

Statistical bulletin

Public service productivity, quarterly, UK: July to September 2024

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.

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1 . Main points

- We are publishing quarterly estimates of healthcare inputs, output, and productivity for the first time, alongside the estimates of total public service productivity, inputs, and output; healthcare is the largest individual service area by share of expenditure.
- Total public service productivity in the UK was estimated to be 1.4% lower in Quarter 3 (July to Sept) 2024, compared with Quarter 3 2023.
- Healthcare productivity was estimated to be 2.4% lower in Quarter 3 2024, compared with Quarter 3 2023.
- The decreases were caused by a larger growth in inputs than the growth in output for both total productivity and healthcare productivity.
- Total public service productivity grew by an estimated 0.2% in Quarter 3 2024, compared with Quarter 2 (Apr to June) 2024; this follows a fall of 0.8% in Quarter 2 2024.
- Healthcare productivity grew by an estimated 0.2% in Quarter 3 2024, compared with Quarter 2 2024; this follows a fall of 0.9% in Quarter 2 2024.
- Total public service productivity in Quarter 3 2024 is estimated to be 8.4% below its pre-coronavirus (COVID-19) pandemic peak in Quarter 4 (Oct to Dec) 2019; healthcare productivity is estimated to be 18.5% below its pre-pandemic peak in Quarter 4 2019.
- Annualised quarterly estimates suggest that total public service productivity fell by 0.6% between 2022 and 2023.

These are official statistics in development. We advise caution when comparing the latest estimates with those published before the coronavirus (COVID-19) pandemic, as the structure of inputs and outputs changed in response to the pandemic. The method is also under development, which means the estimates are subject to revision as more up-to-date data become available. Read more in [Section 10: Data sources and quality](#).

2 . About these estimates

This bulletin presents official statistics in development for total public service productivity, inputs, and output. It also includes quarterly statistics on healthcare productivity, inputs, and output for the first time.

Healthcare is the first service area to be included in our release. This is because it is the largest public service area by share of expenditure and therefore, is often the main reason for overall public service productivity movements. We are working to enhance productivity estimates at the service-area level to enable future releases, as part of our ongoing [Public Service Productivity Review](#).

Our quarterly estimates provide a short-term, timely indicator of [annual total public service productivity](#), which are [accredited official statistics](#). These statistics take account of quality adjustment, but the data used to generate these quality adjustments are produced with a two-year lag. As such, we hold the quality adjustment of the quarterly estimates in this release at the level in our latest annual accredited official statistics. We take no further account of change in quality in periods beyond the latest statistics published in 2021. Methodological differences between the annual and quarterly estimates, and a description of the quarterly data, can be found in our [Sources and methods for public service productivity estimates methodology](#).

We have been working to improve how public service productivity is measured since beginning the Public Services Productivity Review. The first set of improvements we have made are described in our [Improved methods for total public service productivity: total, UK, 2021 methodology](#). We will publish additional methodological improvements when we publish our annual total public service productivity statistics for 2022 on 27 March 2025. More information is available in our [How we are transforming our understanding of public services productivity blog post](#).

Comparing the latest estimates with pre-coronavirus (COVID-19) pandemic years should be done with caution, as described in our previous [Public service productivity, quarterly, UK bulletins](#). This is because the structure of inputs and output changed in response to the pandemic. Quarterly estimates should also be interpreted with caution because of the volatile nature of quarterly inputs estimation.

Users of these statistics should consider that all our data are seasonally adjusted. The seasonal pattern has changed over the last three quarters because of the impact of the pandemic. We have adopted a new method for this reason, which is supported by experts on seasonal adjustment. For more information, see [Section 10: Data sources and quality](#).

These estimates are not a measure of the productivity of an individual worker within the public sector. Instead, they reflect the volume of services delivered to end users, relative to the volume of total inputs required to deliver these services. The measure is dominated by healthcare and education services because of their relative expenditure share.

Unless stated otherwise, all growth rates reported in this article are indexed to the base year of 1997.

Healthcare productivity estimates are presented for the first time in this bulletin. Given their official statistics in development status and the challenges of post-pandemic measurement, we welcome feedback and comments from users to psp.review@ons.gov.uk.

3 . Quarter-on-previous-year productivity estimates

We advise looking at changes over a longer period, because changes in productivity represent long-term structural trends. This helps to smooth any short-term fluctuations and gives a better indication of trends than comparisons over a shorter period.

Quarter-on-previous-year total public service productivity estimates

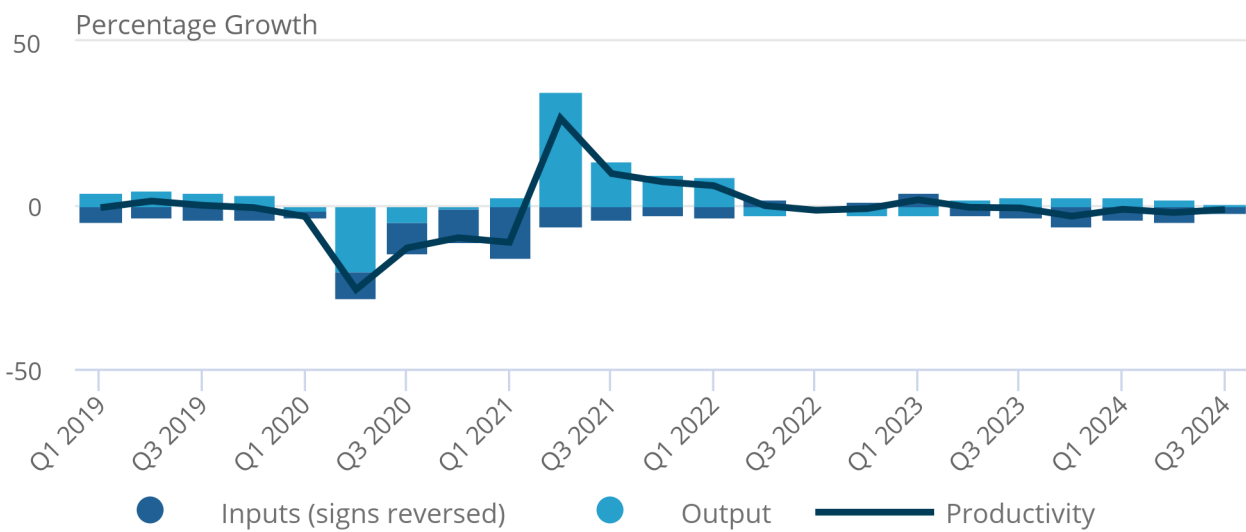
Total public service productivity was estimated to be 1.4% lower in Quarter 3 (July to Sept) 2024, compared with the same quarter in 2023. Over this period, inputs and output increased by 2.3% and 0.9%, respectively.

