Office for National Statistics

Article

Impact of improved methods on total public service productivity: 1997 to 2022

Overview of improvements to public service productivity measures to be introduced and implemented in March 2026.

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Table of contents

1 . Main points

- Our annual public service productivity estimates, publishing on 30 March 2026, will separate "policing and immigration" into "policing" and "immigration and citizenship".
- We will publish an estimate for the productivity of policing for the first time; this is enabled by the production of a "direct" volume output measure that is calculated using activity data.
- The estimates will include improvements to social security administration productivity, expanding the measure to incorporate benefits administered by HM Revenue and Customs (HMRC).
- The estimates will also include improvements to quality adjustment, including quality adjustment for tax administration and a new attainment model that is tailored to Scotland secondary schools.
- Policing, immigration and citizenship, social security administration, and tax administration remain official statistics in development because of the incremental nature of improvements to these statistics.

2 . Overview of the improved methods for public service productivity

In June 2023, the Chancellor of the Exchequer commissioned the National Statistician to review and improve how public service productivity is measured. The findings from this review were reported in March 2025 in the National Statistician's Independent Review of the Measurement of Public Services Productivity.

We implemented several improvements in our Public service productivity: total, UK, 2022 article. We outlined the details of these improvements in our Public Services Productivity Review, impact of improved methods on total public service productivity: 1997 to 2021 article.

This article outlines further improvements we have made that were identified as part of the National Statistician's review. These improvements include:

- separation of the existing merged category of "policing and immigration" into "policing" and "immigration and citizenship"
- publication of policing output and inputs
- publication of social security administration productivity
- other improvements to tax administration, public order and safety, and education, and deflators

These changes will be included in our Public service productivity: total, UK, 2023 article, publishing on 30 March 2026.

As in previous years, we will continue to develop our methods, which may lead to revisions of these estimates.

3 . Police and immigration improvements

We previously measured police and immigration services as a combined service, using the "output-equals-inputs" approach within a single annual estimate. These services are now being separated into two distinct service areas: "policing" and "immigration and citizenship".

Policing mainly relates to operational policing delivered by local police forces. It also relates to some central government (CG) activities (for example, the National Crime Agency or counterterrorism). Operational policing includes three activities:

- crime investigation
- crime prevention
- public safety and welfare (PS&W)

Immigration and citizenship activities are delivered by CG and include five main activities:

- asylum and protection
- the Border Force
- immigration enforcement
- the Passport Office
- visas and immigration

Separation of service areas

This subsection sets out our current approach for separating the inputs series for the existing combined policing and immigration services. This addresses Recommendation 75 of the Public Service Productivity Review, which advises producing separate series for policing and for immigration and citizenship.

Proposed method for separating policing from immigration and citizenship

A review of data availability across expenditure components found that disaggregated, robust historical data were consistently available from 2013 onwards. Therefore, the improved method is to separate the indices for policing and immigration and citizenship from 2013, which is the first year for which fully stable, quality-assured central government (CG) and local government (LG) data are available. By starting the separation in 2013, we avoid inconsistencies caused by early series volatility, structural reorganisation of service area, and reclassifications of revenue.

The improved inputs data include:

- (for policing) a mix of directly measured labour data, alongside LG and CG expenditure, that are deflated by appropriate deflators
- (for immigration and citizenship) fully indirectly measured CG expenditure, which are deflated by appropriate deflators
- an estimate for capital fixed consumption (CFC) for CG; CFC is not currently split in CG expenditure, so it is estimated for each service area using the available "Gross fixed capital formation (P.51g)" shares as a proxy

