

## Article

# Public service productivity: total, UK, 2019

Updated measures of output, inputs, and productivity for public services in the UK between 1997 and 2019. Includes service area breakdown, as well as impact of quality adjustment and latest revisions.



Contact:  
Sara Zella  
[productivity@ons.gov.uk](mailto:productivity@ons.gov.uk)  
+44 1633 455759

Release date:  
22 February 2022

Next release:  
To be announced

## Table of contents

1. [Main points](#)
2. [Overview](#)
3. [Summary of public service productivity](#)
4. [Healthcare](#)
5. [Education](#)
6. [Adult social care](#)
7. [Public order and safety](#)
8. [Children's social care](#)
9. [Social security administration](#)
10. [Police, defence, and other government services](#)
11. [Public service productivity data](#)
12. [Glossary](#)
13. [Data sources and quality](#)
14. [Acknowledgements](#)
15. [Related links](#)

# 1 . Main points

- This article covers the period until the end of 2019, so precedes the coronavirus (COVID-19) pandemic.
- UK total public service productivity fell by 0.2% in 2019, the first time it has fallen in eight years.
- Total inputs grew by 2.6%, mostly driven by healthcare and an increase in expenditure for “other” government services.
- Total quality-adjusted output grew by 2.4%, because of the contribution of healthcare, education, adult social care, and children’s social care.
- For healthcare, the largest service area by expenditure, quality adjusted productivity fell by 1.5%.

## 2 . Overview

This article includes updated measures of non-quality-adjusted (NQA) and quality-adjusted (QA) output, inputs, and productivity of nine public service areas, in the UK between 1997 and 2019. All these statistics are based on a calendar year.

[Our datasets linked to this publication](#) provide more comprehensive detail on inputs, output and productivity, the estimates of quality adjustment, expenditure and revisions.

We recommend referring to the [Improved methods for total public service productivity: total, UK, 2019 methodology](#), which provides commentary on the methodological changes that affect this article. Because of changes in data sources and methods, estimates for some public service areas are not directly comparable with previous annual estimates.

In addition, detailed information of the main concepts, output and inputs measures by service area are provided in the [Sources and methods for public service productivity estimates](#).

Figures in this article cover up to the end of 2019, so do not include the months affected by the coronavirus (COVID-19) pandemic. However, some forward-facing data used in these statistics may be affected by the early part of the coronavirus pandemic.

### 3 . Summary of public service productivity

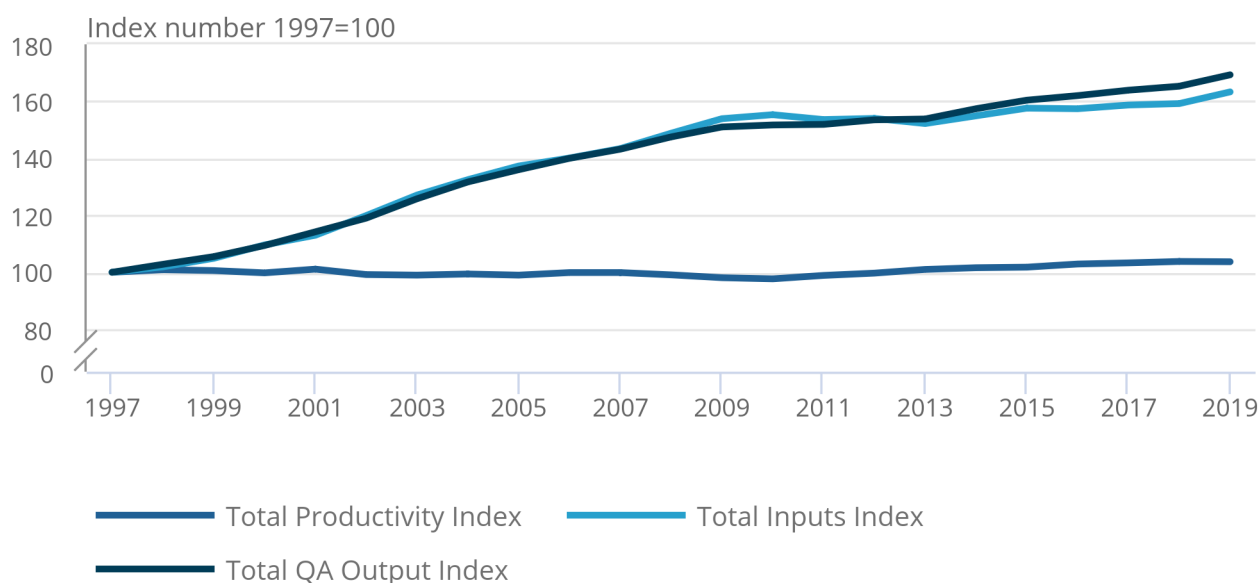
In 2019, public service inputs and output grew compared with the previous year. Since inputs grew faster than output (2.6% and 2.4% respectively), productivity fell by 0.2%. This is the first annual fall in public service productivity since 2010.