Figure 1: Public service productivity fell by 1.4% in July to September 2024, compared with the same quarter a year ago

Annual quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024

Figure 1: Public service productivity fell by 1.4% in July to September 2024, compared with the same quarter a year ago

Annual quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quarterly estimates of productivity are calculated using seasonally adjusted inputs and seasonally adjusted output.
2. This chart inverts the growth rates of inputs, as positive inputs growth contributes negatively to productivity.
3. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

Quarter-on-previous-year healthcare productivity estimates

Healthcare accounted for approximately 39% of the total public expenditure in Quarter 3 2024. It includes several activities, including elective and non-elective services, general practitioners (GPs), prescription drugs, outpatient, mental health, community health, and accident and emergency.

Healthcare productivity is calculated in the same way as total public service productivity: by dividing output by the respective inputs used to produce it. The estimates of each component of inputs (labour, intermediate consumption, capital, and social transfers in kind), as well as output, are based on our national accounts data. For more information on this, and on the specific components included in healthcare inputs and output, please see [Section 10: Data sources and quality](#).

Figure 2 shows estimates of inputs, output, and productivity as growth rates between consecutive years.

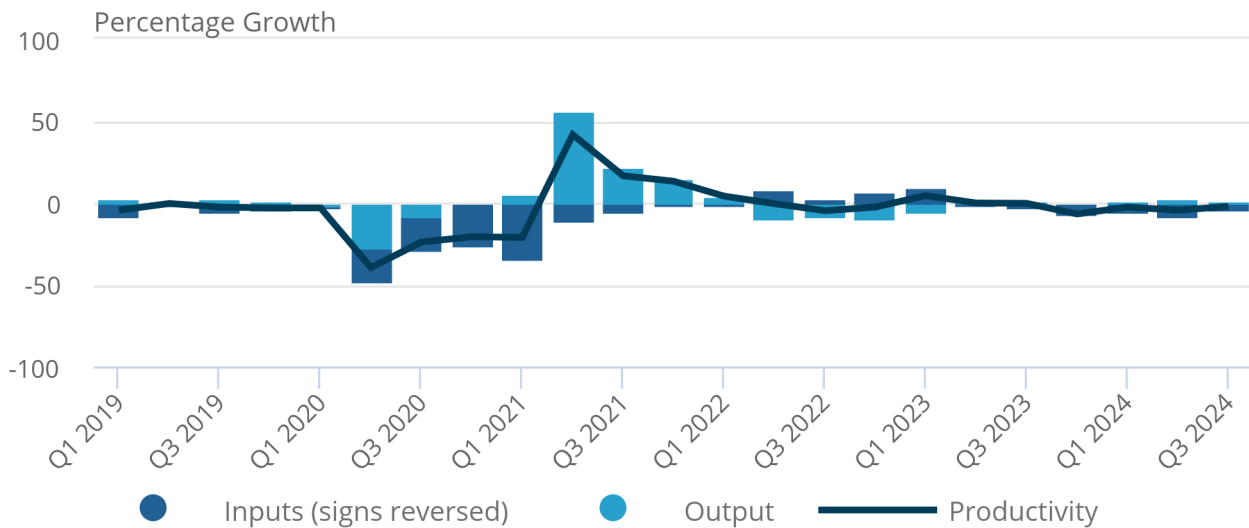
Healthcare productivity fell by an estimated 2.4% in Quarter 3 2024, compared with the same quarter in 2023. This reflects the negative trend of total public service productivity. Over this period, inputs and output increased by 3.9% and 1.5%, respectively.

Figure 2: Health productivity fell by 2.4% in July to September 2024, compared with the same quarter a year ago

Annual quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024

Figure 2: Health productivity fell by 2.4% in July to September 2024, compared with the same quarter a year ago

Annual quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quarterly estimates of productivity are calculated using seasonally adjusted inputs and seasonally adjusted output.
2. This chart inverts the growth rates of inputs, as positive inputs growth contributes negatively to productivity.
3. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

4 . Quarter-on-quarter productivity estimates

Quarter-on-quarter total public service productivity estimates

Total public service productivity is estimated to have increased by 0.2% in Quarter 3 (July to Sept) 2024, compared with the previous quarter. Both inputs and output decreased, by 0.3% and 0.1% respectively.

Inputs decreased for all service areas except social protection, justice and fire, and central government. Output increased for all service areas except healthcare, military defence, and local government.