New observed trends in separated service areas

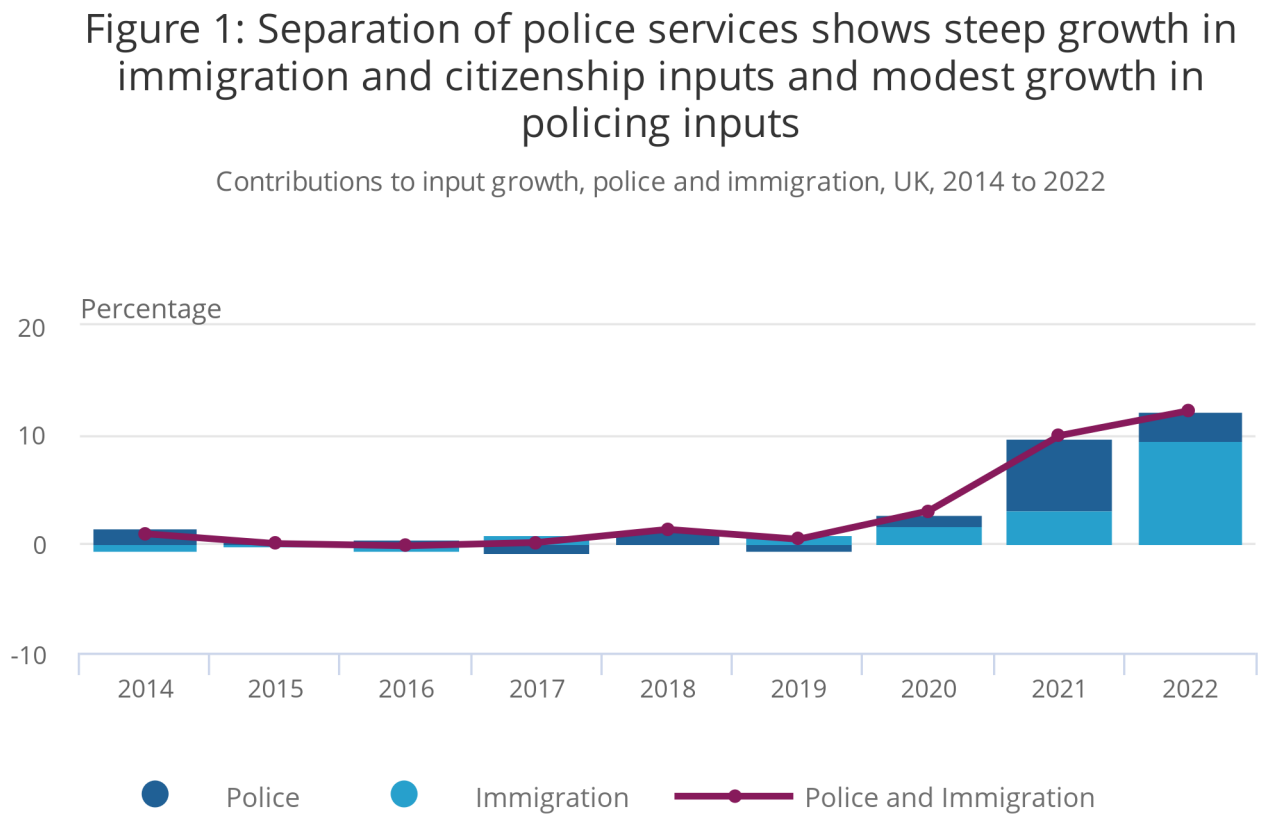
Figure 1 shows the impact of these changes on the inputs growth. The separation of the two service areas provides clearer visibility of distinct service trends.

Policing is the larger of the two service areas. It shows steady, but modest, long-term growth. Additional officer recruitment as part of the police uplift programme has influenced increases in recent years.

Immigration and citizenship is a far smaller service area; it makes up approximately 1% of overall public service productivity in 2022, compared with 4% for policing. In expenditure terms, this service area shows substantial growth in recent years. This has been largely prompted by intermediate consumption increases that are linked to the expansion of asylum accommodation.

Figure 1: Separation of police services shows steep growth in immigration and citizenship inputs and modest growth in policing inputs

Contributions to input growth, police and immigration, UK, 2014 to 2022



Source: Public service productivity from the Office for National Statistics

Improvements to police output measurement

Output was previously indirectly measured using the "output-equals-inputs" approach. This meant that changes in productivity could not be measured.

Introduction of direct output measurement

We have developed a new direct volume output measure, where output growth is measured independently of inputs using activity and cost weight data. Activity data are not currently available for all police functions. So, we combine two output approaches using expenditure weights to form an overall police output index. These are:

- a direct output measure for crime investigation and selected public safety and welfare (PS&W) activities, where activity and unit cost data are available (54.3% of all police output in 2022)

- an indirect output measure, where the output-equals-inputs method is retained for remaining services (45.7% of all police output in 2022)

The main improvement proposed is the creation of a cost-weighted activity index (CWAI). The CWAI is calculated using activity counts for specific incidents that involve the police (such as a homicide or a missing person investigation), weighted by the unit cost of each activity.

