Office for National Statistics

Article

Public service productivity: total, UK, 2022

Updated measures of output, inputs and productivity for UK public services between 1997 and 2022, including service area breakdown, quality adjustment, and latest revisions.

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Notice

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We have identified an error in the calculation of a deflator used in healthcare intermediate consumption. This affected the editions from 2019 onwards of Table 5 of our Public service productivity estimates: healthcare, England dataset, which is used for healthcare and total public service productivity estimates. The indicative impact of this error has been quantified in our Impact of improved methods on total public service productivity: 1997 to 2022 article, and a full correction will be issued along with the article's next release, scheduled for publication on 30 March 2026. This was caused by a spreadsheet formula using the wrong source data, and we are currently strengthening our quality assurance and updating our healthcare processing systems to reduce the likelihood of similar errors occurring. We apologise for this error.

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1 . Main points

- Annual UK public service productivity increased by 4.0% in 2022, following a revised increase of 7.3% in 2021 and a decline of 14.1% in 2020.
- Growth in productivity in 2022 was primarily caused by a fall of inputs of 3.5%, the first decline since 2016 and the largest percentage decrease in inputs since the series began in 1997.
- The increase in productivity in 2022 was partially caused by positive output growth of 0.4%, which was mainly (0.3 percentage points) because of improvements in the quality of services provided to citizens.
- Healthcare and Education continued to be the two largest contributors to productivity growth, being the first and third largest areas by expenditure-weight; however, several other service areas saw an increase in their contributions to growth in 2022.
- This article publishes Tax Administration inputs, output, and productivity for the first time as official statistics in development, along with new official statistics in development measures for Social Security Administration productivity; we also include several improvements to the measures of other service areas.
- Total public service productivity is estimated to be around 4.1% lower in 2022 than its pre-coronavirus (COVID-19) peak in 2019.
- Public service productivity estimates reflect the volume of services delivered to users relative to the volume of total inputs and are not labour productivity metrics; therefore, they are not directly comparable with labour or multi-factor productivity estimates for the whole economy published by the Office for National Statistics.

We advise caution when comparing the estimates of the latest years with those before the coronavirus (COVID-19) pandemic, as the structure of inputs and outputs in public services changed in response to the pandemic.

2 . Public service productivity improvements and further developments

This article presents the annual public service productivity estimates for the UK for 2022, detailing information on the growth of inputs and output in 10 service areas, the impact of quality adjustment and the latest revisions. While most of the statistics presented in this article are accredited official statistics, the estimates presented for Social Security Administration and Tax Administration are labelled as official statistics in development because they are new and undergoing further development with suppliers and users.

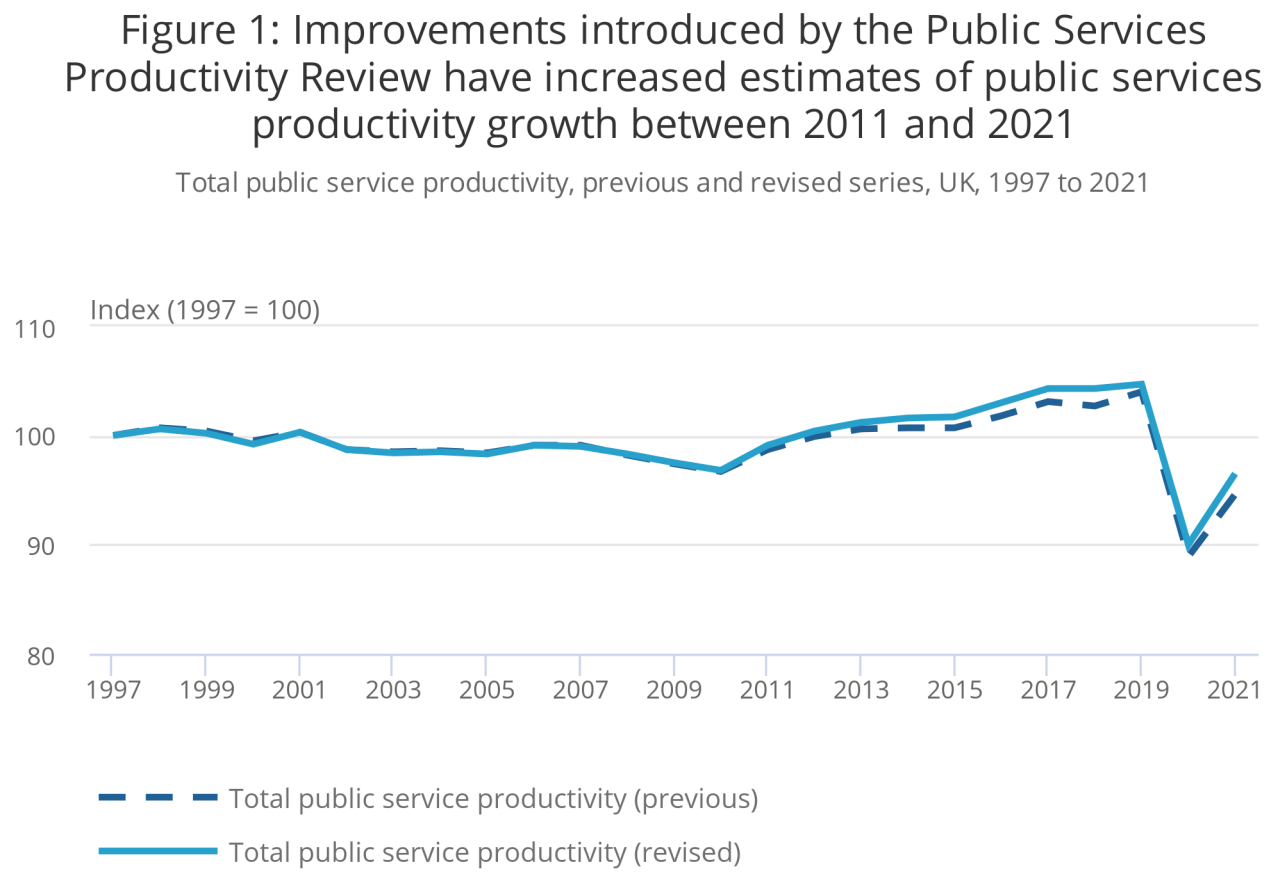
In considering these estimates and associated revisions over time, users should be aware that these have been affected by development work on public service productivity measurement for the whole public sector, carried out by the Public Services Productivity Review.

Changes reflect improvements to measures of quantity output, quality adjustment and inputs, as well as the introduction of the new service area (Tax Administration). This is described in the National Statistician's Independent Review of the Measurement of Public Services Productivity.

These improvements have increased estimates of public service productivity growth between 1997 until 2019, while there was a reduction in the fall of productivity in 2020 (from 14.5% to 14.1%), and an increase in 2021 productivity growth (from 6.5% to 7.3%). More information can be found in our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

Figure 1: Improvements introduced by the Public Services Productivity Review have increased estimates of public services productivity growth between 2011 and 2021

Total public service productivity, previous and revised series, UK, 1997 to 2021



Source: Public service productivity from the Office for National Statistics

We continue to develop and improve the methodologies we use. For the service areas that are directly measured (that is, outputs are measured using activity data), it is not possible to measure all their activities. The measures used are selected to present a fair reflection of the totality of functions delivered. This article applies the methodological hierarchy proposed in the Atkinson Review (2005) and System of National Accounts 2008 (PDF, 9.1 MB) where direct measures of output are superior to indirect approaches, as using indirect “inputs equals outputs” methods make productivity growth zero by definition. Quality-adjusted measures are also considered superior to non-quality-adjusted measures.

If methods are further improved and more data become available in the future, these estimates will be revised.

In the following statistics, please note that output and estimates are quality-adjusted, unless otherwise stated.

These annual estimates differ from the public service productivity statistics published in the Public service productivity, quarterly, UK bulletin series, where a quarterly annualised growth rate (QAGR) approach is used to produce "nowcasted" estimates for 2022 and 2023. The estimates in the quarterly article are official statistics in development and they use different data for input and output.

3 . Overview of public service productivity

As reported in our previous annualPublic service productivity: total, UK, 2021 article, the coronavirus (COVID-19) pandemic caused widespread cost pressures and disruption across public service outputs with specific impacts on data because of fundamental changes in the delivery of services. As a result of recommendations made in the Public Services Productivity Review (PSPR), some data sources and methods have changed. Because of this, estimates for some public service areas are less directly comparable with previous annual estimates. Therefore, caution should be used when comparing the latest estimates with those for years before the pandemic.

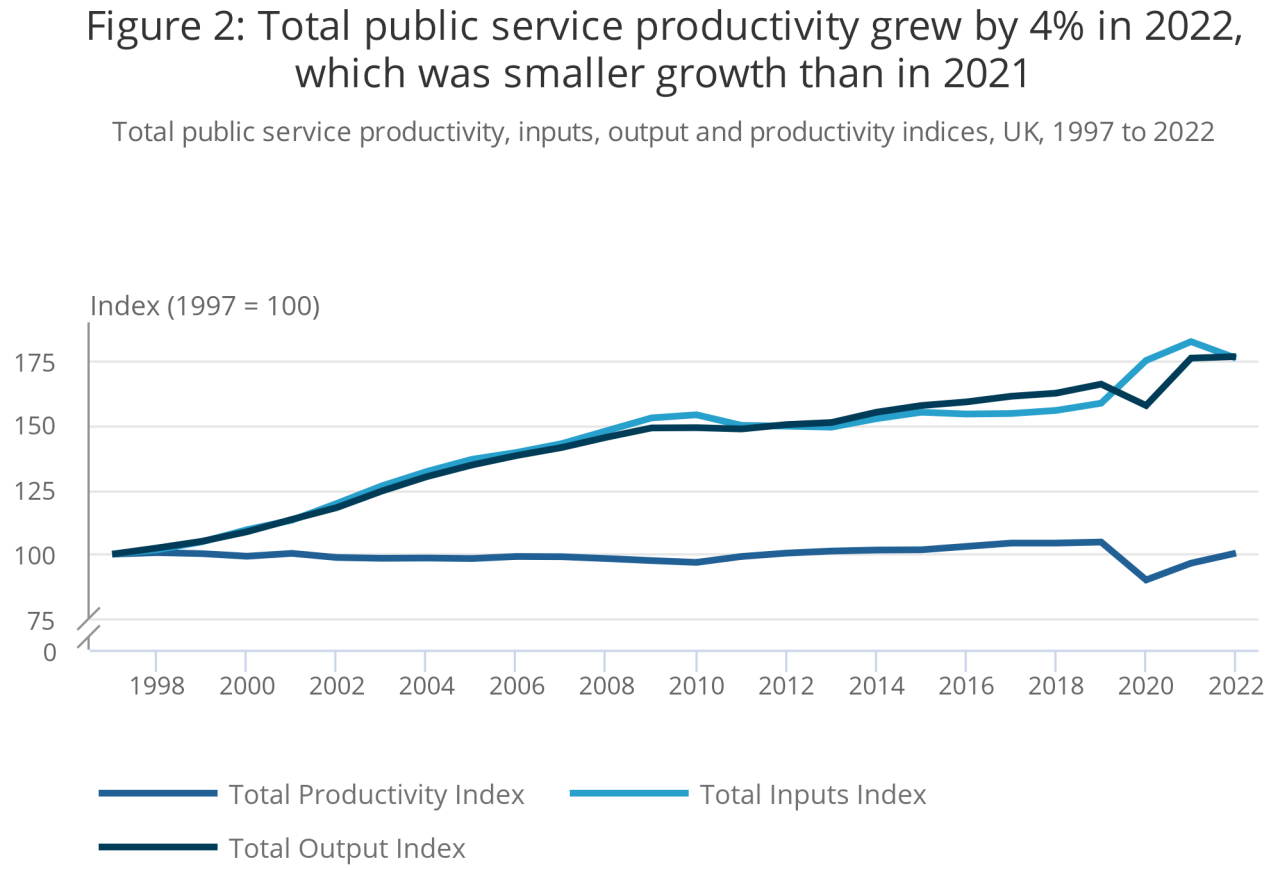
These estimates are not labour productivity metrics and are not directly comparable to labour productivity or multi-factor estimates for the whole economy, also published by the Office for National Statistics (ONS). These data instead reflect the volume of services delivered to users relative to the volume of total inputs, which include labour, intermediate consumption, and capital.More details for each component of productivity are available in Section 13: Data sources and quality.

