

Statistical bulletin

# Regional gross value added (production approach), UK: 1998 to 2014

An experimental measure of regional GVA (the increase in the value of the economy due to the production of goods and services) at 2 geographical levels (region and sub-region).

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## Notice

### 25 October 2017

The revisions triangles for gross value added (production approach) (GVA(P)) have been published on 25 October 2017 covering the periods 1998 to 2014, and can be found in section 10 "Quality and methodology". These are consistent with the GVAP statistical bulletins published between 18 December 2013 (first bulletin) to 16 December 2016 (latest bulletin) and form a requirement resulting from the recent Office for Statistics Regulation assessment.

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# 1 . Main points

Real gross value added (GVA) increased in all NUTS1 regions in 2014. The highest annual increase was in London at 5.1%, followed by the East of England at 4.5%.

Wales had the smallest annual increase in real GVA in 2014 of the NUTS1 regions, at 0.4%.

Of the NUTS2 sub-regions, North Eastern Scotland had the largest annual increase in real GVA in 2014, at 6.9%, followed by Cheshire at 5.9%.

3 of the NUTS2 regions' real GVA decreased in 2014, of which Highlands and Islands had the largest decrease of 1.7%.

## 2 . Things you need to know

These estimates of gross value added (GVA) are compiled using the production approach (GVA(P)), whereby GVA is calculated for a given reference period as the total value of all goods and services produced (output), less goods and services used up or transformed in the production process, such as raw materials and other inputs (intermediate consumption). The GVA(P) measure is principally designed to provide “real” estimates of GVA growth, with the effect of inflation removed, via chained volume measures (CVM). The CVM are presented as indices referenced to equal 100 in 2013.

The production approach to compile GVA is conceptually equivalent to the income approach, but allows deflation of current prices to produce constant price measures, since the production components relate to goods and services which can be broken down into price and volume indices. National industry deflators consistent with the [National Accounts Blue Book 2016](#) are used because no regional price indices are currently available. Further information can be found in the methodology section of this bulletin and in the [regional accounts methodology guide](#).

This release is currently classed as an experimental statistics publication. These are defined in the [Code of Practice for Official Statistics](#) as new official statistics undergoing evaluation. They are published in order to involve users and stakeholders in their development and as a means to build in quality at an early stage.

These estimates are presented for areas according to the European [nomenclature of units for territorial statistics](#) (NUTS). Economic activity that cannot be assigned to a specific region is allocated to Extra-Regio. Further information can be found in chapter 1 of the [regional accounts methodology guide](#).

The estimates in this bulletin do not have National Statistics status. We advise users to exercise caution in the interpretation and use of these statistics. We also publish annual estimates of [regional GVA using the income approach](#) (GVA(I)) at current prices, which are National Statistics and remain our primary source of regional GVA. The most recent estimates of GVA(I) were published on 15 December 2016. Where the GVA(P) results differ significantly from the existing GVA(I) measure, the latter should take precedence. GVA(P) current price estimates are included in this release to enable users to compare the 2 current price measures directly.

## 3 . Real GVA increased in every NUTS1 region in 2014

In 2014 all of the 12 NUTS1 regions increased their real gross value added (GVA) index. London had the largest annual increase in real GVA at 5.1%, followed by the East of England at 4.5% and the West Midlands at 3.8%. Wales had the smallest increase of the NUTS1 regions, at 0.4%.

GVA that cannot be assigned to a region of the UK is included in a special category called Extra-Regio, which is included in real GVA estimates for completeness. UK Extra-Regio consists of oil and gas extraction on the continental shelf and the activities of UK embassies and forces overseas, and occurs only in the mining and quarrying industry and the public administration and defence industry. In 2014, Extra-Regio real GVA decreased by 1.0%.

