

Article

Public service productivity, healthcare, England: financial year ending 2020

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



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1 . Main points

- In the financial year ending 2020 (FYE 2020), public service healthcare productivity decreased by 1.9%, following a negative growth of 0.4% in FYE 2019.
- Non-quality adjusted productivity decreased by 2.0% in FYE 2020.
- Growth in non-quality adjusted output slowed to 0.9% in FYE 2020; this represents the slowest output growth on record.
- Quality adjustment added a negligible amount to output growth (0.0%) in FYE 2020; this is the smallest quality adjustment effect since FYE 2013.
- Growth in the inputs used in the provision of healthcare increased by 2.9% in FYE 2020 compared with FYE 2019, but is still below the average growth of 3.7% since FYE 1996.

2 . Overview

This article focuses on the inputs, output and productivity of public service healthcare for England on a financial year (April to March) basis. Updated figures for public service healthcare productivity for the UK are summarised in [Section 6](#) and additional information will be published in the forthcoming [Public service productivity: total, UK, 2019](#).

It should be noted that, in previous years, [NHS England's National Cost Collection \(NCC\)](#) has been used as the main data source to measure hospital and community healthcare services (HCHS) output. However, changes to data collections and challenges presented by the coronavirus (COVID-19) pandemic have affected the comparability of these data between the financial year ending 2019 (FYE 2019) and FYE 2020 for some services. As a result, alternative data sources have been introduced to estimate growth for some services within HCHS (additional information is included in the [Improved methods for total public service productivity: total, UK, 2019](#)). These results should therefore be read considering these changes.

Figures in this article cover until the end of FYE 2020, which includes the early impact of the coronavirus pandemic on the healthcare system.

Public service healthcare productivity fell by 1.9% in FYE 2020, as shown in Figure 1. Despite a small negative trend observed in FYE 2019, the fall in FYE 2020 is the biggest since FYE 2010.

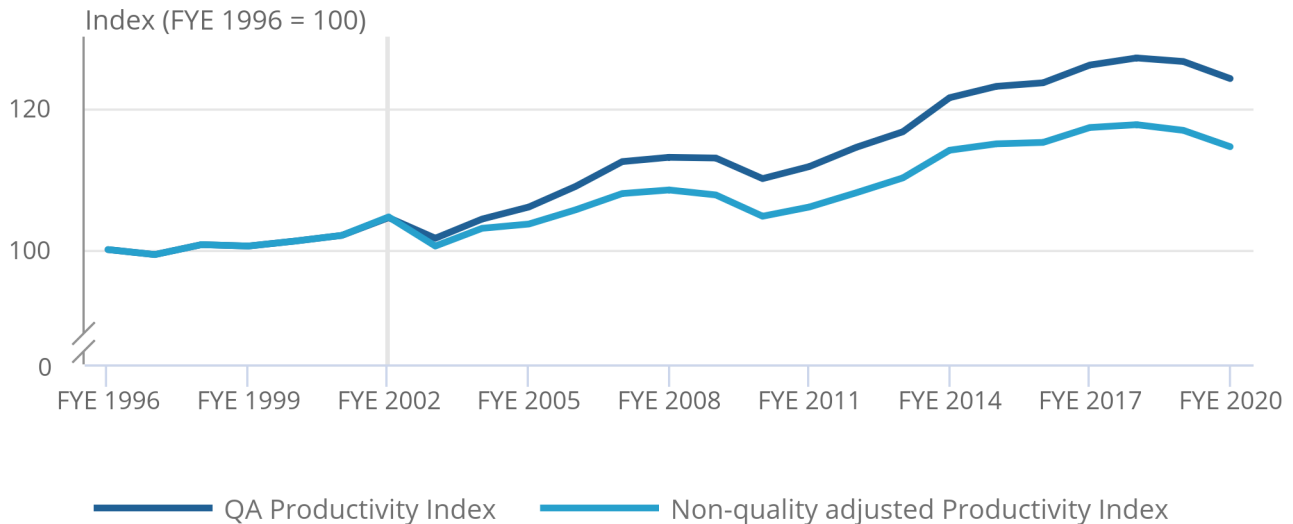
Figure 1 also shows non-quality adjusted productivity, which decreased by 2% in FYE 2020.