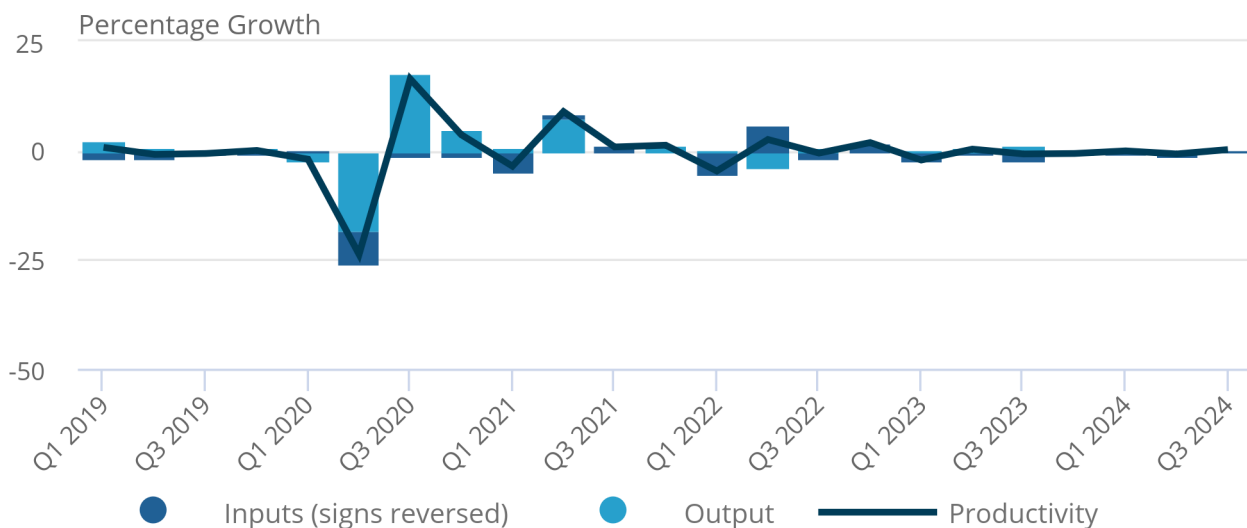
Military defence, central government, and local government service areas all adopt an "output-equals-inputs" convention (for more information, see our [Sources and methods for public service productivity estimates methodology](#)). This convention assumes that the volume of inputs used to create the volume of output is equal when input cannot be directly measured. So, estimated growth in productivity is constant at zero by assumption.

Figure 3: Public service productivity increased by 0.2% in July to September 2024, compared with April to June 2024

Quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024

Figure 3: Public service productivity increased by 0.2% in July to September 2024, compared with April to June 2024

Quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quarterly estimates of productivity are calculated using seasonally adjusted inputs and seasonally adjusted output.
2. This chart inverts the growth rates of inputs, as positive inputs growth contributes negatively to productivity.
3. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

Quarter-on-quarter healthcare productivity estimates

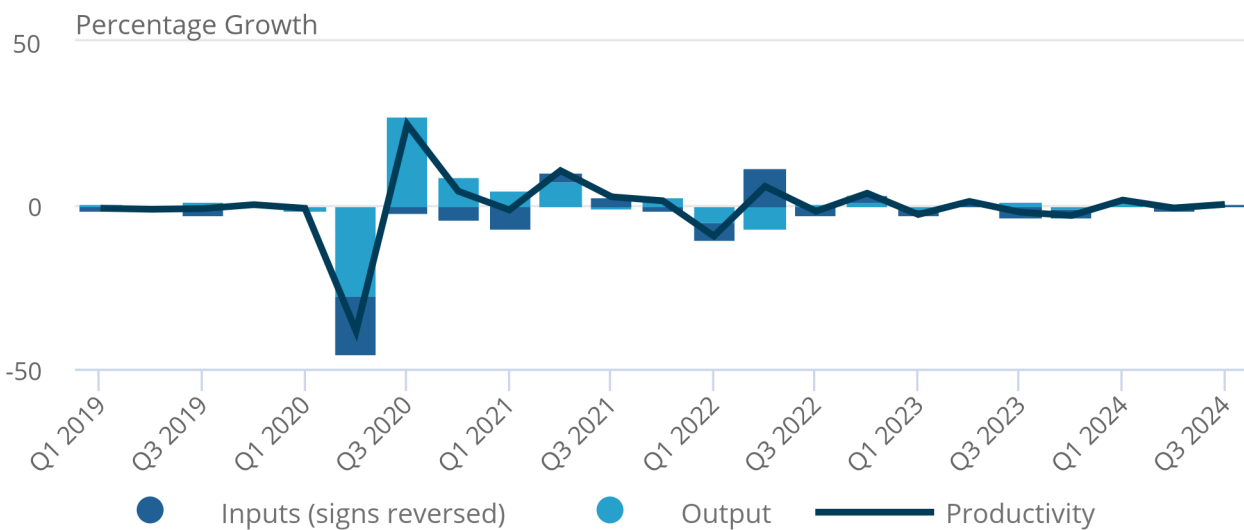
Healthcare productivity was estimated to have increased by 0.2% in Quarter 3 2024, compared with the previous quarter. Inputs fell by 0.5% for the first time since Quarter 2 (Apr to June) 2023, while output fell by 0.3%.

Figure 4: Health productivity increased by 0.2% in July to September 2024, compared with April to June 2024

Quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024

Figure 4: Health productivity increased by 0.2% in July to September 2024, compared with April to June 2024

Quarterly growth rates in public service productivity, inputs, and output, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 3 (July to Sept) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quarterly estimates of productivity are calculated using seasonally adjusted inputs and seasonally adjusted output.
2. This chart inverts the growth rates of inputs, as positive inputs growth contributes negatively to productivity.
3. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

5 . Post-2019 estimates

The coronavirus (COVID-19) pandemic had a substantial impact on public services. Inputs rose in 2020, reflecting the extra resources provided to public services to deal with the pandemic. Conversely, output fell in 2020 as many services were delivered in a different way than in 2019, with additional costs and mandatory restrictions present for certain services.