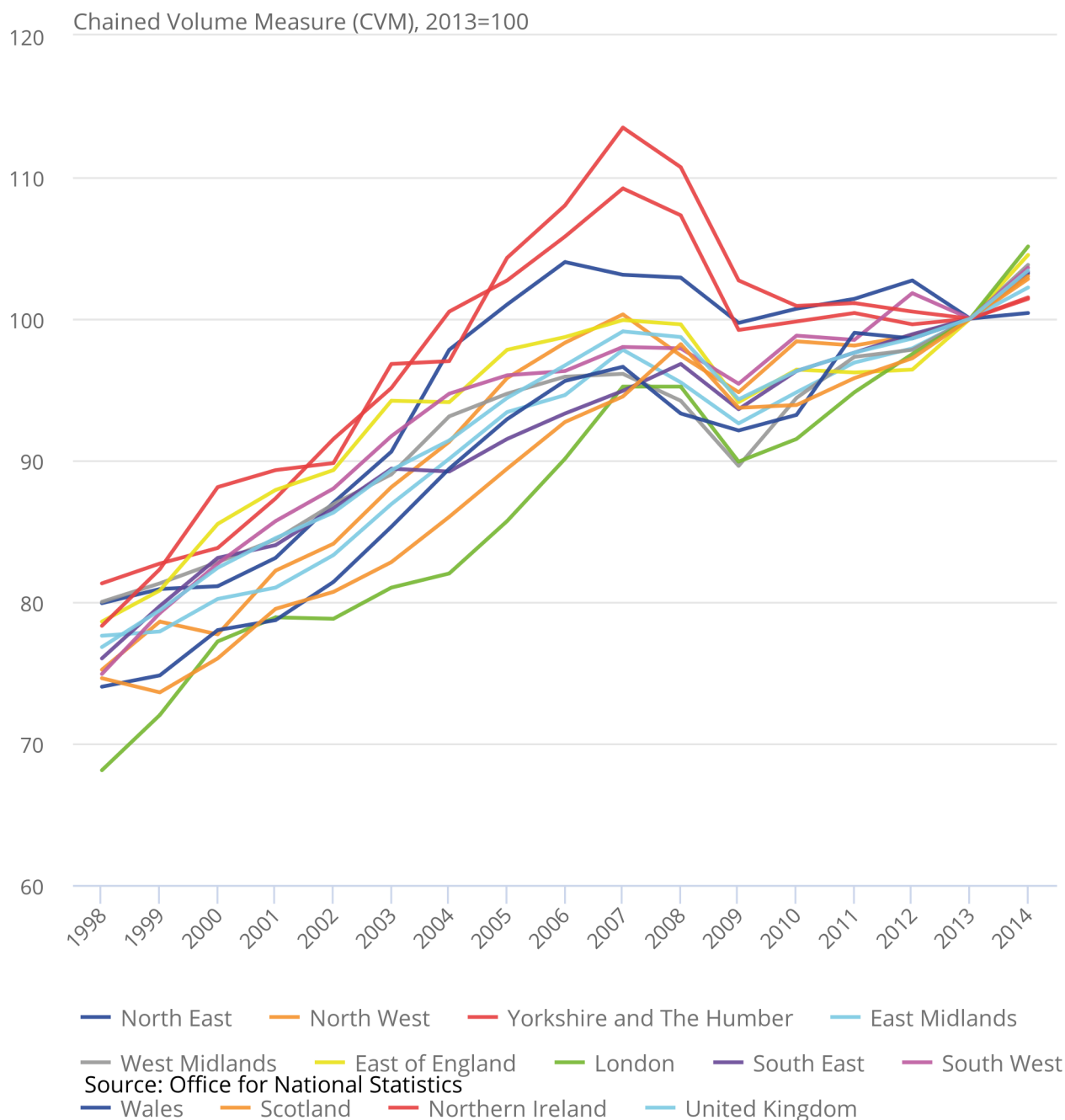
The economic downturn experienced in the UK in late 2008 and 2009 affected all NUTS1 regions. The UK figure for GVA expressed in chained volume measures (CVM), known as real GVA, grew in each year to 2007, fell to a low in 2009 and then increased in each subsequent year to 2014.

Real GVA decreased in 9 of the NUTS1 regions in 2008; only Scotland and the South East showed growth, while London's value remained the same. In 2009, at the low point of the economic downturn, real GVA decreased in all NUTS1 regions. Figure 1 shows the real GVA index value for each NUTS1 region, along with the UK, from 1998 to 2014.

Click on the region names above the chart to toggle the lines on and off.

**Figure 1: NUTS1 index of real GVA for all industry totals (chained volume measure), 1998 to 2014**

Figure 1: NUTS1 index of real GVA for all industry totals  
(chained volume measure), 1998 to 2014



**Source: Office for National Statistics**

Table 1 shows the change in real GVA (as measured by CVM indices) for each NUTS1 region for the years since the downturn, 2009 to 2014, along with England and Extra-Region. During this period, 11 of the NUTS1 regions were at their highest level in 2014, while Northern Ireland was at its highest value in 2009. Out of the 12 regions, 11 were at their lowest level in 2009, the exception being Northern Ireland which was at its lowest value in 2013.