This article includes updated annual estimates of quality-adjusted (QA) (which is a more complete measure) and non-quality-adjusted (NQA) output, inputs, and productivity for up to 10 public service areas in the UK from 1997 to 2022. We have prepared the statistics on a calendar-year basis.

In 2022, inputs into public services fell by 3.5%, and QA output grew by 0.4% compared with the previous year. This results in a growth rate of 4.0% for quality-adjusted public service productivity in 2022, following a rise of 7.3% in 2021, and a fall of 14.1% in 2020. NQA output grew by 0.1% in 2022, leading to non-quality-adjusted public service productivity growing by 3.7% in 2022.

Figure 2: Total public service productivity grew by 4% in 2022, which was smaller growth than in 2021

Total public service productivity, inputs, output and productivity indices, UK, 1997 to 2022



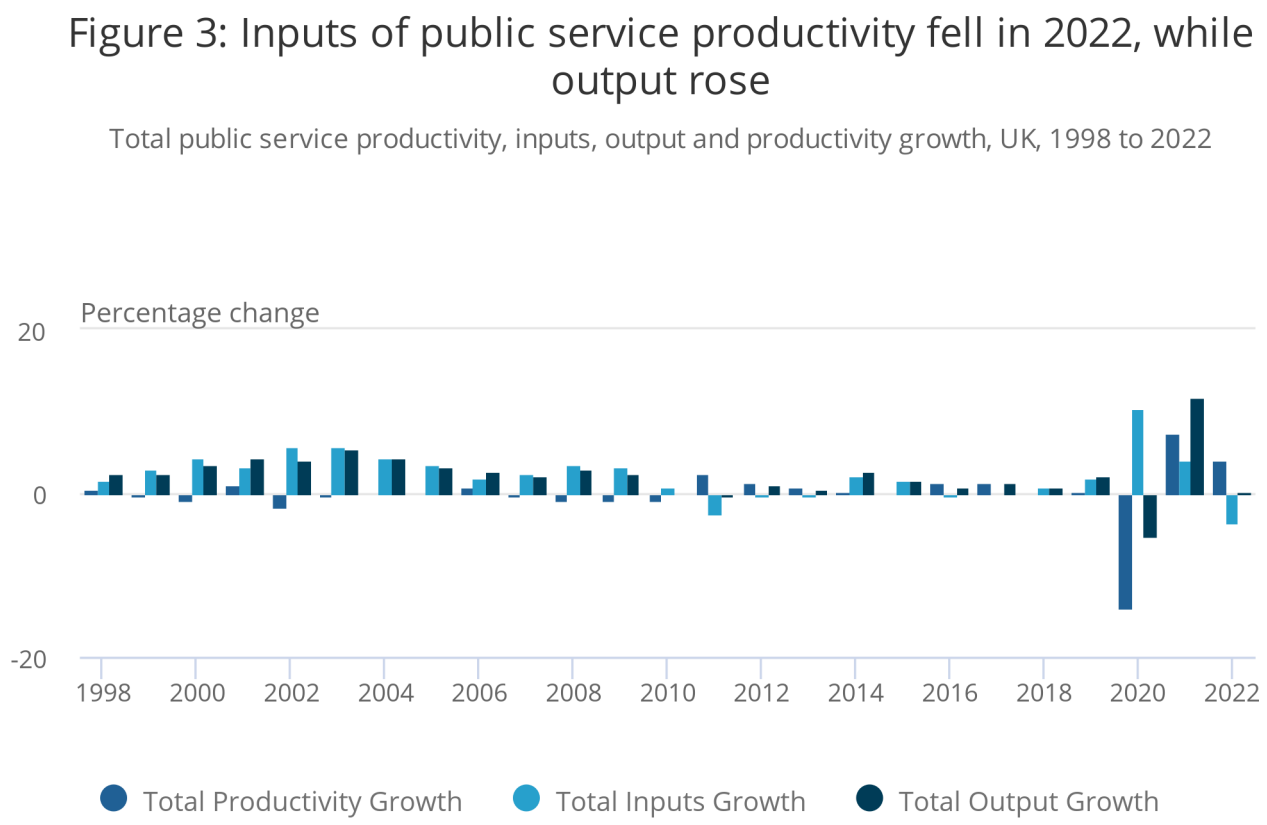
Source: Public service productivity from the Office for National Statistics

In 2022, public service productivity showed further growth from its record drop in 2020 but remained around 4.1% below pre-coronavirus pandemic levels in 2019. Inputs, measured in volume terms, fell for the first time since 2016, and by the largest percentage since the series began in 1997. This was because some aspects of additional spending related to the response to the coronavirus pandemic were phased out, and higher input cost inflation reduced input volumes.

QA and NQA output grew by 0.4% and 0.1% respectively in 2022, which implies that public services have been able to increase their level and quality of output, even as inputs have fallen. However, this growth is below the levels seen in the years leading up to 2020.

Figure 3: Inputs of public service productivity fell in 2022, while output rose

Total public service productivity, inputs, output and productivity growth, UK, 1998 to 2022



Source: Public service productivity from the Office for National Statistics

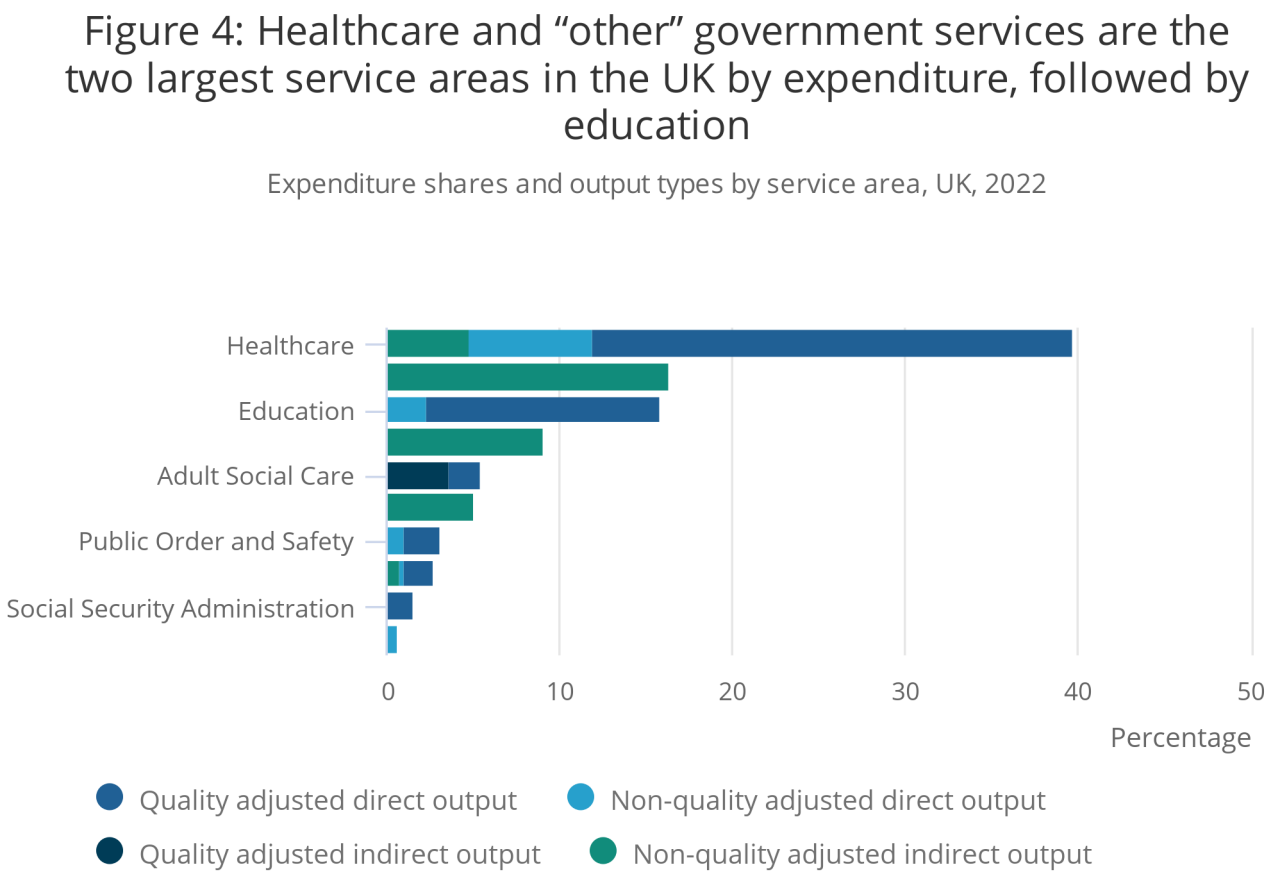
Total public service output and inputs are calculated by aggregating output and inputs of the 10 service areas based on their expenditure shares, as outlined in our Sources and methods for public service productivity estimates methodology (which we will update post-review in the coming months) and the National Statistician's Independent Review of the Measurement of Public Services Productivity. A higher expenditure share equates to that service area having a larger contribution towards the estimation of the statistics. The three largest expenditure shares in 2022 were:

- Healthcare (39.8%)
- “Other” government services, which comprises general government services, economic affairs, environmental protection, housing, recreation, and other Public Order and Safety services (these are not currently subject to direct output measurement or quality adjustment) (16.4%)
- Education (16.0%)

As recommended by the Public Services Productivity Review, we are working to disaggregate the “Other” grouping into categories that better represent specific public services. Estimates of tax Administration productivity are published for the first time, as described in Section 10. Tax Administration.

