

Article

# National Accounts articles: Impact of Blue Book 2016 changes on chained volume measure gross domestic product estimates, 1997 to 2011

Current price changes along with other improvements which impact only on real GDP. Also presents a first look at the quarterly path of GDP in Blue Book 2016 for 1997 to 2011.



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# 1. Executive summary

This article details estimates of the total impact of all the improvements to UK chained volume measure (CVM or "real") gross domestic product (GDP) planned for June 2016.

All of the current price impacting improvements have already been announced in the article [Impact of Blue Book 2016 Changes on Current Price Gross Domestic Product, 1997 to 2011](#), published on 24 February. This article brings together those current price changes along with other improvements which impact only on real GDP and also presents a first look at the quarterly path of GDP in Blue Book 2016 for 1997 to 2011. The improvements described in this article will also be applicable to subsequent years, but these later years are additionally subject to regular data updates and other methodological developments, which will be presented in future articles as detailed in Table 2.

The package of real GDP changes as a whole, over the period 1998 to 2011, have the combined impact of very slightly reducing the average annual growth of real GDP by around 0.04 percentage points but the headline average remains at 2.0% per annum in Blue Book 2016, as it was in Blue Book 2015.

The average revision to quarter on quarter real GDP growth introduced at this Blue Book is -0.02 percentage points over the period from Quarter 2 (April to June) 1997 to Quarter 4 (October to December) 2011. Over the same period the absolute revision to quarter on quarter real GDP growth is 0.09 percentage points. The peak to trough of the 2008/09 economic downturn has been revised from -6.1% to -6.3%.

## 2. Introduction

This article is part of a series describing [changes to National Accounts](#), detailing the improvements which will be made in June 2016 to ensure that the UK National Accounts continue to provide the best possible framework for analysing the UK economy and for comparing it with those of other countries.

The previous article of 24 February, [Impact of Blue Book 2016 Changes on Current Price Gross Domestic Product, 1997 to 2011](#) described improvements being made to the UK National Accounts in current price terms. This article included methodological changes such as improvements to imputed rental estimates being made as part of the regular annual update of the UK National Accounts (Blue Book).

Current price revisions will, in most cases, feed through to affect real GDP as well, although there are a few exceptions. As previously described, the improvement to imputed rental is one such change where, because the main impact is on the prices being used, the current price revisions are larger than the real GDP revisions. This is because the revisions to the prices used in the calculation of the current price estimates are largely offset by the revisions to the deflator in the construction of the chained volume measure (CVM) figures.

This article provides a summary of the changes being implemented in Blue Book 2016 which impact on real GDP between 1997 and 2011 and provides an estimate of the impact on the expenditure components of GDP for the main changes. The total impacts on GDP of the current price changes are also included in the [Annex A detailed table and Annex B summary table](#), but descriptions of these changes will not be repeated here. These numbers are slightly different from the ones provided in the 24 February article, with the largest change being -£1.5 billion in 2005, as a result of further quality assurance of the imputed rental improvements.

For each expenditure component the range of approximate impacts on annual real GDP growth rates across the years from 1998 to 2011 is provided in the summary along with an explanation of the impact of the change, with the full detail for each expenditure component shown to the nearest 0.1 percentage point in [Annex C](#).

Quarterly current price and real GDP growth rates ([see Annexes D and E respectively](#)) are also being published in this article and this will enable you to see the impacts that the annual revisions have on the quarterly path of GDP including the economic downturn of 2008/09. The publication of both current price and real GDP allows for the calculation of the GDP implied deflator. The annual implied deflator is shown in [Annex F](#) and the quarterly implied deflator in [Annex G](#) for completeness.

These figures are still indicative at this stage and final quality assurance is currently being undertaken. A finalised version of these data will be provided in an updated article on 20 May 2016 ahead of publication in the UK National Accounts on 30 June 2016. It is also possible that the quarterly path presented in this article will change slightly when the UK National Accounts are published as the addition of annual levels and the quarterly path for more recent years can alter the quarterly path of earlier years through re-seasonal adjustment.

We will publish the full impact on gross national income (GNI) of all the Blue Book 2016 changes in the article of 20 May 2016 but, meanwhile, you can use the revisions to current price GDP for 2010 and 2011 as a close approximation of the revision expected to GNI in those years, with small revisions to net property income explaining any differences between GDP and GNI revisions.

Figures for 2012 and more recent years are not yet available. These will not be processed until closer to the time of publication in order to take account of the most recent available data in the usual manner. All figures will also be adjusted as a result of the change of reference year and last base year from 2012 to 2013. This article therefore focuses on the revisions to growth which will not be affected by rebasing, rather than describing changes to the levels of real GDP which will change when the reference year is advanced by one year. Plans are to publish both current price and CVM data for 2012 to 2014 on 20 May 2016 as set out in Table 2.

On 23 March 2016, we also published 3 further articles, [GDP\(O\) Water transport industry review, 2016](#), [GDP\(O\) Postal and courier activities industry review, 2016](#) and [Methodological improvements to National Accounts for Blue Book 2016: Imputed rental](#)

### **3. Summary**

The latest estimates of the impact of the planned changes on GDP are shown in Table 1.