**Table 1: NUTS1 index of real GVA for all industry totals (chained volume measure), 2009 to 2014**

	2013=100					
NUTS1 regions	2009	2010	2011	2012	2013	2014
United Kingdom	94.3	96.3	97.6	98.6	100.0	103.4
North East	99.7	100.7	101.4	102.7	100.0	103.2
North West	94.8	98.4	98.1	98.8	100.0	102.8
Yorkshire and The Humber	99.2	99.8	100.4	99.6	100.0	101.5
East Midlands	92.6	94.8	96.9	97.9	100.0	102.2
West Midlands	89.6	94.4	97.3	97.8	100.0	103.8
East of England	94.1	96.4	96.2	96.4	100.0	104.5
London	89.9	91.5	94.8	97.5	100.0	105.1
South East	93.6	96.3	97.6	98.9	100.0	103.3
South West	95.4	98.8	98.5	101.8	100.0	103.6
England <sup>1</sup>	93.2	95.7	97.1	98.5	100.0	103.7
Wales	92.1	93.2	99.0	98.6	100.0	100.4
Scotland	93.7	93.9	95.8	97.2	100.0	103.0
Northern Ireland	102.7	100.9	101.1	100.5	100.0	101.4
Extra-Regio <sup>1</sup>	164.7	154.0	127.1	109.4	100.0	99.0

Source: Office for National Statistics

Notes:

1. England and Extra-Regio are not NUTS1 regions but are included for comparison purposes.

## 4 . NUTS2 – performance at the sub-regional level

In 2014, real gross value added (GVA) increased in 37 of the 40 NUTS2 sub-regions. The largest percentage increases were in:

- North Eastern Scotland, 6.9%
- Cheshire, 5.9%
- Outer London West and North West, 5.8%
- Outer London East and North East, 5.8%

The 3 NUTS2 sub-regions in which real GVA decreased between 2013 and 2014 were:

- Highlands and Islands, with a decrease of 1.7%
- Cornwall and Isles of Scilly, with a decrease of 1.4%
- East Wales, with a decrease of 0.4%

Real GVA increased in all of the 40 NUTS2 sub-regions between 1998 and 2014, the years for which GVA(P) estimates are available. The greatest increases were for North Eastern Scotland and Inner London East, where real GVA increased by 89.2% and 87.7% respectively. The smallest increases were for Kent (17.3%) and East Yorkshire and Northern Lincolnshire (17.6%).

Looking at the years since the economic downturn, 37 of the 40 sub-regions had a higher level of real GVA in 2014 compared with 2009. The greatest increases were in:

- North Eastern Scotland, 27.9%
- Herefordshire, Worcestershire and Warwickshire, 24.0%
- Inner London East, 18.8%

The 3 sub-regions that showed a decrease between 2009 and 2014 were:

- East Yorkshire and Northern Lincolnshire, with a decrease of 9.7% (including notable decreases of 3.7% between 2009 and 2010 and 3.3% between 2010 and 2011)
- Northern Ireland, with a decrease of 1.3%
- Merseyside, with a decrease of 1.1%

Table 2 shows the change in real GVA (as measured by CVM indices) for 2009 to 2014 for the 5 NUTS2 sub-regions with the highest growth in real GVA between 2013 and 2014, and the 5 NUTS2 sub-regions with the lowest growth.

Scotland was the only NUTS1 region to have a NUTS2 sub-region in both the top 5 and bottom 5 sub-regions based on the 2014 real GVA growth rates, while London was the only NUTS1 region to have 2 NUTS2 sub-regions in the top 5.

**Table 2: NUTS2 all industry top and bottom sub-regions<sup>1</sup> real GVA index values, 2009 to 2014**

	2013=100					
NUTS2 sub-regions	2009	2010	2011	2012	2013	2014
United Kingdom	94.3	96.3	97.6	98.6	100.0	103.4
Top five CVM index value, 2014						
North Eastern Scotland	83.6	83.6	89.2	95.4	100.0	106.9
Cheshire	90.0	96.9	99.7	94.9	100.0	105.9
Outer London - West and North West	90.5	89.8	93.3	97.3	100.0	105.8
Outer London - East and North East	91.4	95.6	96.1	98.0	100.0	105.8
Bedfordshire and Hertfordshire	96.6	96.1	93.7	92.2	100.0	105.7
Bottom five CVM index value, 2014						
Derbyshire and Nottinghamshire	91.7	94.1	97.3	97.2	100.0	100.6
South Yorkshire	92.3	95.8	96.0	98.9	100.0	100.1
East Wales	92.1	92.9	99.6	100.1	100.0	99.6
Cornwall and Isles of Scilly	96.9	98.4	102.5	102.0	100.0	98.6
Highlands and Islands	86.9	90.3	98.5	97.5	100.0	98.3

