

Article

# UK productivity flash estimate: January to March 2021

Flash estimate of labour productivity for Quarter 1 (Jan to Mar) 2021 based on the latest data from the gross domestic product (GDP) first quarterly estimate and labour market statistics.

Contact:  
Jack Bolshaw and Stuart  
Mackenzie  
productivity@ons.gov.uk  
+44 (0)1633 455086

Release date:  
18 May 2021

Next release:  
To be announced

## Table of contents

1. [Main points](#)
2. [Latest statistics](#)
3. [Output per hour](#)
4. [Output per worker](#)
5. [Output per hour by industry](#)
6. [UK productivity flash estimate data](#)
7. [Glossary](#)
8. [Data sources and quality](#)
9. [Related links](#)

# 1 . Main points

- Output per hour worked in Quarter 1 (January to March) 2021 increased by 1.0% when compared with the same quarter a year ago (Quarter 1 2020) and grew by 0.8% when compared with the previous quarter. See [Section 3](#).
- Output per worker fell by 4.6% compared with the same quarter a year ago and fell by 1.8% when compared with the previous quarter. See [Section 4](#).
- Nine of seventeen high-level industries in the economy experienced a fall in output per hour compared with the same quarter in 2020, whilst eight experienced a rise; see [Section 5](#).

Productivity estimates use the Labour Force Survey (LFS), among other sources. LFS responses are weighted to official 2018-based population projections on demographic trends that pre-date the coronavirus (COVID-19) pandemic. In our [Coronavirus and the impact on payroll employment article](#) we analyse the population totals used in the [LFS weighting process](#) and state our intention to make adjustments. Rates published from the LFS remain robust; however, levels and changes in levels should be used with caution. Any adjustments are likely to lead to small upward revisions to productivity growth in 2020.

## 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 1 (January to March) 2021. Movements during 2020 and 2021 are volatile and subject to increased uncertainty. As such, we recommend looking at longer term trends in productivity growth.

Throughout Quarter 1 2021, coronavirus (COVID-19) restrictions placed the majority of the UK in lockdown. These economic restrictions tended to temporarily close down large parts of less productive industries in the economy. Partly because of this, output per hour worked (our preferred labour productivity measure) in the economy as a whole grew by 1.0% quarter-on-year in Quarter 1 2021.

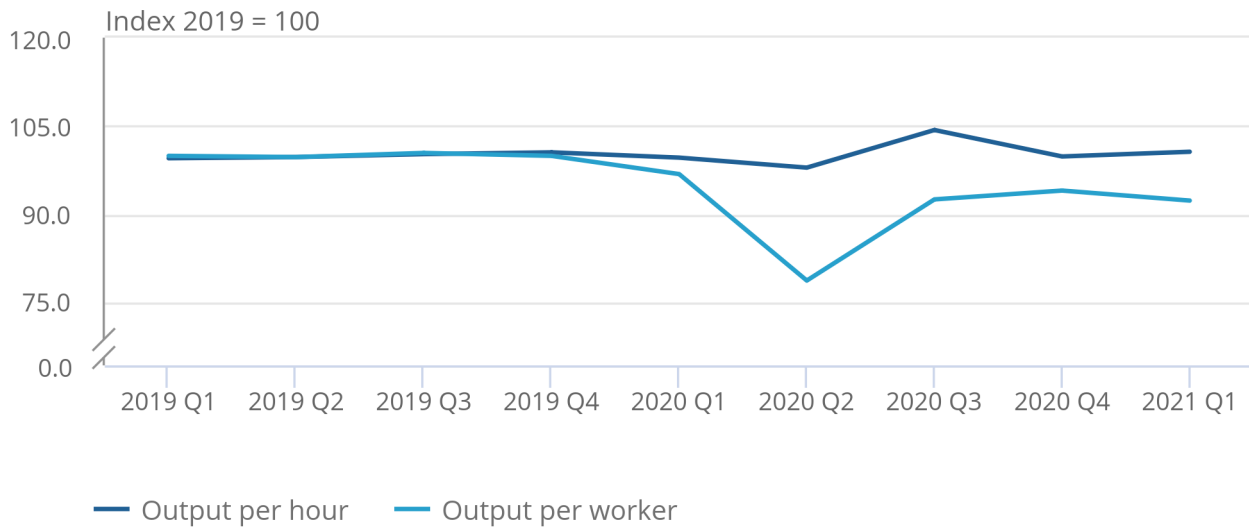
During the same period, output per worker fell by 4.6% reflecting the ongoing impact of furlough schemes, which affect these two series differently. As Figure 1 shows, output per hour was above pre-pandemic levels in Quarter 1 2021, but output per worker remained below previous levels. See Section 4 for more information.