Unit costs are held fixed in previous year prices. This means changes in output reflect only changes in volume, rather than changes in cost. We derive unit costs for crime investigation and selected PS&W activities using the Home Office's Police Activity Survey (PAS). The PAS is a time-use survey that captures:

- the distribution of police time across different activities

- the resource unit costs, which reflect the time spent by officers, weighted by rank pay

However, the PAS currently provides only a single-year snapshot for 2023. This limits its suitability for constructing a standard Laspeyres index. Any potential future runs of the PAS will be used to allow for time-varying cost weights. Cost weights for crime investigation also use data on "time to outcome", which is the median number of days taken to assign an outcome to an offence; these data come from the Home Office's Crime Outcomes in England and Wales (COEW) publication.

Crime investigation

Activity measurement for crime investigation is based on the Home Office's Police Recorded Crime and Outcomes publication and their COEW publication. These data sources captured 52.1% of all police output in 2022.

Activity is captured at the point a case is closed, reflecting when police activity is complete. The PAS dataset covers 22 offence categories (excluding fraud) and 11 outcomes, which we aggregate into high-weight, intermediate-weight and low-weight outcomes.

Following consultation with the Home Office, the police crime investigation index will begin in 2018 to avoid distortions that are linked to historical changes in crime-recording standards.

The cost weights used in the crime investigation output measure reflect differences in the resources used for investigating different offence types and for achieving different outcomes.

High-weight outcomes include:

- charged/summonsed

- out-of-court (formal)

- out-of-court (informal)

- taken into consideration

- diversionary, educational or intervention activity resulting from the crime report, has been undertaken and it is not in the public interest to take any further action

Intermediate-weight outcomes include:

- evidential difficulties (suspect identified; victim supports action)
- evidential difficulties (victim does not support action)
- further investigation to support formal action not in the public interest (police decision)
- prosecution prevented, or it is not in the public interest
- responsibility for further investigation transferred to another body

Low-weight outcomes include:

- investigation complete – no suspect identified

The weights assigned to different outcome groups reflect differences in the time taken to achieve different outcomes. This is the best currently available approximation of differences in the resource used to achieve these outcomes.

Public safety and welfare

The PAS identifies 36 PS&W activities, making up 11.7% of all police output in 2022. However, only two categories currently meet quality and coverage requirements for direct measurement (making up 2.2% of all activities in 2022). These are:

- missing persons, using data from the National Crime Agency
- road traffic collisions involving death or serious injury, using data from the Department for Transport

PS&W costs are calculated using time spent, weighted by rank. This is a similar approach to crime investigation to produce a CWAI. These two activities together represent approximately 19.0% of PS&W time. Other PS&W categories are still calculated using the output-equals-inputs method.

Weighting police output components

To combine different elements of police activity into a single measure of output, we use a weighting system that is based on how police forces allocate their resources in practice. This uses annual expenditure data from the Chartered Institute of Public Finance and Accountancy's (CIPFA) Police Objective Analysis, which contains budget data for police forces in England and Wales across policing functions. We map these functions to crime investigation, PS&W and crime prevention.

