

Article

National accounts, deflator strategy: November 2022

Strategy for improving the suite of deflators used across the UK National Accounts, and a roadmap of work to improve our measurement of key economic indicators.

Contact:
Fahmida Qureshi
Deflator.Development@ons.gov.
uk
+44 1329 447101

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1 . Overview

This strategy article builds on the aims in our [National accounts, deflator strategy published in September 2020](#). Since its publication, [chain-linking of business prices](#) and [improved deflators for clothing and telecommunications](#) have been implemented in the UK National Accounts. Several deflator changes will be implemented in the upcoming Blue Book 2023.

Deflators are important in the measurement of economic statistics. They allow the effects of price changes to be removed from current price data series, enabling comparison across time in real terms (with the effects of inflation removed).

Price indices can be used to compile deflators that are then used in the compilation of economic statistics. In particular, these are used to compile price changes of the supply and demand of goods and services in the UK. It is important to note that price indices are not necessarily developed for deflation purposes, and so may differ in scope. Other data sources are used to fill gaps not covered by price indices. For example, wage measures are used to deflate parts of the service sector, as wages are one of the largest component costs and are therefore used as a substitution for price movements. In some instances, price series are adjusted, moving them away from published values, to make them more representative as national accounts deflators. Our aim will be to keep price indices and deflators in line with each other where it is possible to do so.

Through our deflator research programme, we work to understand both the national accounts concepts and the conceptual basis of the relevant price indices, to ensure we are using the most appropriate deflator. This means we may change the use of standard price indices as deflators where it is the best option for the national accounts concept being measured.

We will consider the new development of deflators with the possibility of use in our price indices. However, this will be considered against other planned developments, our need to maintain international comparability and the resources available.

When implementing method changes to deflators into the national accounts, we need to consider that there may be different sources across the three different measurement approaches to gross domestic product (GDP): income, output and expenditure. A deflator method change in one particular approach may not mean that there will be a corresponding change in the other approaches; therefore, we will assess the three approaches via the [supply and use balancing framework](#) and apply balancing adjustments to reconcile the accounts.

In his [Independent review of Economic Statistics](#) (March 2016), Professor Sir Charles Bean set out recommendations for where we could improve our methods for measuring the economy, several of which referenced improving the deflator suite used across the UK National Accounts.

In response to these recommendations, the main aims of the deflator research and development team are to:

Aim 1 - capture quality change more effectively

Aim 2 - make better use of existing data sources and explore the use of alternative data sources to improve the quality and consistency of deflators across economic statistics

Aim 3 - ensure we have efficient and effective processes that improve the production, quality assurance and narrative around deflators

Aim 4 - keep pace with changes in international guidance

2 . Capturing quality change more effectively

It is important to account for quality change in goods and services when comparing their prices over time. Otherwise, some of the change in nominal output would be incorrectly considered as a price change, rather than a volume change caused by a change in the quality of the product. The deflator should accommodate quality change, while like-for-like price changes are stripped out. This ensures we are comparing fairly across all time periods to show real change over time. This is a particular challenge for the measurement of high-technology industries, particularly those within the service sector, where quality change can be rapid and hard to see.

We have conducted a review of our suite of deflators to identify areas where quality change may be more effectively captured. As a result of this review, [an improved deflator for telecommunications services](#) was implemented as part of Blue Book 2021. This review identified other areas, particularly within the services sector, where we plan to invest research time.

Increased use of design and modelling software has radically changed the way in which architecture and engineering services are provided to customers. Customers now have access to an improved service as a result of technological advances. We have started research into this area and [an initial case study \(PDF, 776 KB\)](#) was presented to the [2022 Voorburg Meeting](#). We will continue this research to better capture quality change for the architecture and engineering service.

Computer hardware, software and cloud computing have seen technological advancements over the last two decades. Computers today are more powerful, software can quickly perform complicated tasks and the use of cloud computing for both processing and storage has increased significantly. In the post-coronavirus (COVID-19) pandemic world, work processes have changed significantly. Attitudes about working from home have shifted, while new software solutions have developed to meet requirements. To ensure this is reflected in UK deflators, we will undertake research into how price movements have changed.

3 . Making better use of existing and alternative data sources

We are making better use of existing sources and methods, aligning with international best practice, to be at the forefront of international development. This allows us to improve the quality and consistency of the deflators being used across UK economic statistics.

The first step was the introduction of annual [Chain-linking in business prices](#) in [Blue Book 2020](#). This brought us in line with international best practice, with the methods used in the Consumer Prices Index (CPI) and the more frequent weight changes result in an index that is more representative of the economy.

Improvements to the [Services Producer Price Indices \(SPPI\)](#) over recent years means that there are now areas where SPPIs are conceptually more aligned to the current price series that need to be deflated. Previously, in the absence of appropriate SPPIs, alternative sources have been used to compile deflators in some areas. The initial set of improved SPPIs will be implemented as deflators of the national accounts in Blue Book 2023.

Aligned with our wider aims for economic statistics, we want to make better use of microdata and increase the use of administrative data sources such as HM Revenue and Customs (HMRC) data to create trade deflators. This will help us to ensure our statistics are fit for the future, allowing increased granularity and improved quality.

