Office for National Statistics

Article

Deflator improvements to the UK National Accounts: Blue Book 2025

Methodology improvements to National Accounts deflators for Blue Book 2025.

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1 . Main changes

- Deflator improvements for Blue Book 2025 include introducing the use of administrative data to improve selected trade deflators, updating the treatment of labour in the non-housing repair and maintenance construction deflator, and improving the methods for the research and development (R&D) investment deflator.

- These changes improve the quality of the deflators used in the UK National Accounts, therefore improving our measure of the economy.

- In this article we cover the improvements and motivation behind the changes; future articles published in the run-up to Blue Book 2025 will address the effects of these changes.

2 . Overview of UK National Accounts deflators

The UK National Accounts Blue Book 2025 compendium will introduce several improvements to deflators. Deflators aim to refine the measurement of the real economy by identifying and removing the impact of inflation.

By removing the effects of inflation, the "real" estimates offer insights into the actual changes in the volume of economic activity. A more in-depth understanding of deflators and their applications in economic assessments is available in our Deflators and how we use them in economic estimates methodology.

3 . Blue Book 2025: improvements to deflators

In Blue Book 2025, various methodology and data improvements will be introduced to the deflators used in the national accounts to produce volume estimates of gross domestic product (GDP) and its component parts. These changes contribute to ensuring our measure of real values or volumes are as accurate as possible.

The work implemented this year contributes to our deflator strategy and other priorities for the organisation, including improving our construction and research and development (R&D) statistics. These improvements result in changes to more than 200 deflators used across the UK National Accounts.

We announced a pause in the publication of producer price inflation (PPI) data in March 2025 because of an issue in the chain-linking calculation. The Construction Output Price Indices and the R&D investment deflators covered in this article make use of Producer Price Inflation Indices (PPIs); from Blue Book 2025, they will use the corrected PPIs.

For Blue Book 2025 we will be delivering the following work.

Improving trade deflators

We will introduce improvements to the deflators for a number of basic commodities in 2025, using administrative data collected by HM Revenue and Customs (HMRC). This is part of a project spanning several years to improve our trade deflators.

Our existing trade deflators (Export Price Indices (EPIs) and Import Price Indices (IPIs)) are created using survey data which is based on a sample. They are therefore reliant on timely responses, which can be challenging to obtain. The Office for National Statistics (ONS) already uses overseas trade in goods statistics collected by HMRC, and so we investigated the possibility of leveraging this to create new trade deflators.

We will be introducing Unit Value Indices (UVIs) for imports and exports in 2025 of the following products, which have been identified as suitable for this methodology:

- coal and lignite
- crude petroleum and natural gas
- coke and refined petroleum products
- basic metals

This is in addition to UVIs which have been used for the period from Quarter 1 (Jan to Mar) 2021 for imports and exports of natural gas since Blue Book 2022 and 2024, respectively. For more information see our Methodological improvements to UK trade and GDP article and our Blue Book 2024: advanced aggregate estimates article.

UVIs reflect the average price per unit of a good or service and are an established method used by other national statistic institutes (NSIs) and elsewhere in ONS; see the UK Statistics Authority National Statistician's Committee for Advice on Standards for Economic Statistics (NSCASE) conceptual methods in prices and volume (PDF, 236KB).

In principle, UVIs rely on the ratio of value to volume of trade flows; variables collected by HMRC as goods cross the border. These are then aggregated using a multilateral aggregation method called GEKS-Törnqvist. This method was recently introduced into some categories in the Consumer Price Index (CPI), which rely on large administrative datasets. Our Introducing multilateral index methods into consumer price statistics methodology provides more detail.

UVIs are only appropriate where the commodity is homogeneous, when the qualities do not change over time or between suppliers. Quality assurance has been carried out on relevant data to verify that the commodities for which we are introducing UVIs in 2025 are homogeneous. Where they are not, such as for some lower-level deflators like casting services of metals, the existing EPIs and IPIs remain in use and are aggregated alongside the UVIs.

We have quality assured these new trade deflators against external sources, including deflators produced by other NSIs and bodies such as the International Monetary Fund (IMF).

The UVI methodology does not suffer from potential challenges associated with low or variable survey response rates because of the use of administrative data. This increases our confidence in the new deflators, and ensures we capture as many transactions as possible.

The import and export deflators for these products will be revised from 1997 to make use of this new methodology. This results in a consistent series across the time period covered by the national accounts.

Improving repair and maintenance construction deflator

Construction Output Price Indices (OPIs) are used as output deflators for different types of construction projects: new work, repair and maintenance, and all construction work. For all projects, three types of input costs are calculated: materials, plant, and labour. A mark-up is applied, which accounts for profit, and the result is then used as a measure of output prices for the construction industry. These Construction OPIs are used as deflators for the construction industry in national accounts. More detail on the compilation of OPIs can be found in our Construction Output Price Indices (OPIs) quality and methodology information.

An internal review of the methodology used for the construction output deflators revealed scope for improvement. We are making improvements to the labour series used for the non-housing repair and maintenance construction deflator in Blue Book 2025, where changes in labour costs have an effect on the price of the construction output that is produced.

To account for labour costs, the CPI for activities of plumbers, electricians, carpenters and decorators was used. Since this element of the construction deflator relates to non-housing activities, analysis showed that the CPI was not the most suitable source, and we will replace it with average weekly earnings (AWE) for the construction industry. This brings the deflator in line with the treatment of labour in the new work element of construction and makes it more representative of the activity taking place.

The non-housing repair and maintenance deflator will be revised from 2014, in line with the period when ONS took ownership of the Construction OPIs from the then Department for Business, Innovation and Skills (BIS). This will then result in changes to the overall repair and maintenance and construction deflators because of the aggregation of the construction deflators.

Improving research and development investment deflator

Following user feedback on international price comparisons for equivalent research and development (R&D) deflator series from other countries, we have reviewed the R&D investment deflator and made improvements for inclusion in Blue Book 2025. The R&D investment deflator is based on a sums-of-costs approach, where the primary costs in are labour, intermediate consumption of materials and services, and capital consumption. These component deflators are aggregated to form the overall R&D deflator.

Research into the methods identified scope for improvement in the methods used to combine wages into a labour cost index, used as one of the inputs into the deflator. This now uses average wages based on Annual Survey of Hours and Earnings (ASHE) data for the R&D industry. These wages were compared with other measures to verify that they are a suitable replacement. Labour is an important input into R&D investment and is consistently the highest weighted component of the R&D deflator, accounting for more than 40% of costs on average. This change means that we are better capturing the effect of labour costs on the overall R&D investment deflator.

In addition, the PPI and Services Producer Price Index (SPPI) used to capture inflation in intermediate consumption within R&D had not been updated since 2020. These have now been updated to include the latest data. These methodology improvements are in line with the deflator guidance in the Organisation for Economic Co-operation and Development (OECD)'s Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development.

As a result of these improvements, the deflator has been revised from the start of the series in 1997. The trend of this revised deflator is also now more similar to that of other countries.

This change is in addition to other improvements to our measurement of R&D investment being introduced in Blue Book 2025. Further detail about these changes is available in the Improvements to estimation of research and development within gross fixed capital formation and business investment: Blue Book 2025 article.

4 . Related links

Improvements to estimation of research and development within gross fixed capital formation and business investment: Blue Book 2025
Article | Released 23 June 2025
Summarises the methods changes introduced at the Annual National Accounts 2025 for the research and development component of gross fixed capital formation (GFCF) and business investment.

5 . Cite this article

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