

Article

Productivity economic commentary: July to September 2018

An article drawing together the main findings from official statistics and analysis of UK productivity to present a summary of recent developments.

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1 . Main points

- Labour productivity in Quarter 3 (July to Sept) 2018 grew by 0.2% compared with the same quarter a year ago; this is around one-tenth of the average rate observed pre-2008 when the UK's "productivity puzzle" emerged.
- Compared with the same quarter a year ago, the market sector, particularly manufacturing, led labour productivity growth, delivering 0.7% in Quarter 3 2018, while the non-market sector, covering the public sector and charitable sectors, exhibited negative growth.
- Based on the experimental quarterly estimates, public service productivity has declined for each of the last four quarters; this is a notable change from the trend of positive annual growth since 2010.
- Our new multi-factor productivity quarterly estimates explain growth in labour productivity in the market sector; growth since 2008 has been driven by improvements in labour skills and capital deepening, but multi-factor productivity, the "recipe" for how businesses combine labour and capital, is still around 4 percentage points lower than in 2008.
- Unit labour costs (ULCs), a leading indicator of inflation, grew by 2.8% in the year to Quarter 3 2018, following 2.1% and 2.7% in Quarter 2 (Apr to June) 2018 and Quarter 1 (Jan to Mar) 2018 respectively.
- Following a period of low or negative growth, ULC growth has fluctuated around 2% for the past two years; this increase broadly reflects higher hourly labour cost growth, with relatively little offsetting output per hour growth.

2 . Labour productivity for Quarter 3 2018 grew by 0.2% compared with the same quarter a year ago, the weakest growth since Quarter 3 2016

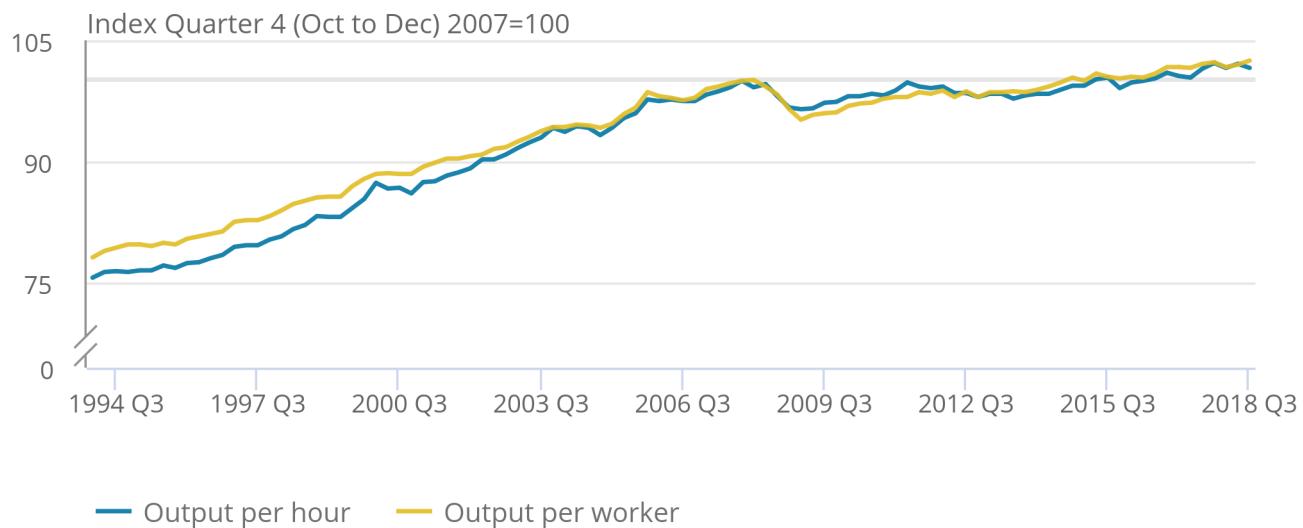
Labour productivity grew by 0.2%, compared with the same quarter a year earlier, on our preferred output per hour worked basis. This rate of growth is below that experienced prior to the economic downturn, which averaged around 2%. On an output per worker basis, labour productivity was 0.4% higher than the same quarter in 2017.

