Office for National Statistics

Article

Productivity overview, UK: April to June 2022

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7 October 2022

Next release:
To be announced

Correction

27 October 2022 11:30

An error has been corrected in the 7 October release of labour productivity estimates of output per job. Self-employed jobs were excluded from the output per job calculations. Output per hour and output per worker estimates are unaffected. This results in changes to our headline measure and industry level estimates of output per job. Quarter on quarter, output per job decreased by 0.3% and not 0.8% as originally reported. Output per job relative to the 2019 average grew by 0.6% and not 0.3% as originally estimated. The output per job dataset has been updated to take onboard the missing data. The error occurred because of a system failure. We have adopted additional system checks to ensure that this does not happen in the future. We apologise for any inconvenience this may have caused.

23 November 2022 16:36

We are updating our output per hour productivity estimates published as part of the Productivity Overview, UK, April to June 2022. The updated data takes on board reweighted labour force survey data for Quarter 2 (Apr to June) 2021 to Quarter 4 (Oct to Dec) 2021 which had previously not been picked up by our systems due to a technical issue. Output per hour worked relative to the 2019 average grew by 1.7% and not 1.8% as originally estimated. There are no revisions to the output per job and output per worker datasets.

28 November 2022 12:30

The below data has been removed for 2022 Q3 as it was published in error.

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1 . Main points

Labour productivity

- Output per hour worked was 1.8% higher in Quarter 2 (Apr to June) 2022 than the average level in 2019, prior to the coronavirus (COVID-19) pandemic.
- Output per worker was 0.9% above the pre-coronavirus pandemic level but 0.3% lower relative to Quarter 1 (Jan to Mar) 2022.
- Output per job was 0.3% above the pre-coronavirus pandemic level.

Public service productivity

- Overall, public service productivity has remained mostly steady since Quarter 2 2021.
- Public service productivity is 6.5% below the pre-coronavirus pandemic level.
- Public service productivity has risen by 3.9% in Quarter 2 2022, caused by a fall, both in inputs and in output (5.8% and 2.2%, respectively).
- A reduction in Test and Trace activity within healthcare has been the largest single contributor to the fall in output.

Time series estimates of inputs, output and productivity have undergone revisions because of new National Accounts data from Blue Book 2022.

Please note that at the time of this release, we are unable to produce Blue Book 2022-consistent gross fixed capital formation (GFCF) data. These data feed into some of the more detailed (mainly industry) business investment data. These estimates are used to calculate our Volume Index of Capital Services and our multi-factor productivity data. These therefore are not available at the current time. As a result, we will publish all growth accounting datasets after the GFCF provisional estimate of business investment, which will be in November 2022.

2 . Labour productivity

Output per hour worked, our headline measure of labour productivity, was 1.8% above its pre-coronavirus (COVID-19) pandemic levels in Quarter 2 (Apr to June) 2022. Output per worker and output per job were 0.9% and 0.3%, respectively. These were above their pre-coronavirus pandemic levels.

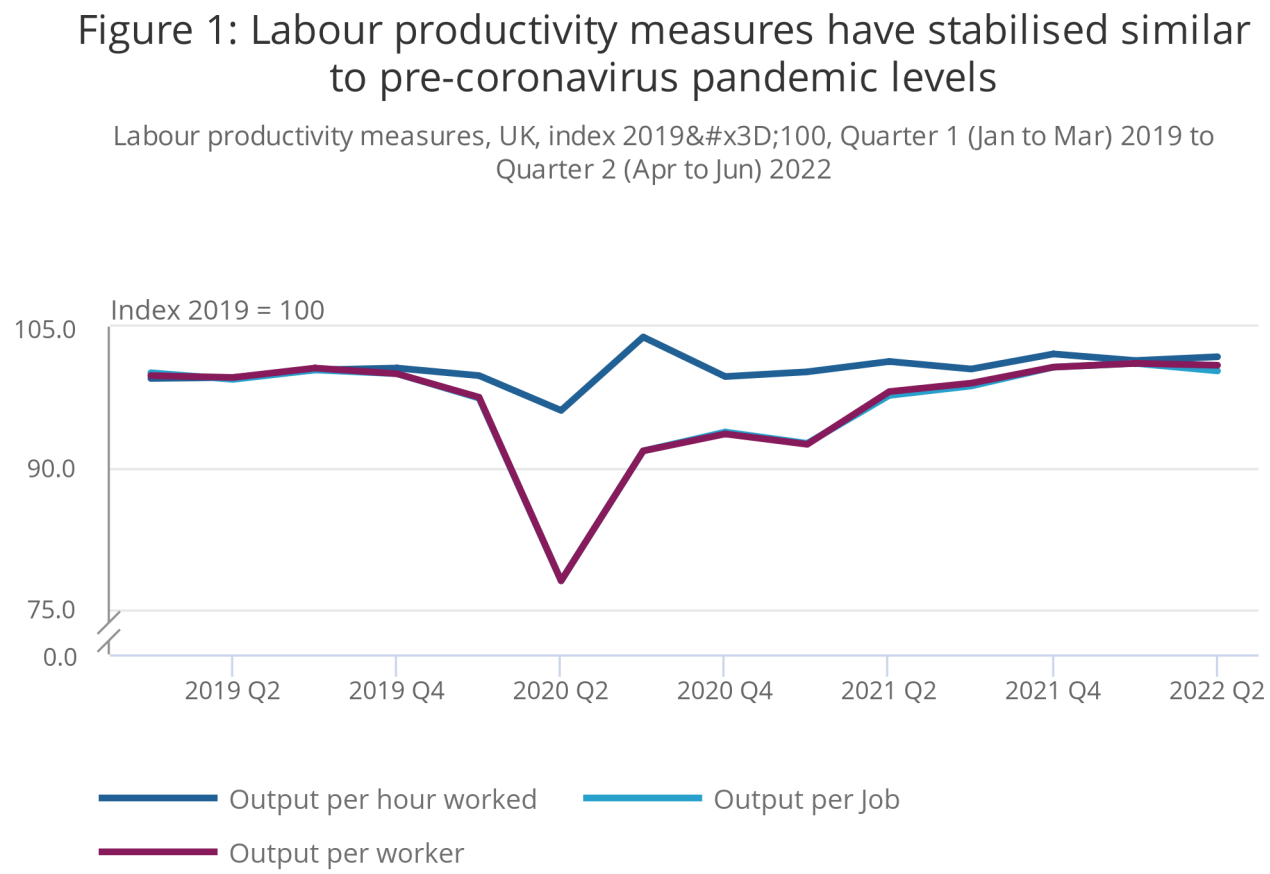
Relative to the same quarter in the previous year, Quarter 2 2021, output per hour grew by 0.4%. Over the same time period, output per worker and output per job grew by 2.8% and 2.7%, respectively. This suggests little movement in the ratio of jobs to workers through this period. This reflects the similar paths both metrics took through the coronavirus period.