Source: Office for National Statistics

Notes:

1. Data for all NUTS2 sub-regions are included in reference table 1.

Although real GVA in each of the NUTS2 sub-regions shown in table 2 was higher in 2014 than 2009, there is variation in the way the economic downturn and recovery affected the sub-regions:

- Cornwall and Isles of Scilly reached its highest value in 2011 and East Wales in 2012.
- Outer London West and North West reached its lowest point in 2010, and Bedfordshire and Hertfordshire reached its lowest point in 2012.
- Real GVA increased in Outer London East and North East and South Yorkshire in every year from 2009 to 2014.

## 5 . Industry growth in 2014

At the UK level in 2014, there was strong growth in the agriculture industry at 13.9%, other service activities at 11.3%, and administrative and support service activities at 9.7%.

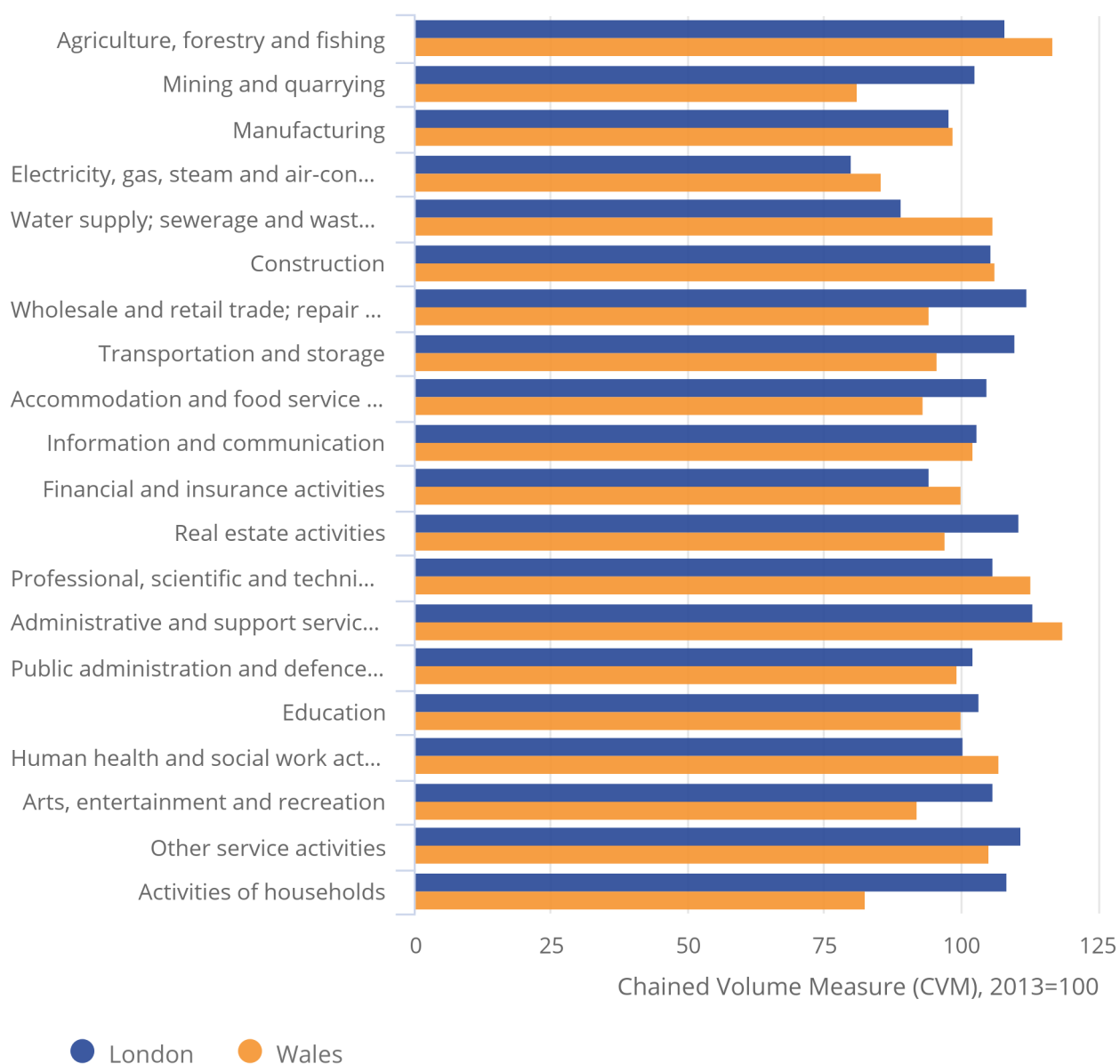
In London, the region with the largest overall growth in 2014, administrative and support service activities showed the highest growth at 13.2%, followed by wholesale and retail trade and repair of motor vehicles with 12.2% growth. Other service activities had the third highest growth at 11.2%.