Figure 1: Output per hour and output per worker, Quarter 2 (Apr to June) 1994 to Quarter 3 (July to Sept) 2018

Seasonally adjusted, UK

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Seasonally adjusted, UK



Source: Office for National Statistics

Services output per hour, compared with the same period a year ago, increased by 0.1% in the latest quarter (Quarter 3 (July to Sept) 2018), with output increasing slightly faster than hours worked. In manufacturing over the year labour productivity increased by 1.7%, with output growing while hours worked decreased.

3 . Labour productivity for the market sector grew 0.7% in the year to Quarter 3 2018

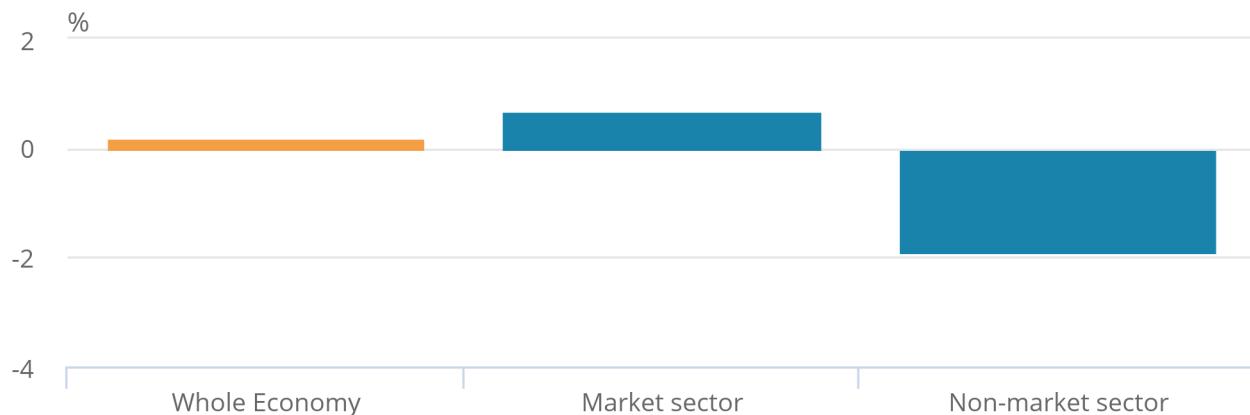
The economy, and therefore productivity measures, can be sub-divided into “market sector” and “non-market sector” components. The market sector encompasses all activity where output is sold for economically meaningful prices – this is primarily the private sector, but also includes public corporations, which, despite being publicly owned, operate for profit. The market sector produces around 80% of total output in the economy, while the non-market sector (primarily government, but also non-profit institutions, such as charities) makes up the remaining 20%.

Experimental multi-factor productivity estimates are only calculated for the market sector due to challenges in measuring inputs and output in the non-market sector. Growth accounting de-composes the growth in market sector output per hour into that attributable to changes in: labour composition (the skills of the workforce), capital deepening (capital per hour worked) and multi-factor productivity (a residual, encompassing spillovers and improvements in technology).

Figure 2 shows the growth in labour productivity in Quarter 3 (July to Sept) 2018 on the same quarter a year ago, and decomposes it into the market and non-market sector components.

Figure 2: Labour Productivity for Whole economy, market sector and implied non-market sector growth Quarter 3 (July to Sept) 2018 compared with same quarter a year ago

Figure 2: Labour Productivity for Whole economy, market sector and implied non-market sector growth Quarter 3 (July to Sept) 2018 compared with same quarter a year ago



Source: Office for National Statistics

Notes:

1. The estimate for productivity growth for the market sector is not fully consistent with that used in our multi-factor productivity (MFP) estimates, which differs from those in our labour productivity bulletin due to differences in methods and calculation. We intend to align these in future.

However, public service productivity estimates, as published alongside this release, are different to those for the non-market sector in Figure 2. Public service productivity is precisely named, as it measures the productivity of providing public services, not the productivity of the public sector; these differences were explained in more detail in [last quarter's release](#).

4 . Unit labour costs growth above 2% for the fourth consecutive quarter compared with a year ago

Labour is the largest domestic cost facing most businesses in the UK, and so is an important indicator of domestic inflationary pressures. The extent to which changes in the cost of labour affect companies' production costs, and hence inflation, depends on growth in unit labour costs (ULCs) — how wages and other labour costs facing companies are growing relative to productivity.