Figure 1: Public service healthcare quality and non-quality adjusted productivity decreased, respectively, by 1.9% and 2% in FYE 2020

Public service healthcare quality and quantity productivity indices, England, financial year ending (FYE) 1996 to FYE 2020

Figure 1: Public service healthcare quality and non-quality adjusted productivity decreased, respectively, by 1.9% and 2% in FYE 2020

Public service healthcare quality and quantity productivity indices, England, financial year ending (FYE) 1996 to FYE 2020



Source: Office for National Statistics – Public service productivity

Notes:

1. Healthcare quantity output is quality adjusted (QA) from FYE 2002 onwards.
2. Quality growth may not match the difference in QA and quantity output growth because of rounding.

The fall in healthcare non-quality adjusted productivity in FYE 2020 was because of inputs growth of 2.9%, compared with slower non-quality adjusted output growth of 0.9%, as shown in Figure 2. In FYE 2019, inputs growth was slightly higher than non-quality adjusted output growth, respectively 2.6% and 1.8%.

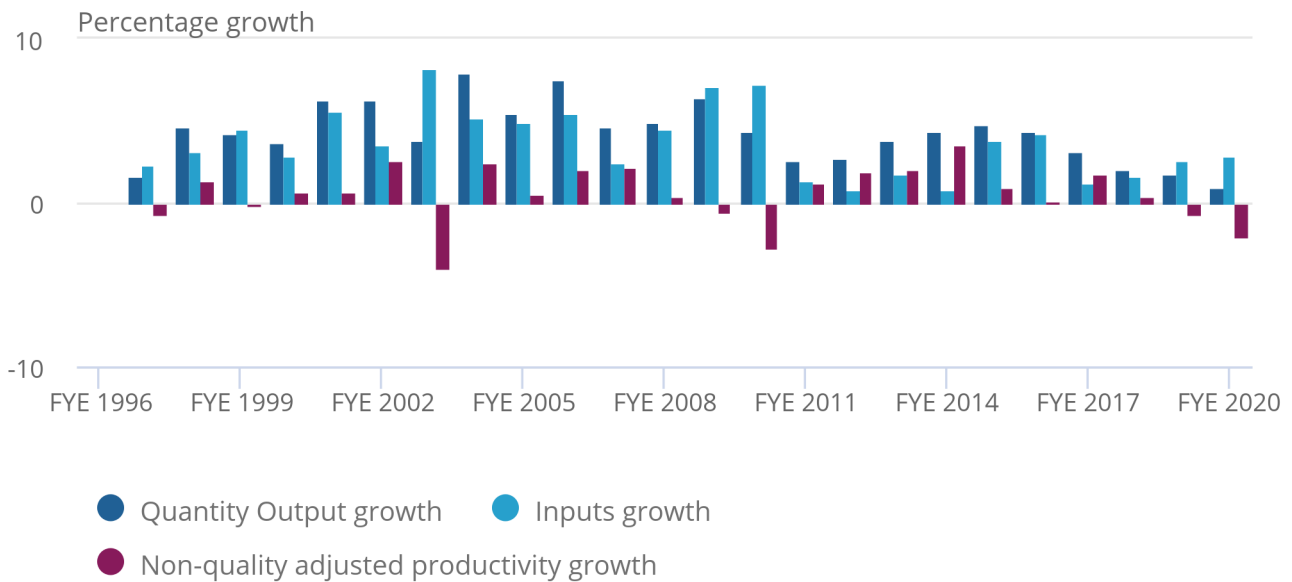
Despite the recent falls in productivity, the average rate of growth over the past 10 years was stronger than that observed in the decade prior. Average non-quality adjusted productivity growth was 0.9% since FYE 2010, compared with 0.3% between FYE 2000 and FYE 2010.

