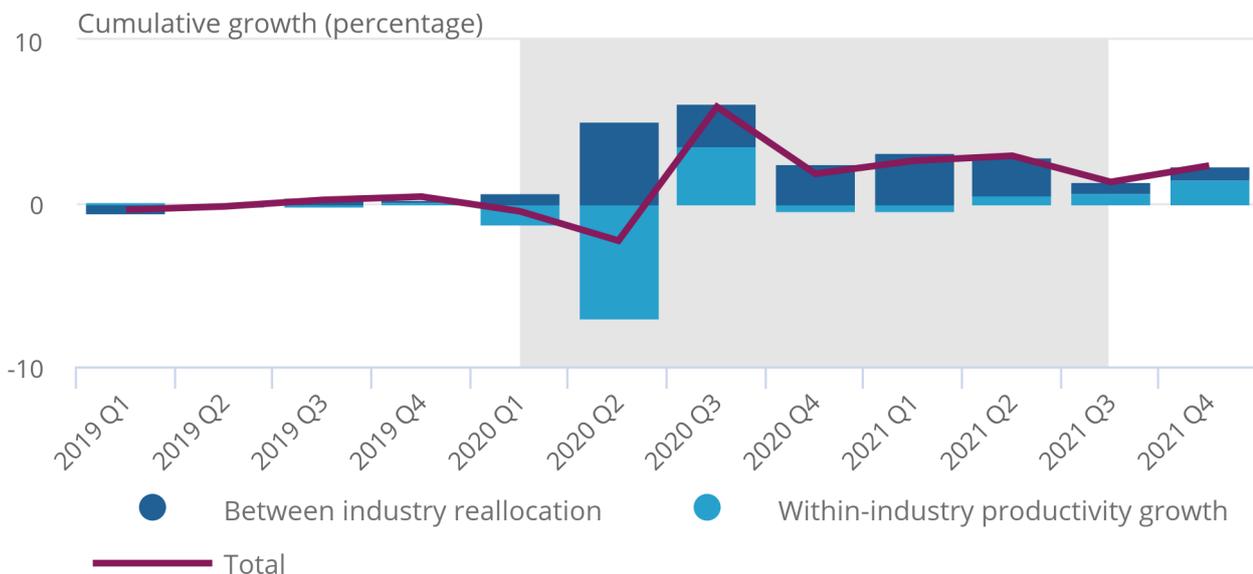
The between-industry contribution remained positive in Quarter 4 2021, as less productive industries are still smaller than they were before the coronavirus pandemic, despite the end of the Coronavirus Job Retention Scheme (CJRS). However, it is substantially smaller than it was earlier in the coronavirus pandemic, and little changed on the size in Quarter 3 2021.

Figure 5: As the Coronavirus Job Retention Scheme (CJRS) ended, within-industry productivity growth contributed more to UK productivity growth than between-industry reallocation

Output per hour worked growth, decomposed into between and within-industry effects, cumulative 2019, percentage, Quarter 1 (Jan to Mar) 2019 to Quarter 4 (Oct to Dec) 2021

Figure 5: As the Coronavirus Job Retention Scheme (CJRS) ended, within-industry productivity growth contributed more to UK productivity growth than between-industry reallocation

Output per hour worked growth, decomposed into between and within-industry effects, cumulative 2019, percentage, Quarter 1 (Jan to Mar) 2019 to Quarter 4 (Oct to Dec) 2021



Source: Office for National Statistics – UK productivity flash estimate

Notes:

1. The allocation effect within and between industries may not add up to the output per hour worked total. This is because of the exclusion of the National Accounts balancing value. See our [Industry division](#) dataset for more information.
2. These data are based on a split of 17 industries. The size of the allocation effect can vary according to the degree of granularity used.

7 . UK productivity flash estimate data

[Flash productivity by section](#)

Dataset | Released 15 February 2022

Flash estimate of labour productivity by section. The latest data are from the gross domestic product (GDP) first quarterly estimate and labour market statistics.

8 . Glossary

Labour productivity

Labour productivity measures how many units of labour input are needed to produce a unit of output and is calculated by dividing output by labour input.

Labour inputs

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

Output

Output is measured by gross value added (GVA) in chained volume measures (CVM), which is an estimate of the volume of goods and services produced for final use by an industry, and in aggregate for the UK, after adjusting for price changes. It is calculated as turnover (sales) minus purchases (intermediate consumption).

Allocation effect

An allocation effect represents changes in the mix of activities in the economy between firms or industries that have various levels of productivity. Resources moving from low to high productivity industries creates a positive allocation effect while movement from high to low productivity industries creates a negative allocation effect.

9 . Data sources and quality

This release uses the first available information on output and labour input for Quarter 4 (Oct to Dec) 2021. These data may be revised when we release the more detailed Productivity Overview in April 2022.

This release uses gross value added (GVA) from the [gross domestic product \(GDP\) first quarterly estimate](#) to determine output. Labour market data are from the [Labour market overview, UK: January 2021 statistical bulletin](#). Estimates of the productivity time series for previous time periods have been revised and therefore may not be consistent with the [Labour productivity](#) National Statistics.

New estimates of GVA are more volatile on a quarterly basis than previously, especially in production industries. This reflects the use of new data and methods, but also [challenges in reconciling quarterly and annual data](#). As productivity is a structural feature of the economy, we continue to advise users to focus on long-term trends of productivity.

More details on the flash by industry methodology is described in the "Guidance" tab of [the dataset](#).

10 . Related links

[Productivity overview, UK: July to September, 2021](#)

Bulletin | Released 11 January 2022

The main findings from official statistics and analysis of UK productivity, presenting a summary of recent developments.

[GDP first quarterly estimate, UK: July to September 2021](#)

Bulletin | Released 11 February 2022

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: January 2021](#)

Bulletin | Released 18 January 2022

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