Although Wales showed the lowest growth of any NUTS1 region in 2014, it did see strong growth in administrative and support service activities (18.8%) and the agriculture industry (17.1%), reflecting the UK pattern.

Figure 2 compares the industry performance in London and Wales, the NUTS1 regions with the largest and smallest growth in 2014 respectively.

**Figure 2: Real GVA index values by industry for the top and bottom NUTS1 region, 2014**

Figure 2: Real GVA index values by industry for the top and bottom NUTS1 region, 2014



Source: Office for National Statistics

**Source: Office for National Statistics**

In terms of real gross value added (GVA) growth between 2013 and 2014, Wales outperformed London in 9 of the 20 industries. The largest differences in growth were in:

- water supply, sewerage and waste management (6.1% compared with a decrease of 10.9% in London)
- agriculture (17.1% compared with 8.3%)
- professional, scientific and technical activities (13.1% compared with 6.1%)

However, these industries made up only a small proportion of total GVA for Wales in 2014, ranging from 0.8% for agriculture to 3.8% for professional, scientific and technical activities. Strong growth in these industries, therefore, had little impact on the total GVA for Wales.

In the 2 industries making up the largest percentage of Wales' total GVA, manufacturing (16.8%) and real estate activities (11.8%), Wales saw a decline in growth in 2014 (of 1.2% and 2.7% respectively).

London showed strong growth in a number of industries where Wales saw a decline in 2014, including:

- wholesale and retail trade; repair of motor vehicles (growth of 12.2% in London compared with decrease of 5.7% in Wales)
- transportation and storage (10.1% compared with a decrease of 4.2%)
- real estate activities (10.7% compared with a decrease of 2.7%)

The real estate industry was the largest industry in London in 2014, making up 15.1% of the total GVA for London. Strong growth in this industry was therefore a dominant factor in the strong growth of London's total GVA.