**Table 1: Latest estimates of the impact of the planned changes on annual UK GDP**

Indicator	Impact
Level of GDP in current prices	See Annex A
Near-final estimate of the impact of all changes to the level of annual GDP in current prices	Average revision to the level of GDP 1997 to 2011 is +3.8% (£44.7 billion)
Growth of GDP in current prices	See Annex A and Annex B
Near-final estimate of the impact of all changes to the growth of annual GDP in current prices	Average revision to GDP growth in current prices 1998 to 2011 is -0.41 percentage points (ranging from -1.2 to -0.1 percentage points)
Real measure of GDP	See Annex C
Near-final estimate of the impact on growth in annual real GDP (chained volume measure)	Average revision to real GDP annual growth 1998 to 2011 is -0.04 percentage points (ranging from -0.5 to +0.4 percentage points)
GDP implied deflator	See Annex F
Near-final estimate of the impact on growth in annual GDP deflator	Average revision to annual growth of the GDP deflator 1998 to 2011 is -0.36 percentage points (ranging from -1.5 to 0.0 percentage points)

Source: Office for National Statistics

The package of real GDP changes being presented today, over the period 1998 to 2011, have the combined impact of very slightly reducing the average growth of real GDP by around 0.04 percentage points, but to 1 decimal place the average growth remains at 2.0% per annum in Blue Book 2016, the same as in Blue Book 2015.

However, the changes do impact on the real GDP growth rates by varying amounts between years ( [see Annex C for more details](#)). Revisions to the growth rate of annual real GDP range from -0.5 percentage points in 2011 to +0.4 percentage points in 2010. The improvements which impact on each component of GDP are summarised in Section 3. Generally the main reasons for revision to real GDP are the same as the revisions already described for current price GDP, but there are also changes which only impact on real GDP such as the implementation of GDP(O) industry reviews and changes to social transfers in kind within general government final consumption expenditure.

As a result of changes to the level of annual real GDP, the quarterly path of real GDP also needs adjusting to achieve the new annual levels. The quarterly path revisions to current price GDP are shown in [Annex D](#) and the real GDP quarterly path revisions are in [Annex E](#).

The average revision to quarter on quarter real GDP growth introduced at this Blue Book is -0.02 percentage points over the period from Quarter 2 (April to June) 1997 to Quarter 4 (October to December) 2011. Over the same period, the absolute revision to quarter on quarter real GDP growth is 0.09 percentage points. The peak to trough of the 2008/09 economic downturn has been provisionally revised from -6.1% to -6.3%. Until GDP for later years has been compiled it is not possible to say what this does for the shape and strength of the subsequent recovery period post 2011.

For the period 1997 to 2011, quarterly GDP revisions are driven by changes to annual data and methodologies along with a reassessment of the seasonal adjustment of each component within GDP; with the seasonal adjustment changes being much smaller in impact than the annual changes. The quarterly path presented in Annex E is provisional at this stage and is subject to further change when annual GDP for 2012 to 2014 are added to the time series.

## 4. Methodological improvements to real GDP by component

Unless otherwise specified all changes referred to in this section have previously been described in the [article of 24 February 2016](#).

### Household final consumption expenditure (HHFCE)

HHFCE contributes between -0.4 percentage points to the overall real GDP annual growth revision in 2011 to +0.4 percentage points in 2010. The growth contributions in these 2 years and most of the earlier years are due to the changes in imputed rental and the chained volume measure (CVM) revisions are generally smaller than the current price revisions as explained in the [imputed rental article](#).

HHFCE is also impacted to a lesser extent by 3 other changes in Blue Book 2016: the exhaustiveness/concealed income activity adjustment; improved estimates of Value Added Tax fraud and updates to the illegal activities estimates.

### Non-profit institutions serving households (NPISH) final consumption expenditure

The current price revisions to NPISH final consumption expenditure are entirely due to adjustments in insurance claims by NPISHs and the CVM revisions are also partially caused by some small changes in deflation. NPISH real final consumption expenditure revisions are very small in value terms and have no impact on the real GDP annual growth rates to 1 decimal place except in 2006 when they contribute -0.1 percentage points.

### Government final consumption expenditure (GGFCE)

The only current price change impacting on GGFCE is the Transport for London capital stocks change, and this has no impact on CVM GDP growth rates. However, GGFCE does contribute to the overall CVM annual growth rates of GDP by +0.1 percentage points in both 1999 and 2002 due to the social transfers in kind improvement.

The article of 24 February 2016 titled [Methodological improvements to National Account for Blue Book 2016: Market/non-market output \(P.121/P.131\) and social transfers in kind \(D.632\) for Government](#) covers the changes to the treatment of non-market output and social transfers in kind that will be introduced in Blue Book 2016.

Within these changes, a substantial number of payments, currently classified as intermediate consumption of government will now be reallocated to social transfers in kind market production. While the current price estimates of GDP are unaffected by these changes because the transfers are simply being reclassified, there is a small impact on CVMs from the social transfers in kind change as a deflator used is being changed.