Figure 4: Healthcare and “other” government services are the two largest service areas in the UK by expenditure, followed by education

Expenditure shares and output types by service area, UK, 2022



Source: Public service productivity from the Office for National Statistics

Notes:

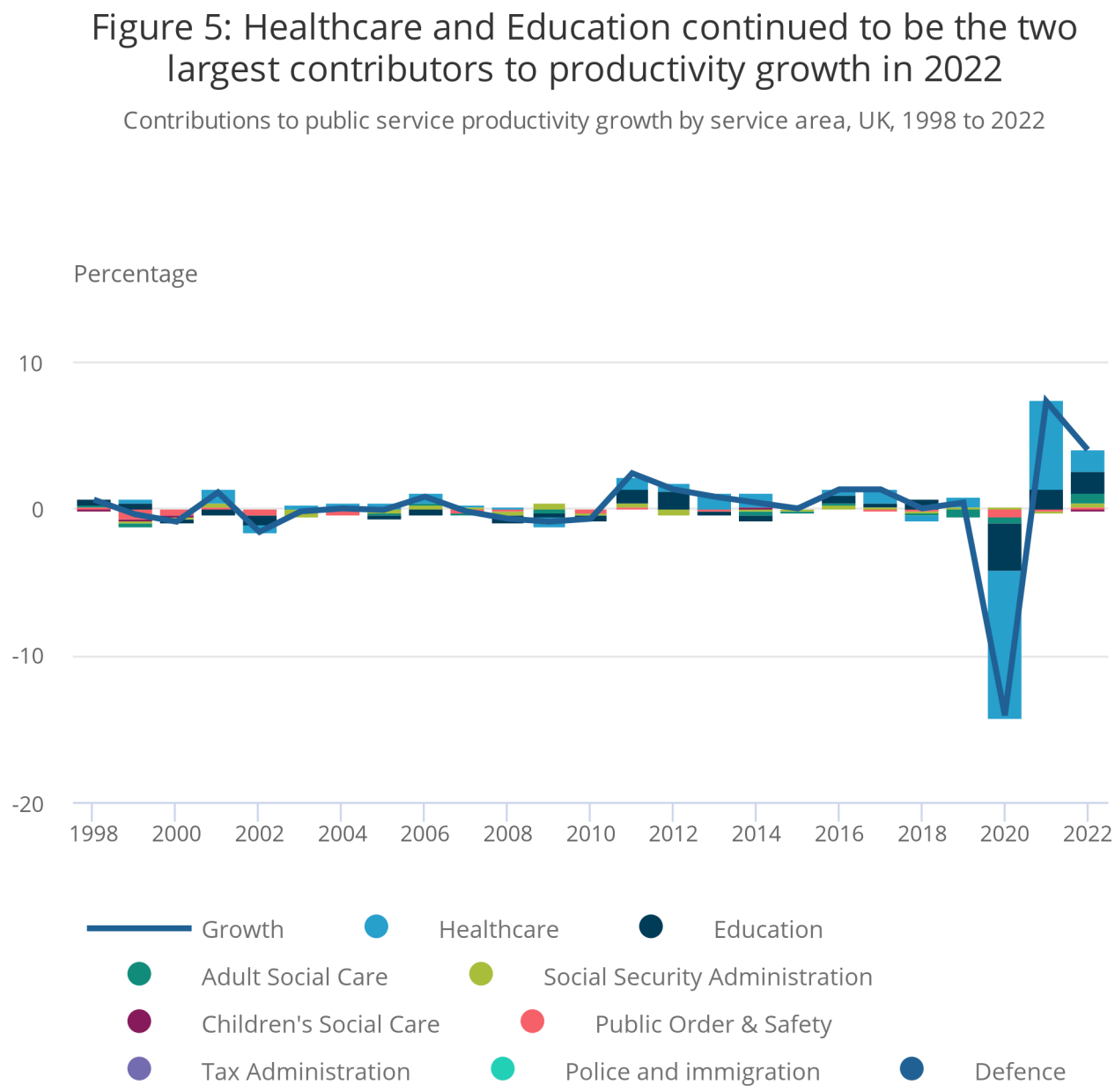
1. Percentage share of components may not sum to 100 or service area totals because of rounding.
2. "Direct" means output is measured using activity indicators (for example, enrolment figures in schools, or number of GP consultations). "Indirect" means output is measured following the "output equals inputs" convention.
3. Social Security Administration and Tax Administration are official statistics in development.
4. Tax Administration output is revenue adjusted.

The Public Services Productivity Review developed new measures for quality adjustment and new direct output. However, the share of quality-adjusted direct output is lower than in 2021. This has occurred for two reasons. Firstly, while the expenditure share for test, trace and vaccinations activities decreased between 2021 and 2022, it increased between 2020 and 2021. Because test, trace and vaccinations are not adjusted by quality and the contribution to growth is calculated based on the previous year's expenditure share (which is 2021 for growth in 2022), this results in a lower share for quality-adjusted output in 2022. Secondly, service areas where expenditure is not quality-adjusted, such as "Other" government services and Police and Immigration increased their shares of expenditure in 2022.

Figure 5 shows the contributions of directly measured service areas towards productivity growth, which are weighted by their relative expenditure shares. The contribution of Healthcare fell from 6.0 percentage points in 2021 to 1.5 percentage points in 2022. Healthcare and Education continued to be the two largest contributors to productivity growth, however several other service areas saw an increase in their contributions to growth in 2022, including Adult Social Care, which increased from 0.0 percentage points in 2021 to 0.7 percentage points in 2022. The only negative contributions to productivity growth in 2022 were in Children's Social Care and Tax Administration.

Figure 5: Healthcare and Education continued to be the two largest contributors to productivity growth in 2022

Contributions to public service productivity growth by service area, UK, 1998 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. Growth of components may not sum to overall growth because of rounding.
2. The contribution to growth for each component depends on both its growth rate and its weight in total output.
3. The Tax Administration series begins in 2018.
4. ASC stands for Adult Social Care; SSA stands for Social Security Administration; CSC stands for Children's Social Care; POS stands for Public Order and Safety.
5. SSA and Tax Administration are official statistics in development.

4 . Healthcare

UK healthcare, calendar year 2022

Healthcare represents the largest service area included in public service productivity estimates by expenditure share (39.8% of total public service provision in 2022). The UK Healthcare productivity estimates have been based on output growth in England, Wales and Scotland only since 2020, because data have not been available to calculate output volumes for Northern Ireland. However, given Northern Ireland accounts for a small proportion of the UK total (around 3% in 2019), this is not expected to have skewed the resulting aggregate measures.

Public service Healthcare productivity in the UK increased by 3.9% in 2022, because of the fall in inputs being larger than the fall in output (8.0% and 4.4% respectively). The increase in productivity is the second largest since the series began in 1997, following growth of 14.5% in 2021.

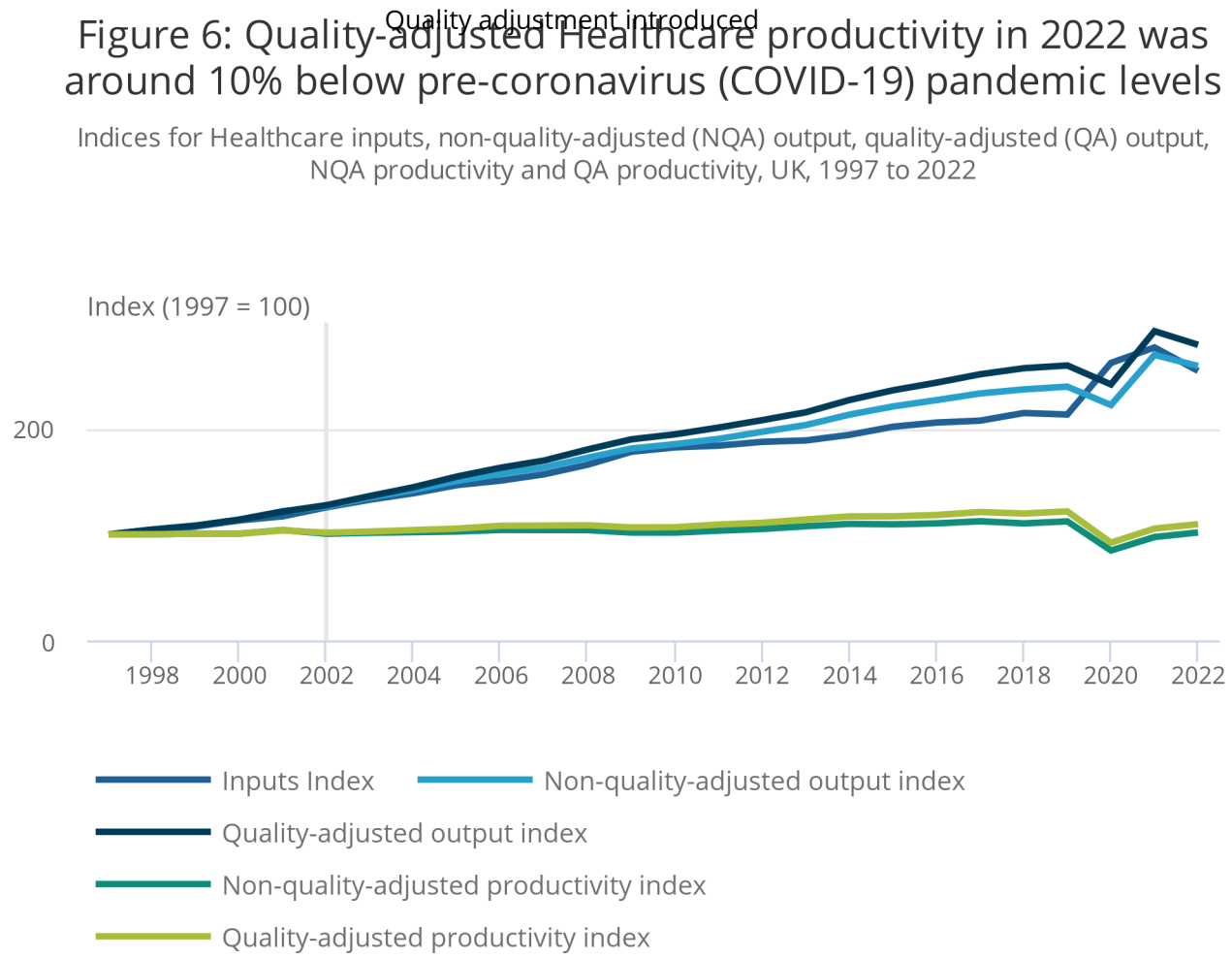
Although Healthcare productivity has increased in both 2021 and 2022, productivity remains around 9.9% below 2019 levels, following a record fall of 24.2% in 2020 after the coronavirus (COVID-19) pandemic. During the pandemic many services were delivered in a different way than previous and following years, with additional inputs necessary and mandatory restriction limiting output for certain services. Importantly, while output increased by 7.5% between 2019 and 2022, hitting an all-time peak in 2021, inputs saw a much larger rise (19.3%), which led to a fall in productivity.

The 8.0% fall in Healthcare inputs seen in 2022 is only the second fall in inputs across the time series and, excluding 2020 when the coronavirus pandemic caused unprecedented changes to Healthcare , is the largest year-on-year change. The fall in output in 2022 is also only the second fall across the time series, but is smaller than the fall of 6.9% seen in 2020 as a result of the coronavirus pandemic. The main cause of both the fall in inputs and output in 2022 is the reduction in expenditure and activities for test, trace and vaccinations related to the pandemic. More information on causes can be found after Figure 6, which describes the estimates of our Public service productivity estimates: healthcare, England dataset.

Non-quality-adjusted Healthcare productivity increased by 4.4% in 2022, therefore the quality adjustment decreased productivity growth by 0.5 percentage points. This is primarily caused by a fall in patient satisfaction scores.

Figure 6: Quality-adjusted Healthcare productivity in 2022 was around 10% below pre-coronavirus (COVID-19) pandemic levels

Indices for Healthcare inputs, non-quality-adjusted (NQA) output, quality-adjusted (QA) output, NQA productivity and QA productivity, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. The UK estimates for 2020 to 2022 are based on England, Wales and Scotland only due to data not being available for Northern Ireland.

Healthcare in England, financial year ending 2023

We previously published our Public service productivity, healthcare, England: financial year ending 2022 article. This year, we are publishing the dataset only.

It is important to note that, because of different coverage and time periods, UK calendar year (January to December) figures cannot be directly compared with the Healthcare productivity estimates for England covering the financial year (April to March).

However, the England financial year figures provide insight into what is contributing to the trends in the UK calendar year figures. This is because England accounts for 86% of the UK total and there is a large overlap between the time periods.

Healthcare productivity in England increased by 1.9% in financial year ending (FYE) 2023. Similar to the UK figures for 2022, this increase in productivity was a result of both inputs and output falling, with inputs seeing a larger fall than outputs (7.1% and 5.3% respectively). Healthcare productivity for England in FYE 2023 was around 5.4% below pre-coronavirus pandemic levels.