ULCs represent the full labour costs, wages and salaries as well as social security and pension contributions paid by employers, incurred in the production of a unit of output.

As noted in the [Bank of England's November 2018 inflation report](#), while wage growth has strengthened, it remains below the rates seen on average prior to the crisis, when regular nominal pay grew by around 4% per year. This weakness can be partly attributed to low productivity growth, which has reduced the wage rises that companies can afford to offer their employees.

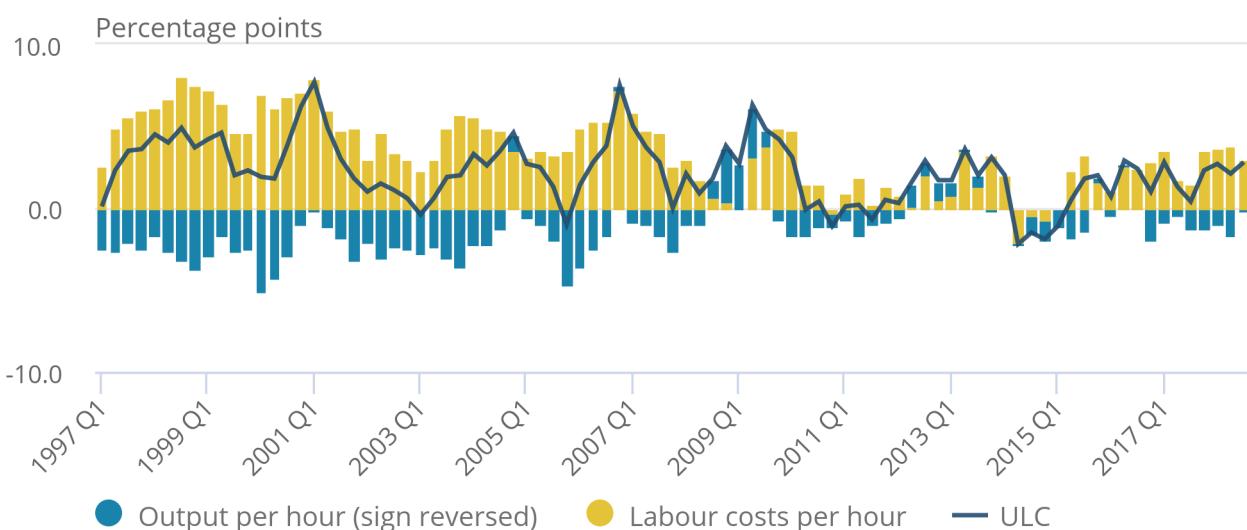
ULCs grew by 2.8% in the year to Quarter 3 (July to Sept) 2018, following growth of 2.1% and 2.7% in Quarter 2 (Apr to June) 2018 and Quarter 1 (Jan to Mar) 2018 respectively. Following a period of low or negative growth, ULC growth has fluctuated around 2% for the past two years. This increase broadly reflects higher hourly labour cost growth, with relatively little offsetting output per hour growth.

Figure 3: Whole economy unit labour costs and their compositions, growth on quarter a year ago, Quarter 1 (Jan to Mar) 1997 to Quarter 3 (July to Sept) 2018

Seasonally adjusted, UK

Figure 3: Whole economy unit labour costs and their compositions, growth on quarter a year ago, Quarter 1 (Jan to Mar) 1997 to Quarter 3 (July to Sept) 2018

Seasonally adjusted, UK



Source: Office for National Statistics

Notes:

1. Labour costs per hour estimates will differ from those in the ONS bulletin Index of Labour Costs per Hour due to differences in methodology.
2. Q1 refers to Quarter 1 (January to March), Q2 refers to Quarter 2 (April to June), Q3 (July to September) and Q4 refers to Quarter 4 (October to December).

5 . Multi-factor productivity still below the level in 2008

In Quarter 3 (July to Sept) 2018, multi-factor productivity (MFP) in the UK market sector is estimated to have decreased by 0.1% compared with the same quarter in 2017.