**Figure 1: Output per hour rose above pre-pandemic levels whereas output per worker remains below**

Index 2019 = 100, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 1 2021

**Figure 1: Output per hour rose above pre-pandemic levels whereas output per worker remains below**

Index 2019 = 100, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 1 2021



Source: Office for National Statistics – UK productivity flash estimate

### 3 . Output per hour

Output per hour quarter-on-year growth is our preferred measure as it removes short-term fluctuations and better shows the longer-term impact on people's standard of living.

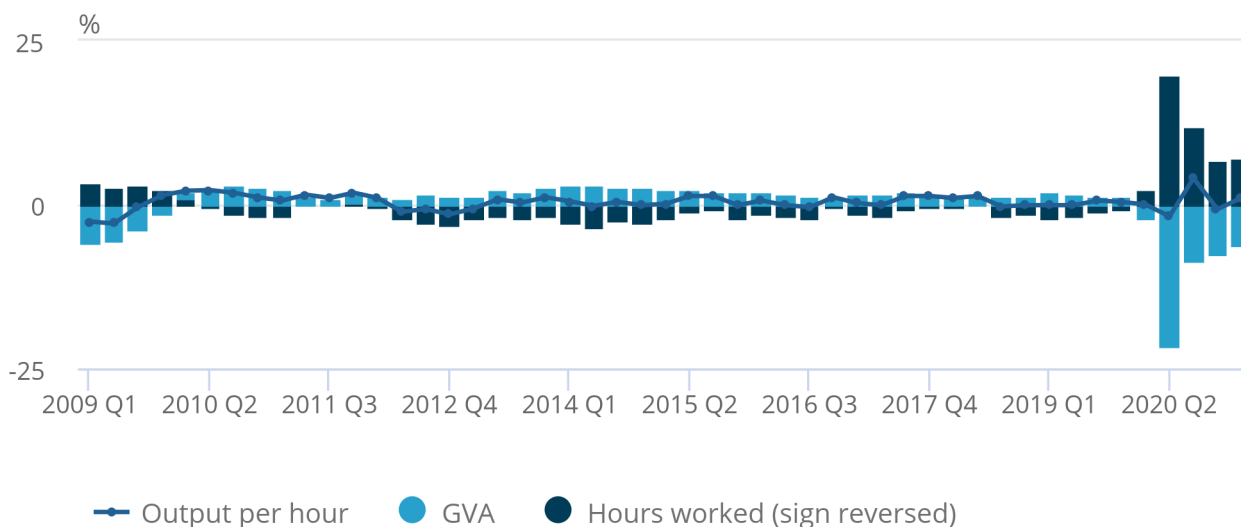
Figure 2 separates changes in output per hour growth into contributions from gross value added (GVA) and total hours worked.

**Figure 2: Output per hour grew by 1.0% in Quarter 1 2021 compared with the same quarter in 2020**

Percentage change on same quarter a year ago, seasonally adjusted, UK, Quarter 1 (Jan to Mar) 2009 to Quarter 1 2021

## Figure 2: Output per hour grew by 1.0% in Quarter 1 2021 compared with the same quarter in 2020

Percentage change on same quarter a year ago, seasonally adjusted, UK, Quarter 1 (Jan to Mar) 2009 to Quarter 1 2021



Source: Office for National Statistics – UK productivity flash estimate

**Notes:**

1. Estimates of employment are sign reversed to reflect how they affect output per worker. An increase in employment will reduce output per worker, while a decrease in employment will lift output per worker.

In Quarter 1 2021, positive output per hour quarter-on-year growth of 1.0% was a result of total hours worked declining more than GVA, by 7.1% and 6.1% respectively. Both hours worked and GVA have recovered from the initial effects of the coronavirus (COVID-19) pandemic on the economy during Quarter 2 (April to June) 2020, with GVA recovering more quickly than hours worked.

In Quarter 1 2021, total hours worked decreased by 2.3% and GVA decreased by 1.5% compared with the previous quarter, likely because of the lockdown restrictions in force across the UK during much of this period. As a result, output per hour grew 0.8% quarter-on-quarter.

