

Article

# Improvements to the volume output of education in the national accounts: Blue Book 2025

Improvements to our methods for measuring the output of non-market education services, to be incorporated in the 2025 annual National Accounts.

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# 1 . Main changes

- Blue Book 2025 will include improvements to the measurement of the volume output of education across the four countries of the UK.
- These developments improve how we record the contributions of types of education output that are provided in the UK, including those from academies and pre-primary schooling.
- We have also made improvements to reflect expansions in the entitlement for pre-primary schooling and to the treatment of further education.
- We will revise the time series for growth in the volume output of non-market education; this is mainly because of separate unit costs for different academy phases.
- As volume output measures for public services are produced independently of current price estimates, these changes do not result in a change in the contribution of education to nominal gross domestic product (GDP); however, there will be some impact on the implied GDP deflator.

## 2 . Overview of the methodological framework for measuring non-market output

The measurement of non-market output in volume terms presents a considerable challenge across public services. In the absence of market prices, the volume of non-market output is estimated using a cost-weighted activity index (CWA). More information is available in our [Public service productivity estimates: sources and methods guide](#). This approach is mathematically equivalent to estimating the volume output measure through a Laspeyres index, in which the unit cost for the previous year is used to weight activity for both the current and previous years, removing the impact of inflation in costs from output. Changes in output are consequently caused by changes in the number of activities performed, rather than by changes in costs.

For education, activity is calculated as the number of pupils enrolled in a particular school phase, multiplied by the attendance rate, to represent the quantity of education services received. Changes in this activity measure are weighted with its unit cost (or cost per pupil) to differentiate the contributions to output from different phases and types of schooling. As such, an increase in the number of pupils attending higher-cost forms of education, such as special schooling, have a greater impact on output than an equivalent increase in the number of pupils in lower-cost forms of education, such as pre-primary education.

Unit costs are defined as:

$$u_{i,t} = \frac{e_{i,t}}{a_{i,t}}$$

The output index is defined as:

$$I_t = I_{t-1} * \left( \frac{\sum_i (a_{i,t} * u_{i,t-1})}{\sum_i (a_{i,t-1} * u_{i,t-1})} \right)$$

where:

u = unit cost

e = expenditure

a = activity

I = index value

t = year

i = school phase

The changes reported here will predominantly affect volume measures for Industry 85 (education) but will also have a minor impact on Industry 84 (public administration and defence). The changes will be incorporated in the 2025 National Accounts from September 2025.

For current price estimates, the output of non-market services is valued at the sum of costs of production. This aligns with current international guidance as outlined in the [System of National Accounts, 2008 report \(PDF, 9.1 MB\)](#).

The changes reported in this release will not result in any changes to current price estimates of gross domestic product (GDP) or the classification of any education services in the national accounts.

## 3 . Improvements for education volume output

Education is the second largest contributor to public sector output in the national accounts after healthcare. It made up around 16% of general government final consumption expenditure in 2024 ([see Tables K1 and K2](#)).

To capture the changes in education, we have introduced new methods. These include:

- splitting out academies into their individual phases, as well as introducing a new category for alternative provision
- capturing pre-primary pupils with extended entitlement
- changing the treatment of private, voluntary and independent (PVI) pre-primary schools to reflect pre-primary costs
- removing healthcare and initial teacher training from general government volumes, as these are accounted for in the non-profit institutions serving households (NPISH) sector

The new methods predominantly affect the education output from 2010. Where relevant, changes have been applied to earlier years.

All changes to the volume output in education to be introduced in Blue Book 2025 are also used to measure the quantity output of education in our public service productivity estimates. However, as there were previously some differences in the treatment of academies between the national accounts and our public service productivity statistics, the size of the revisions will differ in the two sets of statistics. We have incorporated the new output measure in our [Public service productivity: total article series](#) since March 2024.

## Improving the weighting of different school types

In England, academies were introduced in 2000, with only secondary schools initially converting into academies. In 2010, academisation was expanded to primary and special schools. The proportion of schools converting to academies has increased over time. In the 2022 to 2023 academic year, just over 40% of primary, 80% of secondary and just under 45% of special schools in England were academies. More information is available in the [Schools, pupils and their characteristics dataset from GOV.UK](#).

Currently, pupil attendance at all academies is assigned the same weight when producing volume output measures in the national accounts. This reflects the fact that academies were initially only introduced for the secondary phase, at which point there was no need to apply differential weights for different academies. However, as more schools of different phases have converted to academies, we are introducing method changes to maintain consistency with our approach to schools maintained by local authorities (LAs), where each school phase is given a unique unit cost. As a result, changes in pupil enrolment and attendance for higher-cost school phases, such as special schooling, will contribute more to output than changes in lower-cost school phases, such as primary schooling.