**Figure 1: Total public service productivity fell in 2019, after eight years of growth**

Total public service, inputs, output and productivity indices, UK, 1997 to 2019

Figure 1: Total public service productivity fell in 2019, after eight years of growth

Total public service, inputs, output and productivity indices, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

Notes:

1. QA means quality-adjusted.

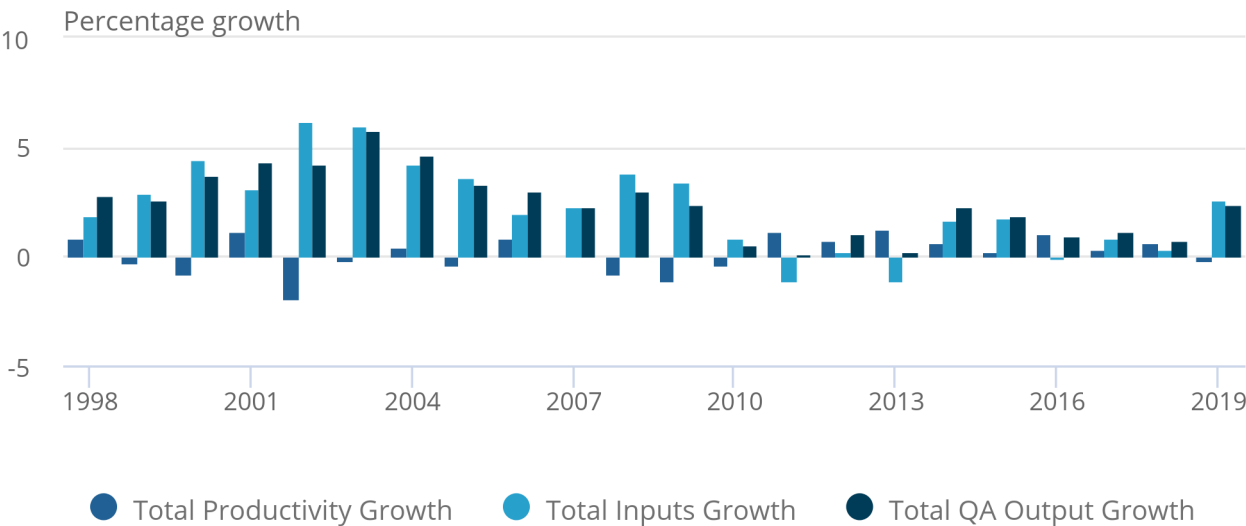
However, productivity growth over the last decade remained positive, averaging 0.4% per annum between 2009 and 2019. By comparison, total public service productivity declined between 1998 and 2008.

Figure 2: Inputs of total public service productivity grew faster than output in 2019

Total public service, inputs, output and productivity growth rates, UK, 1998 to 2019

Figure 2: Inputs of total public service productivity grew faster than output in 2019

Total public service, inputs, output and productivity growth rates, UK, 1998 to 2019



Source: Office for National Statistics – Public Service Productivity

Notes:

1. QA means quality-adjusted.

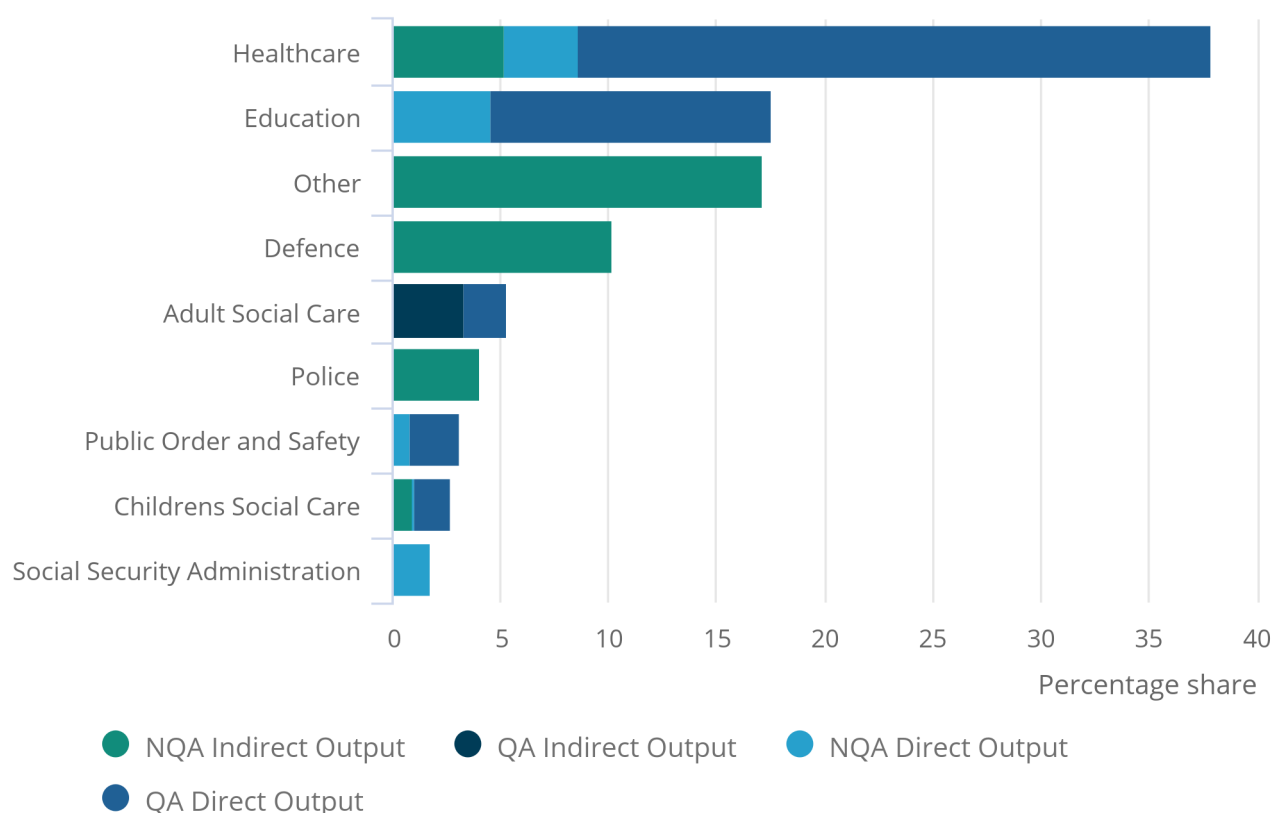
Total public service output and inputs are calculated by aggregating output and inputs of nine service areas based on their share of expenditure, as explained in our [Sources and methods for public service productivity estimates methodology](#). A larger expenditure share means the service area has a larger contribution to the overall productivity statistic. Healthcare had the largest expenditure share (37.9%), followed by education (17.6%) and then “other” government services (17.1%). These include a variety of smaller activities such as general government services, economic affairs, environmental protection, housing, recreation, and other public order and safety.