Estimates of MFP augment our labour productivity estimates by taking account of movements in productive capital (such as machinery and software) and compositional developments in the labour market (for example, an increase in the number of workers with university degrees), as well as hours worked. This is explained in our [simple guide to MFP](#).

Figure 4 decomposes cumulative quarterly growth of market sector output per hour worked since Quarter 1 (Jan to Mar) 2008 into contributions from capital deepening (capital per hour worked), labour composition (the skills make-up of the workforce), and the residual MFP contribution.

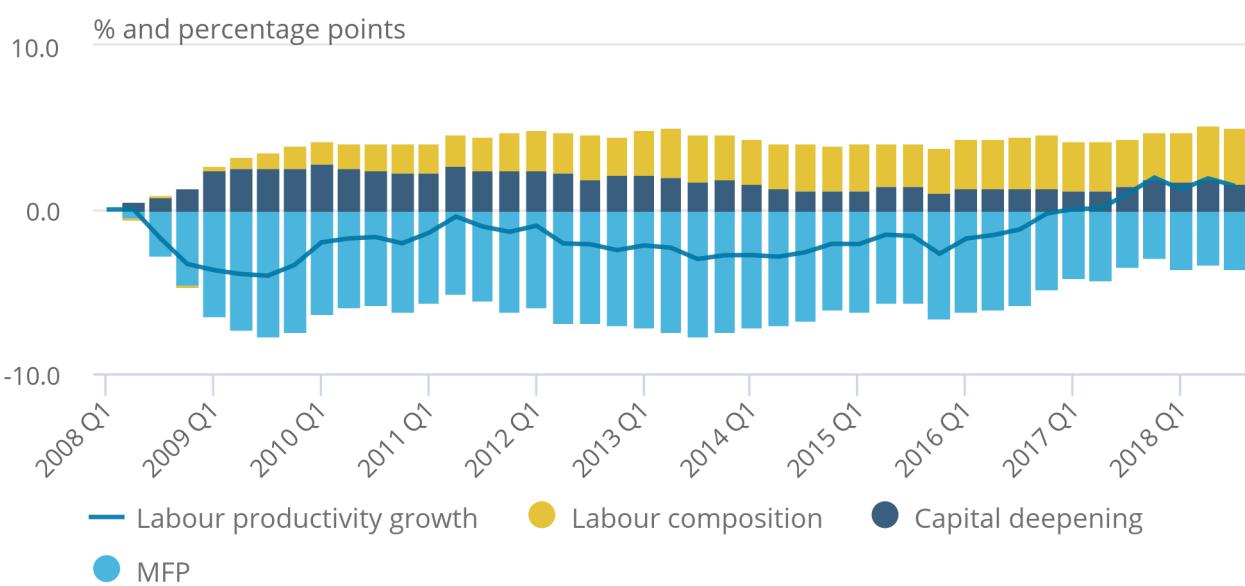
Figure 4 also highlights the prolonged weakness of market sector labour productivity since the financial crisis. More than 10 years on, labour productivity per hour worked is only just ahead of its level in 2008. MFP is still almost 4 percentage points lower than in 2008. Capital deepening has also been exceptionally weak by historic standards, reflecting sluggish growth in investment and, until recently, buoyant growth in hours worked. On the other hand, labour composition has steadily improved over the last 10 years.

Figure 4: Decomposition of cumulative quarterly growth of output per hour worked, Quarter 1 (Jan to Mar) 2008 to Quarter 2 (Apr to June) 2018

UK, market sector

Figure 4: Decomposition of cumulative quarterly growth of output per hour worked, Quarter 1 (Jan to Mar) 2008 to Quarter 2 (Apr to June) 2018

UK, market sector



Source: Office for National Statistics

Notes:

1. Labour productivity growth is the cumulative quarter-on-quarter log change in market sector gross value added (GVA) per hour worked. Columns show contributions of components, calculated by weighting log changes in each component by its factor income share. Multi-factor productivity (MFP) is calculated by residual.

This quarter we have added new industry contributions to MFP. Figure 5 shows that since the 2008 financial crisis, non-financial services have made a positive contribution to MFP, while all other sectors have made negative contributions.