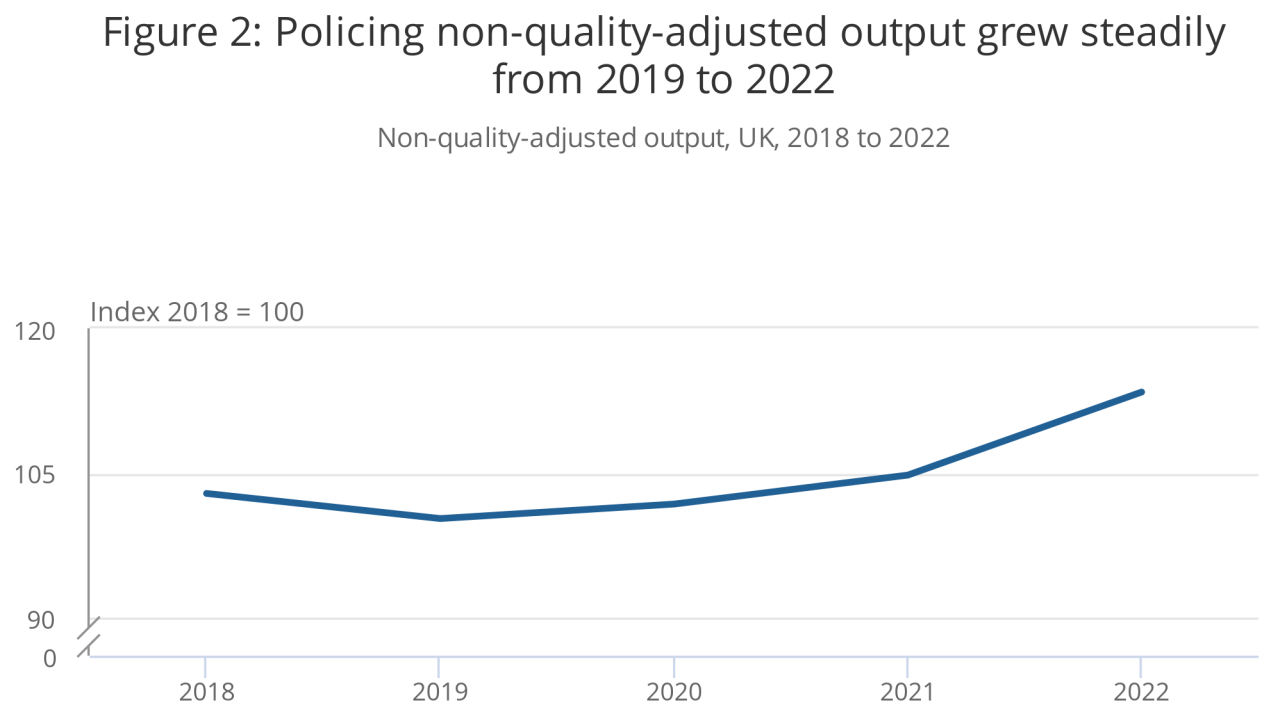
Where CIPFA data were not detailed enough for PS&W, we supplement them with PAS information. The weights are updated each year. This approach reflects established, transparent data already used by HM Inspectorate of Constabulary and Fire & Rescue Services and the Home Office.

New observed trends in police output

The overall combined police output index shows moderate growth after 2019. This is mainly influenced by crime investigation and indirect output. The directly measured PS&W component, which forms just under 2.3% of the weighted index in 2022, has a limited impact on the combined measure.

Figure 2: Policing non-quality-adjusted output grew steadily from 2019 to 2022

Non-quality-adjusted output, UK, 2018 to 2022



Source: Public service productivity from the Office for National Statistics

4 . Improvements to social security administration productivity

We re-introduced a direct volume output index for social security administration (SSA) in our Public service productivity: total, UK, 2022 article, following the National Statistician's Public Service Productivity Review (PSPR). This meant changes in SSA productivity were better able to capture the administrative activity involved in the transition from "legacy" benefits to Universal Credit (UC).

However, the direct volume output index introduced in last year's release used only activity data from the Department of Work and Pensions (DWP). DWP accounts for most SSA services. However, benefits like Tax Credits and Child Benefit are also administered by HM Revenue and Customs (HMRC).

In line with Recommendation 103 of the National Statistician's review, we will be introducing these HMRC-administered benefits into SSA productivity in our March 2026 release.

Incorporating HM Revenue and Customs-administered benefits into output

The direct volume output measure introduced in our Public service productivity: 2022 article uses a benefit-weighted activity index for UC and the legacy benefits that UC is replacing. This means benefits of equivalent average value that are administered under the new UC system and the old legacy benefits are equally valued in output. This better measures productivity changes arising from the transition from legacy benefits to UC. For more information on the benefit-weighted activity index and the rationale for this method, see Section 14.4: Improvements to outputs estimates in the Public Services Productivity Review.

Output for the administration of other benefits that are not being replaced by UC are measured using a cost-weighted activity index. This is where changes in the number of benefits with a greater administrative cost have a greater effect on output than benefits of a lower administrative cost. Overall SSA output is then measured by combining the two indices, weighted by their respective expenditure shares.