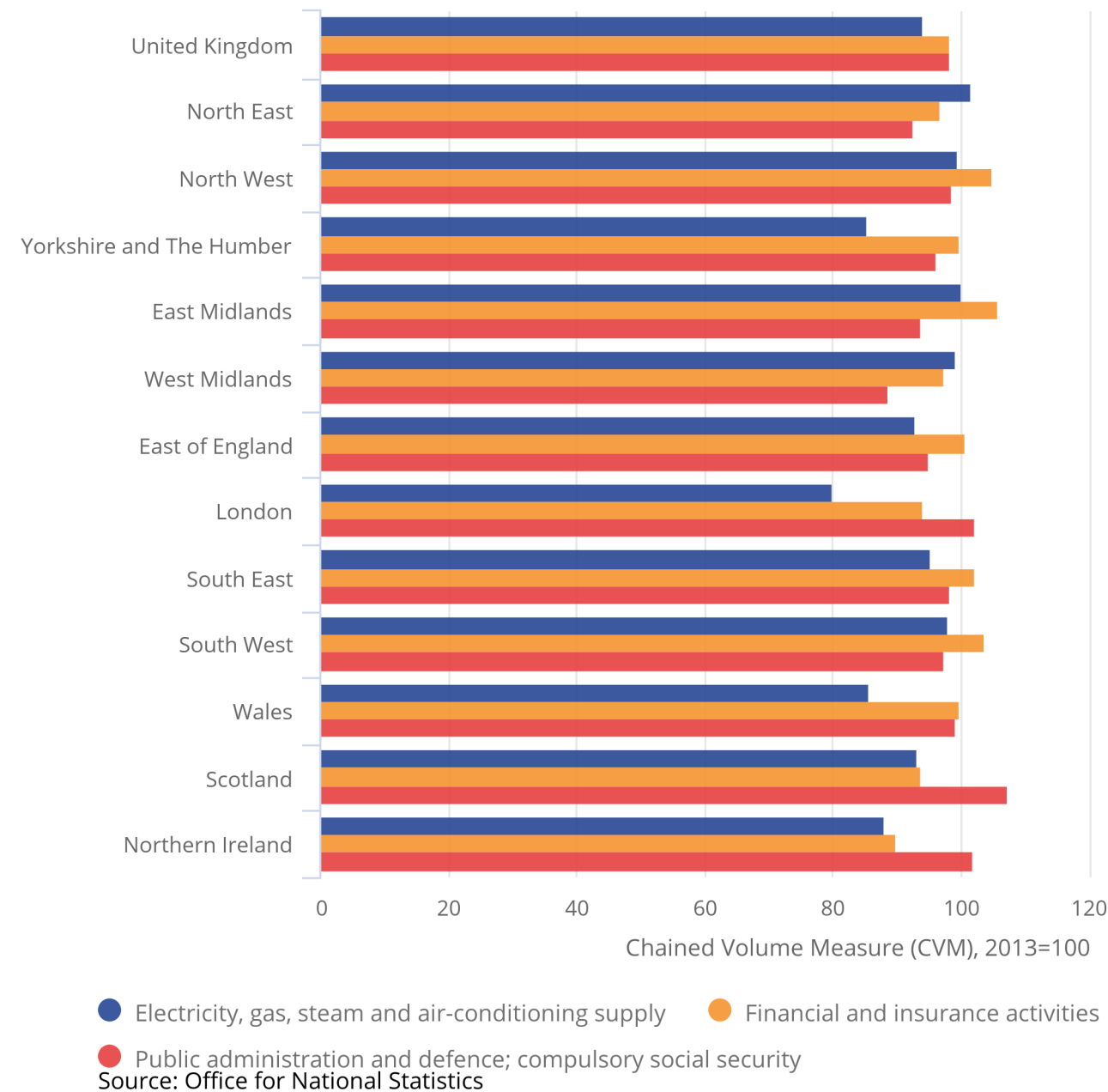
## 6 . Industries in decline in 2014

Between 2013 and 2014, 4 industries showed decline in the UK figures – electricity, gas, steam and air conditioning fell by 6.0%, activities of households fell by 5.4%, financial and insurance activities fell by 1.8%, and public administration and defence fell by 1.6%.

Figure 3 shows the real GVA index values in each NUTS1 region of the industries declining in the UK in 2014. Although activities of households showed a decline, this industry only represented 0.4% of total UK GVA in 2014 so is not shown on this chart.

Figure 3: NUTS1 real GVA index values for industries declining in the UK, 2014

Figure 3: NUTS1 real GVA index values for industries declining in the UK, 2014



Source: Office for National Statistics

10 of the NUTS1 regions saw a decline in electricity, gas, steam and air conditioning; including in London where it had the largest decrease of all industries in this region (negative 19.9%).

9 of the NUTS1 regions saw a decrease in public administration and defence in 2014; with only London, Scotland and Northern Ireland showing growth.

Financial and insurance activities declined in only 6 of the 12 NUTS1 regions; however, one of the greatest decreases was in London (negative 5.8%) where a large proportion of the financial and insurance activities industry is based.