The main contributor of the fall in Healthcare inputs in England in FYE 2023 was an 8.6% decrease in intermediate consumption of goods and services, which accounts for 44.9% of expenditure. A fall in hospital and community health service (HCHS) non-pay expenditure was a main factor in this decrease, particularly a large reduction in coronavirus-related expenditure. HCHS includes hospital services, community care, mental health and ambulance services and is the largest component of public Healthcare.

In FYE 2023, coronavirus expenditure fell by 79.6% and accounted for only 5.5% of total HCHS non-pay expenditure, down from 21.8% in 2021. The most significant element of this expenditure in FYE 2023 was for the supply of COVID-19 vaccines, whereas in FYE 2022 the most significant element was costs relating to test and trace.

The reduction in coronavirus expenditure is also reflected in a large reduction of 85.1% in output relating to the coronavirus response (test and trace and vaccination activity), alongside a smaller fall of 3.7% in non-NHS provision. Given this demobilisation of coronavirus response services, the fall in Healthcare output in England in FYE 2023 is larger than the fall in output seen in FYE 2021 during the coronavirus pandemic. Nevertheless, HCHS, primary care services and GP prescribing services all saw growth in output in FYE 2023.

Non-quality-adjusted output grew by 8.7% between FYE 2020 and FYE 2023. Of this, coronavirus-related activities (testing, tracing and vaccination activity) account for almost half (approximately 4.2 percentage points) of the overall output growth. Traditional health functions, excluding those stimulated by the coronavirus pandemic, saw output growth of approximately 4.5%. Cost-weights are updated annually in the calculation of overall output. However, estimates of contributions of growth for other components of Healthcare output over this multi-year period (presented in worksheet 2d of Public service productivity estimates: healthcare, England: financial year ending 2023), have been calculated using FYE 2020 base period weights. As such, they are indicative and should be used with caution. Output growth in the series is calculated by applying different base weights for each year's estimates, which makes calculations of growth contributions over multi-year periods difficult.

The quality adjustment decreased output growth by 0.2 percentage points in FYE 2023. As mentioned in the previous UK sub-section, this is primarily caused by a fall in patient satisfaction scores, with a slightly positive impact on quality from the hospital procedures outcomes component of the quality adjustment.

Coherence with other Healthcare productivity estimates

In addition, in our Public service productivity, quarterly, UK: July to September 2024 bulletin, we reported an experimental annualised nowcast on Healthcare estimates for 2022 using a quarterly annualised growth rate approach. The nowcast estimates showed a fall of 0.4% in UK Healthcare productivity in 2022, with both inputs and output decreasing but output estimated to have fallen at a faster rate. This experimental annualised nowcast will be revised in the coming months when more data at the quarterly level become available.

The annual Healthcare output for this period will differ from the growth observed over the same period in our quarterly publication, as these annual figures are based on more detailed data not available at the time of producing the more timely quarterly measure. In addition, these annual figures include quality adjustment, and a range of improvements made to the public service output measure developed during the Public Services Productivity Review (PSPR). However, we are working on improving alignment between the quarterly and annual outputs as recommended by the PSPR in Chapter 4: Coherence of Public Services Productivity Published Data and the Demand for Faster Statistics. We will publish updated data in future releases of quarterly public service productivity.

For more information about the impact of the methodological changes that have been made as a result of the PSPR, see our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

5 . Education

Education is the third largest service area in public service productivity by expenditure share, and the second largest of those with direct measurements in 2022. Education covers activities and outcomes in schools from pre-primary up to the Further Education phase (by age 19 years).

Education productivity rose by 9.3% in 2022 because of a rise of 9.7% in output and 0.4% in inputs. Excluding quality adjustments, Education productivity rose by 6.2%, reflecting a rise of 6.7% in non-quality-adjusted output.

The 2022 productivity growth follows a revised bounce-back of 9.2% in 2021. Nevertheless, Education productivity in 2022 remains around 5.1% below pre-coronavirus (COVID-19) pandemic levels in 2019. Quality plays an important role in this gap. Looking at non-quality-adjusted productivity, while this is also lower (by 1.2%) than the pre-coronavirus pandemic levels in 2019, the gap to the pre-pandemic level is smaller than for the quality-adjusted measure.

The main contributors to the rise in output were a return to classroom-based teaching following remote learning practices, partial recovery of pupil absence rates, along with an increase in school enrolment. These changes contributed to the bounce-back in non-quality-adjusted output, such that it had almost returned to pre-coronavirus pandemic levels (minus 0.5% in 2022 compared with 2019).

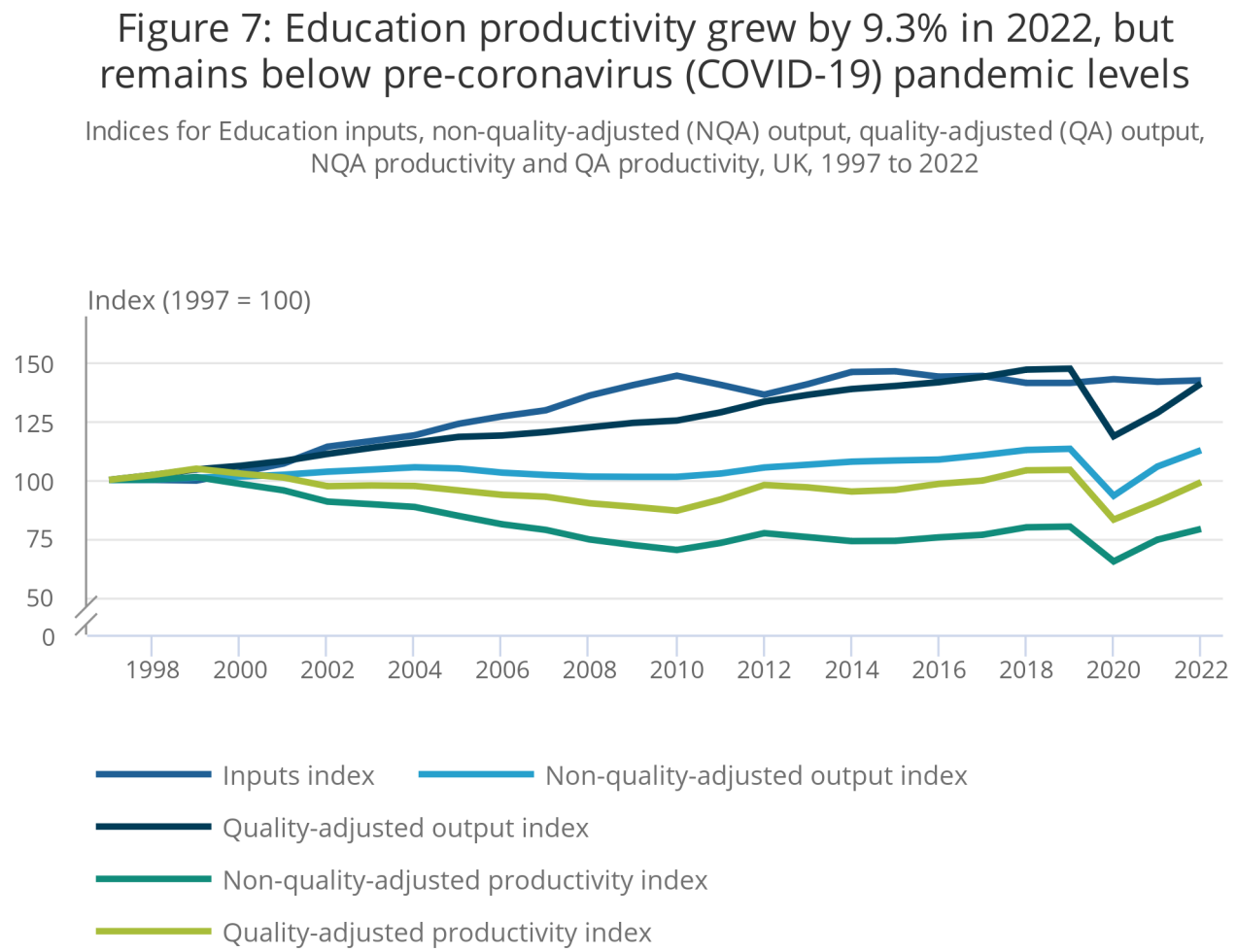
When considering quality adjustment and outcomes in Education, while attainment started to recover in 2022, it had not yet returned to pre-coronavirus pandemic levels. Furthermore, student well-being declined in 2022. As a result, quality-adjusted output for Education in 2022 is estimated to be around 4.3% below output in 2019.

Therefore, while Education activity (represented by non-quality-adjusted output and non-quality-adjusted productivity) broadly recovered from the coronavirus pandemic in 2022, outcomes (such as exam performance, captured in quality-adjusted output and productivity) have not fully recovered. This has dampened output and productivity growth in 2022.

The rise in inputs is attributed to increased recruitment of teaching staff across the UK.

Figure 7: Education productivity grew by 9.3% in 2022, but remains below pre-coronavirus (COVID-19) pandemic levels

Indices for Education inputs, non-quality-adjusted (NQA) output, quality-adjusted (QA) output, NQA productivity and QA productivity, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. The student well-being measure is introduced into quality adjustment from 2003.
2. The Further Education attainment measure for England is introduced into quality adjustment from 2004.
3. The Key Stage 2 disadvantaged attainment gap measure for England is introduced into quality adjustment from 2011.
4. The Education attainment measure for primary and secondary schools is introduced into quality adjustment since the beginning of the series in 1997.

Education faced unprecedented and widespread disruption during the coronavirus pandemic, which had a significant impact on the availability of attainment data and violated the typical assumptions that would be applied when quality adjusting for attainment. To account for the effects of the pandemic, we have adjusted methodological parameters, incorporating available data where appropriate. However, there remains a degree of uncertainty around the estimates during this period. As such, Education output and productivity estimates need to be interpreted with caution for the years affected by the coronavirus pandemic.

For more information about the impact of the methodological changes that have been made as a result of the Public Services Productivity Review, see our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