Output per hour worked increased by 0.3% in Quarter 2 2022 compared with the previous quarter. Both output per worker and output per job over the same period decreased by 0.3% and 0.8%, respectively.

We have stopped production of our experimental productivity measure “Output per job excluding furloughed jobs”, as the closure of furlough schemes has reduced their effects on our productivity measures.

Figure 1: Labour productivity measures have stabilised similar to pre-coronavirus pandemic levels

Labour productivity measures, UK, index 2019=100, Quarter 1 (Jan to Mar) 2019 to Quarter 2 (Apr to Jun) 2022



Source: Office for National Statistics – Productivity overview, UK

Notes:

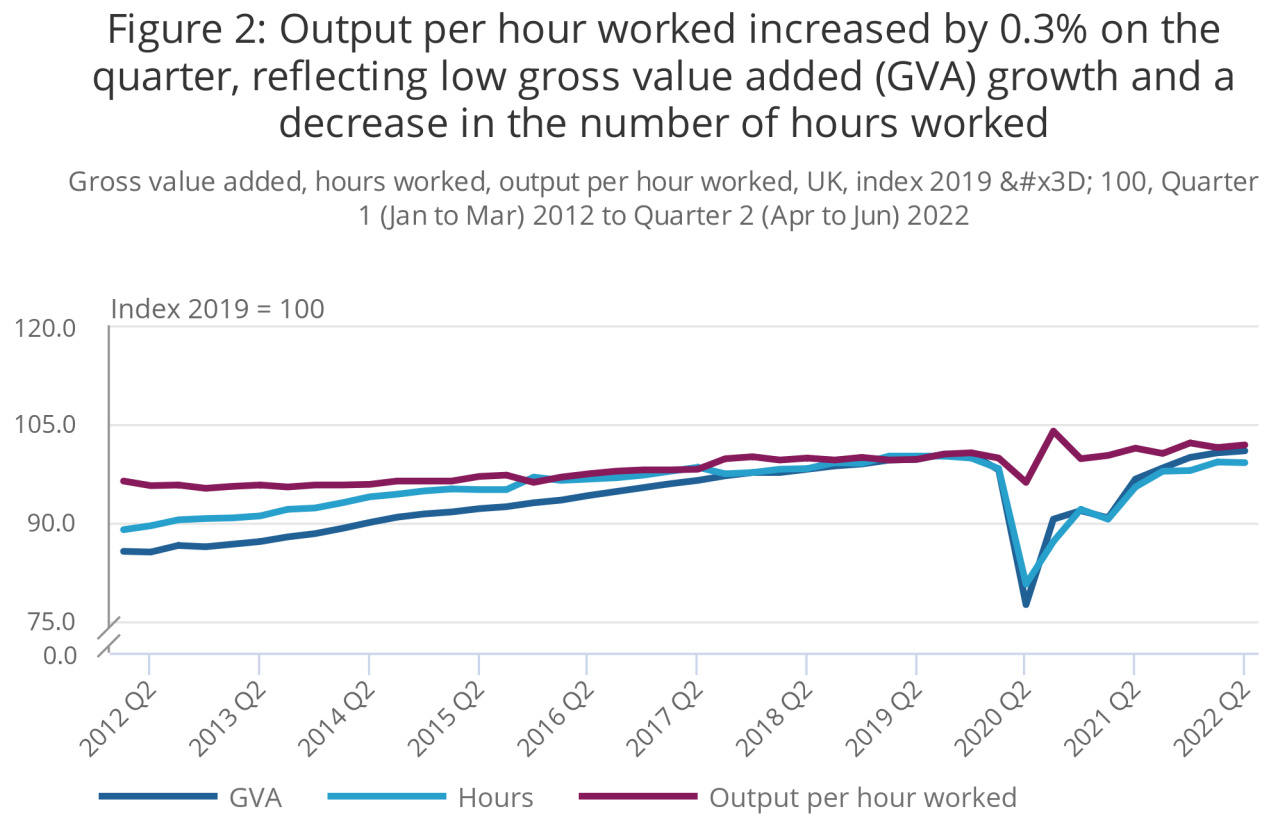
1. The employment support schemes introduced because of the pandemic resulted in divergence in our estimates of labour productivity as measured by output per worker and output per job. We adjusted our output per job measure to exclude furloughed jobs for a more informative and accurate estimate. As this is the third quarter since the end of the Coronavirus Job Retention Scheme (CJRS) and the Self Employment Income Support Scheme (SEISS), we have stopped publishing our experimental "Output per job excluding furloughed workers" measurement .

Users should note that the gross value added (GVA) time series data used to estimate our productivity measure have undergone revisions, implemented as part of the Blue Book 2022 National Accounts changes. As such, there may be differences in the labour productivity estimates reported in the UK productivity flash estimate: April to June 2022 article and our latest estimates. These differences are a result of updates to our initial estimates of gross domestic product (GDP) in Quarter 2 2022, as well as the Blue Book 2022 changes.

Figure 2 shows that the quarter-on-quarter growth in output per hour worked was relatively flat, reflecting low GVA growth and negative growth in the number of hours worked. In Quarter 2 2022, the number of hours worked decreased by 0.1%, while GVA growth was 0.2%.