Figure 2: The non-quality adjusted productivity fall in FYE 2020 was because of faster inputs growth and slower output growth than seen in FYE 2019

Public service healthcare output, inputs and non-quality adjusted productivity growth, England, financial year ending (FYE) 1997 to FYE 2020

Figure 2: The non-quality adjusted productivity fall in FYE 2020 was because of faster inputs growth and slower output growth than seen in FYE 2019

Public service healthcare output, inputs and non-quality adjusted productivity growth, England, financial year ending (FYE) 1997 to FYE 2020



Source: Office for National Statistics – Public service productivity

3 . Output quantity

The quantity of healthcare output is measured using the number of individual healthcare activities performed, adjusted for total and working days and weighted by the cost of each activity. As a result of this weighting process, growth in treatments that are common and expensive have a greater effect on the output index than a similar rate of growth in treatments that are uncommon and low-cost. Our [methods article](#) and the [Improved methods for total public service productivity: total, UK, 2019](#) describe the approach and the details of the components.

All components of output grew at a slower rate in financial year ending (FYE) 2020 compared with FYE 2019, as shown in Figure 3.

Hospital and community healthcare services (HCHS) output, which accounts for the majority of public service healthcare output, grew only 0.2% in FYE 2020, the slowest growth recorded in our data time series. The slowdown in growth relative to FYE 2019 reflects the negative growth in the follow-up outpatient attendance and the slower growth in other HCHS activities, including hospital outpatient first attendances. Publicly funded healthcare output from non-NHS providers grew by 3.3% in FYE 2020, following the consistent growth of last year (4%).

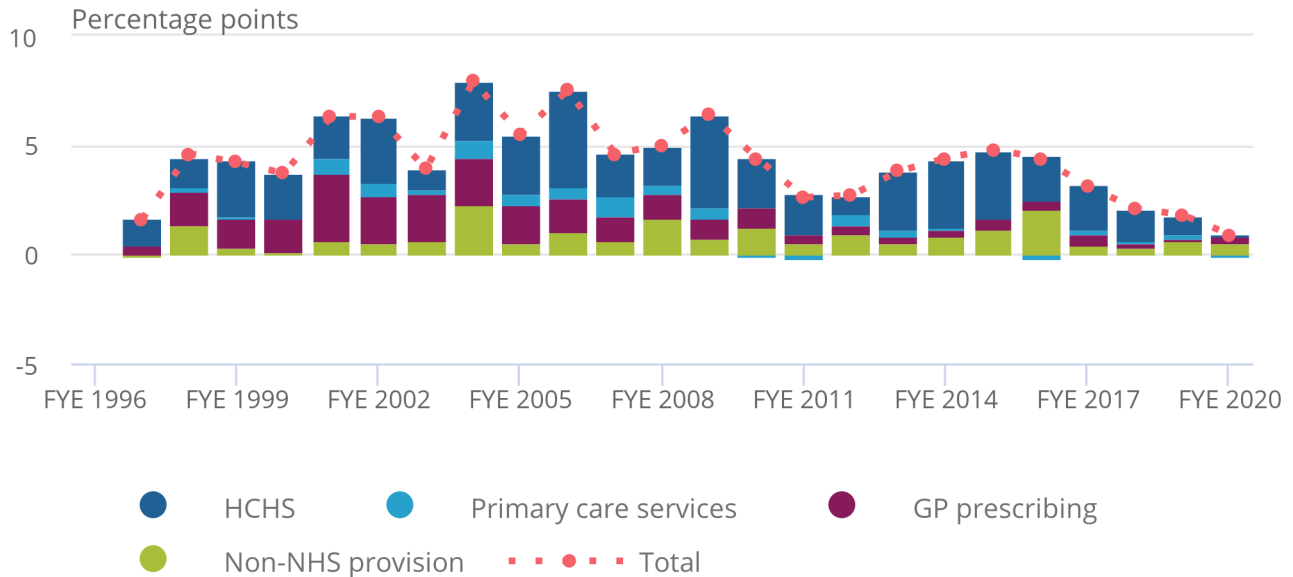
The smallest two components of output, GP-prescribed drugs and primary care services, show opposite trends. GP-prescribed drugs grew at 4.7% in FYE 2020, the fastest of the latest three years, although this was still below the average growth rate (of 7.1%) for this element since FYE 1996. However, primary care services output fell by 0.8% in FYE 2020.