6 . Adult Social Care

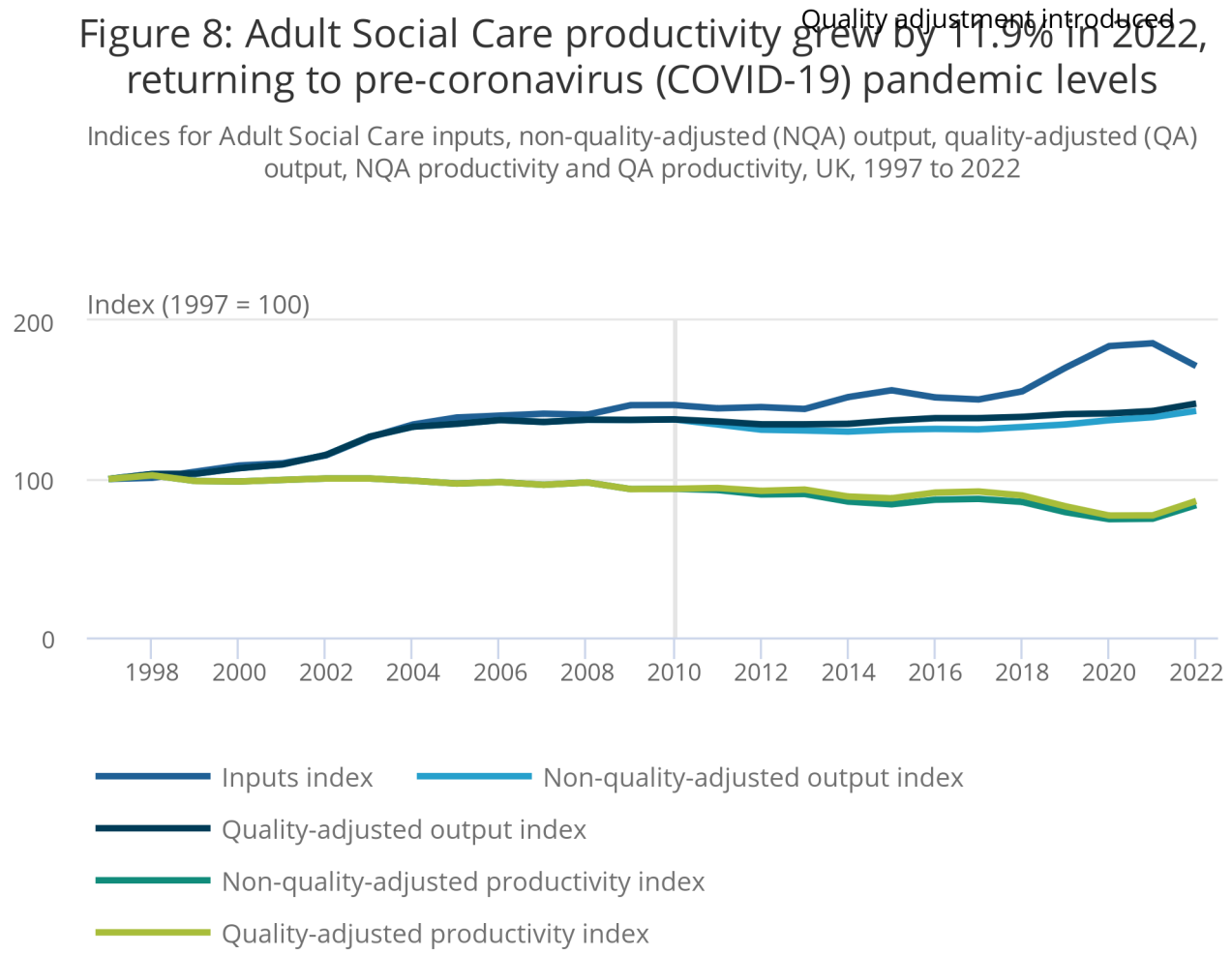
Adult social care (ASC) refers to care and support provided to older people, adults with learning or physical disabilities, adults with mental health problems, drug and alcohol misusers, and carers. A significant proportion of ASC output is indirectly measured (65.8% in 2022). Particularly in England, directly measured output from the financial year ending (FYE) 2015 onwards is only available for residential and nursing care.

ASC productivity rose by 11.9% in 2022. This relatively strong bounce-back caused ASC productivity to surpass pre-coronavirus (COVID-19) pandemic levels, being around 4.1% higher in 2022 than in 2019. Productivity growth in 2022 was caused both by a rise of 3.3% in output, and a large fall of 7.7% in inputs. This is likely linked to coronavirus-related grant support being withdrawn from the ASC sector across the UK by 2022. For example, in England, the Adult Social Care Infection Control and Testing fund ended after March 2022.

Non-quality-adjusted productivity grew by 11.5%, reflecting a rise of 2.9% in non-quality-adjusted output. Quality-adjusted output and productivity grew at a faster rate than non-quality-adjusted estimates. This was caused by community care users reporting increases in client care-related quality of life in 2022, and this follows notable declines in 2020 and 2021, which likely arose because of the coronavirus pandemic.

Figure 8: Adult Social Care productivity grew by 11.9% in 2022, returning to pre-coronavirus (COVID-19) pandemic levels

Indices for Adult Social Care inputs, non-quality-adjusted (NQA) output, quality-adjusted (QA) output, NQA productivity and QA productivity, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quality adjustment is introduced from 2010.

Coronavirus-related spend in ASC, such as covering personal protective equipment (PPE) and hospital discharges, did not correlate with a corresponding volume of care activities being delivered and therefore steps were taken to exclude coronavirus-related expenditure from the indirectly measured output component. The “commissioning and service delivery” spend, which included coronavirus-related grant support, was removed from output, however coronavirus-related expenditure may have also filtered through to other cost areas. Please refer to our Public service productivity, adult social care, England: financial year ending 2021 article for more information. As such, the ASC output and productivity estimates need to be interpreted with caution around the years affected by the coronavirus pandemic.

Find more information in our Public service productivity, adult social care, England: financial year ending 2023 dataset.

7 . Public Order and Safety

The Public Order and Safety (POS) service area (excluding Police and Immigration services) accounted for 3.1% of total public service expenditure in 2022. The area incorporates a wide range of services including law courts, prisons, probation, and fire and rescue services.

Following a decline in productivity in 2020 and 2021, POS productivity grew by 7.9% in 2022. Excluding quality adjustments, productivity increased by 7.2% in 2022.

POS productivity growth in 2022 resulted from increased output along with a reduction in inputs.

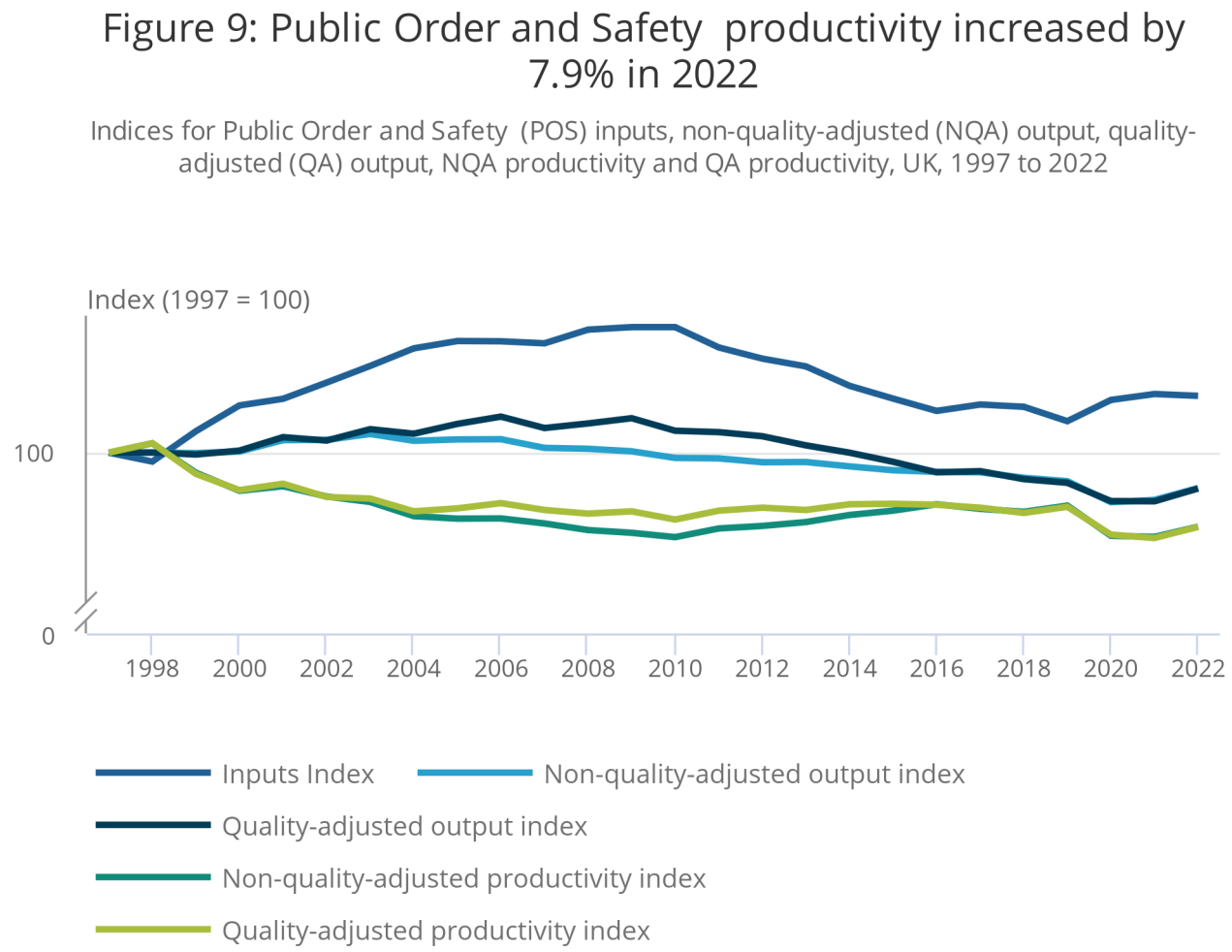
Non-quality-adjusted output grew by 6.5% in 2022, from a revised increase of 1.4% in 2021. Recovery in law courts services, following the impact of the coronavirus (COVID-19) pandemic, resulted in increased output in law courts. Fire service output was also a contributing factor, with a substantial increase in outdoor fire incidents attended following the relatively hot, dry summer in 2022. Prison output growth contributed to a lesser extent.

The application of quality measures increased output growth to 7.2% in 2022. The principal contributors to quality-adjusted growth were the quality measures for prison services (escapes and safety), along with improvements in the timeliness quality adjustment for magistrates' courts.

Overall inputs for POS services fell by 0.7% in 2022. While there was an increase in labour inputs this was more than offset by a reduction in the volume of goods and services.

Figure 9: Public Order and Safety productivity increased by 7.9% in 2022

Indices for Public Order and Safety (POS) inputs, non-quality-adjusted (NQA) output, quality-adjusted (QA) output, NQA productivity and QA productivity, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. The re-offending measure is introduced into the quality adjustment from 2000.

2. The timeliness measure is introduced into the quality adjustment for magistrates' courts from 2011, and for the Crown Court from 2014.

3. The prison measures are introduced into quality adjustment from the beginning of the series in 1997.

For more information about the impact of the methodological changes that have been made as a result of the Public Services Productivity Review, see our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