Tax Credits are one of the legacy benefits being replaced by UC. Tax Credits administration will therefore be included in the benefit-weighted activity index. Child Benefit, which is not being replaced by UC, will be included in the cost-weighted activity index. The activity measure used for both Tax Credits and Child Benefit is the number of families receiving each benefit.

Detailed HMRC Cost of Collection expenditure data that are needed for weighting are only available from financial year ending 2019. To implement these changes back to 2013, cost weights for the HMRC-administered benefits have been backcast, assuming a similar change in unit cost growth as that experienced by DWP-administered benefits over the same period. This is in line with the starting point of the new direct volume output measure. Output growth before 2016 is measured only using cost-weighted activity. The index for 2013 to 2016 was updated in our 2022 release, while earlier years use the existing series used in the National Accounts.

Claims for Child Benefit have remained relatively stable over the period measured. Claims for Tax Credits have fallen, as they have been replaced by UC (the phase-out was completed in April 2025). As a result, including these benefits in the output measure substantially reduces the overall growth rate of SSA output.

We have made a further development to SSA output by applying the backcasting approach for unit costs to estimate a cost weight for Personal Independence Payments (PIP) in 2013. This means that an estimated impact of the growth in PIP is accounted for in SSA output between 2013 and 2014 (when the benefit was scaled up from initial trial to widespread provision). This results in a revision from a fall to an increase in SSA output in 2014.

Incorporating HM Revenue and Customs-administered benefits into inputs

To remain consistent with coverage in SSA output, we have amended SSA inputs to include inputs used in HMRC-administered benefits.

This draws on expenditure from HMRC's Cost of Collection estimates, which has been added to existing total inputs. The Cost of Collection data are only available back to financial year ending 2019. Therefore, implied HMRC SSA expenditure back to 2013 is estimated by multiplying the backcast unit costs by activity. Overall, the impact of including HMRC benefits in SSA inputs is smaller than for output.

5 . Other changes

Tax administration

Our upcoming annual publication will be the second time we publish tax administration inputs, output and productivity as official statistics in development. We have made two improvements to this measure.

Firstly, we have developed a simple quality adjustment, based on the HM Revenue and Customs (HMRC) tax gap, as recommended in the National Statistician's Public Service Productivity Review (Recommendation 97). To construct this new adjustment, we:

- take the total tax gap estimate, as published annually in HMRC's Measuring tax gaps publications
- apply splining to convert values to calendar year form
- take the inverse value of each year to create a quality adjustment index

The annual growth rate of this index is applied to the growth rate of non-quality-adjusted output index, to give us the quality adjusted index. The inclusion of a tax gap quality adjustment has a small impact to headline productivity estimates between 2018 and 2022.

Secondly, we have improved how we convert our tax administration indexes from financial year to calendar year. Applying a more consistent approach across the full series leads to a small revision to input growth for 2019. However, this should ensure future estimates are more stable and largely protected from these revisions.

Public order and safety

We have made minor revisions to the public order and safety (POS) output series. The first of these is because of revisions in the disposals data included in the Ministry of Justice's (MOJ's) Criminal Court Statistics quarterly release, which are used for courts activity data.

There is also a minor revision to prisons output resulting from a change to the weighting of male closed Young Offenders Institutions (YOIs) to group these with male Category C prisoners, rather than other YOIs. This improves consistency with the categorisation used for unit costs in MOJ's Prison and Probation Performance Statistics.

Education

The Scottish education system is fundamentally distinct from the rest of the UK, with its own curriculum and qualifications framework. Previous methods did not fully capture how Scottish secondary students can take exams at different points in their schooling. To address this, we have introduced an improved "cohortsplit" model that better reflects Scotlandspecific patterns of exam entry and attainment. This new approach strengthens the relevance and coverage of quality adjustment for Scotland by providing a more accurate representation of educational outcomes.

The overall impact on qualityadjusted output and productivity are minimal because Scottish secondary schools carry a relatively small weight in aggregated UK estimates, and the adjustments to attainment are modest. However, these improvements ensure the education estimates offer a more accurate and representative view for users across the UK.

Deflators

To enable meaningful comparisons of expenditure over time, it is necessary to remove the effects of price change and to produce real-terms (volume) measures. This is achieved by applying appropriate deflators to nominal expenditure.