Total hours worked has declined since the previous quarter despite an increase in employment over the same period. This is because of a decline in average hours worked per week, of 2.6% in Quarter 1 2021 compared with the previous quarter. There was an increase in the number of furloughed workers, who remain employed but work zero hours, when compared with the previous quarter. This decreases average hours worked even though employment has increased.

## 4 . Output per worker

An alternative measure of productivity is output per worker, which historically had similar growth rates to output per hour as normally working patterns change slowly. The Coronavirus Job Retention Scheme (furlough) caused rapid changes to hours worked, but not to employment, which caused a divergence between these productivity measures. Furloughed workers work zero hours (total hours worked decreases), but they are still counted as workers (number of workers is unchanged). If total hours worked falls, but the number of workers does not fall, growth in output per hour will be higher than growth in output per worker.

Figure 3 separates output per worker growth into contributions from gross value added (GVA) and employment.

### Figure 3: Output per worker fell by 4.6% in Quarter 1 2021 compared with the same quarter in 2020

Percentage change on same quarter a year ago, seasonally adjusted, UK, Quarter 1 (Jan to Mar) 2009 to Quarter 1 2021

#### Figure 3: Output per worker fell by 4.6% in Quarter 1 2021 compared with the same quarter in 2020

Percentage change on same quarter a year ago, seasonally adjusted, UK, Quarter 1 (Jan to Mar) 2009 to Quarter 1 2021



Source: Office for National Statistics – UK productivity flash estimate

#### Notes:

1. Estimates of employment are sign reversed to reflect how they affect output per worker. An increase in employment will reduce output per worker, while a decrease in employment will lift output per worker.

In Quarter 1, output per worker fell by 4.6% quarter-on-year as the result of a 6.1% fall in GVA and a smaller 1.6% decrease in employment. This decrease in employment is far smaller than would be expected for a GVA drop of this magnitude, largely because of the effects of the furlough scheme.

Output per worker decreased by 1.8% quarter-on-quarter because of a 1.5% fall in GVA and 0.3% increase in employment.

## 5 . Output per hour by industry

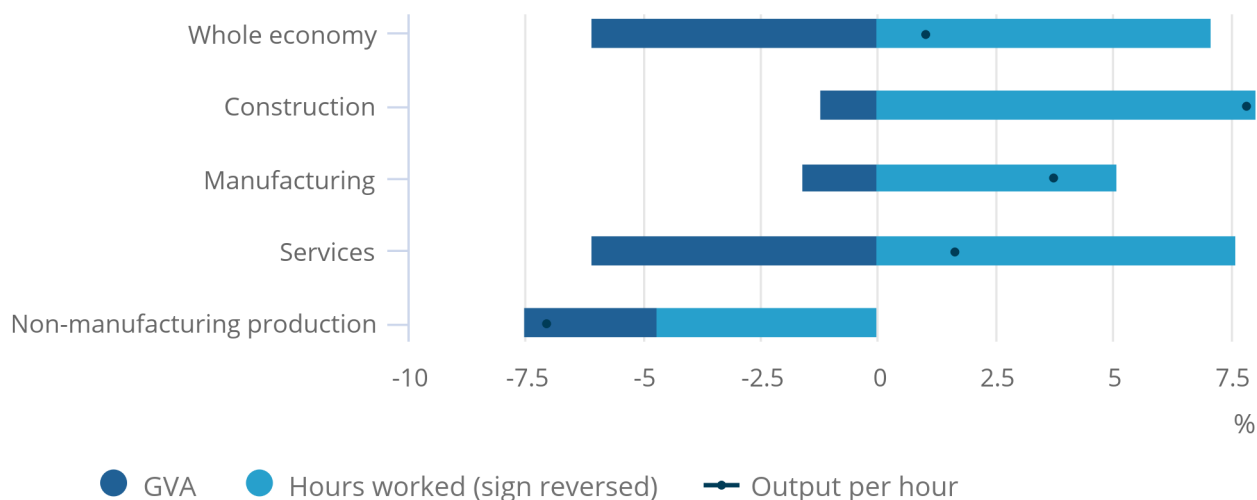
Figure 4 shows the quarter-on-year growth in output per hour for high-level industries and decomposes this into the growth of output and hours worked. Output per hour worked in construction and manufacturing industries grew faster than the whole economy average. By contrast, productivity in non-manufacturing industries (agriculture, mining, and utilities) fell sharply. The breakdown by industry [dataset](#) accompanying this release includes detailed notes on the methodology.