**Figure 3: Healthcare and education are the largest service areas in the UK by expenditure**

Expenditure shares and output types by public service area, UK, 2019

**Figure 3: Healthcare and education are the largest service areas in the UK by expenditure**

Expenditure shares and output types by public service area, UK, 2019



Source: Office for National Statistics – Public Service Productivity

**Notes:**

1. QA means quality-adjusted. NQA means non-quality adjusted.
2. "Direct" means output is measured using activity indicators. "Indirect" means output is measured following the "output equals inputs" convention.

The contributions to growth in Figure 4 reflect the productivity growth for the service areas measured directly, weighted by their expenditure share each year. In 2019, healthcare had the largest negative contribution to total public service productivity.

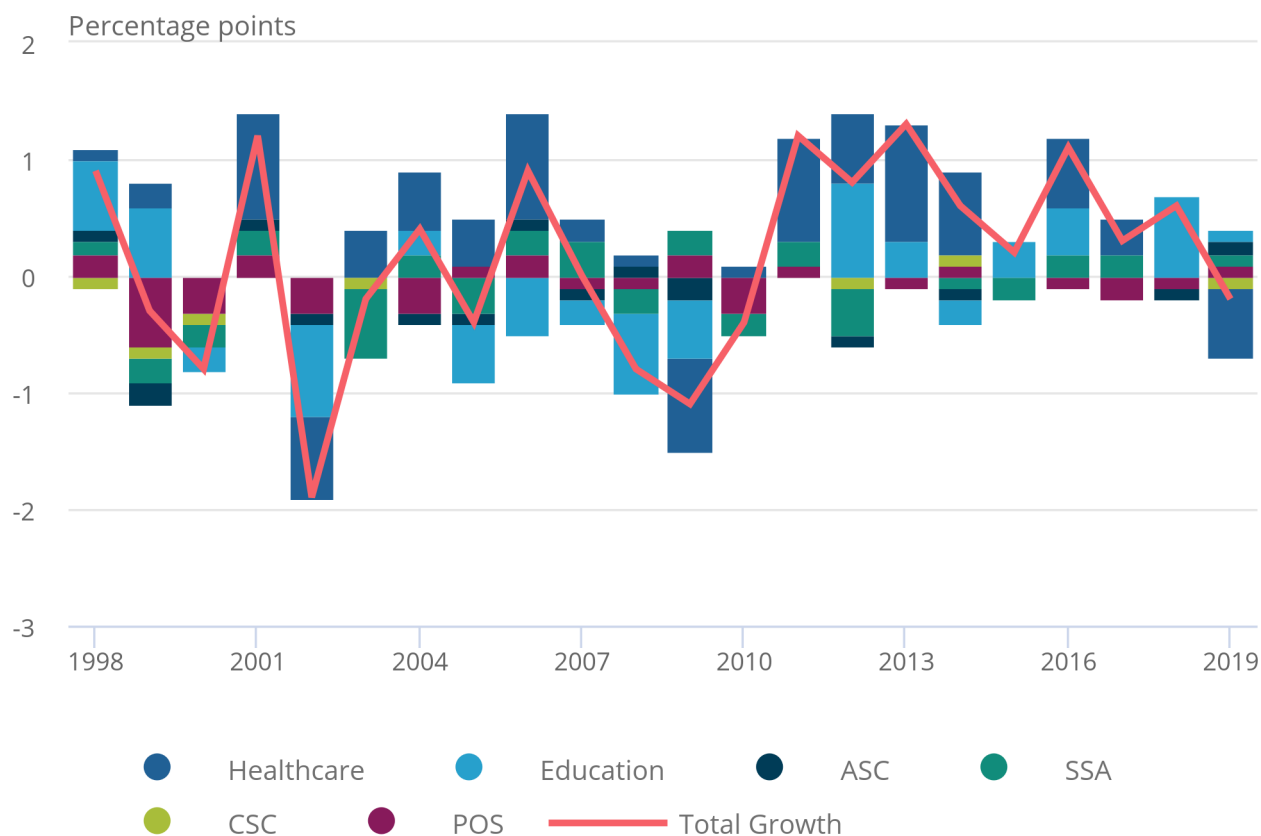
Police, defence, and "other" government services are not included in Figure 4, since they are measured using the "output-equals-inputs" convention and, consequently, they have no impact on estimates of total public service productivity growth.

**Figure 4: Healthcare was the largest negative contributor to public service productivity growth in 2019**

Contributions to total public service productivity growth by service area, UK, 1998 to 2019

## Figure 4: Healthcare was the largest negative contributor to public service productivity growth in 2019

Contributions to total public service productivity growth by service area, UK, 1998 to 2019



Source: Office for National Statistics – Public Service Productivity

Notes:

1. ASC "Adult social care", SSA "Social security administration", CSC "Children's social care", POS "Public order and safety".

## 4 . Healthcare

Healthcare represents the largest service area included in public service productivity.