8 . Children's Social Care

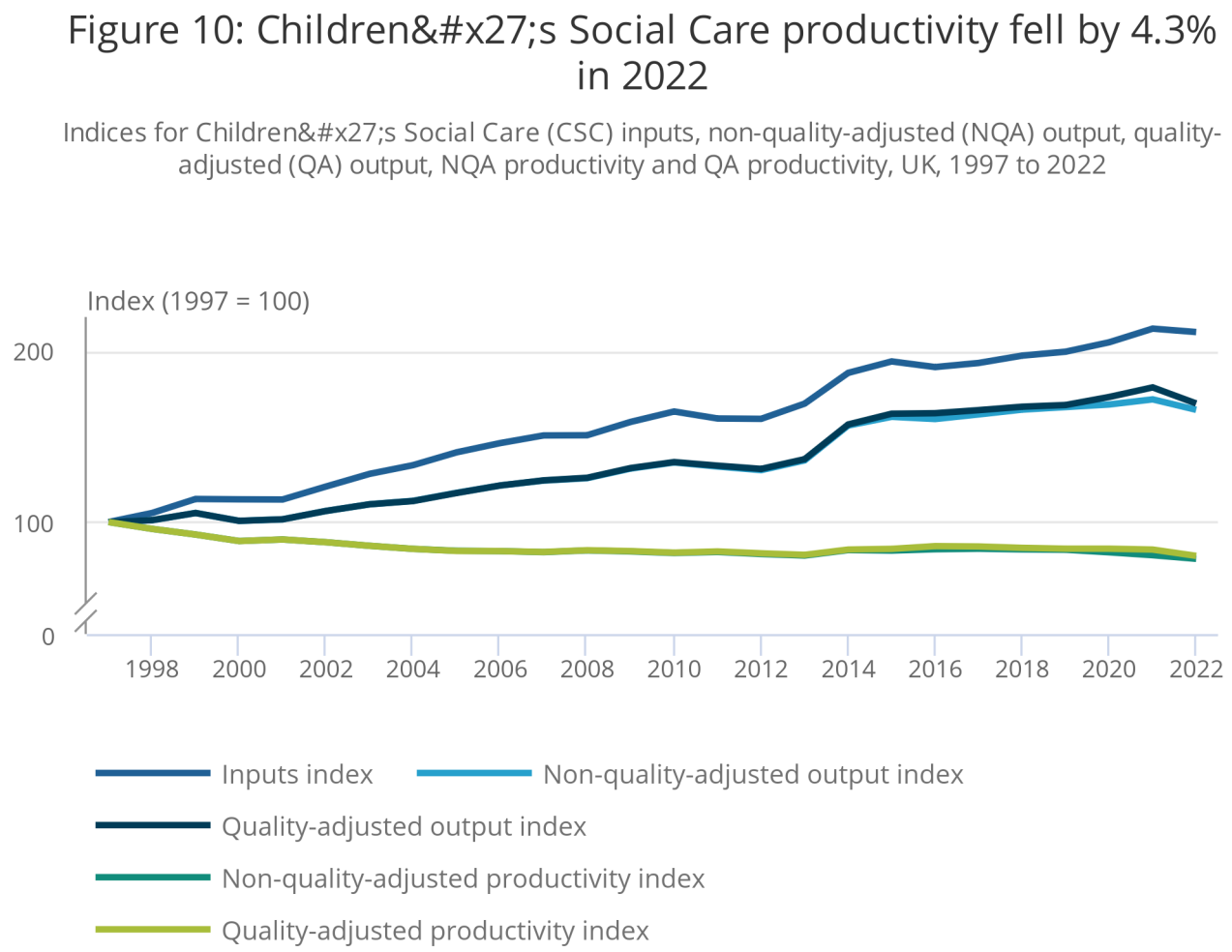
Children's Social Care (CSC) covers a range of services, including the provision of social work, protection or social support services to children in need or at risk. Children's Social Care includes both direct and indirect output. Since financial year ending 2015, direct measurements have been available for services including safeguarding, non-secure accommodation, secure accommodation, adoptions, and care leavers. See our Sources and methods for public service productivity estimates methodology for full details. In 2022, 70.8% of CSC output was directly measured.

CSC productivity fell by 4.3% in 2022. The productivity decline resulted from output decreasing more significantly than inputs. Input fell by 0.9% compared with the previous year, while output fell by 5.2%.

CSC output fell in 2022 because of a decline in non-secure accommodation primarily caused by a fall in fostering services. Some indicators measuring the quality of service (such as placement stability, adoption timelines, and duration of care episodes) also worsened in 2022, leading to a decline in quality-adjusted output. This may be attributed to coronavirus pandemic-induced alterations in service delivery, with residual effects extending into the immediate post-coronavirus pandemic period. As a result, the 2022 quality metrics may not be fully comparable with those of pre-coronavirus pandemic years.

Figure 10: Children's Social Care productivity fell by 4.3% in 2022

Indices for Children's Social Care (CSC) inputs, non-quality-adjusted (NQA) output, quality-adjusted (QA) output, NQA productivity and QA productivity, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. Quality adjustments are applied at the country-activity level, with different starting years for each country and activity.

2. For England, quality adjustments began in 2010 for safeguarding, in 2011 for non-secure accommodation and for secure accommodation, and in 2014 for care leavers.

3. In Wales, quality adjustments for safeguarding started in 2010, based on England's quality index. Adjustments for non-secure and secure accommodation began in 2004.

4. For Scotland and Northern Ireland, secure and non-secure accommodation are based on England's quality indices, starting from 2011.

9 . Social Security Administration

Social Security Administration (SSA) makes up 1.6% of total public service productivity by expenditure share. Improvements introduced by the Public Services Productivity Review (PSPR) mean that SSA productivity growth can be estimated once again, following the development of an output and productivity index that better captures the transition from legacy benefits to Universal Credit. These statistics are official statistics in development.

SSA non-quality-adjusted productivity grew by 12.4% in 2022, reflecting a fall in inputs (6.4%) and a rise in non-quality-adjusted output (5.2%). Although SSA non-quality-adjusted productivity has trended upward for the last seven years, this was the largest year-on-year increase since 2011, when non-quality-adjusted productivity grew by 12.9%.

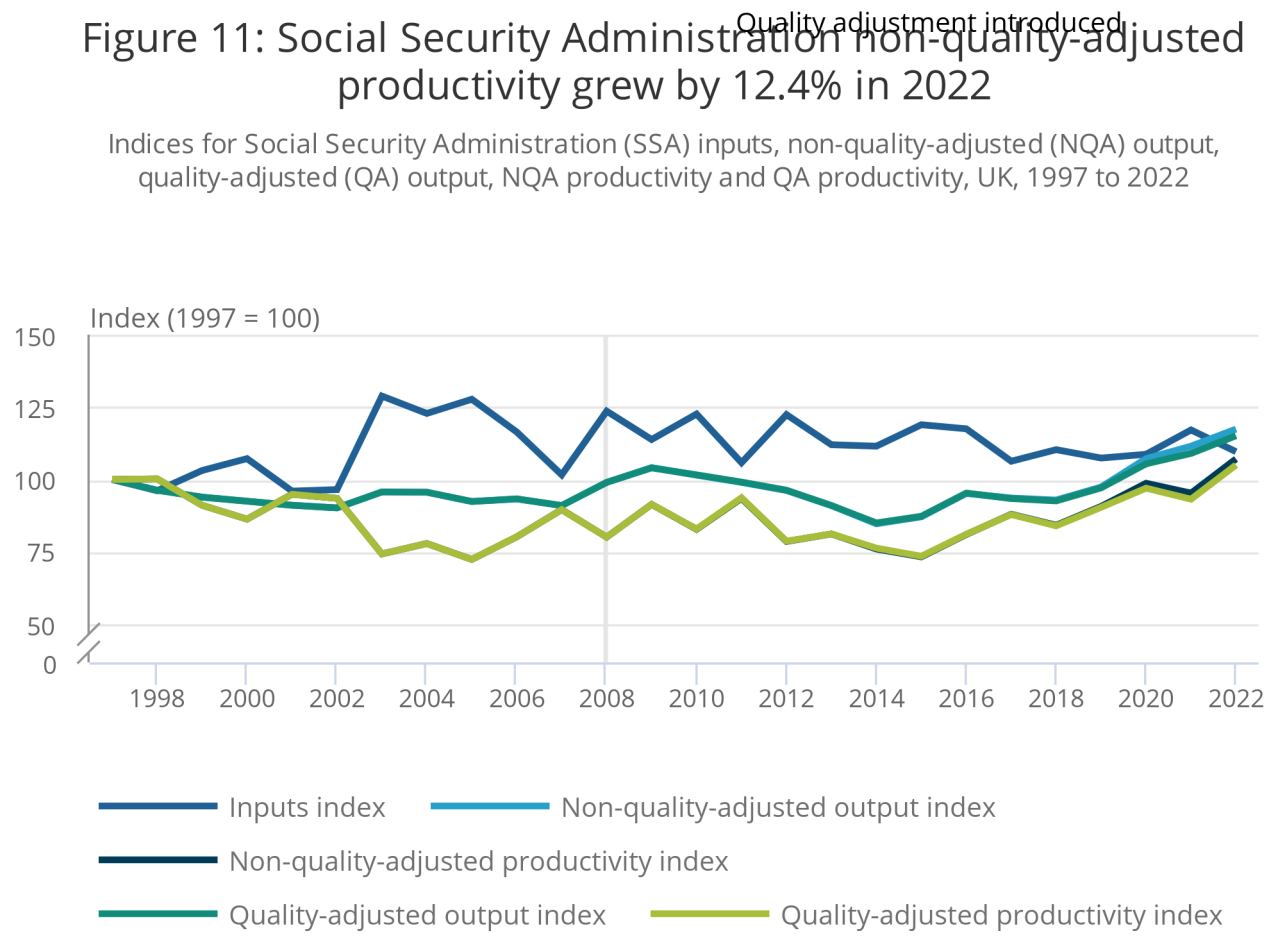
SSA inputs fell by 6.4% in 2022, the largest annual fall since 2017 when it fell by 9.5%. This fall partly reflects a relaxing of larger than usual intermediate consumption expenditure during 2021, when coronavirus (COVID-19)-related costs were elevated.

Non-quality-adjusted output growth in 2022 (5.2%) was predominantly caused by growing activity in Universal Credit and Personal Independence Payments during a period of rising economic inactivity rates in the UK. For more information, see our Rising ill-health and economic inactivity because of long-term sickness, UK: 2019 to 2023 article.

A quality adjustment has been introduced for the SSA service area, based on changes in the Department for Work and Pensions' (DWP) fraud and error estimates. The SSA quality adjustment had a negligible effect on SSA measurements before the coronavirus pandemic. During the pandemic, the quality adjustment drags on SSA productivity growth. In 2022, SSA quality-adjusted productivity grew by 12.8%, reflecting a rise of 5.5% in quality-adjusted output.

Figure 11: Social Security Administration non-quality-adjusted productivity grew by 12.4% in 2022

Indices for Social Security Administration (SSA) inputs, non-quality-adjusted (NQA) output, quality-adjusted (QA) output, NQA productivity and QA productivity, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. Output is quality-adjusted from 2008 onwards.
2. These estimates are official statistics in development.
3. Revisions on previous SSA estimates have been revised by a large magnitude because of the methods improvements implemented as a result of the National Statistician's Independent Review of the Measurement of Public Services Productivity.

For more information about the impact of the methodological changes that have been made as a result of the PSPR, see our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

10 . Tax Administration

Productivity estimates for Tax Administration are published for the first time in this article. The measure currently covers the period 2018 to 2022 and accounts for 0.7% of total public service productivity by expenditure share. These statistics are official statistics in development.

The Tax Administration service area covers inputs and output for taxes administered by HM Revenue and Customs (HMRC) only, excluding customs. Locally-administered taxes (such as Council Tax and business rates) and taxes collected by devolved governments are also not currently included.

The number of taxpayers (or registered traders or operators) for each tax form the basis of the directly measured component of output, which accounts for 89% of Tax Administration expenditure. The remainder is measured on the “inputs equals outputs” basis.