**Figure 4: Output per hour grew faster than the economy average in construction and manufacturing industries**

Output per hour, hours worked and GVA, quarter-on-year growth, 2021 Quarter 1 (Jan to Mar), UK, percentage change

### Figure 4: Output per hour grew faster than the economy average in construction and manufacturing industries

Output per hour, hours worked and GVA, quarter-on-year growth, 2021 Quarter 1 (Jan to Mar), UK, percentage change



Source: Office for National Statistics – UK productivity flash estimate

**Notes:**

1. 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.
2. Bars are not weighted by size in the economy, so do not represent contributions to growth.

Figure 5 illustrates the contributions from section-level industries to quarter-on-year growth in whole economy output per hour. It also shows the allocation effect, which results from changes in the distribution of economic activity among industries, which has been a strong positive contributor to productivity growth throughout the coronavirus (COVID-19) pandemic -- previously examined in our [Productivity economic commentary](#).

The allocation effect accounts for changes in productivity because of changes in the size of industries in the economy. The coronavirus (COVID-19) pandemic has led to some less-productive industries shrinking. Meanwhile, more-productive industries now make up a proportionately larger share of the economy. This increases aggregate productivity in the economy.

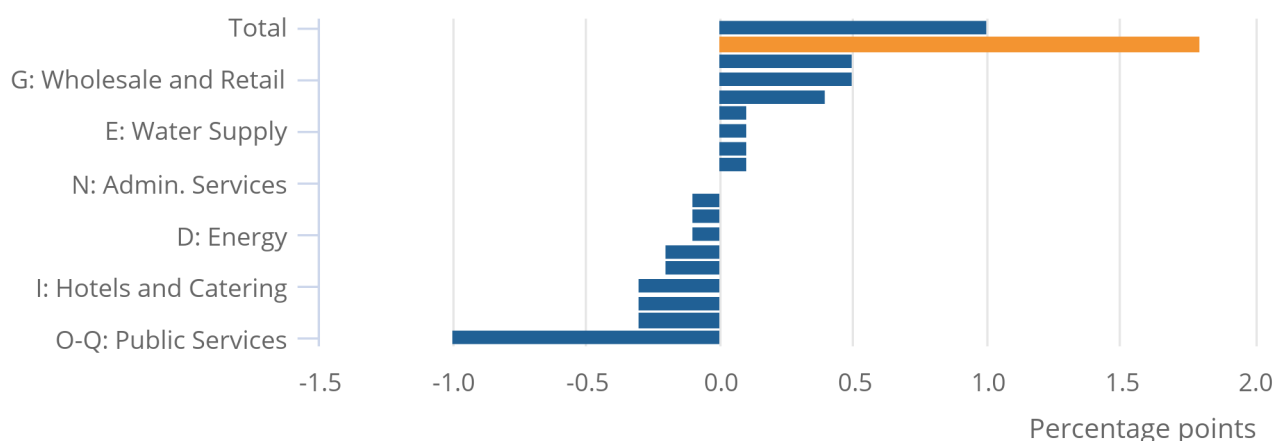
Figure 5 shows that there was positive re-allocation between Quarter 1 2020 and Quarter 1 2021, which partially offsets falling productivity in some industries. The allocation effect in Figure 5 does not account for changes in the types of activities within industries, such as the move from physical retail to online retail. These changes will be part of the productivity growth estimates of the relevant industries.

**Figure 5: Output per hour grew overall largely because of a positive allocation effect**

Contributions to quarter on year output per hour growth, seasonally adjusted, UK, Quarter 1 (Jan to Mar) 2021

Figure 5: Output per hour grew overall largely because of a positive allocation effect

Contributions to quarter on year output per hour growth, seasonally adjusted, UK, Quarter 1 (Jan to Mar) 2021



Source: Office for National Statistics – UK productivity flash estimate

Notes:

1. Output per hour growth for an individual industry can be far larger than the contribution of that industry to growth in whole economy output per hour, depending on the relative size of the industry.

Around half the industries experienced a fall in productivity while about half experienced an increase. This continues to suggest that the pandemic has had varying effects on productivity in different industries. By contrast, declining output per hour was more broad-based in the economic downturn of 2008 to 2009.