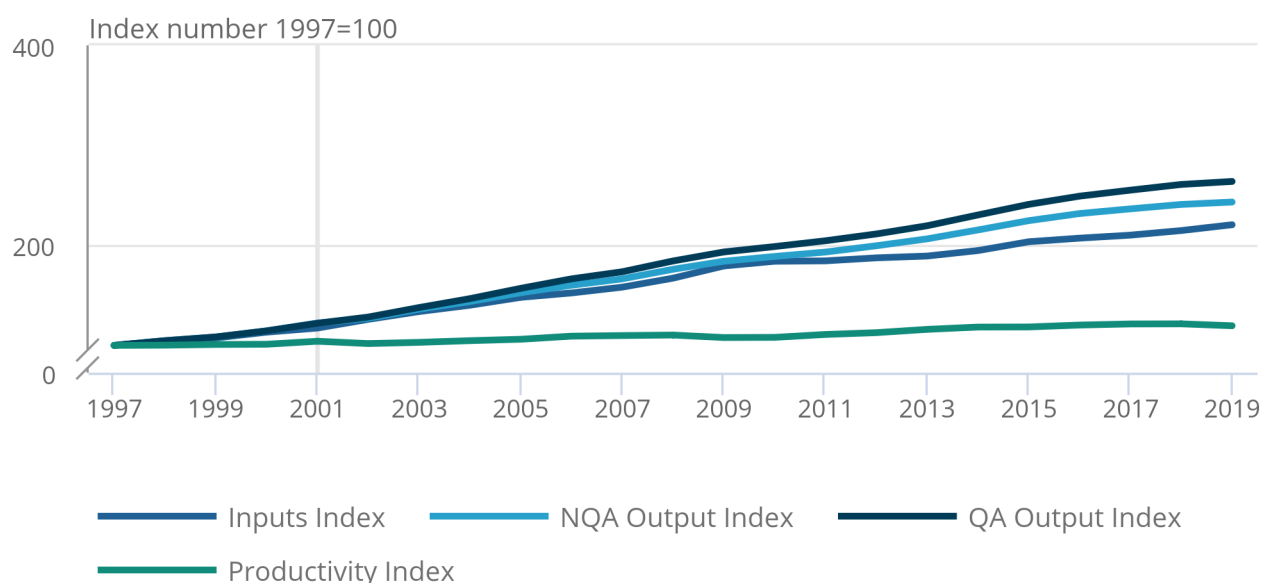
Public service healthcare productivity fell by 1.5% in 2019, following near zero growth in the previous year. The fall observed in 2019 (the biggest since 2009) was driven by 2.7% growth of inputs and 1.1% growth of output.

### Figure 5: Healthcare productivity had the biggest fall since 2009

Indices for healthcare inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019

### Figure 5: Healthcare productivity had the biggest fall since 2009

Indices for healthcare inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

While the figures in Figure 5 are calculated on a calendar-year basis, most of the data used in healthcare productivity is produced using financial year data. As a result, [falls in output in the financial year ending 2020](#) may have some effect on the 2019 figures. This may have been partly because of the early part of the coronavirus (COVID-19) pandemic.

Please note that [new healthcare output data](#) has been used to measure hospital and community healthcare services (HCHS) output for 2019.

## 5 . Education

Education is the second largest service area in public service productivity by expenditure share.

Productivity of UK education services continues its positive trend of the last five years, increasing by 0.9% in 2019. This was caused by output growth of 0.9%. Inputs growth was close to 0%.

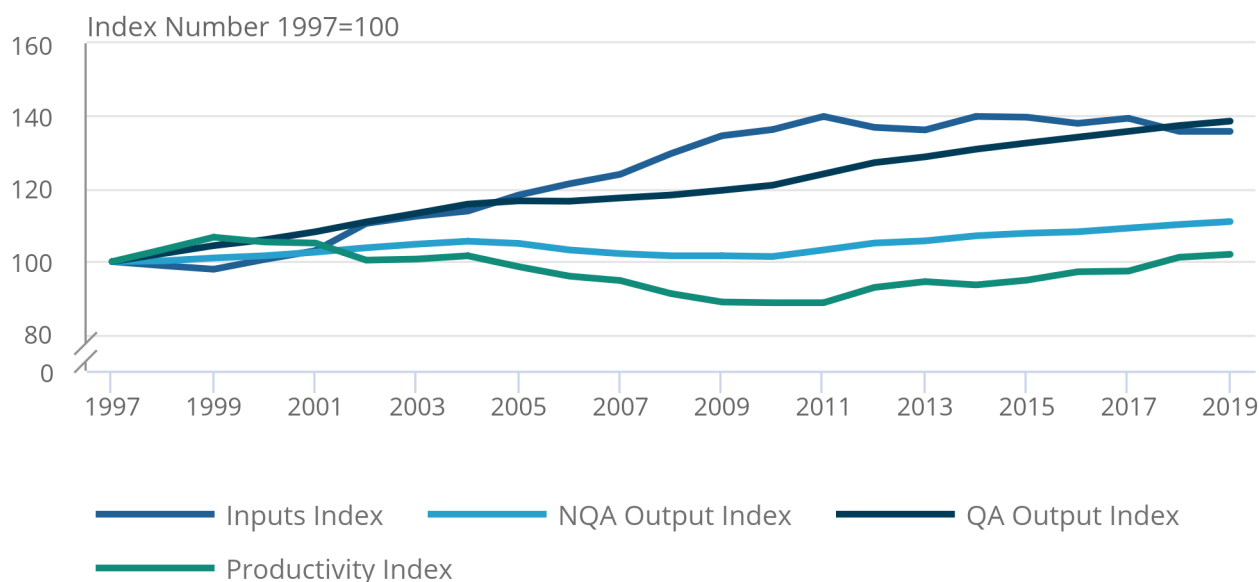
Both quality-adjusted and non-quality-adjusted output of education have historically grown over time, with a few exceptions.