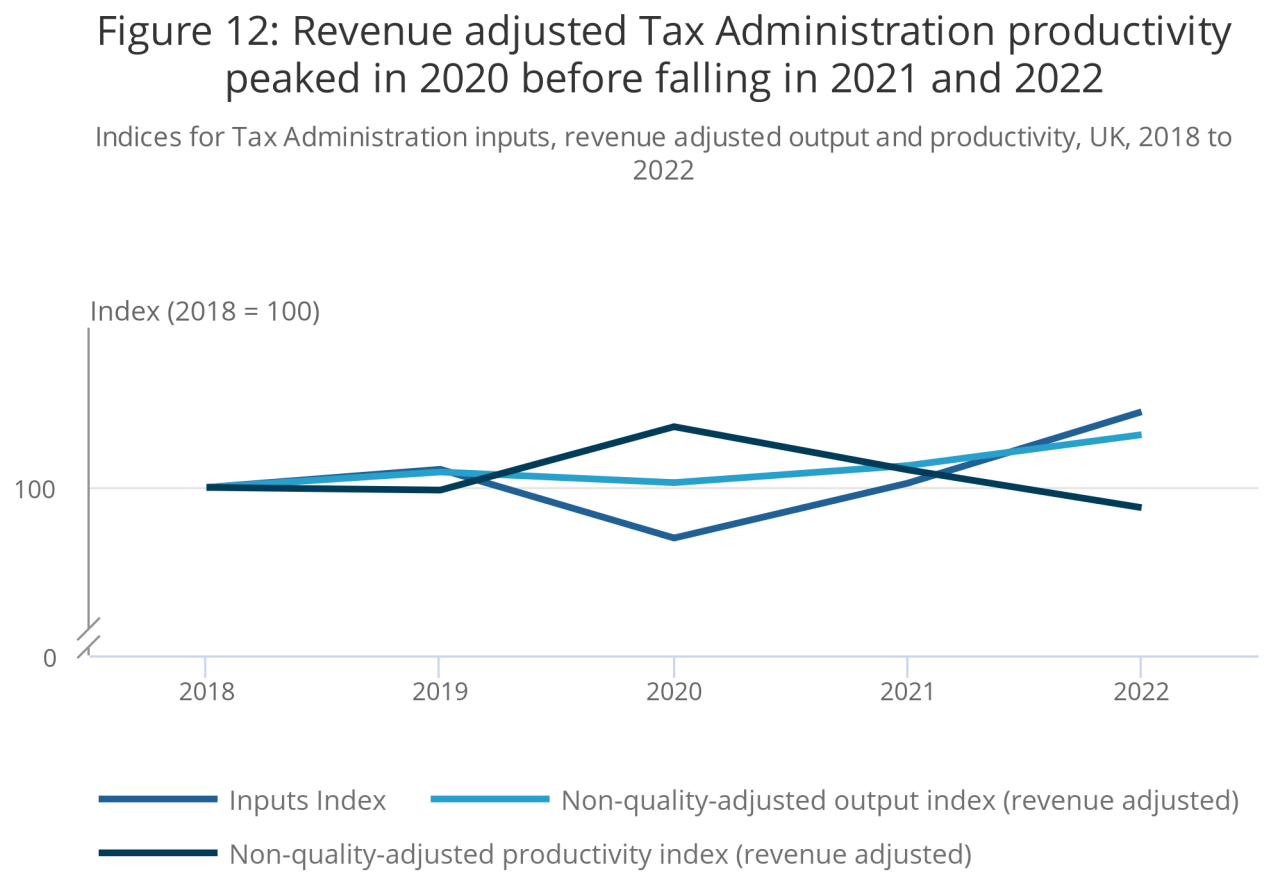
Our Tax Administration productivity estimates do not reflect the change in the quality of the service. While we explore the potential of introducing standalone quality adjustments, a revenue adjustment is applied that adjusts the cost weights by the revenue raised per £ of administrative cost for different taxes. While this enables efficiency improvements from changes in the number of tax payments made for low-cost taxes relative to high-cost taxes to be represented in the measure, it does not address any other aspects of quality in tax collection. As such, the measure remains non-quality-adjusted.

Revenue adjusted output has risen at an annual rate of 2.4% over the period 2018 to 2022, reflecting an increase in the number of taxpayers for larger taxes, such as Income Tax and National Insurance.

However, changes in Tax Administration productivity are largely caused by inputs, which fell 12.4% in 2020 as resources were diverted to coronavirus (COVID-19) support, before increasing by 11.4% and 13.3% in 2021 and 2022 respectively.

Figure 12: Revenue adjusted Tax Administration productivity peaked in 2020 before falling in 2021 and 2022

Indices for Tax Administration inputs, revenue adjusted output and productivity, UK, 2018 to 2022



Source: Public service productivity from the Office for National Statistics

Notes:

1. Tax Administration is included in the “Other government services” grouping on the inputs equals output basis for the period 1997 to 2017.

2. These estimates are official statistics in development.

3. Tax Administration output and therefore, productivity are revenue adjusted.

The revenue adjusted method used to measure Tax Administration productivity differs from the approach used in the National Accounts. We are holding this under review; as quality adjustments are developed this may see revisions to the weighting approach used in Public Service Productivity estimation. This current model should be considered a first step towards an end-state model.

We are also aware of alternative measures of Tax Administration performance which are methodologically substantially different, including HMRC’s Cost of Collection efficiency measure. Different measures can perform different functions. Efficiency and productivity are not direct equivalents and hence different metrics may deliver different results. More information on this can be found in our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

11 . Defence

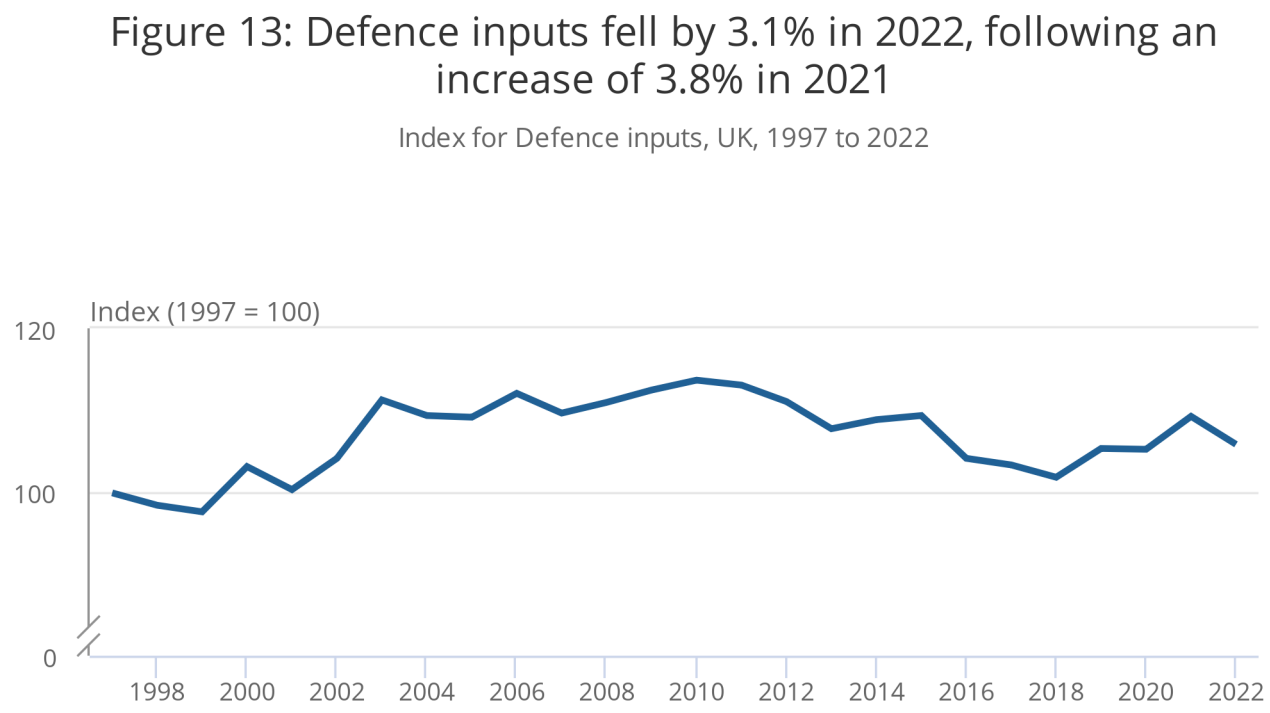
Defence is the fourth largest service area. Defence output is indirectly measured because of difficulties in identifying and measuring the collective nature of services delivered. We therefore apply the “inputs equals outputs” convention, hence productivity growth is zero.

We have improved the Defence inputs composition in transitioning from an indirect to a direct labour measurement approach. We have also moved from applying general to bespoke intermediate consumption and capital deflators. Implementation of direct labour measurement had the largest effect on revisions to the final inputs series.

In 2022, Defence inputs fell by 3.1%, following a revised increase of 3.8% in 2021.

Figure 13: Defence inputs fell by 3.1% in 2022, following an increase of 3.8% in 2021

Index for Defence inputs, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

For more information about the impact of the methodological changes that have been made as a result of the Public Services Productivity Review, see our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

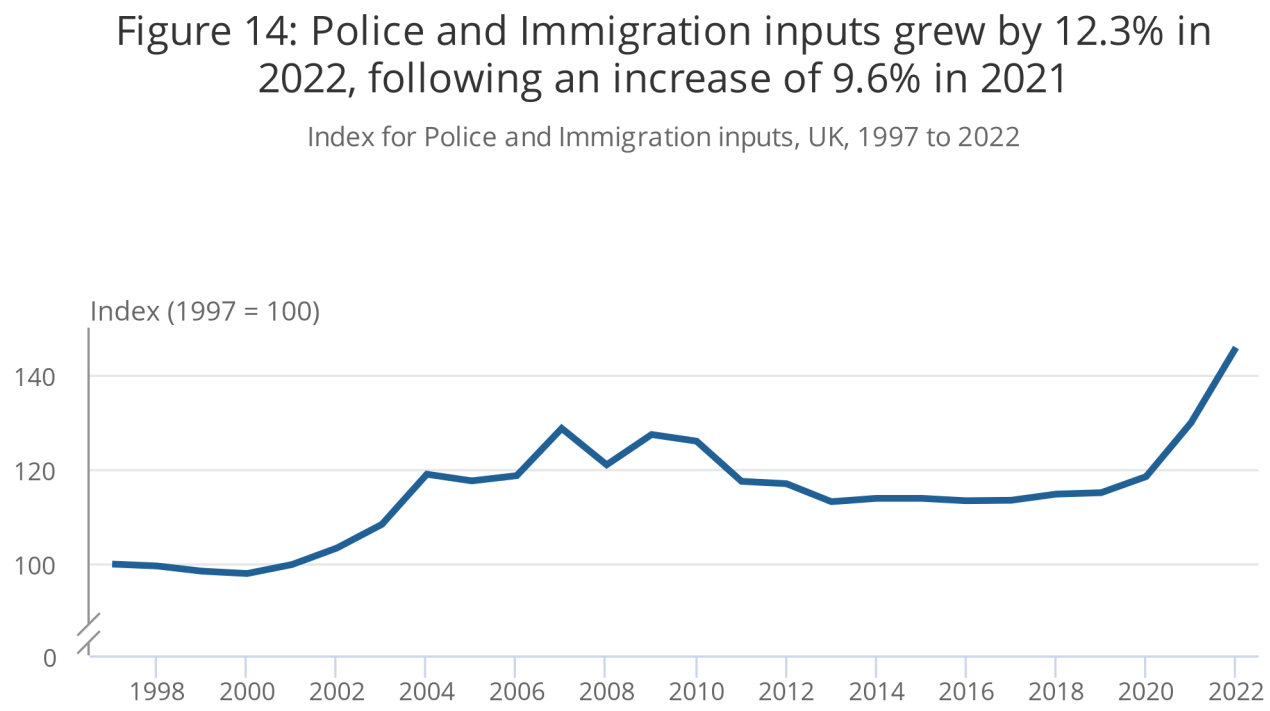
12 . Police and Immigration

Police and Immigration output is indirectly measured because of the difficulty in measuring output for this service area, particularly the complexity of Police and Immigration services and data availability. We therefore apply the “inputs equals outputs” convention, hence productivity growth is zero.

Police and Immigration inputs grew by 12.3% in 2022, following on from a revised growth of 9.6% in 2021. Growth was influenced primarily by continued pressures on immigration services, particularly the need for contingency asylum accommodation. Additionally, growth in police numbers following the Police officer uplift recruitment programme played a smaller role in the increase in inputs.

Figure 14: Police and Immigration inputs grew by 12.3% in 2022, following an increase of 9.6% in 2021

Index for Police and Immigration inputs, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

13 . "Other" government services

The "Other" government services grouping comprises all services which are otherwise not covered in the range of service areas described in this article. This includes economic affairs, environmental protection, housing, and recreation.