Figure 2: Output per hour worked increased by 0.3% on the quarter, reflecting low gross value added (GVA) growth and a decrease in the number of hours worked

Gross value added, hours worked, output per hour worked, UK, index 2019 = 100, Quarter 1 (Jan to Mar) 2012 to Quarter 2 (Apr to Jun) 2022



Source: Office for National Statistics – Productivity overview, UK

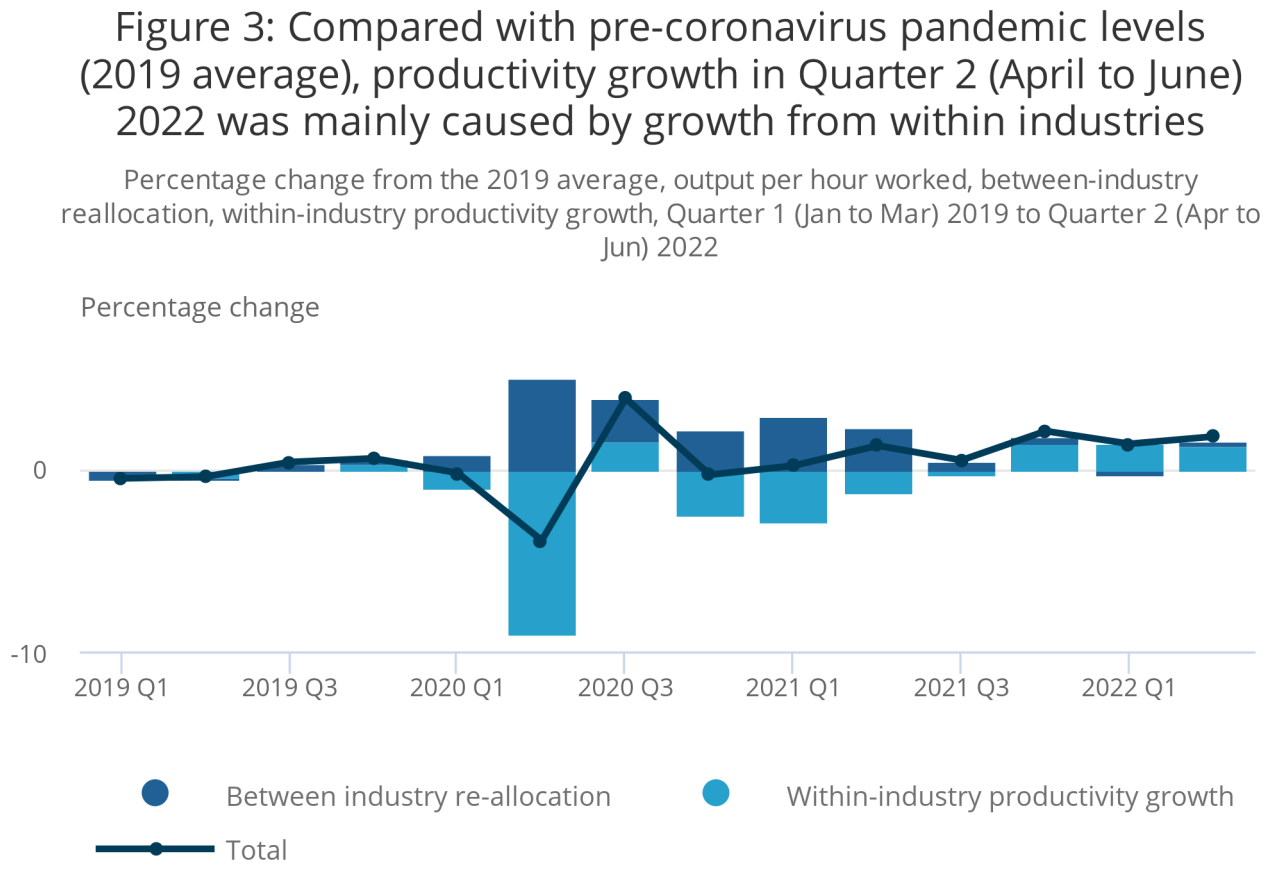
3 . Labour productivity by industry

Whole economy growth in productivity is affected by reallocation of economic activity between industries (the between industry effect), as well as the direct contributions from productivity growth within industries (the within industry effect).

Quarter 2 (Apr to June) 2022 is the third quarter where we have data following the closure of the furlough schemes. The trend within these quarters shows productivity growth has been driven by within industry effects, while there has been a fall in the contribution of between industry reallocation effects. The fall reflects the fact that during the coronavirus (COVID-19) pandemic, the most productive sectors of the economy were more likely to remain open. As lockdown restrictions eased, the contribution to productivity growth caused by the between industry effects has fallen.

Figure 3: Compared with pre-coronavirus pandemic levels (2019 average), productivity growth in Quarter 2 (April to June) 2022 was mainly caused by growth from within industries

Percentage change from the 2019 average, output per hour worked, between-industry reallocation, within-industry productivity growth, Quarter 1 (Jan to Mar) 2019 to Quarter 2 (Apr to Jun) 2022



Source: Office for National Statistics – Productivity overview, UK

Notes:

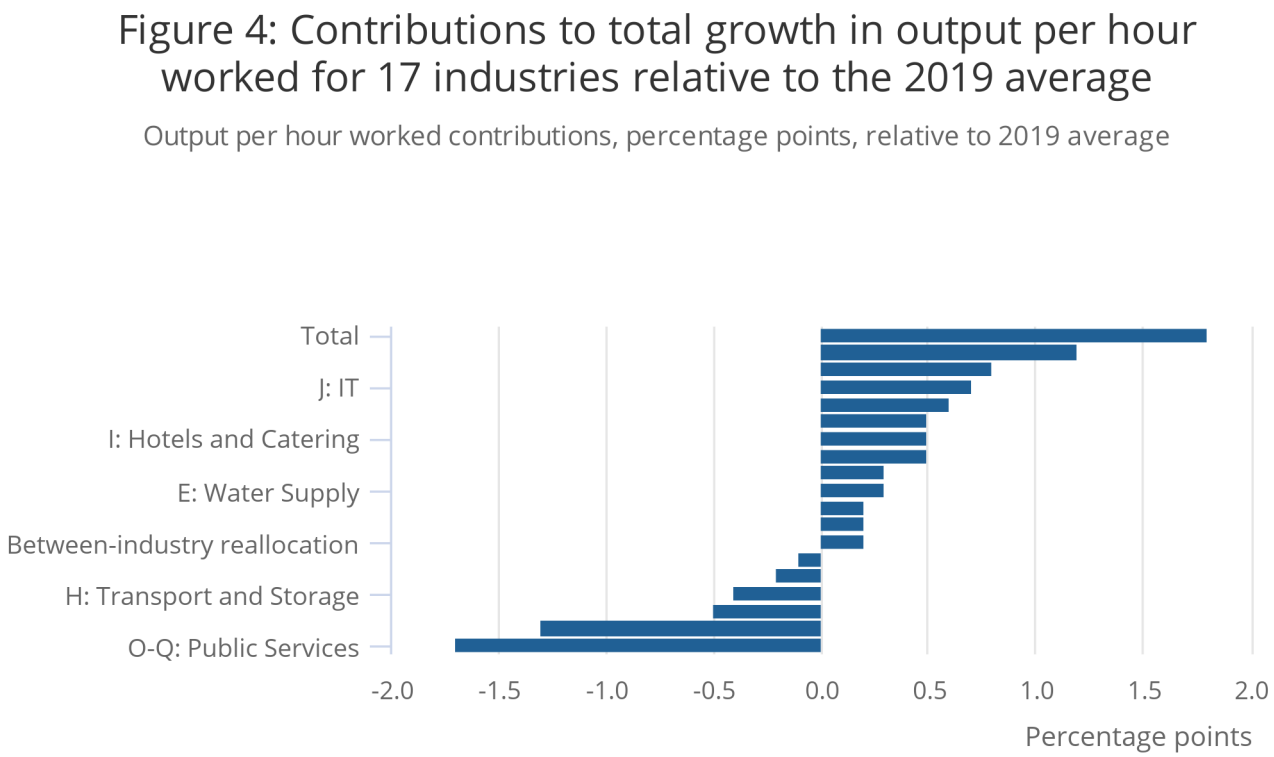
1. The between industry effect is calculated across 17 industry sections. Different results may be calculated depending on the industry granularity used in the analysis.

2. The between and within industry effects may not add up to the output per hour total. This is because of the exclusion of the National Accounts balancing value.

Figure 4 shows the contribution to total growth in output per hour worked for 17 industries relative to the 2019 average. Manufacturing, finance and insurance, construction and IT had the biggest positive industry contribution to productivity growth. By contrast, the public services and wholesale and retail industries all negatively contributed to productivity growth. The mining and quarrying, recreation and culture and agriculture industries had smaller contributions to productivity growth in Quarter 2 2022.

Figure 4: Contributions to total growth in output per hour worked for 17 industries relative to the 2019 average

Output per hour worked contributions, percentage points, relative to 2019 average



Source: Office for National Statistics – Productivity overview, UK

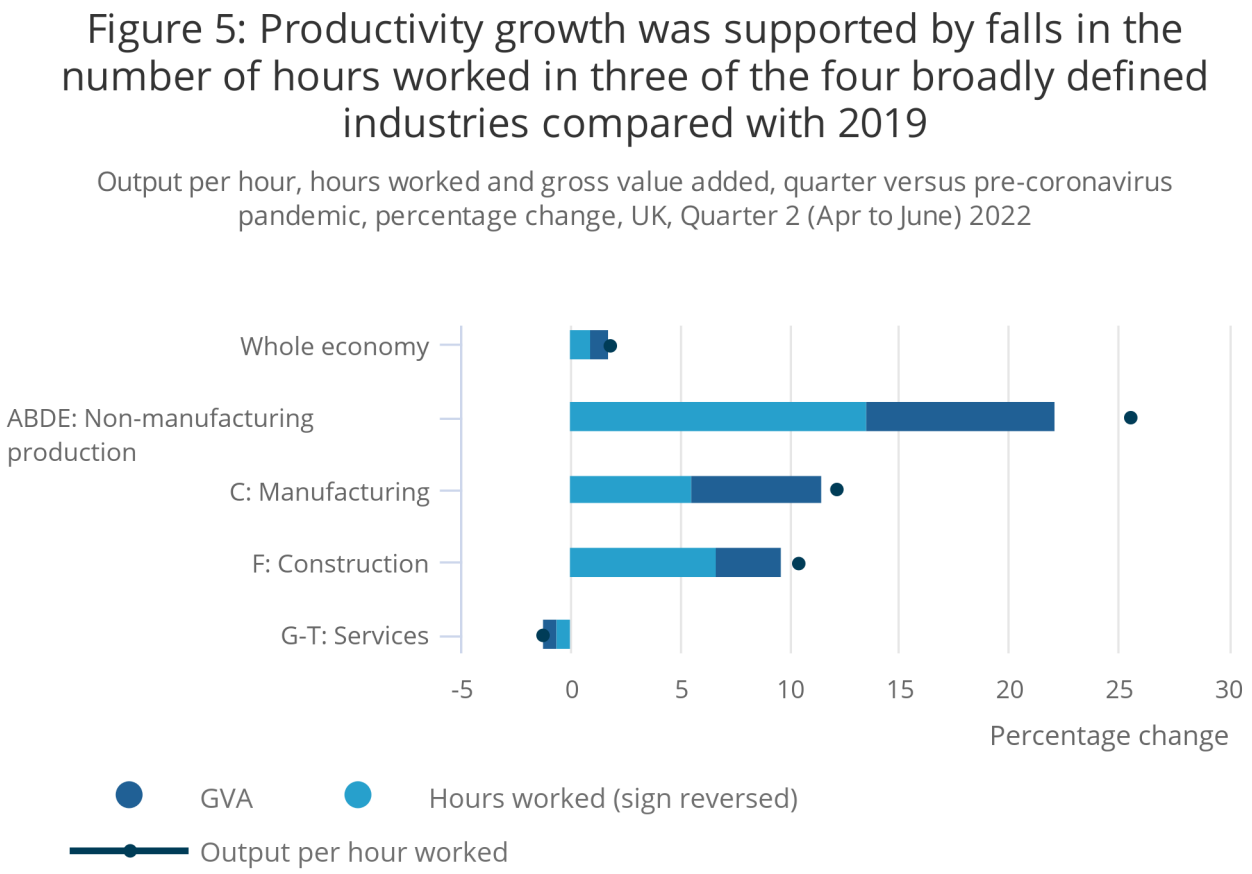
4 . Output per hour worked by industry

We split the UK economy into four broadly defined industries: construction, non-manufacturing production, manufacturing, and services. Output per hour worked in Quarter 2 (Apr to June) 2022 increased in three out of four broadly defined industries compared with the 2019 pre-coronavirus (COVID-19) pandemic level, only falling in the services industry.