Figure 3: In FYE 2020, total output quantity growth was at its slowest rate since FYE 1997

Contributions to public service healthcare quantity output growth by component, England, financial year ending (FYE) 1997 to FYE 2020

Figure 3: In FYE 2020, total output quantity growth was at its slowest rate since FYE 1997

Contributions to public service healthcare quantity output growth by component, England, financial year ending (FYE) 1997 to FYE 2020



Source: Office for National Statistics – Public service productivity

Notes:

1. HCHS – Hospital and Community Health Services.
2. Primary Care Services was called Family Health Services until the publication in 2019.
3. The sum of components of quantity output may not equal total output because of rounding.
4. The contribution to growth for each component depends on both its growth rate and its weight in total output.
5. Excludes quality adjustment.

4 . Output quality

Healthcare quantity output is adjusted for changes in the quality of the service from the financial year ending (FYE) 2002 onwards. More information is available in our [guide](#), while details of the quality adjustment used for healthcare output can be found in [Quality adjustment of public service health output: current method](#) (PDF, 152KB).

In FYE 2020, the quality adjustment added a negligible amount to output growth (0.0%), the lowest since FYE 2013.

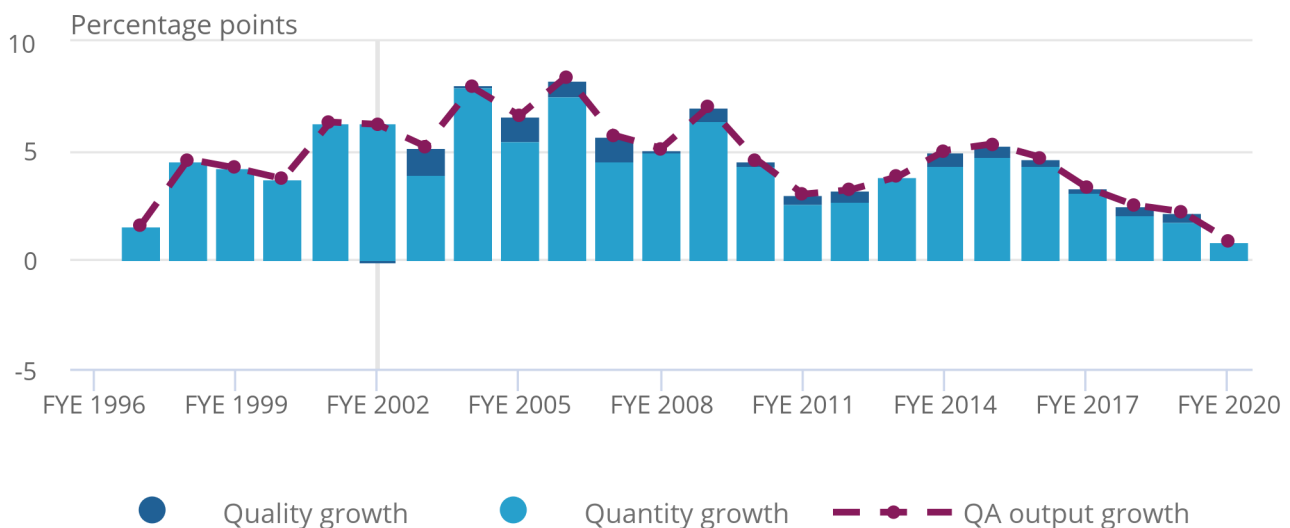
After adjusting for quality, output growth in FYE 2020 was 0.9%, which is the slowest growth since the beginning of the data series.

Figure 4: Adjusting for quality did not change growth in output in FYE 2020

Public service healthcare quantity and quality adjusted output growth rates, England, financial year ending (FYE) 1997 to FYE 2020

Figure 4: Adjusting for quality did not change growth in output from FYE 2002 onwards

Public service healthcare quantity and quality adjusted output growth rates, England, financial year ending (FYE) 1997 to FYE 2020



Source: Office for National Statistics – Public service productivity

Notes:

1. Healthcare quantity output is quality adjusted (QA) from FYE 2002 onwards.
2. Quality growth may not match the difference in QA and quantity output growth because of rounding.