We initiated a project in 2016 to transform UK trade statistics following the increase in user demand as a result of Brexit. One of the five objectives set out in our [UK trade and investment development plan](#) centres around improvements to deflators. We will help to improve the capture of import and export price series. We are researching the use of official administrative data and the unit value index method to create a set of improved import deflators to accompany the existing import price indices. In the future, this research could also be used on export data. We are looking to optimise our data collection by using administrative data sources in deflator development. In our [UK National Accounts, The Blue Book: 2019](#) we introduced improvements to how deflation is carried out for trade in services. This allowed us to better capture the currency mix (dollar, euro and so on) of transactions that are carried out in a foreign currency.

We conducted a complete review of trade in services deflators in 2019, which led to recommendations for improvement. Many of the improvements identified for trade deflators will require long-term research and development. This includes research into how to compile a trade services producer price index using the available data sources. Given the complexity and importance of trade deflators, we will continue to make incremental changes over the short-, medium- and long-term.

Alongside this research agenda, we will review and optimise our survey samples for price collection and analyse how improvements made to price surveys will affect deflators.

4 . Efficient and effective process for deflator production and quality assurance

We aim to improve the visibility and consistency of deflators by developing the systems and processes through which deflators are created and flow through the national accounts. We are introducing a formal deflator gateway system to control the age, consistency and quality of price indices being used as deflators. This is important to ensure the use of the most suitable deflator estimates across the suite of national accounts for consistency in production of economic indicators.

5 . Keeping pace with changes in international guidance

With upcoming changes to international guidance, such as the System of National Accounts 2025, we aim to adopt any recommendations in a timely manner. We will continue to liaise with other National Statistics Institutes (NSIs), raising our profile and allowing us to gain input and insight into our research, as well as contributing to the international discussion.

6 . Future developments

Our research agenda provides details of our main areas of focus in the short- to medium-term. Although we have set targets for delivery post-2023, these dates should be considered provisional. As a research and development team, we may need to pivot our resources to work on other high-priority goals or aims. Therefore, our focus may shift depending on the needs of other projects and research areas.

While we have ambitious timescales for these improvements, we also recognise that we will have to make the best use of the technology and data available. This may result in gradual improvements over a slightly longer timescale to take advantage of the best-quality data and technology.

Deflators research and development roadmap

Deflator gateway system

Aim 3: effective processes

Completed by Blue Book 2022 and Blue Book 2023

Purpose and outcome

To develop a central compilation system for deflation, using price data, alternative data sources and robust methods. This will create deflation measures that are fit for purpose for customers and the national accounts.

Consistent and coherent application of deflators by all teams, supported by analytical briefing on a regular basis.

Travel deflator

Aim 2: better use of data sources

Completed by Blue Book 2023

Purpose and outcome

To develop improved methods and sources, creating a price series that is more representative, with source data available on a regular basis.

Computer hardware

Aim 1: capturing quality change

Completed by Blue Book 2023

Purpose and outcome

To ensure that the deflators adequately capture the quality change experienced.

More widespread use of Services Producer Price Indices (SPPI)

Aim 2: better use of data sources

Completed by Blue Book 2023

Purpose and outcome

To review improvements made to the SPPI series, identifying where these can improve the quality of deflators used in national accounts and analysing impacts.

Trade in goods import deflators

Aim 2: better use of data sources

Completed post Blue Book 2023

Purpose and outcome

To use HM Revenue and Customs (HMRC) microdata to calculate import deflators for homogenous goods. This will be a multiyear project. The first part of the research is looking at energy, fuels, precious and non-precious metals.

Trade Service Producer Price Index

Aim 2: better use of data sources

Completed post Blue Book 2023

Purpose and outcome

To research data sources that could be used to build estimates of a trade SPPI.

To develop methods and analyse results with intention of improving volume estimates of trade in services.

Computer software and information processing

Aim 1: capturing quality change

Completed post Blue Book 2023

Purpose and outcome

To ensure that the deflators capture the quality change experienced. This will include assessment of pre-packaged, custom and own account software, along with open source and cloud computing.

Architecture and engineering

Aim 1: capturing quality change

Completed post Blue Book 2023

Purpose and outcome

To ensure that the deflators capture the quality change experienced.

Insurance and pension services review

Aim 2: better use of data sources

Completed post Blue Book 2023

Purpose and outcome

To review and research alternative methods and data to measure these services.

To work internationally and with Office for National Statistics (ONS) Fellows to assess innovative methods to deflate financial services, exploring volume estimates.

Research and development

Aim 1: capturing quality change

Completed post Blue Book 2023

Purpose and outcome

To review Research and Development services and investigate deflator options.

Marketing assets

Aim 4: keeping pace with changes in international guidance

Completed post Blue Book 2023

Purpose and outcome

To provide a deflator for new assets, which we expect to see brought into the accounts following international agreement of the System of National Accounts 2025.

Data as an asset

Aim 4: keeping pace with changes in international guidance

Completed post Blue Book 2023

Purpose and outcome

To provide a deflator for new assets, which we expect to see brought into the accounts following international agreement of the System of National Accounts 2025.

7 . Related links

[Deflators and how we use them in economic estimates](#)

Article | Released 2 December 2022

Explaining the different types of deflators and how we calculate them, as well as their importance for creating economic estimates, such as gross domestic product (GDP).

8 . Cite this article

Office for National Statistics (ONS), released 29 November 2022, ONS website, article, [National accounts, deflator strategy: November 2022](#)