

Article

Double deflation: update on progress

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Table of contents

1. [Summary](#)
2. [Gross domestic product, gross value added and double deflation](#)
3. [Supply and use](#)
4. [Implementation and impact](#)
5. [Next steps](#)
6. [Contact](#)

1 . Summary

This article updates users on our plans for implementing double deflation methodology and provides a background to the project. Double deflation is the preferred methodology for deriving estimates of gross domestic product (GDP) and gross value added (GVA) in volume terms.

Users less familiar with concepts or terminology related to National Accounts may wish to consider the introductory reading material that ONS provides, such as the [Guide to National Accounts; Balancing the Three Approaches to Measuring Gross Domestic Product](#); and [A guide to the supply and use process](#).

2 . Gross domestic product, gross value added and double deflation

Gross value added (GVA) measures the contribution to the economy of each individual producer, industry or sector in the UK and is used in the [estimation of gross domestic product \(GDP\)](#). The relationships can be defined as:

- output minus intermediate consumption equals GVA
- GVA plus taxes on products minus subsidies on products equals GDP

GVA and GDP may be presented in current prices, which include the impact of price changes. Alternatively, they can be presented in chained volume measures (CVMs); meaning effects of price changes are removed by considering changes in quantity between consecutive periods, holding prices from previous periods constant.

Single deflation uses one indicator to derive CVM GVA, such as the deflation of output only. Double deflation, however, is considered the best practice methodology and should be carried out within a supply and use framework¹. In simple terms, double deflation is the separate deflation of output and intermediate consumption to arrive at volume GVA.

Notes for: Gross domestic product, gross value added and double deflation

1. For more information see [Eurostat Manual of Supply, Use and Input-Output Tables](#).

3 . Supply and use

To understand double deflation, it is important for users to also be aware of the three measures of gross domestic product (GDP) and how they relate to supply and use tables. For reference, users are reminded that the three approaches to measuring GDP are:

- output – GDP(O): the sum of the value added created through the production of goods and services within the economy
- income – GDP(I): the total income generated by the production of goods and services within the economy; this includes income earned by companies, employees and the self-employed
- expenditure – GDP(E): the total final expenditure on all finished goods and services produced within the economy

In the short term, differences in data and sources mean that these three measures are not equal. Supply and use balancing addresses these differences and uses detailed indicators, which only become available after 1 to 2 years. In annual supply and use tables (SUTs), the three approaches to GDP (income, output and expenditure) are fully reconciled using a [matrix of industries and products](#)¹.

Supply and use tables that balance these three measures of GDP are produced at present in current prices, but by moving to compiling them also in previous year's prices (PYP²), we will implement double deflation methodology by 2020.

Notes for: Supply and use

1. Additional information can be found in the [Commentary on supply and use balanced estimates of annual GDP: 1997 to 2014](#).
2. PYPs are used in the calculation of a chained volume measure.

4 . Implementation and impact

Introducing double deflation methodology is a high-priority, strategic development for the Office for National Statistics (ONS). Our plan of moving from single to double deflation as a way for determining annual gross domestic product (GDP) in volume terms is supported by recommendations of the [National Statistics Quality Review of National Accounts and Balance of Payments \(NSQR\)](#) and the [Independent Review of Economic Statistics, led by Sir Charles Bean \(the Bean Review\)](#). In addition, changes to the European System of Accounts requirements means that from 2018, the UK must deliver supply and use tables in previous year's prices (PYP SUTs) to Eurostat for reference year 2015. PYP SUTs are a stepping stone towards double deflation.

Double deflation is applied by a number of National Statistics Institutes, including France, the Netherlands and Canada, whilst most others still follow a single-deflation approach. Although double deflation is considered best practice, its use does not necessarily mean one country's statistics are more accurate than another's. There are many other factors to consider, such as the quality of the underlying data in current prices, the quality of price indices for deflators, the appropriateness of deflators used, and the level of detail for industries and products.

Double deflation should and will affect volume growth rates of GDP and gross value added (GVA) for existing years that have been balanced through the supply and use framework, due to differences in methods and the use of different prices. It must be stressed that this does not mean the current estimates of growth are invalid. Countries regularly update their methodologies and introduce new estimates of national accounts. [Case studies of double deflation](#) have shown that the directional bias is not universal.

5 . Next steps

As stated in the [Bean Review](#), double deflation will be implemented in 2020 and gross domestic product (GDP) in chained volume measures (CVMs) will be estimated through a supply and use framework in previous year's prices (PYP). Ahead of implementing double deflation, supply and use tables in previous year's prices for 2015 will be delivered to Eurostat in 2018. This is part of the standard delivery for these estimates and although the Office for National Statistics (ONS) does not normally publish "PYP data", we will explore with users if there is demand for these data to be published.

At this stage in development, we have not finalised estimates from the double deflation-approach and research is ongoing in this important area. We do, however, recognise that there is a user demand to understand the impact of double deflation to revisions of gross value added (GVA) and GDP estimates. Throughout 2017, we will be engaging with users and aim to publish methods articles.

To illustrate the methodology, we are working towards publishing case studies of double-deflated GVA. These estimates will begin to be released in 2017. The focus of our research in this area involves deriving a series of supply and use tables in previous year's prices, which will estimate value added in double-deflated terms. We will also be exploring the impact of deflator selection on estimates. This analysis should prove useful in understanding if any biases may exist in single-deflated estimates.

This area is also being researched by the [Economic Statistics Centre of Excellence \(ESCoE\)](#) and we have established links with leads in the sectoral productivity topic.

6 . Contact

The Supply and Use Development Team are keen to hear your views and take any further questions from our users. We can be contacted at sut@ons.gsi.gov.uk.