Quality adjusted output growth within hospital and community health services (HCHS) is greater than non-quality adjusted output growth.

Overall, the impact of quality adjustment has a positive impact on productivity, however, the impact is small when compared with previous years.

5 . Inputs

Inputs in the public service healthcare productivity measure are broken down into [three components](#).

Figure 5 shows total inputs growth and how growth in each component contributes to the growth in overall inputs.

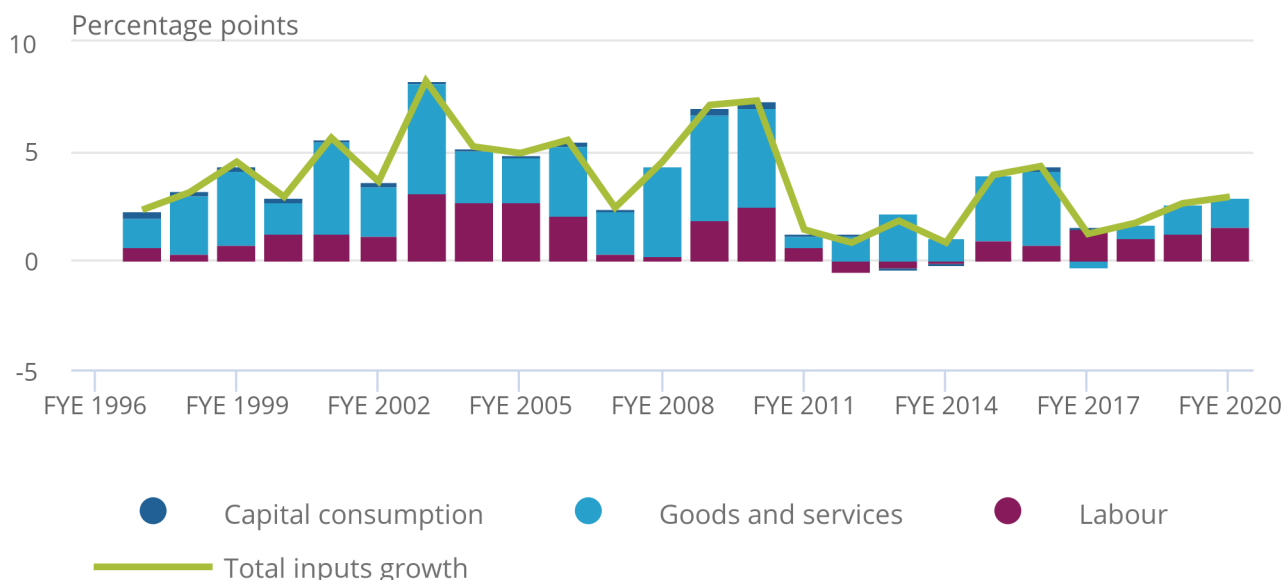
In the financial year ending (FYE) 2020, inputs grew by 2.9%, the highest since FYE 2016, but below the 3.7% average growth for the whole data time series. Inputs growth in FYE 2020 was driven by both labour, and goods and services. Goods and services inputs grew by 2.7%, at a similar level to FYE 2019. Labour inputs increased by 3.3% in FYE 2020, growing at a faster pace than in the previous year.

Figure 5: Inputs growth of 2.9% in FYE 2020 was higher than the previous three years, but below the average growth of the whole data time series of 3.7%

Public service healthcare inputs quantity growth by component, England, financial year ending (FYE) 1996 to FYE 2020

Figure 5: Inputs growth of 2.9% in FYE 2020 was higher than the previous three years, but below the average growth of the whole data time series of 3.7%

Public service healthcare inputs quantity growth by component, England, financial year ending (FYE) 1996 to FYE 2020



Source: Office for National Statistics – Public service productivity

Notes:

1. Figure 5 shows the inputs growth by component after weighting by their share of total expenditure.
2. Growth of components may not sum to overall growth because of rounding.