In the construction and non-manufacturing production industries, the growth in productivity was caused largely by the fall in the number of hours worked. Productivity growth in the manufacturing sector benefitted from both a fall in the number of hours and growth in gross value added (GVA).

Figure 5: Productivity growth was supported by falls in the number of hours worked in three of the four broadly defined industries compared with 2019

Output per hour, hours worked and gross value added, quarter versus pre-coronavirus pandemic, percentage change, UK, Quarter 2 (Apr to June) 2022



Source: Office for National Statistics – Productivity overview, UK

Notes:

1. Non-manufacturing production refers to: Agriculture, Forestry and Fishing; Mining and Quarrying; Electricity, Gas, Steam and Air Conditioning Supply; and Water Supply, Sewerage, and Waste.

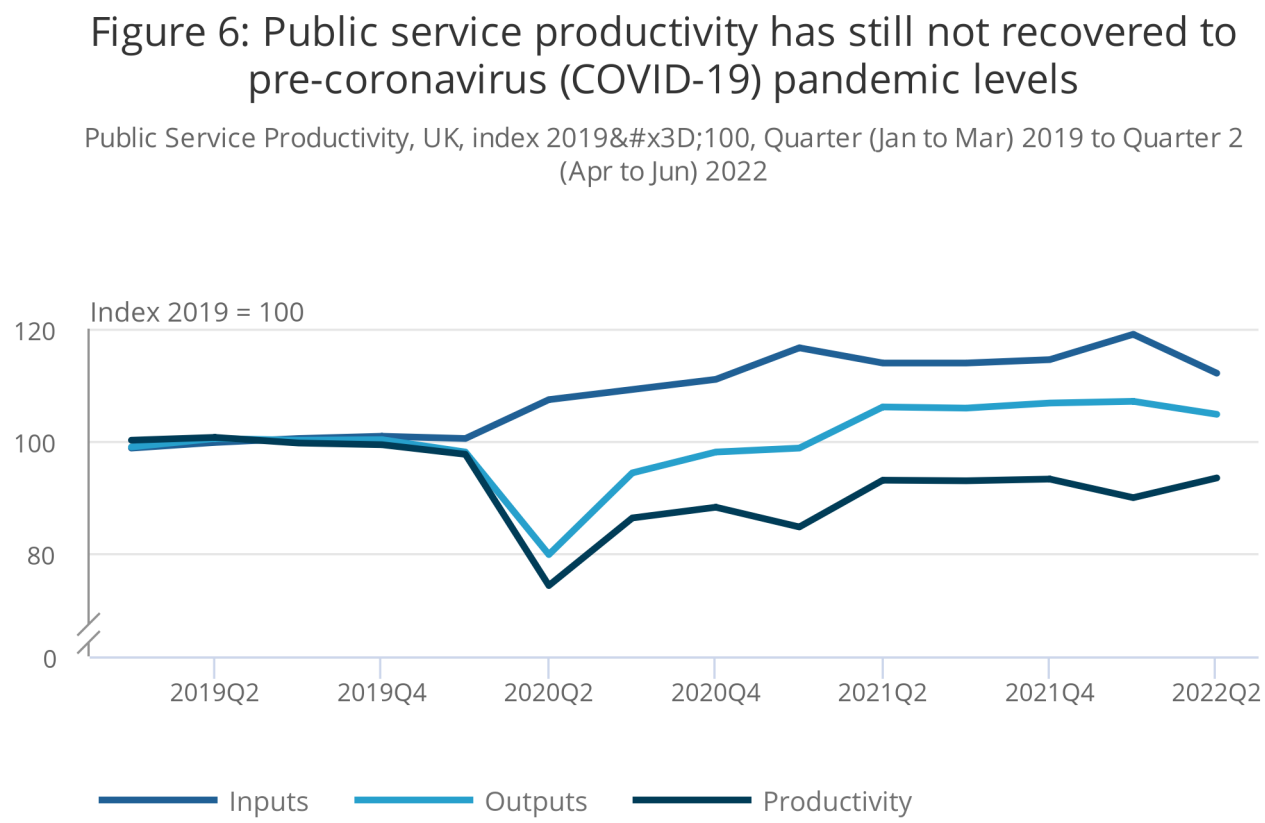
5 . Public service productivity

Overall, productivity has remained mostly steady since Quarter 2 (Apr to June) 2021, despite some productivity growth in Quarter 2 2022.

Public service productivity is 6.5% below its pre-coronavirus (COVID-19) pandemic levels. The volume of inputs and output remains higher than the 2019 average levels, caused by an increase in expenditure and activity in response to the pandemic. However, in Quarter 2 2022, public service inputs fell back to their lowest levels since Quarter 4 (Oct to Dec) 2020. Public service output also declined, albeit more slowly than inputs.

Figure 6: Public service productivity has still not recovered to pre-coronavirus (COVID-19) pandemic levels

Public Service Productivity, UK, index 2019=100, Quarter (Jan to Mar) 2019 to Quarter 2 (Apr to Jun) 2022



Source: Office for National Statistics – Productivity overview, UK

Inputs growth in Quarter 1 (Jan to Mar) 2021 and Quarter 1 2022 may be a result of some seasonality, as spending often increases at the end of a financial year. While inputs are seasonally adjusted to create a smoother time series, some seasonality remains in the series. More detail can be found in Measuring the data. As such, any quarter-on-quarter growth rates are best assessed with reference to a longer time series.