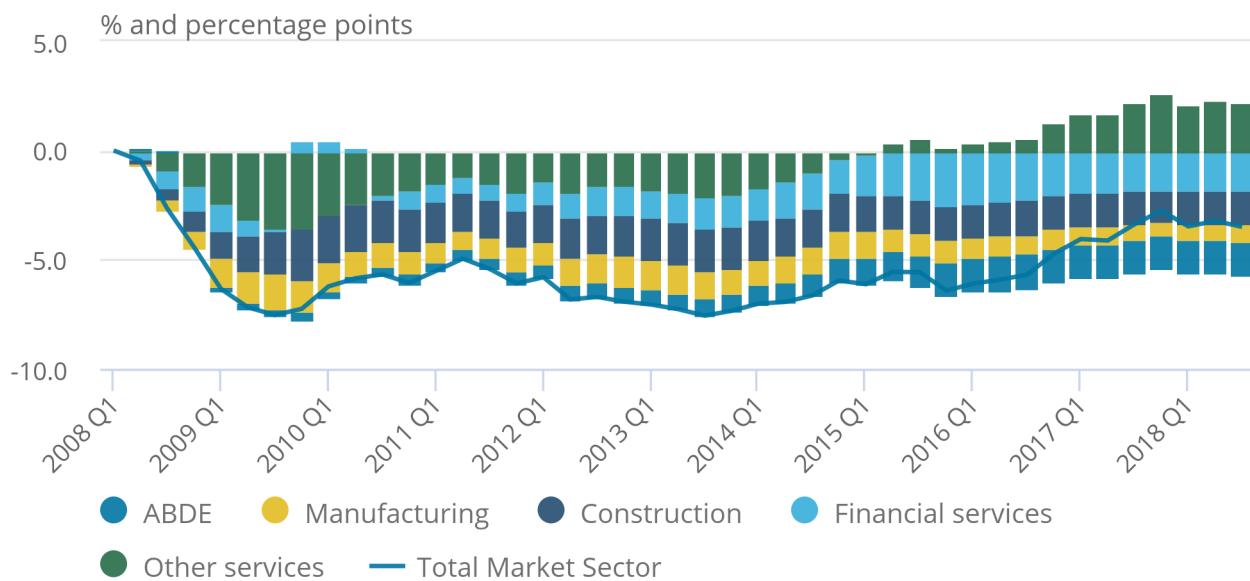
This has been implemented following the methodology set out by Diewert (2015) in [Decompositions of productivity growth into sectoral effects](#). Further details can be found in [quarterly estimates of multi-factor productivity](#).

Figure 5: Industry contributions to cumulative multi-factor productivity growth, Quarter 1 (Jan to Mar) 2008 to Quarter 3 (July to Sept) 2018

UK, market sector

Figure 5: Industry contributions to cumulative multi-factor productivity growth, Quarter 1 (Jan to Mar) 2008 to Quarter 3 (July to Sept) 2018

UK, market sector



Source: Office for National Statistics

Notes:

1. ABDE is: Agriculture, forestry and fishing; mining and quarrying; electricity, gas, steam and air conditioning supply and water supply; and Sewerage, waste management and remediation activities.

6 . Total public service productivity

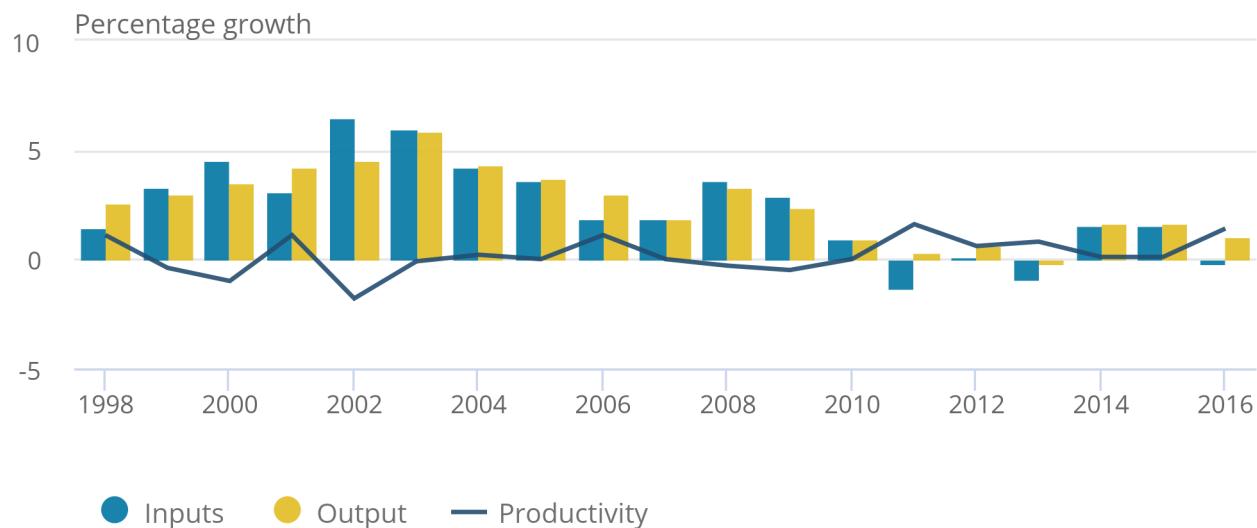
Alongside these estimates of whole economy and market sector productivity, we have published the latest estimates for two measures of public service productivity: [Public service productivity: total, UK, 2016](#) and [Quarterly UK public service productivity \(Experimental Statistics\): July to September 2018](#).