Currently, the output for compulsory education in England uses different weights for six different school types. Two of these are pre-primary phases, which we discuss further in our Improving the weighting of pre-primary school output subsection. The remaining four categories are:

- LA-maintained primary schools
- LA-maintained secondary schools
- LA-maintained special schools
- academies

We will now apply differential weights to four separate categories of academy, splitting out primary, secondary, special and alternative provision (AP) academies (which provide education for students who cannot go to mainstream schools). LA-maintained AP schools will be split from the existing LA-maintained special schools (where they are currently captured) into their own new category. This results in the previous four categories being split into eight categories:

- LA-maintained primary schools
- LA-maintained secondary schools
- LA-maintained special schools
- LA-maintained AP schools
- primary academies
- secondary academies
- special academies
- AP academies

Updates to the expenditure weights will allow for the cost weighting of each of these phases individually and allow the contribution of each phase to overall education volume output to be more precisely captured. The updates will result in a slight decrease in the cost weighting for primary academies, with an increase in the cost weighting for all other academies. As a result, the increase in the number of pupils in primary academies will result in a smaller increase in output, following these revisions.

## **Improving the weighting of pre-primary school output**

Pre-primary education output is currently measured by distinguishing two types of pre-primary schools:

- LA-maintained pre-primary schools (plus pre-primary classes in primary schools)
- private, voluntary and independent (PVI) pre-primary schools

Expenditure data for PVI pre-primaries are not available separately from LA-maintained pre-primary expenditure. Similarly, for Scotland and Wales, there are no PVI pre-primary enrolment data. Conversations with the devolved education departments has shown that there is little difference in cost provision between LA-maintained and PVI pre-primaries. Because of the scarcity of the PVI pre-primary expenditure data and the similarity of PVI and LA-maintained pre-primary costs, these phases will be consolidated into a single pre-primary figure.

## **Pre-primary age and full-time equivalence (FTE)**

Currently, for England, some pupils of pre-primary age are being included in the output for primary schools. To better reflect that the phase of schooling is more important when determining the relative weights of different services than the type of school the activity occurs in, pre-primary pupils in primary schools will be weighted equivalently to other pre-primary pupils. This will be done by weighting all pupils aged under 4 years as of 1 September on the year before the school census (which is taken in January) as pre-primary. This reduces the enrolment for primary pupils.

Additionally, the current method does not include 2-year-olds enrolled in PVI pre-primaries, despite there being funding for such pupils since 2013 to 2014. As data are available for these 2-year-olds, we will improve our coverage of pre-primary output by including these pupils from the 2013 to 2014 academic year onwards.

Currently, all pupils receiving free childcare are counted as receiving the 15 hours free childcare entitlement. In 2017, the extended entitlement of 30 hours was introduced for families meeting the eligibility criteria. We will be implementing improvements to capture the extended childcare entitlement in our outputs. The pre-primary inclusion for Wales, Scotland and Northern Ireland will not be affected by these changes.

For enrolment, full-time equivalence (FTE) is used to calculate activity. Currently, the FTE weight given to a part-time pupil is 50% of that given to a full-time pupil. While this has a small impact on primary, secondary or special schools, where there are very few part-time pupils, it is more of a consideration for pre-primary pupils. Where part-time pupils are not identifiable, pre-primary enrolment (headcount) figures are currently given a factor of 0.5 to proxy FTE (that is, pre-primary pupils are assumed to attend school 50% of full time).

However, pupil census data show that, where part-time pupils are identifiable, the FTE factor is higher and growing. Therefore, where part-time pupils are not identifiable, pre-primary activity will be adjusted by an FTE factor equal to that of the calculated FTE factor for each year, instead of the current constant factor of 0.5.

## **Removing Initial Teacher Training and healthcare training from general government volumes**

Towards the end of the 1990s, most teacher training colleges were absorbed into universities and are therefore classified as higher education (HE) within the national accounts. Similarly, when nursing degrees, also HE, became a compulsory route to qualifying as a nurse in 2009, the number of nurses training via non-degree routes declined. By 2012, there were very few nurses training outside HE (around 5% of the number a decade previously).

The output of these services is already captured in the non-profit institutions serving households (NPISH) sector of the national accounts. For this reason, this package of changes also removes the effect of growth in healthcare training from 2012 and Initial Teacher Training (ITT) from 1997 from the volume output measure for general government. This has a small upward effect on education output volume growth but does not affect the allocation of these services in the national accounts sector classification, where their expenditure is already treated as being part of the NPISH sector.

## 4 . 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.

[National Statistician's Independent Review of the Measurement of Public Services Productivity](#)

Report | Last updated 7 May 2025

Summary of recent work, including the main challenges identified, methodological improvements, service-specific improvements, and recommendations for further work.

[Improved methods for total public service productivity: total, UK, 2021](#)

Methodology | 8 March 2024

Explaining data and methodological improvements to education and healthcare inputs, output and quality adjustment, used in the upcoming public service productivity article.

## 5 . Cite this article

Office for National Statistics (ONS), released 23 June 2025, ONS website, article, [Improvements to the volume output of education in the national accounts: Blue Book 2025](#)