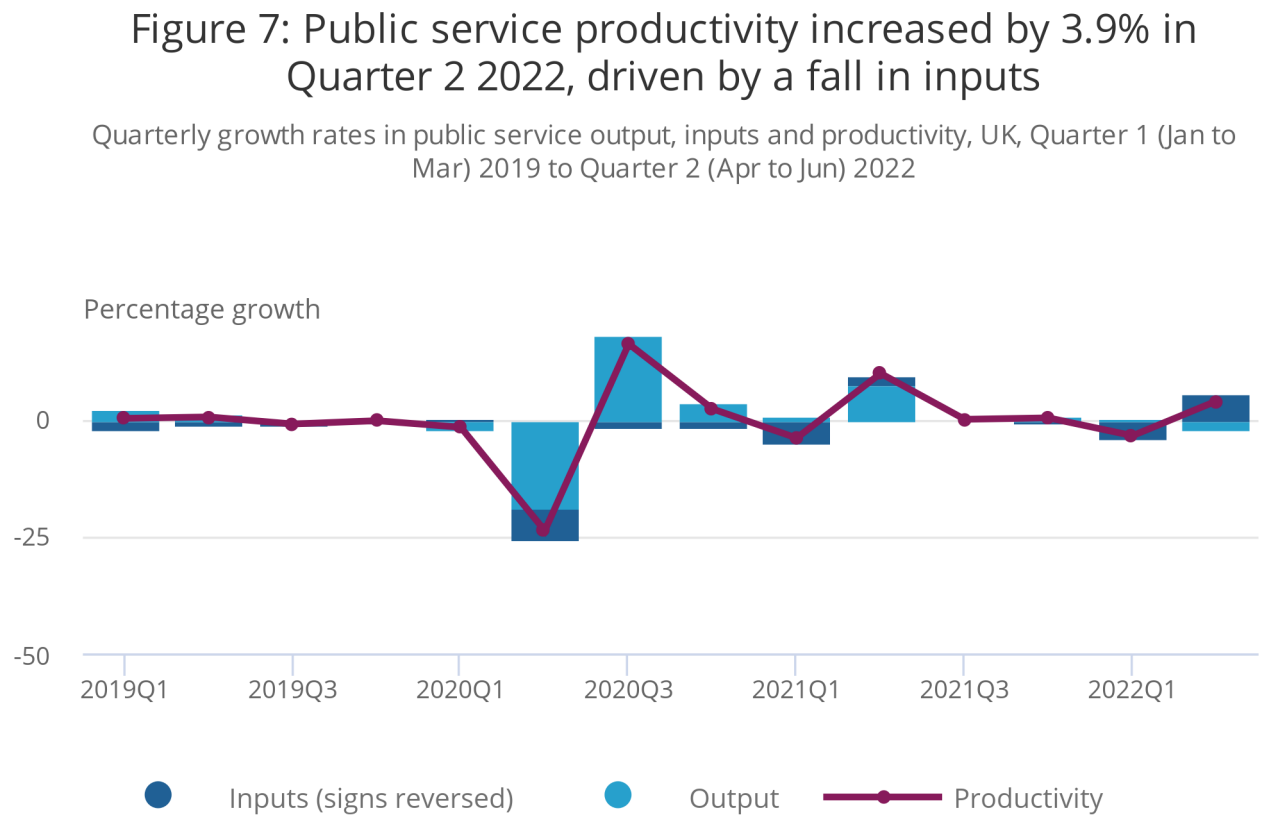
Public service productivity rose by 3.9% in Quarter 2 2022. The quarter-on-quarter rise in public service productivity was caused by a fall in public service inputs by 5.8%, which was larger than the 2.2% fall in public service output.

A reduction in coronavirus-related activities such as Test and Trace and vaccinations has contributed to the fall in output. Healthcare output excluding Test, Trace and vaccination activity was steady and has recovered to pre-pandemic levels. Education output was also fairly flat, largely reflecting the student numbers in state education and their attendance levels, rather than the impact of remote learning.

Inputs have fallen in all service areas other than local government, although some seasonal effects may apply.

Figure 7: Public service productivity increased by 3.9% in Quarter 2 2022, driven by a fall in inputs

Quarterly growth rates in public service output, inputs and productivity, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 2 (Apr to Jun) 2022