Post-2019 total public service productivity estimates

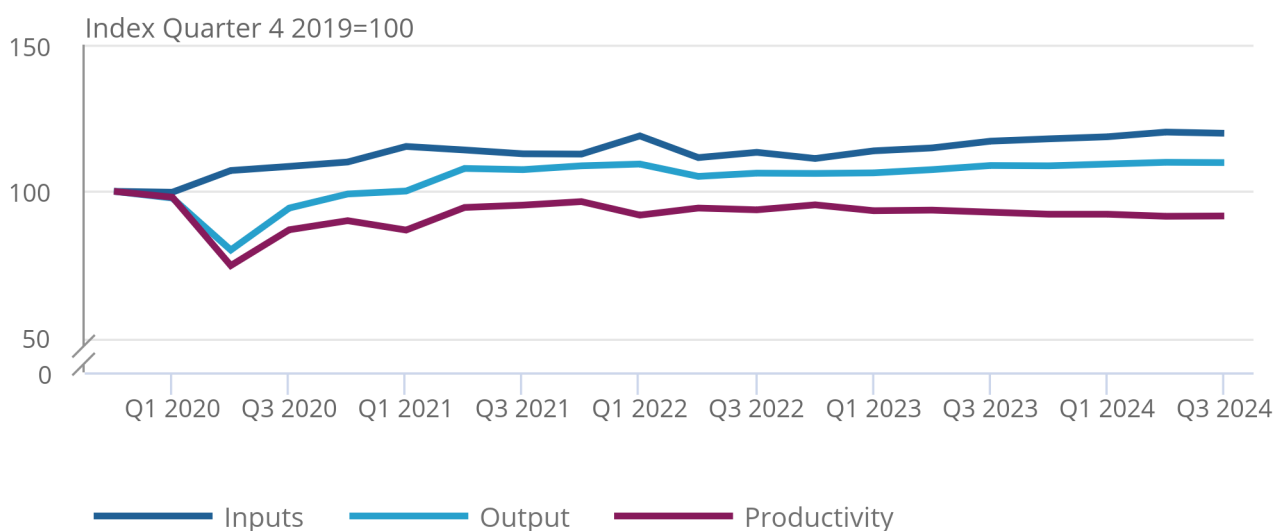
The quarterly estimates show a decline in productivity of 25.3% from Quarter 4 (Oct to Dec) 2019 to Quarter 2 (Apr to June) 2020, but a recovery of 22.7% from Quarter 2 2020 to Quarter 3 (July to Sept) 2024. Productivity was 8.4% lower in Quarter 3 2024 than in Quarter 4 2019. This reflects changes in the severity of the cases being addressed by public services, as well as the implementation of delivery of these services.

Figure 5: Public service productivity in July to September 2024 is 8.4% lower than it was in October to December 2019

Index of public service productivity, inputs, and output, UK, Quarter 4 (Oct to Dec) 2019 to Quarter 3 (July to Sept) 2024

Figure 5: Public service productivity in July to September 2024 is 8.4% lower than it was in October to December 2019

Index of public service productivity, inputs, and output, UK, Quarter 4 (Oct to Dec) 2019 to Quarter 3 (July to Sept) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quarterly estimates of productivity are calculated using seasonally adjusted inputs and seasonally adjusted output.
2. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

Post-2019 healthcare productivity estimates

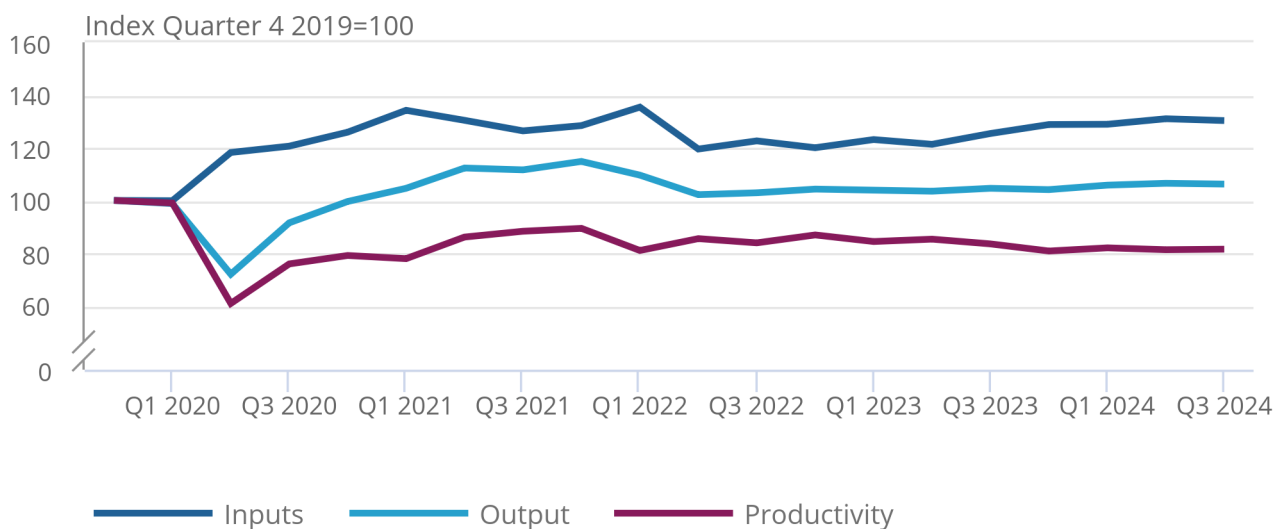
The quarterly healthcare estimates show a decline in productivity of 39.1% from Quarter 4 2019 to Quarter 2 2020, but a recovery of 33.8% from Quarter 2 2020 to Quarter 3 2024. Productivity was 18.5% lower in Quarter 3 2024 than in Quarter 4 2019.

