Article

Methodological improvements to UK trade and GDP

The methodological improvements being made to UK trade gas deflators, trade in services travel data and health services data being introduced into national accounts from the gross domestic product (GDP) quarterly national accounts and balance of payments, UK: April to June 2022.

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To be announced

Table of contents

1 . Main changes

- We have moved quickly to implement an improvement to the UK trade gas imports deflator to better capture the extent that rising wholesale gas prices are impacting the value of natural gas imports given recent large rises in the cost of gas.

- We have also revised the International Passenger Survey (IPS) methodology for trade in services estimates to better account for certain international traveller types resulting in improved travel services data.

- With large changes to the cost of delivering health services during the coronavirus (COVID-19) pandemic, we have improved the quality of our initial quarterly estimates of health output by adjusting them for additional expenditures on personal protective equipment (PPE), NHS Test and Trace, extra hospital capacity and increased use of agency staff.

2 . Methodological improvements to UK trade

Improved methods for deflating UK trade gas imports

We are implementing a new method to capture the extent that the rising wholesale prices of gas are impacting the value of natural gas imports.

The wholesale price of gas (System Average Price) has seen large fluctuations in value over the last year, according to National Grid data. These have not been fully reflected by the price indices currently used for natural gas within trade imports data, as the previous deflator included wider cost changes within the sector. Our change of method to ensure our figures fully take account of historically high gas prices addresses this by improving estimates for the chained volume measures (CVM) for both our UK trade and gross domestic product (GDP) measures.

The wholesale price of gas has seen large fluctuations in value over the last year

System Average Price, pence per kilowatt hour, seven day rolling average,1 January 2021 to 30 June 2022, non-seasonally adjusted, Great Britain

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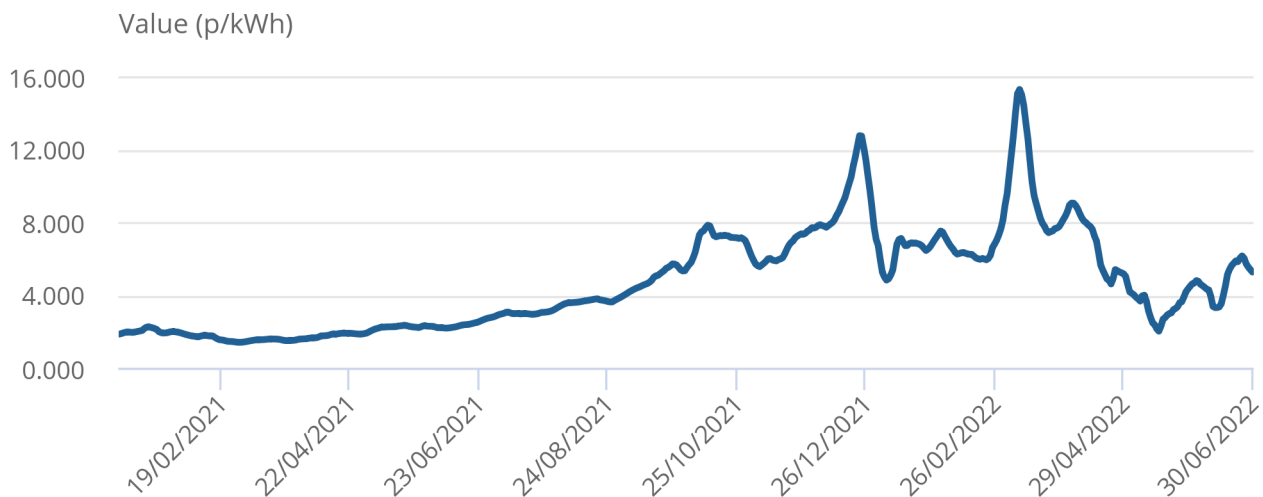
Source: National Grid

The UK's gas imports are primarily natural gas, in either a liquefied (LNG) or gaseous state. Natural gas in gaseous state is imported via pipeline and LNG is imported to the UK via ship. HM Revenue and Customs (HMRC) collect the total value of imports for both kinds of gas, alongside the supplementary unit Terajoule (gross calorific value) (Tj).

The existing price indices used for natural gas is the Producer Price Index for Manufactured Gas for Domestic Market. This is a broad measure that includes gas plus additional elements, which have not been so significantly affected by rapid movements in gas prices.