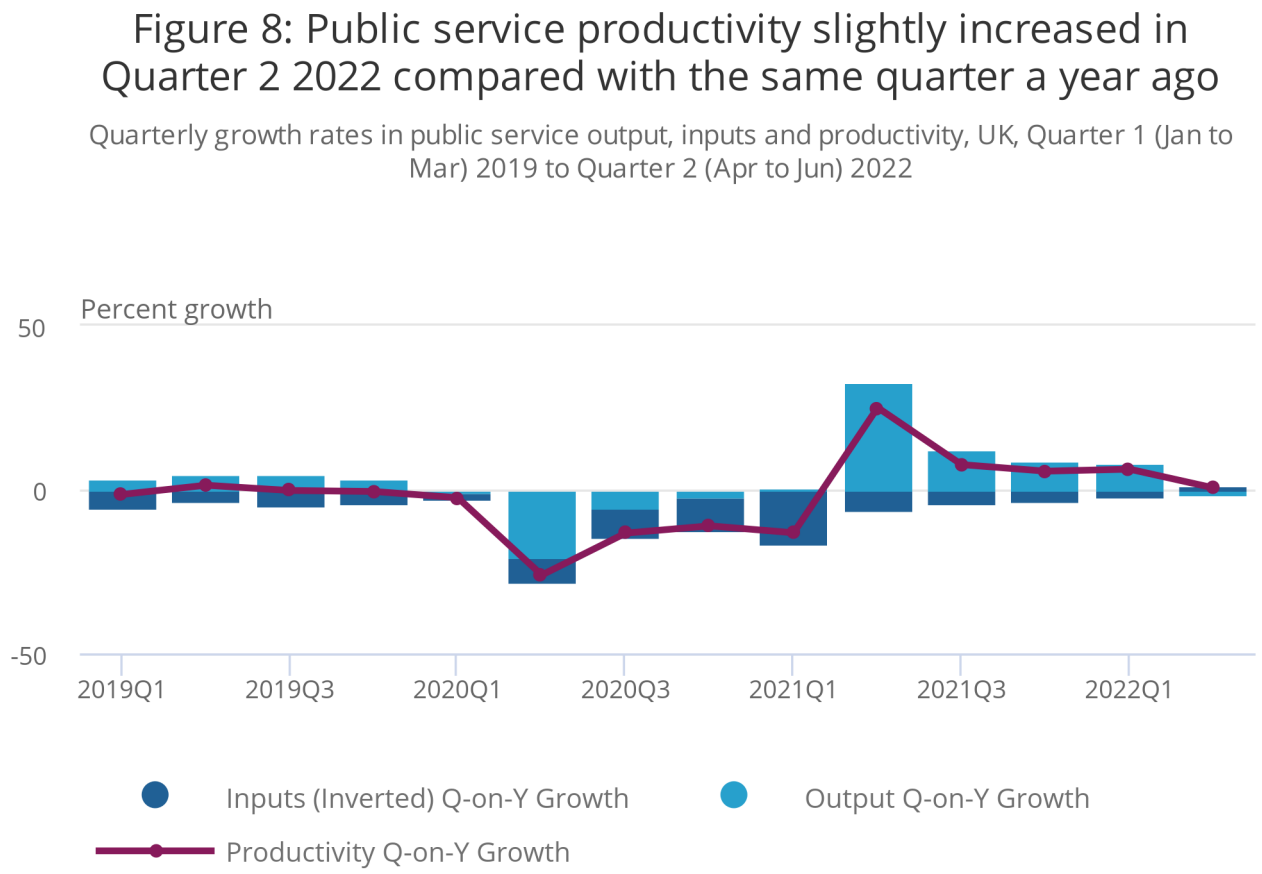


Source: Office for National Statistics – Productivity overview, UK

Public service productivity increased by 0.5% in Quarter 2 2022 compared with the same quarter in the previous year. This quarter-on-year increase was caused by a 1.6% fall in inputs, outweighing the 1.2% fall in output.

Figure 8: Public service productivity slightly increased in Quarter 2 2022 compared with the same quarter a year ago

Quarterly growth rates in public service output, inputs and productivity, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 2 (Apr to Jun) 2022

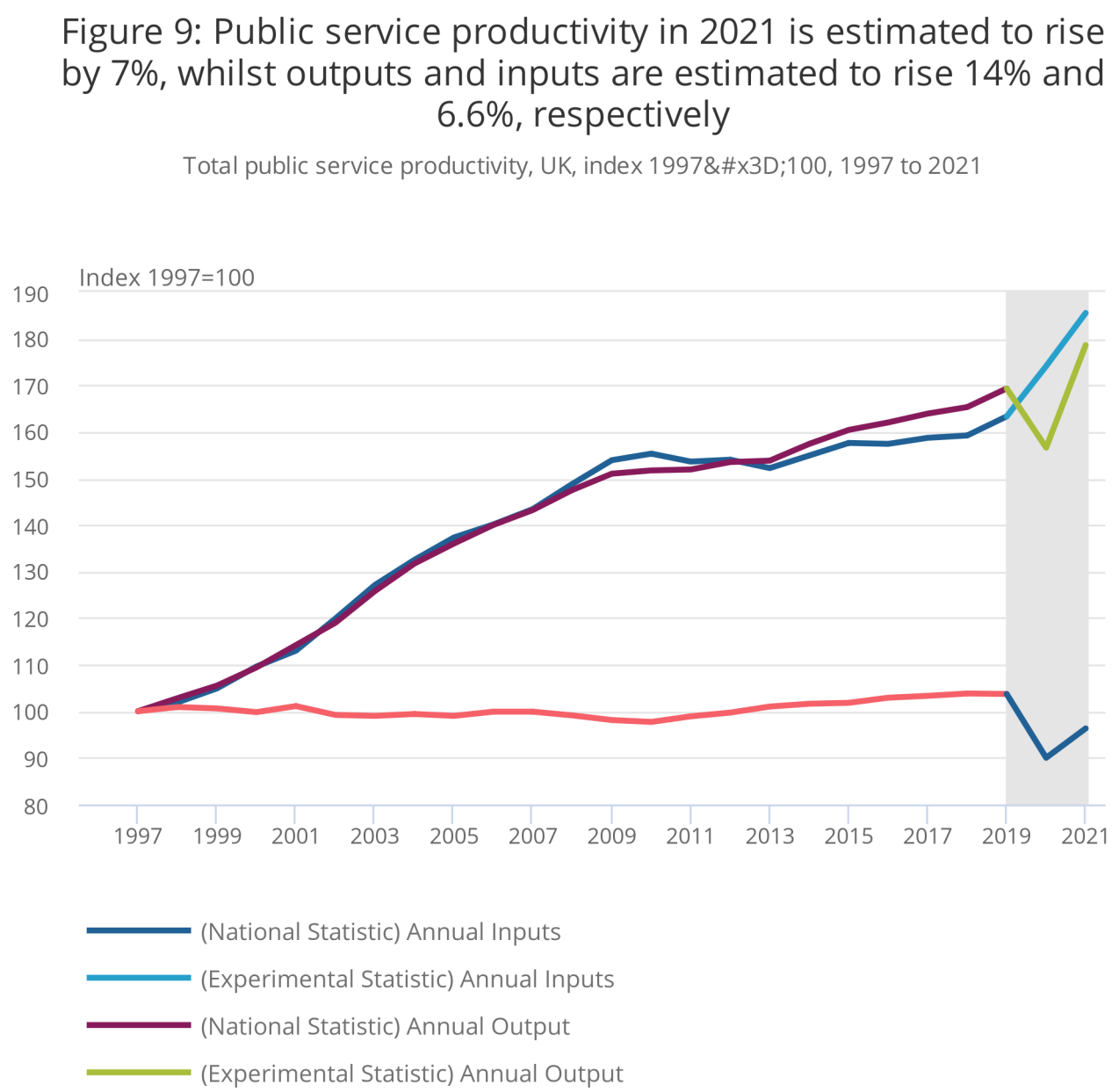


Source: Office for National Statistics – Productivity overview, UK

Placing these movements in an annual context over a longer time series, Figure 9 shows annual total public service productivity rose by 7% in 2021, following an estimated fall of 13.2% in 2020. Inputs are estimated to have risen by 6.6% both in 2020 and in 2021. Output is estimated to fall by 7.5% in 2020 and rise by 14.0% in 2021.

Figure 9: Public service productivity in 2021 is estimated to rise by 7%, whilst outputs and inputs are estimated to rise 14% and 6.6%, respectively

Total public service productivity, UK, index 1997=100, 1997 to 2021



Source: Office for National Statistics – Productivity overview, UK

Notes:

1. Estimates for 2020 and 2021 are experimental statistics.

2. Estimates from 1997 to 2019 are National Statistics.

It is important to highlight that our quarterly productivity statistics do not adjust for the quality of services delivered. Output estimates use data on changes in the quantity of various services delivered, but do not include data on changes in the relative quality of these services. Data including quality adjustment for 2020 will be published with two year lag, as many of these quality factors require data collected with a lag.