Figure 6: Health productivity in July to September 2024 is 18.5% lower than it was in October to December 2019

Index of public service productivity, inputs, and output, UK, Quarter 4 (Oct to Dec) 2019 to Quarter 3 (July to Sept) 2024

Figure 6: Health productivity in July to September 2024 is 18.5% lower than it was in October to December 2019

Index of public service productivity, inputs, and output, UK, Quarter 4 (Oct to Dec) 2019 to Quarter 3 (July to Sept) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quarterly estimates of productivity are calculated using seasonally adjusted inputs and seasonally adjusted output.
2. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

6 . Annualised estimates

We also publish the [annual accredited official statistics of total public service productivity](#). They are produced with a two-year lag to give time for data to become available. This quarterly bulletin focuses on the official statistics in development for total and healthcare public service productivity, inputs, and output, measured on a quarterly basis.

To provide users with timelier estimates of annual public service productivity, we use a quarterly annualised growth rate (QAGR) approach to produce "nowcasted" estimates for 2022 and 2023. Annualised inputs and output estimates are derived by averaging the non-seasonally adjusted index values across four quarters of a year. Productivity estimates are calculated by dividing the annualised output estimates by the annualised input estimates. The annual growth rates in these annualised estimates are applied to the 2021 accredited official statistics, to provide more timely annual estimates for 2022 and 2023. The same method has been revised and used in our [Developing nowcast methodologies for public service productivity, UK article](#).

We advise users that these estimates are official statistics in development and to note the confidence interval around them. These estimates should be treated with caution until our 2022 and 2023 annual accredited estimates become available.

Annualised estimates differ from our [total public service productivity accredited official statistics](#). This is because they are based on different data sources and do not incorporate quality adjustment. More information can be found in [Section 10: Data sources and quality](#). The QAGR approach implies that the growth in our accredited official statistics series will follow the same trend as our official statistics in development.

Annualised total public service productivity estimates

Figure 7 places productivity, inputs, and output in an annual context over a longer period. It combines our accredited annual estimates from 1997 to 2021 with official statistics in development for 2022 and 2023, derived using the QAGR approach. Confidence intervals (CI) are included in Table 1 for the first time, to provide context about the uncertainty attached to these growth estimates.

These estimates suggest that annual total public service productivity increased by 1.1% in 2022 (95% CI, negative 1.0%, positive 3.1%), before decreasing by 0.6% in 2023 (95% CI, negative 3.5%, positive 2.2%). Given that 95% CI for total public service productivity in 2022 and 2023 include zero, we are unable to predict with confidence whether there was growth or contraction in 2022 and 2023. Both inputs and outputs increased in 2023, with inputs estimated to have grown at a faster rate than outputs.

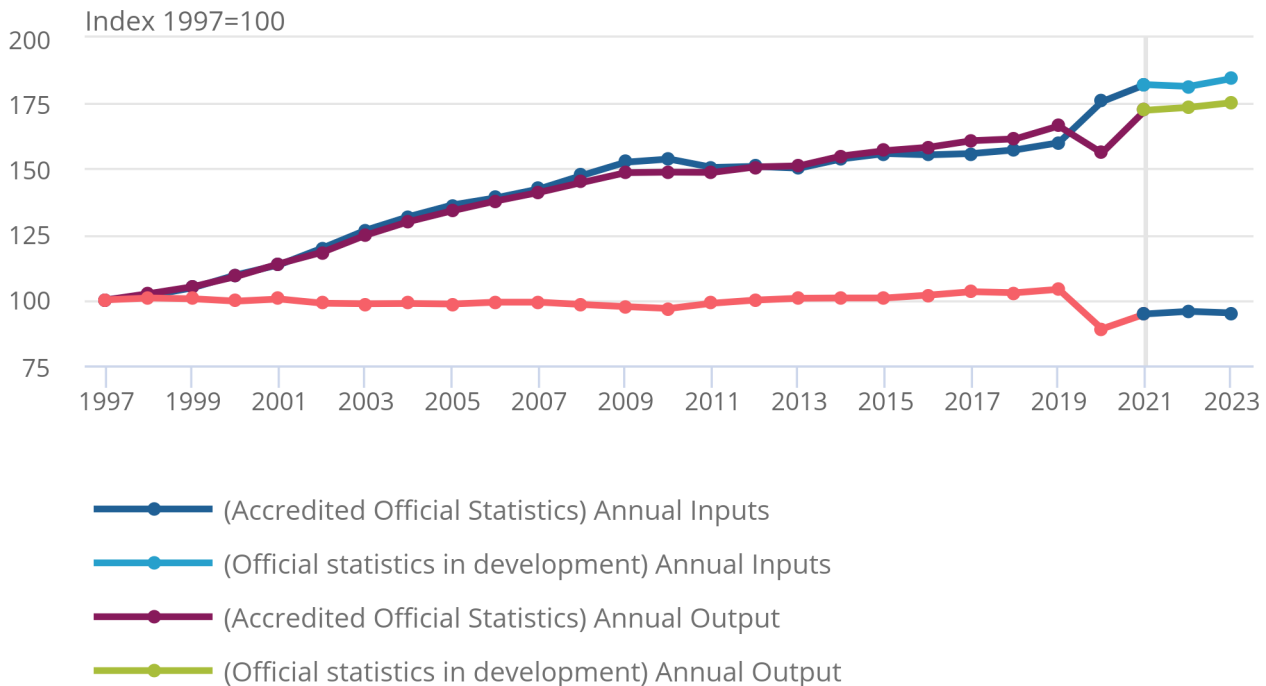
Figure 7: Public service productivity is estimated to have fallen by 0.6% in 2023

Total public service productivity, inputs, and output, UK, 1997 to 2023

Figure 7: Public service productivity is estimated to have fallen by 0.6% in 2023

Accredited official statistics

Total public service productivity, inputs, and output, UK, 1997 to 2023



Source: Public service productivity from the Office for National Statistics

Notes:

1. Estimates for 2022 and 2023 are official statistics in development and are annualised quarterly estimates.
2. Estimates from 1997 to 2021 are annual accredited official statistics.