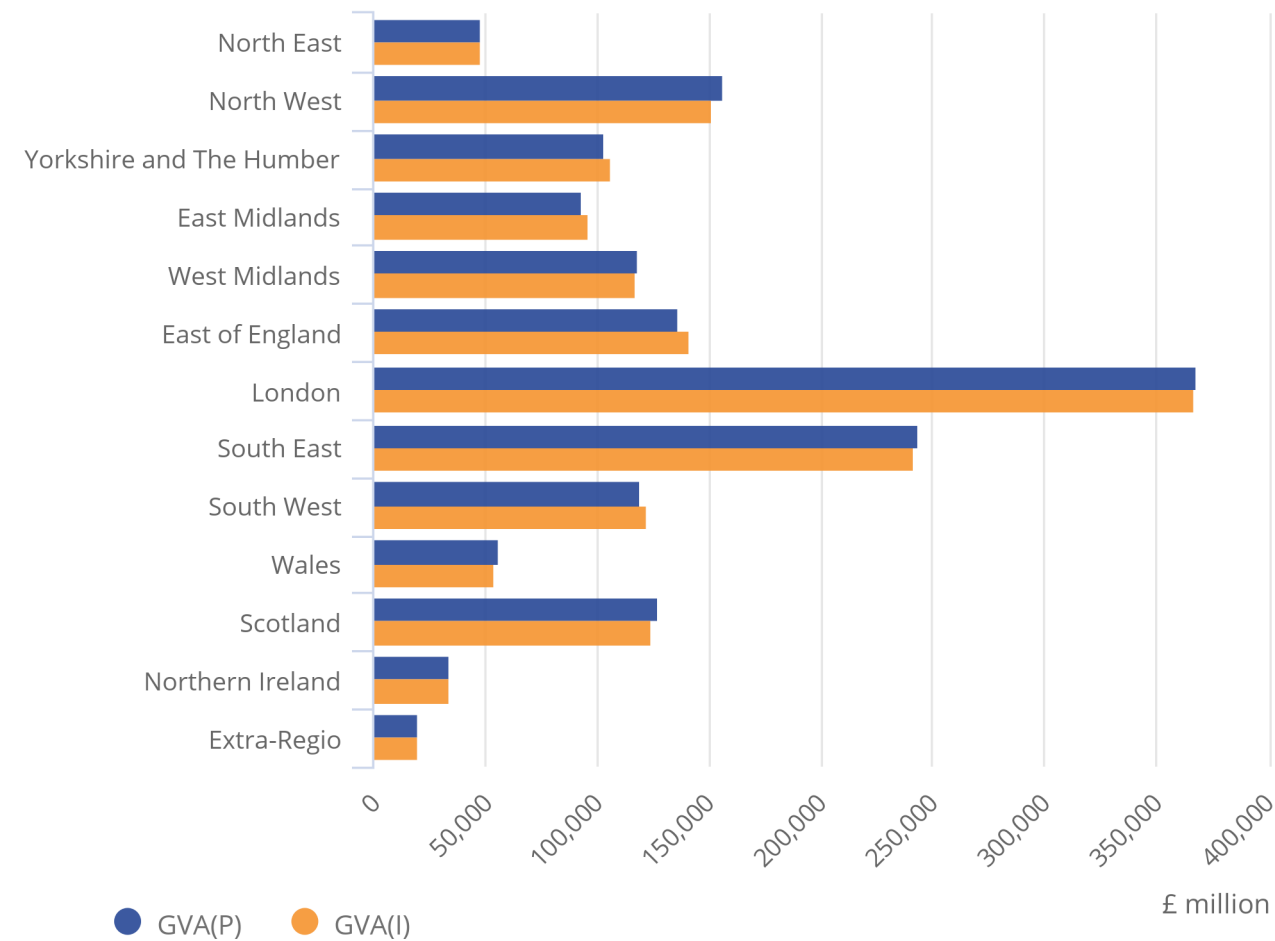
## **7 . How do the 2 measures of GVA compare?**

This section looks at coherence between the current price gross value added (production approach) (GVA(P)) estimates that underpin the chained volume measures and the current price gross value added (income approach) (GVA(I)) estimates published on 15 December 2016. Although conceptually identical, the different methods and data sources used in the 2 measures inevitably result in differences between the GVA(I) and GVA(P) estimates.

One of our future work plans involves taking the strengths from both measures of GVA and using them to produce a new balanced measure of regional GVA. This will give users a single measure of economic activity within a region. At the whole economy level in 2014, the estimates of GVA(I) and GVA(P) are broadly similar across the regions, as can be seen in Figure 4. However, when looking at specific industries, differences between the 2 measures are more apparent.