### Figure 6: Quality-adjusted education output grew in 2019, while inputs remained flat

Indices for education inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019

### Figure 6: Quality-adjusted education output grew in 2019, while inputs remained flat

Indices for education inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

The [methodology of quality adjustment for education productivity](#) has been recently updated.



## 6 . Adult social care

Adult social care (ASC) output is a measure of the care and support provided to older people, adults with learning or physical disabilities, adults with mental health problems, drug and alcohol misusers, and carers. ASC output is partially measured directly and, from 2011 onwards, is adjusted to account for the quality of the services provided.

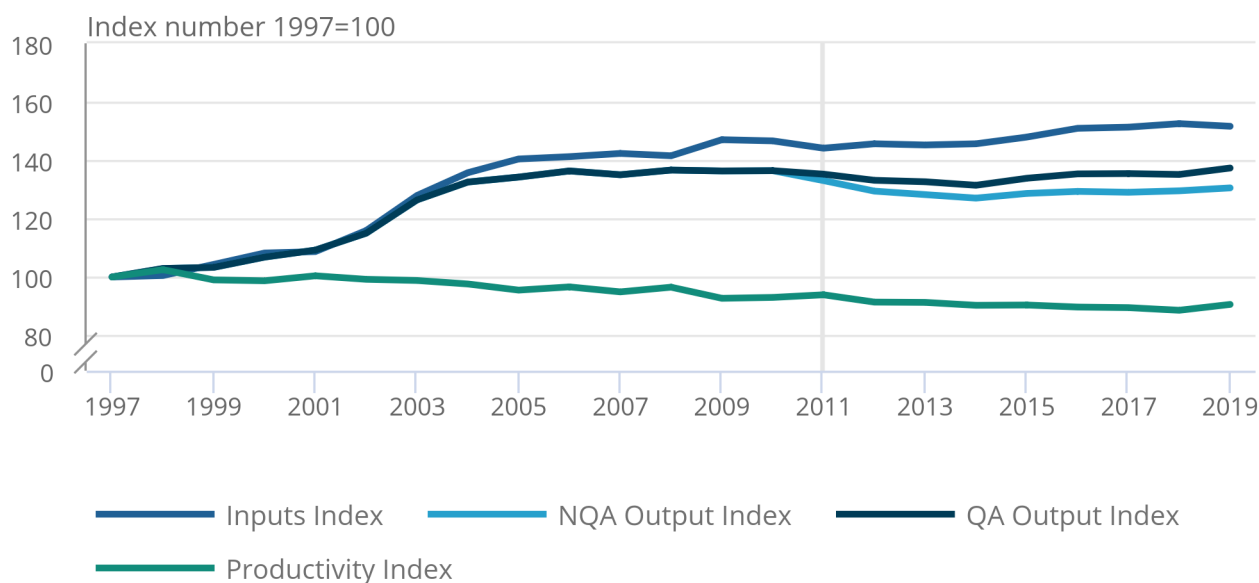
Where activity data are not available, output is measured on an "output-equals-inputs" basis. ASC productivity grew by 2.3% in 2019. This is the first notable increase after seven years of declining or stable productivity. Inputs into ASC fell by 0.6%, while output grew by 1.7%. Non-quality-adjusted output contributed positively to the ASC productivity by 0.8%.

**Figure 7: Adult social care (ASC) productivity has increased by 2.3% in 2019, after declining for seven years**

Indices for Adult social care (ASC) inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019

Figure 7: Adult social care (ASC) productivity has increased by 2.3% in 2019, after declining for seven years

Indices for Adult social care (ASC) inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

Every year we also publish [ASC England based on financial year](#) (FY). Despite the [methodology for measuring ASC productivity](#) being almost the same for the England-only and UK statistics, different data sources are used for input expenditure.

These estimates also reflect changes to output introduced in the [Adult social care: England, FYE 2020 bulletin](#), described in more detail in the revisions section of that bulletin.

## 7 . Public order and safety

Public order and safety (POS) include a range of services. You can find out more in our [Sources and methods for public service productivity estimates methodology](#). Where applicable, output is also [adjusted for quality](#).

Productivity for POS increased by 4.2% in 2019, which represents the highest output growth on record. Quality adjusted output fell by 2.2%, while inputs fell by 6.1%.

Quality measures have had a negligible impact on output growth. Prison safety statistics remained stable, and courts timeliness data slightly improved. Data on reoffending were not incorporated on account of comparability issues caused by the coronavirus (COVID-19) pandemic.