Figure 5 shows that, in 2016, productivity for total public services was estimated to have increased by 1.4%, as output grew by 1.1% and inputs fell by 0.2%. This marks the sixth consecutive year of growth and its fastest rate since 2011. From Figure 5, it is apparent that inputs and output growth rates have been more subdued in recent years.

In 2010, the Spending Review led to budget cuts in some government departments, contributing to the fall in inputs since that year. Inputs have grown at an average annual rate of 0.1% from 2010 to 2016. The average annual growth rate for output over the same period is 0.9%, and as output has on average increased more than inputs, total productivity has also been increasing.

Figure 6: Total public service inputs, output and productivity growth rates, 1998 to 2016, UK

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Source: Office for National Statistics

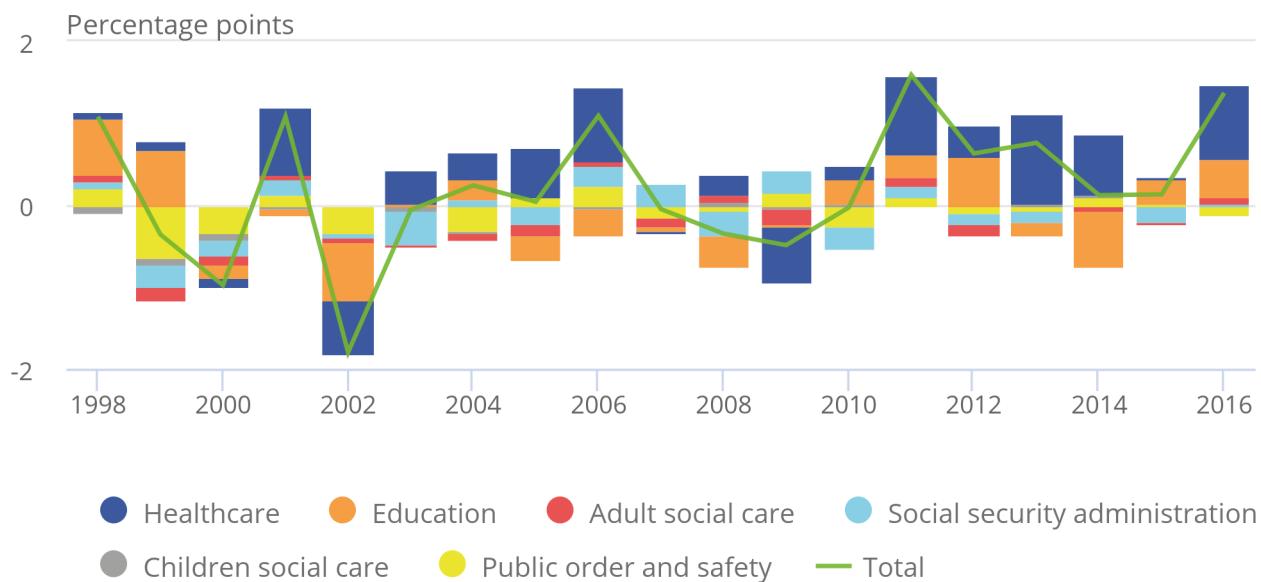
Notes:

1. Percentage growth rate shows year-on-year growth.
2. Output growth minus inputs growth does not necessarily equal productivity growth due to rounding.