## 6 . UK productivity flash estimate data

[Flash productivity by section](#)

Dataset | Published 18 May 2021

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

## 7 . 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.

## 8 . Data sources and quality

This release uses the first available information on output and labour input for Quarter 1 (January to March) 2021. These data may be revised when we release the more detailed [productivity bulletin](#).

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: May 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.

ONS has published an implementation plan for adjusting the weighting methodology for the [Labour Force Survey](#), which will better reflect population change during 2020. This will result in a small downward revision to employment in 2020, which will increase productivity slightly. We will incorporate these changes in our flash estimate for Quarter 2 (Apr to June) 2021, which will be published in August 2021.



Contributions use industry output per hour growth based on output GVA but calculate implied deflators and hence contributions relative to average (balanced) GVA. More information on the difference between the three approaches to GDP can be found in the [UK National Accounts - a short guide \(PDF, 137KB\)](#).

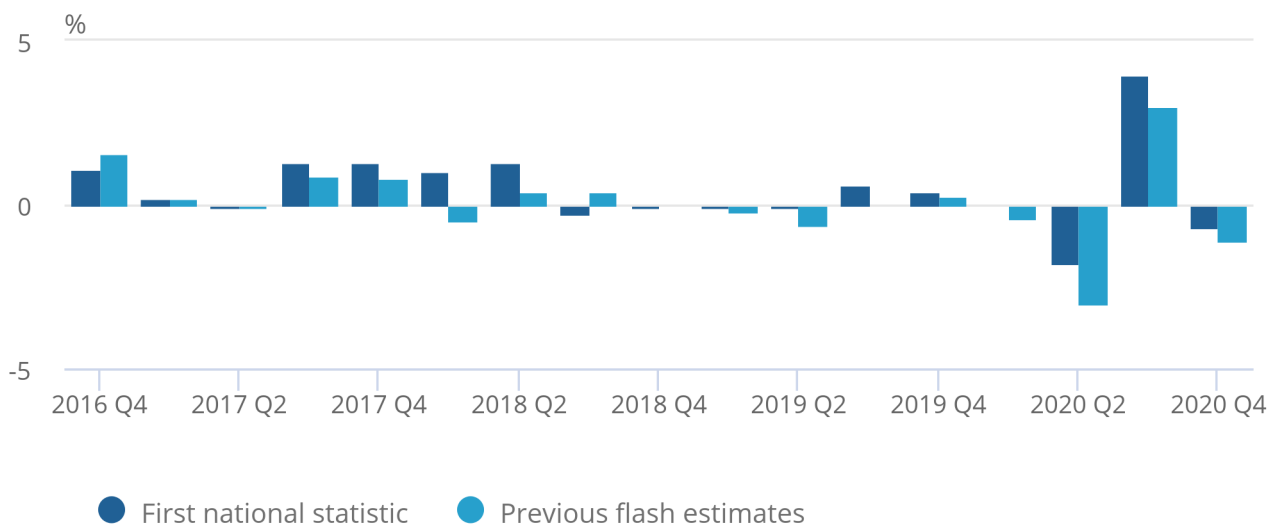
Figure 6 shows revisions to quarter-on-year growth rates when comparing preliminary whole economy flash estimates with the subsequent National Statistic measures of output per hour. In all but two instances - Quarter 1 and 3 in 2018 - our flash estimate has correctly indicated the direction of productivity growth, giving us confidence that our flash estimate provides an accurate and timely indication of productivity growth.

**Figure 6: Output per hour flash estimate revisions**

Output per hour, quarter-on-year growth, UK, Quarter 4 (Oct to Dec) 2016 to Quarter 4 (Oct to Dec) 2020

Figure 6: Output per hour flash estimate revisions

Output per hour, quarter-on-year growth, UK, Quarter 4 (Oct to Dec) 2016 to Quarter 4 (Oct to Dec) 2020



Source: Office for National Statistics – UK productivity flash estimate

We continue to evaluate our flash estimates of output per hour split by industry. Preliminary assessment indicates that the data for the previous time-period gave potentially useful early estimates of quarter-on-year output per hour growth.

## 9 . Related links

[Productivity economic commentary, UK: October to December 2020](#)

Bulletin | Released 14 April 2021

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

[GDP first quarterly estimate, UK: January to March 2020](#)

Bulletin | Released 12 May 2021

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: May 2021](#)

Bulletin | Released 18 May 2021

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