These estimates for 2020 should be treated with caution until the annual estimate for 2020 is available in early 2023.

Please note that the quarterly estimate in Quarters 1 and 2 2022 do not affect the experimental annualised productivity estimate in 2021.

6 . Data

Output per hour worked UK
Dataset | Released 7 October 2022
Estimates for gross value added (GVA), hours worked and output per hour worked by bespoke, section and division level industry, as defined by the Standard Industrial Classification (SIC). Contains annual and quarterly statistics. Contains estimates for industry quarter on quarter, year on year and quarter on year contributions to whole economy output per hour worked.

Output per job, UK
Dataset | Released 7 October 2022
Estimates for GVA, jobs and output per job worked by bespoke, section and division level industry, as defined by the Standard Industrial Classification (SIC). Contains annual and quarterly statistics. Contains estimates for industry quarter on quarter, year on year and quarter on year contributions to whole economy output per job.

Output per worker, UK
Dataset | Released 7 October 2022
Estimates for GVA, workers, and output per worker by bespoke and section level industry, as defined by the Standard Industrial Classification (SIC). Contains annual and quarterly statistics.

Public service productivity, quarterly
Dataset | Released 7 October 2022
Includes quarterly, annual and revisions tabs to see the picture for UK public service productivity and also to see how much has changed in the data.

7 . Glossary

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.

Multi-factor productivity

For any given change in output, multi-factor productivity (MFP) measures the amount that cannot be accounted for by changes in inputs of quality-adjusted labour and capital.

Capital services

Capital services refer to the flow of productive services provided by an asset that is employed in production. Capital services are the appropriate measure of capital input in production analysis.

Public service productivity

Productivity of public services is estimated by comparing growth in the total amount of output with growth in the total amount of inputs used. Growth rates of output and inputs for individual service areas are aggregated by their relative share of total government expenditure (expenditure weight) to produce estimates of total public service output, inputs and productivity.

8 . Measuring the data

Growth accounting data

As more time is needed to produce a gross fixed capital formation (GFCF) dataset consistent with Blue Book 2022, we are unable to produce data related to capital services that feed into this release. This includes:

- Volume Index of Capital Services
- multi-factor productivity estimates

We will release a full suite of growth accounting estimates follow the release of business investment data. This will be published in November 2022.

Public service productivity, quarterly

Revisions

Productivity growth in 2021 has been revised down because of the introduction of new National Accounts data from Blue Book 2022.

Public service productivity estimates include ongoing improvements in how we estimate non-market output for healthcare and non-market output for education. The revisions to the Public service productivity estimates are also linked to the implementation of a new methodology to estimate GP services and updated coronavirus (COVID-19) related activity data. This is explained in our GDP quarterly national accounts, UK: April to June 2022 bulletin.

Methodological information

It is important to note that these statistics for public service productivity include some forecasted data. Forecasting methods are used extensively within output estimation of social protection, justice, fire and courts. Healthcare and education services, by contrast, mostly use a set of high-level activity indicators. However, these are significantly less granular and comprehensive when compared with our annual public service productivity estimate (badged as a National Statistic). For example, the National Statistic draws upon detailed NHS National Cost Collection data, whereas this experimental statistic uses higher level summary data with fewer breakdowns.

The experimental estimates of public service output also only account for the volume of activity, and they do not account for the quality of output, which are included in our annual public service productivity estimate (badged as a National Statistic).

These numbers should therefore be considered a timelier first look at inputs, output, and productivity trends. These estimates can differ significantly from our annual public service productivity estimate. More accurate estimates at an annual level for 2020 will be published in early 2023.

Seasonal adjustment

The coronavirus pandemic has made it more difficult to balance keeping unusual coronavirus-related expenditure patterns within the appropriate quarters and adjusting for the genuine quarter-on-quarter seasonality. There have also been challenges to ensure data within the coronavirus pandemic are not interpreted as seasonality, which would lead to excessive revisions in the back series. While the current adjustment methods take into account the seasonality, we intend to introduce a new approach to seasonal adjustment in the future, assuming improvements can be made. As a result, these statistics will be reviewed in future publications.

9 . Strengths and limitations

Information on the strengths and limitations of the data, as well as the quality and accuracy of the data, is available in the Labour productivity Quality and Methodology Information (QMI), the Multi-factor productivity (MFP) QMI and in the Public service productivity: total, UK QMI. Further information is available in our Sources and methods for public service productivity estimates methodology article.

During the coronavirus (COVID-19) pandemic there have been additional challenges to collecting labour market data and estimating gross domestic product (GDP). As a result, the estimates are subject to increased uncertainty and there is an increased likelihood of larger revisions than usual in future releases of these measures.

There are always potential risks to data quality. These include: non-representative survey samples, respondent error, and other data compilation issues. We work hard to mitigate these risks to ensure the data quality remains high.

Some data in our publication have received the National Statistic badge, which demonstrates compliance with the Code of Practice for Statistics, as assessed by the Office for Statistics Regulation. Other data have an experimental badge, which denotes that we are still developing these data to create the best output possible. All data go through rigorous quality assurance to provide the best estimates available.

10 . Related links

GDP quarterly national accounts, UK: April to June 2022
Bulletin | Released 30 September 2022
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.

Labour market overview, UK: September 2022
Bulletin | Released 13 September 2022
Estimates of employment, unemployment, economic inactivity, and other employment-related statistics for the UK.

Public service productivity: total, UK, 2019
Article | Released 22 February 2022
Updated measures of output, inputs, and productivity for public services in the UK between 1997 and 2019. Includes service area breakdown, as well as impact of quality adjustment and latest revisions.

Sources and methods for public service productivity estimates
Article | Released 11 May 2022
Sources and methods information for the Public service productivity: total, UK publication, detailing the main concepts, output and inputs measures by service area.

UK productivity flash estimate: April to June 2022
Article | Released 16 August 2022
Flash estimate of labour productivity for Quarter 2 (April to June) 2022 based on latest data from GDP first quarterly estimate and labour market statistics.

Unit labour costs and labour income, UK: 2022
Bulletin | Released 13 May 2022
Labour share of income, unit labour costs (ULCs), unit wage costs (UWCs) and average labour compensation per hour worked (ALCH), broken down by industry.

11 . Cite this statistical bulletin

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