Variation in the relative size and productivity experiences of different service areas means that these public services have made quite different contributions to productivity growth over recent years. Figure 6 shows the annual contribution of each service area to the change in UK total public service productivity (represented by the line) from 1998 to 2016. It highlights that while total public service productivity increased between 2010 and 2016, this has not been the experience across all service areas.

Figure 7: Contributions to growth of total public service productivity by service area, 1998 to 2016, UK

Figure 7: Contributions to growth of total public service productivity by service area, 1998 to 2016, UK



Source: Office for National Statistics

Notes:

1. Sum of components may not equal 100 due to rounding.

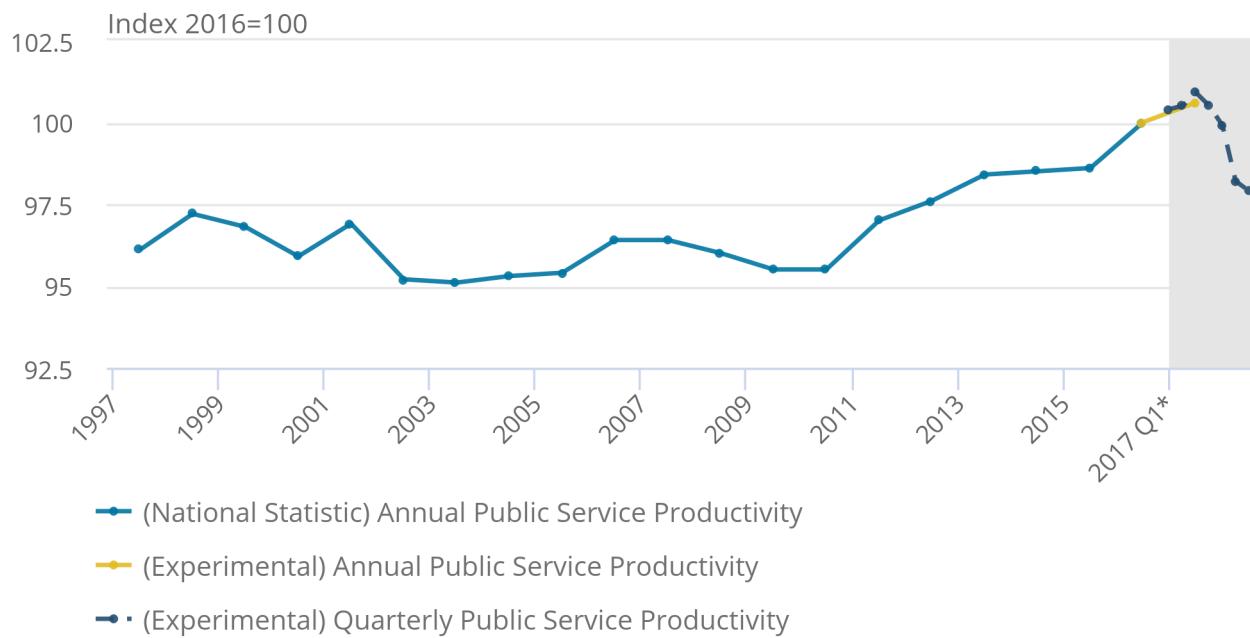
For 2016, healthcare made the largest positive contribution of overall growth in total productivity. A fuller analysis of healthcare productivity can be found in the bulletin [Public service productivity estimates: healthcare, UK, 2016](#) and for the first time this year, we have introduced a separate analytical article looking at [healthcare productivity on an England-only](#), financial year basis, to provide a measure for users focussed on the health service in England that is more comparable with other data available for the English NHS.

This was partially offset by public order and safety, making the largest negative contribution throughout 2016.