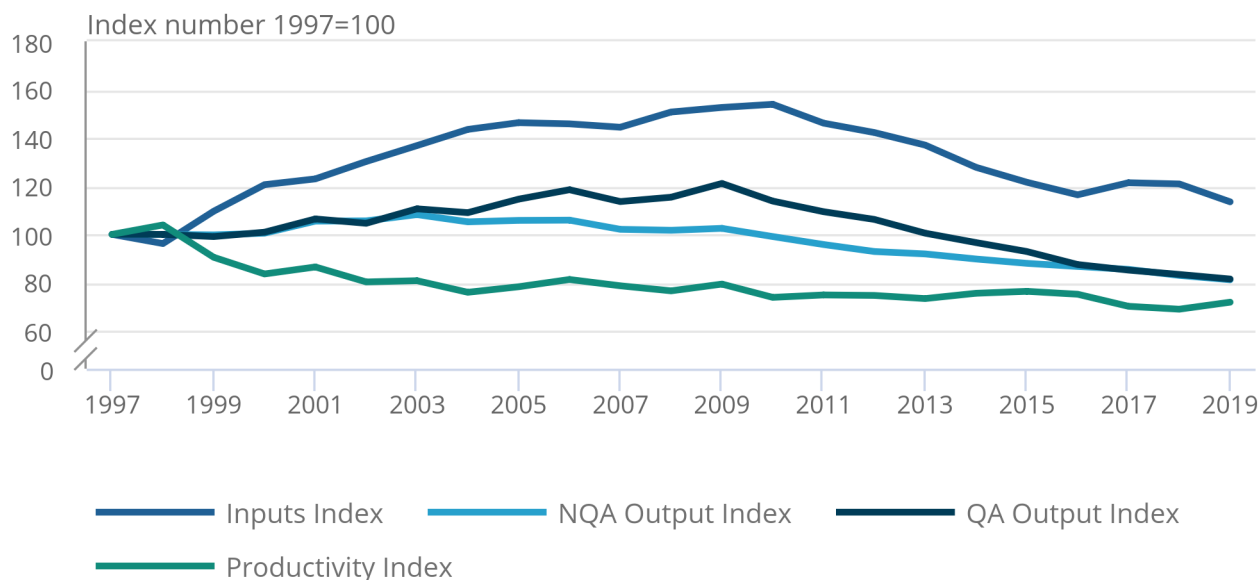
[Data on proven reoffending from the Ministry of Justice](#) has historically been used, alongside other measures, to quality adjust output in the criminal justice system. However, data on reoffending for the last quarter of 2018 and all of 2019 have been affected by the coronavirus pandemic, as it looks at proven reoffending that occurs within the following year. Levels of reoffending for the 2019 cohort have fallen significantly, because of the impact of lockdowns and a slowdown in the rate at which offenses are proven. It is therefore more difficult to compare 2019 reoffending rates with earlier data. The Office for National Statistics (ONS) has therefore made a small adjustment to reoffending data in Quarter 4 (Oct to Dec) 2018 to account for this by holding reoffending rates constant for the 2019 period. This is on the basis that it cannot be used as a comparable quality measure during the coronavirus period.

**Figure 8: Productivity within public order and safety increased by 4.2%**

Indices for Public order and safety (POS) inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019

Figure 8: Productivity within public order and safety increased by 4.2%

Indices for Public order and safety (POS) inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity



## 8 . Children's social care

Until last year's article, one-third of children's social care (CSC) was measured directly, while the remaining two-thirds were measured using the "output-equals-inputs" convention. In addition, quality adjustment was not included. Methodological improvements to our statistics have been applied this year, which has led to an increase of the proportion of activities' measures (about two-thirds of the output is now measured directly). These improvements have also led to the inclusion of case-mix and quality adjustments that better reflect the composition of the cases handled and the outcomes achieved. More information on these changes can be found in our [Improved methods for total public service productivity: total, UK, 2019 methodology](#).

In 2019, both inputs and quality adjusted output continued their positive trend that started six years ago. However, productivity fell because the growth in inputs was higher than the increase of output.

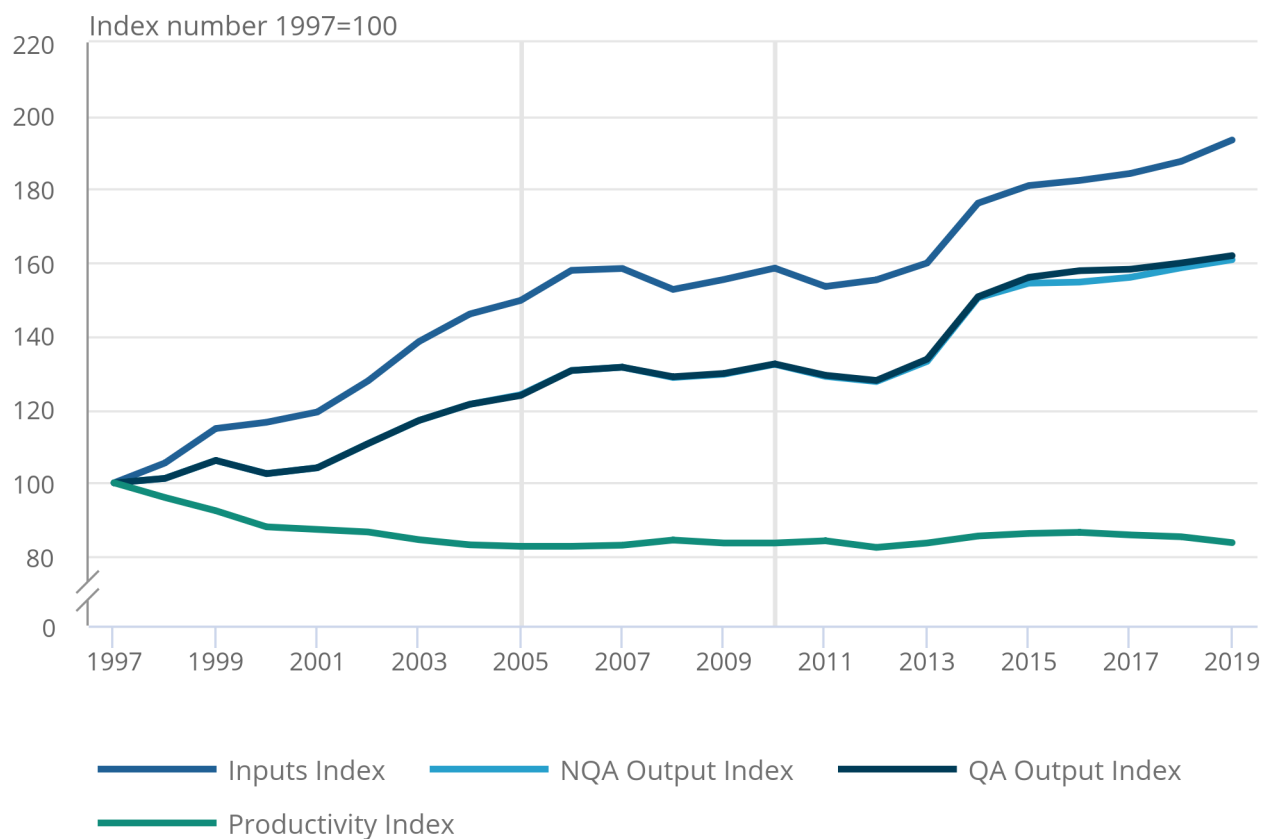
The growth in quality-adjusted output was mainly driven by the growth in non-secure accommodation, which includes fostering services, children's homes, and other looked-after children. In 2019, CSC inputs grew by 3.1%, which offset the growth in outputs of 1.2%. This resulted in a fall in productivity by 1.8% in the latest year.