Table 1: Nowcast estimates for 2022 and 2023 total public service productivity, inputs and output growth rates, UK

95% Confidence Interval

	Nowcast estimate for	Central estimate	Lower	Upper
Productivity	2022	1.1%	-1.0%	3.1%
	2023	-0.6%	-3.5%	2.2%
Inputs	2022	-0.4%	-2.5%	1.7%
	2023	1.7%	-0.5%	3.8%
Output	2022	0.7%	-1.1%	2.4%
	2023	1.0%	-0.9%	2.9%

Source: Public service productivity from the Office for National Statistics

Annual healthcare productivity estimates

Figure 8 presents healthcare productivity, inputs, and output in an annual context. It combines our accredited annual healthcare estimates from 1997 to 2021 with nowcast healthcare estimates for 2022 and 2023, derived using the QAGR approach. Please note the CI associated with the nowcast estimates provided in Table 2.

Healthcare productivity decreased by 0.4% in 2022 (95% CI, negative 5.3%, positive 4.5%) and by 0.6% in 2023 (95% CI, negative 6.2%, positive 5.0%). Both inputs and output decreased in 2022 and 2023, with output estimated to have fallen at a faster rate than inputs. CI for healthcare inputs and output are shown alongside those for productivity in Table 2.

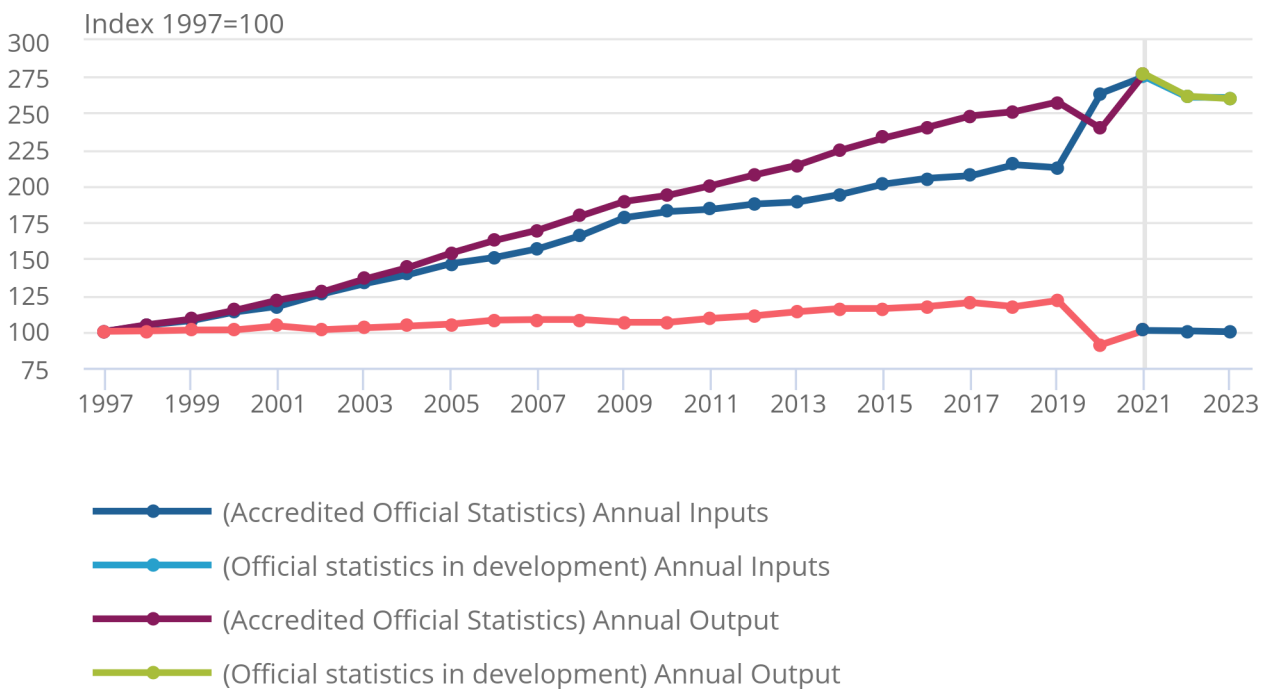
Figure 8: Health productivity is estimated to have fallen by 0.6% in 2023

Total public service productivity, inputs, and output, UK, 1997 to 2023

Figure 8: Health productivity is estimated to have fallen by 0.6% in 2023

Total public service productivity, inputs, and output, UK, 1997 to 2023

Accredited
official
statistics



Source: Public service productivity from the Office for National Statistics

Notes:

1. Estimates for 2022 and 2023 are official statistics in development and are annualised quarterly estimates.
2. Estimates from 1997 to 2021 are annual accredited official statistics.

Table 2: Nowcast estimates for 2022 and 2023 healthcare productivity, inputs and output growth rates, UK

95% Confidence Interval

	Nowcast estimate for	Central estimate	Lower	Upper
Productivity	2022	-0.4%	-5.3%	4.5%
	2023	-0.6%	-6.2%	5.0%
Inputs	2022	-5.1%	-9.6%	-0.7%
	2023	-0.1%	-3.6%	3.5%
Output	2022	-5.5%	-8.4%	-2.6%
	2023	-0.7%	-3.6%	2.2%

Source: Public service productivity from the Office for National Statistics

7 . Revisions to public service productivity estimates

The public service productivity estimates follow our [National accounts revisions policy](#).