In CVM terms, government final consumption of these individually provided services is determined by reference to a set of indicators of volume of government activity. For example the number of elective and non-elective operations, and the number of outpatient first and follow-up appointments. By definition, social transfers in kind market production are not provided by government. Therefore, it has been necessary to review the calculation of CVMs to assess whether the volume indicators used in the past are still valid.

In most cases the current volume indicators still provide the best measure of activity. However, in the case of net provision of prescription medicines (cost of medicines less prescription charges paid by households) it was felt that the activity would now be best measured by reference to a market deflator. Therefore, the volume measure for this component of the overall CVM for government final consumption expenditure is now derived by deflating the current price value using the GDP(output) implied deflator for basic pharmaceutical products.

## **Gross capital formation (GCF)**

GCF is made up of the constituent parts of gross fixed capital formation (GFCF), changes in inventories and acquisitions less disposals of valuables and these 3 elements are then "chain-linked" together to produce the real GCF totals.

GCF revisions only impact on real annual GDP in 2008 and 2009 where they contribute -0.1 percentage points in each year.

There are no annual revisions in Blue Book 2016 to either changes in inventories or acquisitions less disposals of valuables due to new methods or data.

GFCF is impacted by improvements to own account construction, the correction for improvements made to dwellings and the correction to agricultural data. There are also smaller impacts from GFCF taking a proportion of the improved estimates to Value Added Tax fraud and the exhaustiveness/concealed income activity adjustment change.

## **Trade in goods and services**

There are very small revisions to current price trade estimates in this year's Blue Book. Exports of goods and services receive a small proportion of the exhaustiveness/concealed income activity adjustment and both imports and exports are impacted marginally by the imputed rental changes. Additionally imports are revised from 2011 onwards due to changes in the methodology for collecting non-EU gas imports. The imputed rental improvements lead to some small trade in services CVM revisions due to changes in the weights given to various trade deflators.

Trade in goods and services revisions only impact on real annual GDP in 2011 where they contribute -0.1 percentage points.

## **5. Plans for future updates**

This article is the second in a series of impact articles ahead of the Quarterly National Accounts consistent with Blue Book 2016 publication on 30 June 2016. The focus here is on the years 1997 to 2011 for real GDP changes and the quarterly path of GDP for the same periods. The improvements described in this article will often also be applicable to subsequent years, but these years are additionally subject to regular data updates and other methodological changes which will be presented in future articles.

As well as the first impact article for Blue Book 2016, 2 detailed methodological articles were also published on 24 February 2016. All of these articles can be found in Section 7 along with the 3 methodological articles published today that describe the measurement improvements being implemented for imputed rental and the water transport and postal and courier industries. Table 2 gives a draft schedule for the remaining articles leading up to the publication of Blue Book 2016 on 29 July 2016. These dates are provisional. Final dates will be announced at least 1 month before each publication. The outline for the full publication timetable is as follows.

**Table 2: Provisional publication schedule for UK Blue Book and Pink Book 2016**

Content of Article	Date of publication
Detailed assessment of changes to sector and financial accounts annual estimates 1997-2011	Tuesday 26 April 2016
Detailed assessment of changes to Balance of Payments annual estimates 1997 to 2011	Tuesday 26 April 2016
Impact on GDP current price and chained volume measure quarterly and annual estimates 1997 to 2014	Friday 20 May 2016
Detailed assessment of changes to sector and financial accounts 1997 to 2014	Tuesday 7 June 2016
Detailed assessment of changes to Balance of Payments 1997 to 2014	Tuesday 7 June 2016
Classification changes to National Accounts for Blue Book 2016	Tuesday 7 June 2016
Quarterly National Accounts Quarter 1 (Jan to Mar) 2016 (consistent with Blue Book 2016)	Thursday 30 June 2016
Balance of Payments Quarter 1 (Jan to Mar) 2016 (consistent with Pink Book 2016)	Thursday 30 June 2016
Impact of changes in the national accounts and economic commentary for Quarter 1 (Jan to Mar) 2016	Thursday 30 June 2016
Blue Book 2016	Friday 29 July 2016
Pink Book 2016	Friday 29 July 2016

Source: Office for National Statistics

## 6. Background notes

1. Details of the [policy governing the release of new data are available](#) or from the Media Relations Office email: [media.relations@ons.gsi.gov.uk](mailto:media.relations@ons.gsi.gov.uk)

## 7. References

[Blue book and pink book 2016 changes](#)

[Impact of Blue Book 2016 Changes on Current Price Gross Domestic Product, 1997 to 2011](#)

[Methodological improvements to National Account for Blue Book 2016: Market/non-market output \(P.121/P.131\) and social transfers in kind \(D.632\) for Government](#)

[The UK Flow of Funds Project: Improvements to the Sector and Financial Accounts](#)

[GDP\(O\) Water transport industry review, 2016](#)

[GDP\(O\) Postal and courier activities industry review, 2016](#)

[Methodological improvements to National Accounts for Blue Book 2016: Imputed rental](#)