Growth in labour inputs was because of an increase in full-time equivalent staff numbers. It should be noted, however, that not all workers in the NHS are classified in the labour measure. Agency staff are included in goods and services as they are not employees of the health service. In contrast, NHS bank staff have been included in the labour measure since FYE 2016.

Goods and services inputs growth reflect the increase in intermediate consumption of supplies and services used by healthcare providers, including gloves and syringes.

6 . Healthcare productivity for the UK on a calendar year basis (2019)

We also produce public service healthcare productivity statistics on the UK, on a calendar year basis. It should be noted that the England financial year and the UK calendar year measures cannot be directly compared. This also means that the trend in productivity for Wales, Scotland and Northern Ireland cannot be calculated from the differences between the two measures.

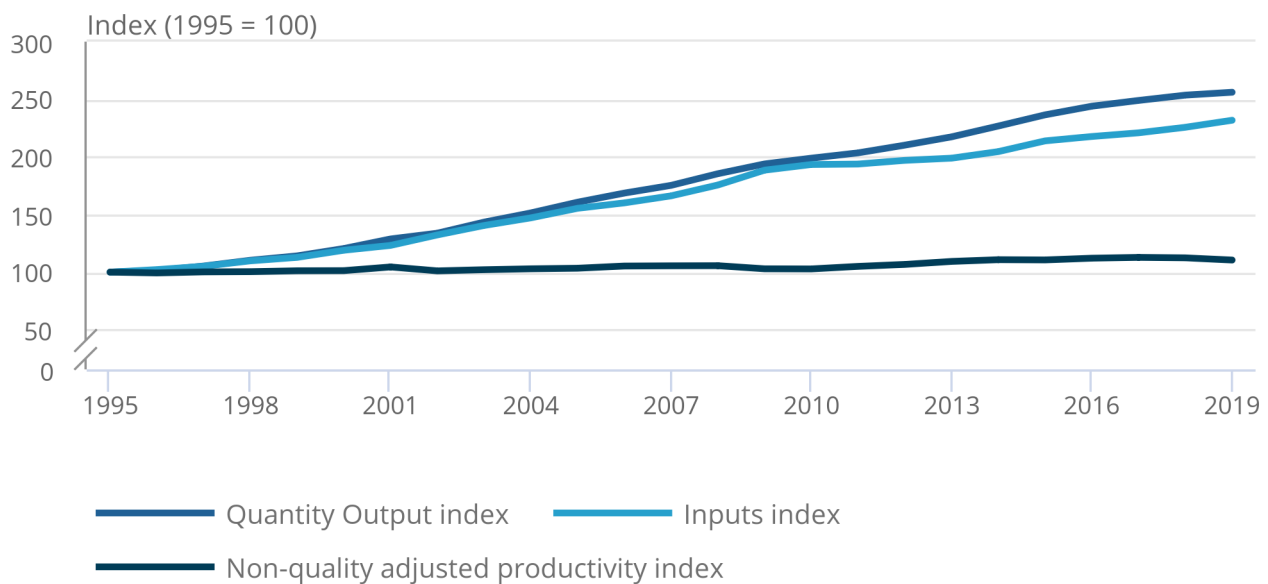
Figure 6 shows the inputs, output, and non-quality adjusted productivity series for the UK on a calendar year basis. The growth is very similar to the England financial year basis. UK healthcare non-quality adjusted productivity fell by 1.7% in 2019, as inputs grew faster than output.

Figure 6: Public service healthcare productivity for the UK on a calendar year basis fell in 2019

Public service healthcare output, inputs and productivity indices, UK, 1995 to 2019

Figure 6: Public service healthcare productivity for the UK on a calendar year basis fell in 2019

Public service healthcare output, inputs and productivity indices, UK, 1995 to 2019



Source: Office for National Statistics – Public service productivity

More information on public service healthcare productivity statistics on the UK will be included in [Public service productivity: total, UK, 2019](#).