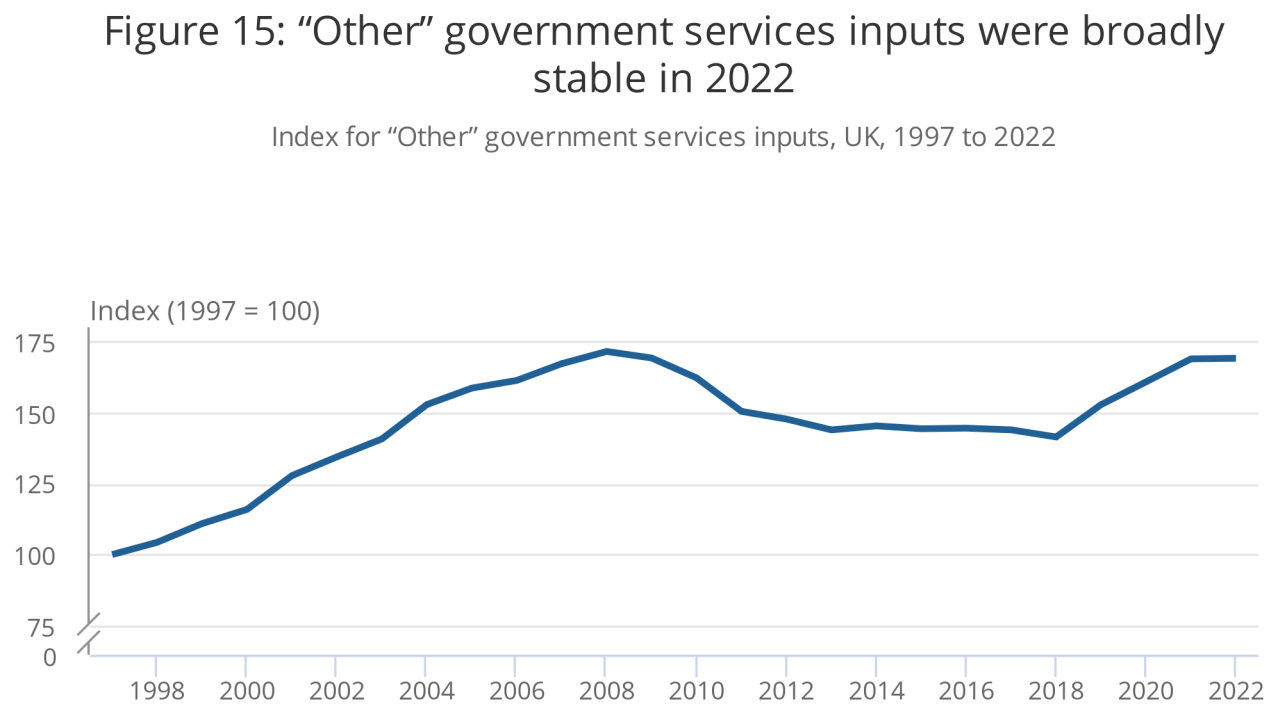
Tax Administration is included in this grouping for the period 1997 to 2017, while from 2018 to 2022, Tax Administration has been reported as a standalone service area, as described in Section 10: Tax Administration.

Services in this grouping are indirectly measured and assume productivity growth to be zero.

Inputs rose by 0.1% in 2022, following a rise of 5.0% in 2021.

Figure 15: “Other” government services inputs were broadly stable in 2022

Index for “Other” government services inputs, UK, 1997 to 2022



Source: Public service productivity from the Office for National Statistics

14 . Data on public service productivity

Public service productivity estimates: education
Dataset | Released 27 March 2025
Inputs, output and productivity indices and growth rates for education service. Includes estimates of quality adjustment, sub-service expenditure and revisions.

Public service productivity estimates: healthcare
Dataset | Released 27 March 2025
Public service healthcare growth rates and indices for inputs, quality- and non-quality- adjusted output and productivity, totals and components, for UK, 1995 to 2022.

Public service productivity estimates: total public services
Dataset | Released 27 March 2025
Inputs, output and productivity indices and growth rates for total public services. Includes estimates of quality adjustment, service expenditure and revisions.

15 . Glossary

Public services

These are services delivered by or paid for by government (central or local). This includes publicly-funded services delivered by non-government providers, for example, the provision of nursery places by the private sector, where these places were funded by the government.

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 and weighted by school phase. Differs from indirect output measurement, where output is assumed equal to inputs.

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.

Classification of the Functions of Government

TheClassification of the Functions of Government (COFOG), as explained on the Eurostat website,is the structure used to classify government activities. It is defined by the United Nations Statistics Division.

Service area

The way we refer to the breakdown of public services into 10 areas, closely following COFOG.

Intermediate consumption

Also referred to as "goods and services", or "intermediate consumption". 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.

Capital inputs

Also referred to as "consumption of fixed capital". Capital consumption is the decline in the value of fixed assets owned as a result of normal wear and tear when providing public services. An example of this would be emergency vehicles used to attend emergency calls. Another aspect of capital consumption is the coverage of anticipated terminal costs, such as decommissioning costs of medical equipment, or clean-up costs of landfill sites.

Deflator

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

16 . Data sources and quality

The estimates presented in this article follow the improvements implemented as a result of the Public Services Productivity Review. This section summarises the main components and service areas that have been changed. Details of the Public service productivity improvements, alongside the recommendations for further enhancing Public service productivity measurement in future years, are described in the National Statistician's Independent Review of the Measurement of Public Services Productivity.

In 2024 to 2025, output was reviewed and improved for:

- Healthcare
- Education
- Public Order and Safety
- Social Security Administration

Similarly, quality adjustment was improved for:

- Healthcare
- Education
- Public Order and Safety

In addition, quality adjustment was introduced for the first time for Social Security Administration. These estimates are official statistics in development.

Inputs were reviewed for all service areas and improvements were made for:

- Defence
- Police and Immigration
- Public Order and Safety

Productivity estimates for Tax Administration are published for the first time. These are official statistics in development.

Comparison between public service productivity estimates

We publish an annual public service productivity analysis for all service areas in the UK. The methodology used for this analysis is considered the "gold standard" and provides the most robust productivity estimate available. We have been working with government departments and devolved administrations to improve our estimates of inputs, outputs, and productivity, as well as expanding the coverage of UK public services.

However, users should be aware that the productivity estimates we produce may differ from those produced by other institutions or government departments, as we use different methodologies, data, and coverage.

This is particularly the case for Healthcare, where our methodology does not capture the same activities as NHS England's statistics on productivity, resulting in different estimates. Similarly, although the trends follow the same patterns, the Healthcare productivity we publish will also differ from the Productivity of the English National Health Service report (PDF, 3.45MB), published by the Centre for Health Economics at the University of York.

Our official statistics in development measure of Tax Administration productivity is also substantially different to the “cost of collection” efficiency measure used by HM Revenue and Customs (HMRC). A detailed comparison of these two measures is presented in our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

We also publish quarterly estimates on public service productivity, which are official statistics in development. Quarterly methodology and data differ from the approach used in the annual estimates, including the treatment of quality adjustment. Namely, the quarterly statistics do not take account of quality adjustment, because the data used to generate these quality adjustments are produced with a two-year lag. As such, we do not update quality adjustment in the quarterly estimates, but we hold the quality adjustment in the annualised quarterly estimates at the level in our latest annual accredited official statistics.

More information on the 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 will publish an update to this methodology on 22 April 2025.

Rounding

Indices and growth rates are calculated using unrounded data and are presented in these statistics to one decimal place. In some cases, indices and growth rates may not sum or reconcile due to rounding.

Splining

Where data are received on a financial (April to March) or academic (September to August) year basis, a statistical technique known as splining is used to align these data to the calendar year (January to December). We use a cubic spline method, which calculates a quarterly path for the annual data (in the financial or academic year). The method follows a set of constraints to ensure that the quarterly path experiences no artificial changes in the growth or level of the series and that the average or sum of the four quarters for a particular academic or financial year is equal to the annual data used. This quarterly path can then be re-aggregated up to a calendar year by averaging or summing the four quarters of the calendar year.

While a cubic spline can create a steady quarterly path when there is little volatility in the annual series, a large shock to the annual series can lead to volatility in the quarterly path. This was the case where the effects of the coronavirus (COVID-19) pandemic led to large changes from 2019 to 2020 and from 2020 to 2021.

As the calculation of a cubic spline is dependent upon four consecutive annual data points, this shock affects not just the quarterly path at the time of the coronavirus pandemic, but also the years immediately preceding and succeeding the pandemic.

To overcome this issue, we have applied different methods when the results given by the cubic spline produced estimates that do not appear to fully reflect the expected economic scenario.

For Healthcare, the use of cubic splining to convert financial year (FY) UK Healthcare output estimates to calendar year (CY) UK estimates produces disparity between growth rates for CY 2022 UK estimates, financial year ending (FYE) 2023 England and UK estimates. This is an issue because of the large magnitude of fall and growth during the coronavirus pandemic. Following expert advice, we have adopted a benchmarking approach as an alternative to cubic splining in converting UK FY quantity output estimates to UK CY estimates. Benchmarking the annual output series to the quarterly output series (used to produce annualised CY estimates) produces an annual CY output series which maintains consistency with the trends seen in the annualised quarterly CY series. FY data are disaggregated into quarters using weights based on the proportional share of quarters for financial years calculated from the annualised quarterly series. These interpolated quarters are reaggregated to produce annual CY estimates. However, because benchmarking the output index would have caused more extensive revisions throughout the back series, we have used a combined approach, where we apply cubic splining until 2018 to 1019 (to limit backwards effects of the increased volatility around the coronavirus pandemic) then benchmark estimates from CY 2019 onwards.

Similarly, the transformation of FY UK Adult Social Care output estimates to CY UK estimates produces disparity between growth rates for CY 2022 UK estimates, FY 2022 to 2023 England and UK estimates. For this reason, we have used the approach of cubic splining from the beginning of the series until the FY 2018 to 2019, and then calculated the following years by manually apportioning data from FY into CY. The cubic splined and manually adjusted data are then compiled to form a time series from 1997 to 2022.

Finally, for Education, the use of cubic splining to convert academic year to calendar year led to disparities between growth rates. For this reason, we have used the approach of cubic splining from the beginning of the series until the academic year ending 2019, and then calculated the following years by manually apportioning data from FY into CY.

Producer Price Index (PPI) and the Services Producer Price Indices (SPPI)

As announced by the Office for National Statistics on 21 March 2025 in our statement on the Pausing of Producer Prices publications, a problem has been identified in the chain-linking methods used to calculate PPI and SPPI. This problem affects the years from 2008 onwards. However, the main impact on annual producer price inflation rates is seen in 2022 and 2023.

In Public service productivity, PPI and SPPI are used as part of a suite of prices to remove inflation effects from the current price estimates of expenditure to provide a volume estimates in the following service areas:

- Education
- Public Order and Safety
- Police and Immigration
- Tax Administration
- Social Security Administration
- Adult Social Care
- Children's Social Care
- Defence

We are working with other teams at the ONS to understand the impact of this issue on the Public service productivity estimates. We will review our estimates and provide further information as soon as is practicable.

17 . Related links

National Statistician's Independent Review of the Measurement of Public Services Productivity
Report | 13 March 2025

Public Services Productivity Review: Impact of improved methods on total public service productivity, 1997 to 2021
Article | Last revised 27 March 2025
This article presents the improvements to public service productivity measures introduced in the Public Services Productivity Review implemented in March 2025

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

Developing nowcast methodologies for public service productivity, UK
Article | Last revised 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.

Improved methods for total public service productivity: total, UK, 2021
Methodology | Last revised 8 March 2024
Explaining data and methodological improvements to education and healthcare inputs, output and quality adjustment, used in the upcoming public service productivity article.

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.

18 . Cite this article

Office for National Statistics (ONS), released 27 March 2025, ONS website, article,Public service productivity: total, UK, 2022