**Figure 9: Both inputs and quality-adjusted output have grown in the last few years**

Indices for Children's social care (CSC) inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019

## Figure 9: Both inputs and quality-adjusted output have grown in the last few years

Indices for Children's social care (CSC) inputs, non-quality-adjusted (NQA) and quality-adjusted (QA) output, and productivity, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

**Notes:**

1. The majority of quality adjustment for children's social care is introduced from 2010 onwards, with small differences in QA and NQA output on account of additional quality adjustment for Wales extending back to 2005.

## 9 . Social security administration

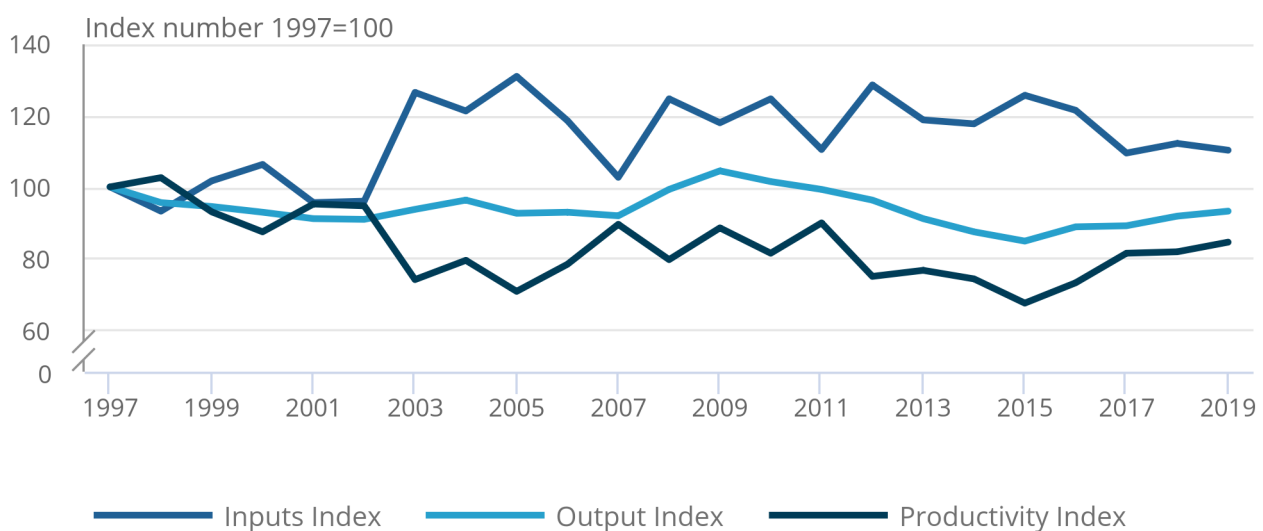
As observed in the 2018 publication, productivity over time for social security administration (SSA) is volatile, driven mostly by changes in inputs. Between 2018 and 2019, productivity grew by 3.3%. Inputs fell by 1.7%, whereas output grew by 1.5%.

**Figure 10: Social security administration productivity grew by 3.3% in 2019**

Indices for SSA inputs, output, and productivity, UK, 1997 to 2019

Figure 10: Social security administration productivity grew by 3.3% in 2019

Indices for SSA inputs, output, and productivity, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

These statistics reflect the activities related to the administration of social security. Therefore, SSA can be significantly affected by events happening in the wider economy, such as an economic downturn or a change in the UK's employment rate and the general UK labour market.

## 10 . Police, defence, and other government services

Police, defence, and other government services are service areas in which all output is indirectly measured. In 2019, police inputs growth fell by 0.8%, making this the fifth consecutive year of negative growth. Defence inputs grew by 6.4% in 2019, recovering from a fall of 0.8% in 2018.