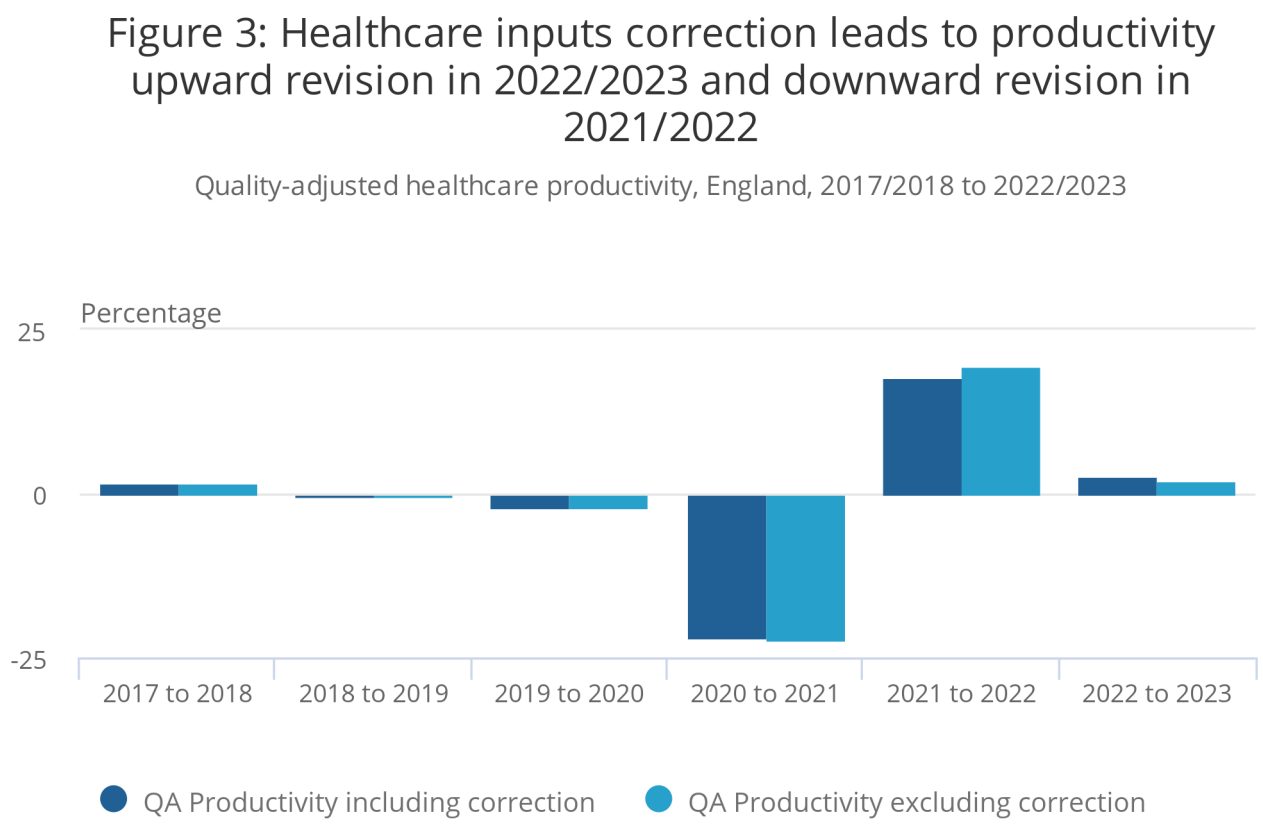
We recently identified a methodological error in the calculation of the Producer Price Index (PPI) and the Services Producer Price Index (SPPI). This resulted in underreported annual inflation rates in both series. Consequently, all affected service areas have experienced downward revisions to real-terms volumes because of the corrected inflation data.

Healthcare deflator correction

We have implemented a few corrections for our annual release in March 2026. The largest was to correct an error in the calculation of a deflator used in the measurement of healthcare intermediate consumption inputs from 2019 onwards. This has caused slight downward revisions on healthcare productivity for two of the four years affected; the largest revision was 1.6 percentage points for England in financial year 2021/2022.