Alongside these detailed measures of annual productivity by public services, we have published experimental, more timely measures of total public service productivity. In an attempt to address the significant time lag associated with the annual release, these more timely series – published on a quarterly basis up to and including Quarter 3 (July to Sept) 2018 – are based on a different methodology, which requires less detailed information. As a result, however, they are based on a higher degree of estimation. The results of this alternative methodology suggest that total public service productivity fell by 0.3% in Quarter 3 2018, driven by a fall of 0.5% in the volume of public service output, while inputs fell by 0.1%. This marks the fourth consecutive fall in public service productivity by quarter (as shown in Figure 7).

Figure 8: Total UK public service productivity, 1997 to Quarter 3 (July to Sept) 2018

Figure 8: Total UK public service productivity, 1997 to Quarter 3 (July to Sept) 2018



Source: Office for National Statistics

Notes:

1. Estimates from 1997 to 2016 are based on the existing annual series.
2. Annual estimates from 2017 to 2018 are based on the annualised experimental series. These series are displayed in the third quarter of the year.
3. Estimates from Quarter 1 2017 to Quarter 3 2018 are based on the experimental quarterly total public service productivity series.
4. Estimates of productivity for the experimental period are indirectly seasonally adjusted, calculated using seasonally adjusted inputs and seasonally adjusted output.

7 . What's next?

New productivity theme day

In response to the growing user interest in productivity analysis, we have increased our range of regular publications and analytical pieces. We have introduced a new productivity theme day to focus on these special productivity articles. The first productivity analysis theme day will be on 6 February 2019 with a focus on regional productivity as well as our latest microdata analysis.

Productivity Forum

We would like to invite users to our annual productivity forum where we will be discussing our main developments and core priorities for the future. The event will include presentations from the Productivity team at Office for National Statistics (ONS), as well as main users of the labour productivity statistics. Important discussion topics will include:

- an industry breakdown with the flash productivity estimate
- a labour productivity series excluding imputed rental
- introducing the balanced gross value added (GVA) series in the compilation of regional productivity
- improving the international comparisons of labour productivity

The forum will take place on 13 March 2019 at the Department for Business, Energy and Industrial Strategy (BEIS) conference centre, Victoria Street, London. [Registration details](#) are available.

8 . Links to related statistics

- [Productivity economic commentary: July to September 2018](#) draws together the main findings from official statistics and analysis of UK productivity to present a summary of recent developments (published 9 January 2019)
- [Labour productivity, UK: July to September 2018](#) contains the latest estimates of labour productivity for the whole economy, the UK regions at NUTS1 level and a range of industries, together with estimates of unit labour costs (published 9 January 2019).
- [Multi-factor productivity estimates: Experimental estimates to quarter 3](#) (July to September) 2018 presents quarterly estimates of multi-factor productivity (MFP), capital services and quality-adjusted labour input (QALI), including a range of industry breakdowns and analysis (published 9 January 2019).
- [A simple guide to multi-factor productivity](#) explains the concept and measurement of multi-factor productivity through simple stylised examples (published 5 October 2018).
- [Quarterly UK public service productivity \(Experimental Statistics\): July to September 2018](#) contains the latest experimental estimates for quarterly UK total public service productivity, inputs and output (published 9 January 2019).
- [Public service productivity: total, UK, 2016](#) presents updated measures of output, inputs and productivity for public services in the UK between 1997 and 2015, in addition to new estimates for 2016 (published 9 January 2019).
- [Public service productivity: healthcare, UK, 2016](#) presents updated estimates of output, inputs and productivity for public service healthcare in the UK between 1995 and 2015, and new estimates for 2016 (published 9 January 2019).
- [Public service productivity: healthcare, FYE 2017](#) presents estimates of output, inputs and productivity for public service healthcare in England on a financial year basis up to FYE 2017 (published 9 January 2019).
- [Improving estimates of Labour Productivity and International Comparisons](#) discusses recent OECD findings showing that the methodologies, data sources and adjustments used to estimate the number of persons, jobs and hours worked varied significantly across countries, and explores these differences and the impact on our ICP (published 9 January 2019).
- [Productivity development plan: 2018 to 2020](#) builds on recent improvements to our productivity statistics and looks at introducing new outputs, further improving our productivity statistics and consolidating our improvements to date (published 6 July 2018).
- [How productive is your business?](#) is an interactive tool which aids businesses to calculate their productivity and compare their performance to other businesses in Great Britain (published 6 July 2018).