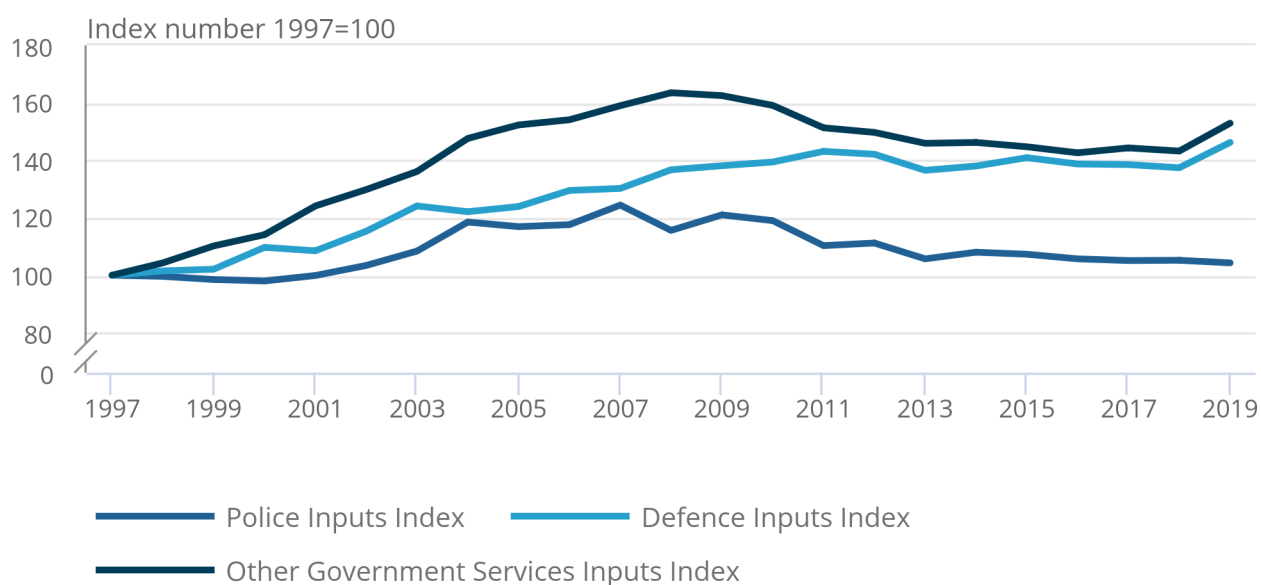
In 2019, other government services saw the biggest change of the three indirectly measured services, increasing by 7.0%.

**Figure 11: Defence and other government services' inputs grew considerably in 2019**

Indices for police, defence, and other government services' inputs, UK, 1997 to 2019

Figure 11: Defence and other government services' inputs grew considerably in 2019

Indices for police, defence, and other government services' inputs, UK, 1997 to 2019



Source: Office for National Statistics – Public Service Productivity

## 11 . Public service productivity data

### [Public service productivity estimates: education](#)

Dataset | Released 22 February 2022

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: total public service](#)

Dataset | Released 22 February 2022

Inputs, output and productivity indices and growth rates for total public services. Includes estimates of quality adjustment, service expenditure and revisions.

## 12 . Glossary

### Public services

Services delivered by or paid for by the 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.

### Direct output measurement

Using a cost-weighted activity index to estimate the non-quality-adjusted of a service provided. For example, 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.

### Quality adjustment

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

### COFOG

The [Classification of the Functions of Government \(COFOG\)](#) 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 nine areas, closely following COFOG.

### Intermediate inputs

Also referred to as “goods and services”, or “intermediate consumption” (the UK 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.

### Deflator

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



## 13 . Data sources and quality

Productivity is the measure of how many units of output are produced from one unit of inputs. It is calculated by dividing total output by total inputs. Details of inputs and output can be found in the [Sources and methods for public service productivity estimates methodology](#).

Growth rates of output and inputs for individual service areas are aggregated by their relative share of total government expenditure (expenditure weight) to produce estimates of total public service output, inputs and productivity. Service areas are defined by [Classification of the Functions of Government \(COFOG\)](#) rather than administrative departments or devolved administrations. As a result, estimates presented cannot be taken as direct estimates of departmental productivity. Lastly, it should be noted that these estimates do not measure, for example, the value for money in public services, or the true effectiveness of the services (quality adjustment includes some measurement of this, but coverage is limited).

Estimates of public service productivity are published each year, and on a calendar-year basis for consistency with the UK National Accounts. There is a two-year time lag associated with the estimates, because of the timeliness of our data, which come from administrative sources. This means that they meet certain quality criteria, listed in the [Code of Practice from the UK Statistics Authority](#).

## 14 . Acknowledgements

The authors of this publication are Sanjana Arora, Jon Gardner, Richard McFerran, Meera Parmar, Dominic Thomas and Sara Zella. We are grateful to colleagues in various government departments for making their data available for the compilation of these statistics, and providing helpful comments.

## 15 . Related links

[Improved methods for total public service productivity: total, UK, 2019](#)

Methodology | Released 20 January 2022

Explaining methodological improvements to education quality adjustment, children's social care, and healthcare output, used in the upcoming public service productivity article.

[Public service productivity, healthcare, England: financial year ending 2020](#)

Article | Released 21 January 2022

Estimates of output, inputs and productivity for public service healthcare in England, with additional estimates for the UK.

[Public service productivity, adult social care, England: financial year ending 2020](#)

Article | 7 July 2021

Trends in the inputs, output and productivity of publicly-funded adult social care.

[Sources and methods for public service productivity estimates](#)

Methodology | 14 April 2021

Sources and methods information for the Public service productivity: total, UK publication, detailing the main concepts, output and inputs measures by service area.

[International comparisons of the measurement of non-market output during the COVID-19 pandemic](#)

Article | 21 February 2022

A joint Office for National Statistics – Organisation for Economic Co-operation and Development exploration of international differences in the methodologies used to measure non-market output and analysis of the implications for international comparisons of gross domestic product during the coronavirus (COVID-19) pandemic.