7 . Public service productivity estimates: healthcare data

[Public service productivity estimates: healthcare, England](#)

Dataset | Released 21 January 2022

Public service healthcare growth rates and indices for inputs, quality and non-quality adjusted output and productivity, Totals and components, for England, financial years ending 1996 to 2020.

8 . Glossary

Inputs

Inputs are resources used to produce healthcare services. Inputs are different from expenditure and instead are expressed in volume terms, so an increase in staff pay will not increase inputs, but an increase in staff numbers will. Inputs can be measured directly, such as by cost-weighted staff numbers or indirectly, using appropriately deflated expenditure.

Public service healthcare productivity

Productivity is a measure of the amount of service provided (which can be either quality-adjusted or non-quality-adjusted output) for the quantity of inputs used. "Public service" relates to the fact that all healthcare services paid by the public sector are included in this measure.

Quality adjustment

In line with the [recommendations of the Atkinson Review \(PDF, 1.08MB\)](#), a quality adjustment is applied to the estimate of healthcare quantity output to control for the success of the service in meeting selected outcomes. For more information see [Quality adjustment of public service health output: current method](#).

Quantity output

The quantity of output is the amount of healthcare services provided and is mostly measured using the number of healthcare activities performed, weighted by the cost of each activity.

Weighting

Weighting refers to the relative importance of changes in individual inputs or output components to changes in the overall inputs or output index. The weight assigned is usually based on cost and so an increase of one hip replacement will have a greater effect on output growth respectively than one outpatient consultation.

9 . Data sources and quality

Methods summary

Public service healthcare productivity is estimated by comparing growth in the total quantity of healthcare output provided (adjusted for quality where possible) with growth in the total quantity of inputs used. If output growth exceeds input growth, productivity increases, meaning that more output is being produced for each unit of input. Conversely, if input growth exceeds output growth, then productivity will fall.

Volume output in public service sectors such as healthcare is mainly measured using a cost-weighted activity index (CWA). This calculates the change in the number of activities undertaken, weighting each activity by its cost such that an increase of one unit of activity for a high-cost activity has a greater effect on the output than an increase of one unit of activity for a low-cost activity.

Output is divided into four broad components:

- hospital and community health services (HCHS)
- primary care services, formerly known as Family Health Services (FHS)
- GP prescribing, otherwise known as community dispensed prescriptions
- non-NHS provision

Inputs are also calculated on a volume basis and consist of three main components:

- labour, which is mainly measured through a Laspeyres cost-weighted labour index (CWLI), which uses the growth in full-time equivalent staff numbers weighted by their cost, in a similar manner to quantity output
- intermediate consumption of goods and services used in the provision of healthcare, such as gloves and syringes (this category includes agency staff), which is calculated using expenditure deflated by relevant deflators
- consumption of fixed capital, covering the cost of depreciation of capital goods (items that are anticipated to be in use for a year or more, such as buildings and vehicles) over time

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in the [public service productivity: healthcare QMI](#) (Quality and Methodology Information). The last methodological changes are explained in the [Improved methods for total public service productivity: total, UK, 2019](#).

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10 . Related links

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

Methodology | Released on 20 January 2022

Describes recent developments to public service healthcare productivity.

[Methodological developments to public service productivity: healthcare](#)

Methodology | Released on 16 December 2019

Describes recent developments to public service healthcare productivity.

[Methodological developments to public service productivity, healthcare: 2021 update](#)

Methodology | Released on 18 January 2021

Describes recent developments to public service healthcare productivity.

[Public service productivity: healthcare: QMI](#)

Methodology | Released on 2 February 2021

Quality and methodology information on public service healthcare productivity

[Sources and Methods Public Service Productivity Estimates: Healthcare](#) (PDF, 328KB)

Methodology | Released on July 2013

Provides a guide to how estimates of productivity in publicly funded healthcare are calculated.

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

Methodology | Released on 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.

[Quality adjustment of public service health output: current method](#) (PDF, 152KB)

Methodology | Released on April 2012

Describes the methodology used for quality adjusting healthcare output.

[Public service productivity: total, UK, 2019](#)

Article | Released on 14 April 2021

Regular publication providing information and analysis of productivity across all public services in the UK.