Because natural gas itself is a homogeneous product, we can improve the quality of our deflation by calculating Unit Value Indices (UVI). Deflation is the process of adjusting for price impacts to estimate a "real" measure for the change in volume between consecutive periods. The Eurostat prices and volumes manual handbook covers the suitability of using UVIs for trade in goods statistics.

This UVI uses the value and Tj data for imports of the two forms of natural gas, sourced from HMRC. As these are the only data components for the UVI, this produces a series that solely captures the price changes which are relevant to gas imports data.

In GDP quarterly national accounts, UK: April to June 2022, and future UK trade publications, we will link this new UVI data source onto the existing price indices used for natural gas imports, from January 2021 onwards. We have made this methods improvement faster than would usually be the case to ensure our headline figures fully reflect cost changes in this important product.

This improvement will cause revisions across Quarter 1 (Jan to Mar) 2021 to Quarter 2 (Apr to June) 2022, to the implied deflators and CVMs for imports of trade in goods, within the fuels commodity. While having no impact on our headline current price trade figures, this improvement will impact the total trade balance on a CVM basis, which directly feeds through to the expenditure measure of GDP. These changes are the first iteration of a wider trade deflator development project to use administrative data sources. Further detail will be provided in National accounts, deflator strategy: November 2022.

Improved trade in services - travel services methodology

An additional methodological improvement that will be incorporated into GDP quarterly national accounts, UK: April to June 2022 is improved estimates of trade in services travel data derived from the International Passenger Survey (IPS). As previously announced, the IPS methodology was revised to better account for certain international traveller types. This change in methodology revises estimates of both travel services imports and exports from Quarter 1 2009 onwards.

In addition, travel services estimates for the period Quarter 4 (Oct to Dec) 2021 to Quarter 1 2022 will be updated to be based on survey data following the reintroduction of the IPS after the lifting of COVID-19 public health restrictions. Initial estimates for this period had previously been modelled.

3 . Methodological improvements to measuring health services

Improvements to measuring health services

The production approach, or gross domestic product GDP (P) as it is often known, is primarily concerned with the generation of gross value added (GVA), the value of all goods and services produced within the economy. To derive estimates of GVA we require information on output and intermediate consumption such that:

Gross value added equals Output minus Intermediate consumption

where:

- Output: goods and services that are produced within a sector that are available for purchase from that sector

- Intermediate consumption: value of goods and services purchased to be used up in the production of goods and services, for example, items such as personal protective equipment (PPE), single use medical supplies and cleaning products; specifically excludes staff costs and capital investments such as ventilator machines, which are handled elsewhere in the accounts

As these detailed data only become available with a lag, they are used in our annual supply and use process, which confronts the inputs and outputs of products in different industries in a comprehensive framework. This process delivers our most detailed view of GVA up to 2020. But for data after 2020, we only have short-term measures of output activity, not GVA.

Most indicators in the short-term measures are measuring changes in turnover and output as a proxy for changes in GVA. In those situations we typically assume that the intermediate consumption ratio in the latest year of the supply and use process holds constant into future years, for example, input costs as a proportion of turnover or output remain fixed.

Human health is an industry dominated by central government, which typically produces around three-quarters of human health output. The latest available annual departmental accounts for the Department of Health and Social Care show major additional expenditures on PPE, NHS Test and Trace, extra capacity resulting from the Nightingale hospital units and increased use of agency staff. This additional spending contributed to intermediate consumption in current prices growing substantially between 2019 and 2020.

The ratio of spending on intermediate consumption increased from 39% of output in 2019 (which was then used initially for our 2020 estimates) to 45% in 2020, which results in a lower estimate of value added in current prices. This change is one of the major sources of revision in the forthcoming UK National Accounts, The Blue Book: 2022.

To better account for future changes in the intermediate consumption ratio and to limit the potential for similar revisions in the future, we will use government data on output and intermediate consumption to construct early indicative quarterly estimates of health GVA data for 2021 onwards. We will use this data to inform our quarterly estimates for 2021 and beyond. This will give us earlier and better estimates of GVA with the expectation that this new approach will minimise revisions in the future.

4 . Related links

GDP quarterly national accounts, UK
Bulletin | Released 30 June 2022
Revised quarterly estimate of gross domestic product (GDP) for the UK. Uses additional data to provide a more precise indication of economic growth than the first estimate.

UK trade
Bulletin | Released 12 September 2022
Total value of UK exports and imports of goods and services in current prices, chained volume measures and implied deflators.

5 . Cite this article

Office for National Statistics (ONS), released 26 September 2022, ONS website, article, Methodological improvements to UK trade and GDP