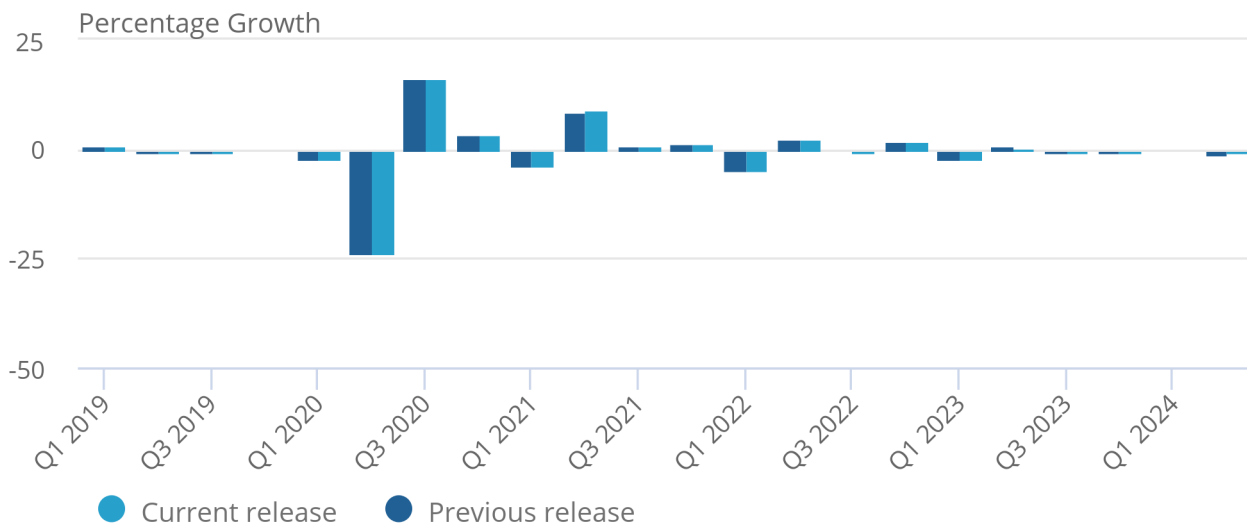
Figure 9 shows estimates published in our [Public service productivity, quarterly, UK: April to June 2024 bulletin](#) and the revised estimates of public service productivity, following the changes discussed in [Section 10: Data sources and quality](#).

Figure 9: Public service productivity quarter-on-quarter growth

Total public service productivity growth, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 2 (Apr to June) 2024

Figure 9: Public service productivity quarter-on-quarter growth

Total public service productivity growth, UK, Quarter 1 (Jan to Mar) 2019 to Quarter 2 (Apr to June) 2024



Source: Public service productivity from the Office for National Statistics

Notes:

1. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept), Q4 refers to Quarter 4 (Oct to Dec).

For more detailed information on revisions to productivity, inputs, and output, please see Table 7 in our [accompanying dataset](#).

8 . Data on public service productivity

[Public service productivity, quarterly, UK: July to September 2024](#)

Dataset | Released 10 February 2025

UK total public service productivity and healthcare productivity. Includes estimates of inputs, output, productivity, and revisions, compared with estimates from the previous quarter. These are official statistics in development.

9 . Glossary

Deflator

A price index used to remove inflation effects from current price estimates of expenditure to provide a volume estimate.

Direct output measurement

Using a cost-weighted activity index to estimate the non-quality adjusted output of a service provided, such as the number of students in state schools, adjusted for attendance to produce an estimate of total hours of schooling delivered each year. Differs from indirect output measurement, where output is assumed equal to inputs.

Intermediate inputs

Also referred to as "goods and services", or "intermediate consumption" (the National Accounts term). Intermediate inputs include goods and services used up in the provision of a public service, such as utilities, energy, professional services, and medical supplies, among others.

Public services

These are services delivered by or paid for by government (central or local). If paid for by the government, they may be delivered by a private body – for example, the provision of nursery places by the private sector, where these places were funded by the government.

Quality adjustment

A statistical estimate of the change in the quality of a public service, using an appropriate metric, such as safety in prisons as part of the public order and safety adjustment.

Service area

The way we refer to the breakdown of public services into seven areas, closely following standard industrial classification (SIC) codes.

Standard industrial classification

The industrial classification applied to the collection and publication of a wide range of economic statistics.

10 . Data sources and quality

Data sources

We use different sources and methods to produce our official statistics in development quarterly statistics and our annual accredited official statistics.

This bulletin uses expenditure data from quarterly UK National Accounts, split into seven categories:

- healthcare
- education
- social protection
- justice and fire
- military defence
- central government services
- local government services

Data sources and methods differ from the annual publication, depending on data availability and appropriateness on a quarterly or annual basis. For example, some inputs measures that are available on an annual basis as direct measures are not available on a quarterly basis. These missing quarterly direct input measures may only be obtainable using indirect measures (deflated expenditure).

Our [total public service productivity estimates](#) (accredited official statistics) also use different deflators to estimate volumes of inputs other than those used in this release. As such, estimates are not directly comparable between the quarterly and annual publications.

This release does not provide adjustments for the quality in public service output whereas our accredited total public service productivity estimates do, for some public output.

Estimates of productivity, inputs and output up to 2021 are reported on an annual basis and use data from our [Public service productivity, total, UK, 2021 article](#). Further information about our annual accredited official statistics can be found in our [Public service productivity: total, UK, quality and methodology information \(QMI\)](#).

More information on the differences between the official statistics in development estimates and the annual estimates are described in Section 9 of our [Sources and methods for public service productivity estimates methodology](#). Importantly, quality adjustments are not applied to our quarterly official statistics in development estimates.

Revisions

The estimates in this bulletin reflect the revisions included in our [GDP first quarterly estimate, UK: July to September 2024 bulletin](#). This release contains data that are consistent with Blue Book 2024 and are in line with our [National accounts revisions policy](#). More information on the changes introduced in Blue Book 2024 can be found in Section 6 of our [Public service productivity, quarterly, UK: April to June 2024 bulletin](#).

The estimates published in this bulletin are also affected by the quarterly revisions of our seasonal adjustment methods. Within our accredited annual total public service productivity statistics, the seasonal adjustment methods will continue to be reviewed when new quarters are added to our estimates. Future quarters may deliver data that could affect our view of the seasonal adjustment time path, if we discover this is a turning point in seasonal behaviour.