Figure 3: Healthcare inputs correction leads to productivity upward revision in 2022/2023 and downward revision in 2021/2022

Quality-adjusted healthcare productivity, England, 2017/2018 to 2022/2023



Source: Public service productivity from the Office for National Statistics

Notes:

1. "QA productivity including correction" are indicative estimates based only on the impact of the isolated healthcare deflator correction.

We plan to implement improvements to our processing system to reduce the likelihood of similar errors occurring. We carried out a second independent run to reduce the opportunity for these kinds of errors in 2026.

6 . Quarterly public service productivity

We also publish our Public service productivity, quarterly, UK estimates, which are official statistics in development. We introduced timely healthcare productivity estimates in February 2025. Since then, we have made several improvements to increase coherence with both our annual public service productivity (PSP) estimates and our National Accounts methods. These improvements include aligning the main data sources and adopting chain-linking. We have also upgraded healthcare activity data by moving from Hospital Episode Statistics to the Secondary Uses Service (SUS), which offers more refined cost-weighted activity estimates and aligns with NHS England's approach.

Looking ahead, we are working closely with colleagues at NHS England and the Department of Health and Social Care to further align data sources and methods, where appropriate and feasible. We will also explore the possibility of benchmarking our quarterly series with our annual estimates, to create one coherent set of PSP estimates.

7 . Future developments

We intend to make further incremental improvements to our public service productivity estimates, in line with recommendations from the National Statistician's Public Service Productivity Review. We also have a roadmap to incorporate quality adjustments into the UK National Accounts. We are prioritising further improvements to policing and immigration, public order and safety, and adult social care for 2027.

User feedback

If you have any feedback on this article, including thoughts on future developments, or if you would like more information on public service productivity, please email psp@ons.gov.uk.

Policing and immigration

Future development work will prioritise quality adjustments that adjust output for the quality of the service provided, particularly for crime investigation output. We also plan to identify further outputs, starting with additional public safety and welfare output. Weighting of police output components may be subject to further changes in future years, as we continue to consult with stakeholders.

Public order and safety

Further development work on public order and safety will focus on expanding coverage of the devolved administrations and improving the weighting approach used to aggregate the outputs of the constituent services within the public order and safety sector.

Adult social care

Our adult social care (ASC) estimates use the Adult Social Care Finance Return (ASC-FR) and short- and long-term (SALT) collections. The SALT collection, which provided activity data, ended on 31 March 2024 and was replaced by the Adult Social Care Client-Level Dataset (CLD). Future estimates of ASC output will therefore be based on data from the CLD collection. This is initially likely to use the statistics produced by NHS England that replace the existing series. We intend to explore using the CLD data to expand the coverage of direct output measures for ASC.

Acknowledgements

We would like to acknowledge the help and guidance we have received so far from the Home Office, the College of Policing, Crest Advisory, HM Inspectorate of Constabulary and Fire & Rescue Services, HM Revenue and Customs, the Ministry of Justice, the Northern Ireland Executive, the Scottish Government, and the Department for Work and Pensions.

We are grateful to our Office for National Statistics colleagues and academics for providing helpful comments. Developing measures for public service productivity has been recognised as particularly challenging, since the output of goods and services are free at the point of delivery. Continuing the discussion with experts and stakeholders will be crucial to improving our statistics.

8 . Related links

Public service productivity: total, UK, 2022
Article | Released 27 March 2025
Updated measures of output, inputs and productivity for UK public services between 1997 and 2022, including service area breakdown, quality adjustment, and latest revisions.

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

Public service productivity: total, UK, QMI
Methodology | Last revised 22 April 2025
Quality and Methodology Information for the Public service productivity releases: strengths and limitations of the data, methods used, and data uses and users.

Public service productivity estimates: sources and methods
Methodology | Last revised 22 April 2025
Sources and methods information for the public service productivity: total, UK publication, detailing the main concepts, output and inputs measures by service area.

National Statistician's Independent Review of the Measurement of Public Services Productivity
Report | Released 13 March 2025
Review of the Office for National Statistics's improvements to the measurement of the productivity of public services.

Atkinson Review: Final report on the measurement of government output and productivity for the National Accounts (PDF, 1.1MB)
Report | Released 31 January 2005
The Atkinson Review: Final Report is the culmination of a year-long review of the measurement of UK government output and productivity. A main objective of the review was to recommend methods and approaches that could be used to measure UK government output.

9 . Cite this article

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