Measuring public service productivity

Productivity is calculated by dividing output by the respective inputs used to produce it. Therefore, productivity will increase when more output is being produced for each unit of inputs used. Estimates of inputs, output, and productivity are given both as growth rates between consecutive periods and as indices, showing the cumulative trend over time.

Our quarterly estimates of public service productivity are seasonally adjusted. In official statistics, it is common for the time series to have regular, repeating, predictable variation (for example, the increase in retail sales in December). To help users interpret the series, national statistical institutes use a statistical method called seasonal adjustment to remove these effects. We use the X11 algorithm in the X-13 ARIMA-SEATS software to perform seasonal adjustment.

Over the last three quarters, the non-seasonally adjusted data on public service productivity, particularly inputs, show a different seasonal pattern than earlier data. This is because of policies and measures adopted by government departments following the coronavirus (COVID-19) pandemic. This new seasonality was not properly captured by the seasonal adjustment model for inputs, which produced estimates that do not appear fully to reflect the current economic scenario. To revise the seasonal adjustment fully requires more quarters of data post-COVID-19 to enable re-estimation of the trend of the new seasonality. For this reason, supported by experts on seasonal adjustment, we have treated data on healthcare inputs from Quarter 2 (Apr to June) 2020 until the most recent quarter as outliers, reflecting the impact of COVID-19 and subsequent effects.

From Quarter 1 (Jan to Mar) 2022 until the most recent quarter, our new seasonally adjusted method follows three steps.

1. Create new healthcare inputs seasonally adjusted estimates, which include outliers from Quarter 2 2020 until Quarter 3 (July to Sept) 2024.
2. Calculate the difference between the healthcare outlier model and the healthcare inputs standard seasonally adjusted model.
3. Apply the difference between these models to the seasonally adjusted total inputs, adjusted by the expenditure share of healthcare, from Quarter 1 2022 until the most recent quarter.

This adjustment reflects better the trend in non-seasonally adjusted inputs data, compared with the previous seasonally adjusted model. These estimates will be subject to revision as new data become available.

For total UK public services, estimates of inputs are made up of aggregated series for individual public services, weighted together by their relative share of total expenditure on public services in current price (expenditure weight).

Inputs include labour, goods and services, social transfers in kind, and consumption of fixed capital. Expenditure data, used to estimate most inputs growth, are taken from our [Gross domestic product \(GDP\) quarterly national accounts, UK: July to September 2024 bulletin](#).

Output in our productivity estimates reflects total general government final consumption expenditure (GGFCE). The quarterly national accounts produce estimates of government output, based on direct measures where they are available, and indirect measures where they are not.

Inputs for healthcare are calculated from the volume growth of healthcare labour inputs multiplied by the current price expenditure share of healthcare labour, relative to other health inputs components. We adopted the same approach to calculate the intermediate consumption, capital, and social transfer in kind (STIK). The sum of these components leads to the healthcare inputs volume growth in each period.

Our estimates of intermediate consumption, capital, and STIK are based on national accounts sources. Labour growth is based on our public sector employment data (direct implied expenditure), and deflated bank staff implied expenditure.

Our quarterly data do not currently account for staff absenteeism in our labour estimates. However, our annual accredited official statistics estimates do account for this. More information on the differences in method and sources used in our quarterly and annual estimates of public service productivity can be found in our [Public service productivity QMI](#).

Our public service quarterly output volume measure for healthcare is estimated based on the growth in the following types of activities in England, which have timely data collections:

- elective and non-elective treatments
- hospital outpatient first and follow-up appointments
- emergency care
- critical care services
- ambulance attendances
- community health services
- mental health treatments
- community prescribed drugs
- general practitioner (GP) consultations
- dental services
- ophthalmic services
- NHS phone and website services

More information can be found in our [Improvements to healthcare volume output in the quarterly national accounts methodology](#).

Timely quarterly activity data are not available for all healthcare services. The quarterly healthcare output growth is estimated based on indicators for the subset of services above, where data are available. Because of limitations in data availability, these indicators cover data for England only. In the short term, we assume that the changes in these timely indicators are representative of the changes in the level of healthcare output more broadly. In the longer term, these timely estimates are benchmarked against a more comprehensive measure of healthcare output once more detailed annual data become available.

Public service productivity uses the expenditure of public services, which defines GGFCE. It includes services where employees are central or local government, as well as publicly-funded independent sector providers. This differs from the public sector, which includes public corporations but excludes publicly-funded independent sector providers, to avoid double-counting.

Public service productivity is measured differently to labour productivity and multi-factor productivity, and is not directly comparable. It reflects the volume of services delivered to end users, relative to the volume of total inputs (which include labour, intermediate consumption, and capital). The measure is dominated by healthcare and education services because of their relative size.

These estimates should be considered a first estimate of public service productivity. The Office for National Statistics (ONS), together with [HM Treasury and other government departments](#), will continue to develop and improve its methods, which may lead to revisions of these preliminary estimates.

11 . Related links

[GDP quarterly national accounts, UK: July to September 2024](#)

Statistical bulletin | Released 23 December 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.

[Developing nowcast methodologies for public service productivity, UK](#)

Article | Released 11 December 2024

An overview of the latest experimental methods to produce timelier estimates of annual UK public service productivity. These are official statistics in development.

[Productivity flash estimate and overview, UK: July to September 2024 and April to June 2024](#)

Article | Released 15 November 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.

[Public service productivity: total, UK, 2021](#)

Article | Released 26 March 2024

Updated annual measures of output, inputs and productivity for UK public services between 1997 and 2021: service area breakdown, quality adjustment, latest revisions.

[Public Services Productivity Review progress report: February 2024](#)

Article | Released 20 February 2024

Update on progress toward making improvements to public services productivity measures as part of the Public Services Productivity Review.

12 . Cite this bulletin

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