Figure 4: NUTS1 total industry comparison between GVA(I) and GVA(P), 2014

Figure 4: NUTS1 total industry comparison between GVA(I) and GVA(P), 2014



Source: Office for National Statistics

Source: Office for National Statistics

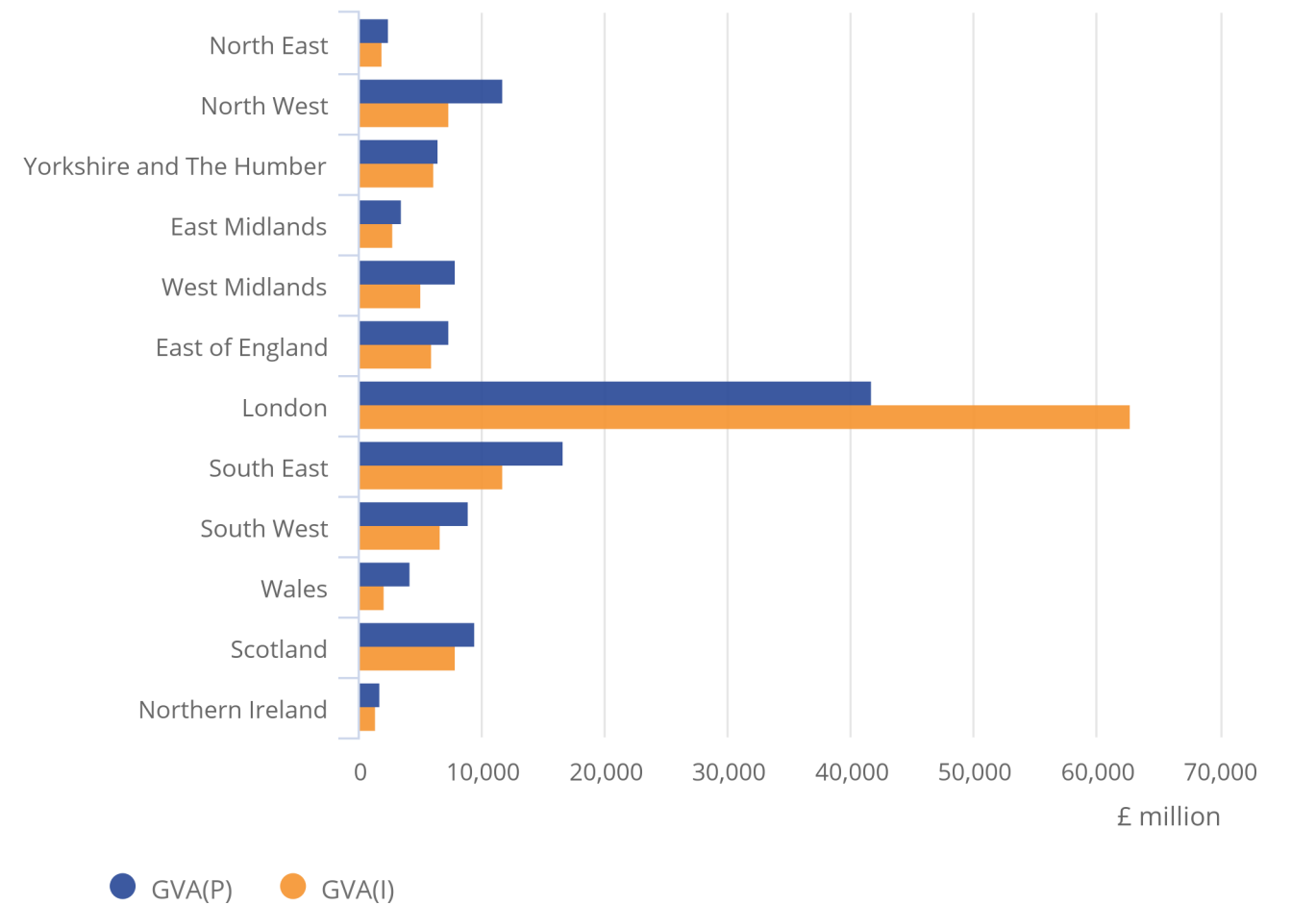
Work has been carried out over the past year with the aim of improving consistency between the 2 measures of GVA. Specific improvements have been made to the agriculture industry, the tobacco industry (part of sub-section CA), and the manufacture of coke and refined petroleum products industry (sub-section CD).

The following charts compare GVA(I) and GVA(P) estimates for 2014 in a number of industries at NUTS1 level, with varying levels of coherence between the measures.

The largest difference between current price estimates of GVA(I) and GVA(P) can be seen in London in the financial and insurance activities industry. While work has been carried out to improve these estimates in GVA(P), there continues to be an inconsistency in this industry. The GVA(I) current price value is much larger in London than the GVA(P) value, and the GVA(P) value is larger in all other regions, as can be seen by Figure 5. The differences are caused by different regional indicators used in each of the 2 measures.

Figure 5: NUTS1 comparison of financial and insurance activities in GVA(I) and GVA(P) for NUTS1, 2014

Figure 5: NUTS1 comparison of financial and insurance activities in GVA(I) and GVA(P) for NUTS1, 2014



Source: Office for National Statistics

Source: Office for National Statistics

Compared with the financial and insurance activities industry, across the majority of industries the differences are more widely spread across the regions. In Figure 6, comparing the public administration and defence industry, GVA(P) is larger in 7 NUTS1 regions including the North West and London, while GVA(I) is larger in 5 NUTS1 regions including the South East and South West. The Extra-Regio values for GVA(I) and GVA(P) in industry O are the same, as a result of using the same regional data source.

**Figure 6: NUTS1 comparison of the public administration and defence industry in GVA(I) and GVA(P), 2014**

Figure 6: NUTS1 comparison of the public administration and defence industry in GVA(I) and GVA(P), 2014



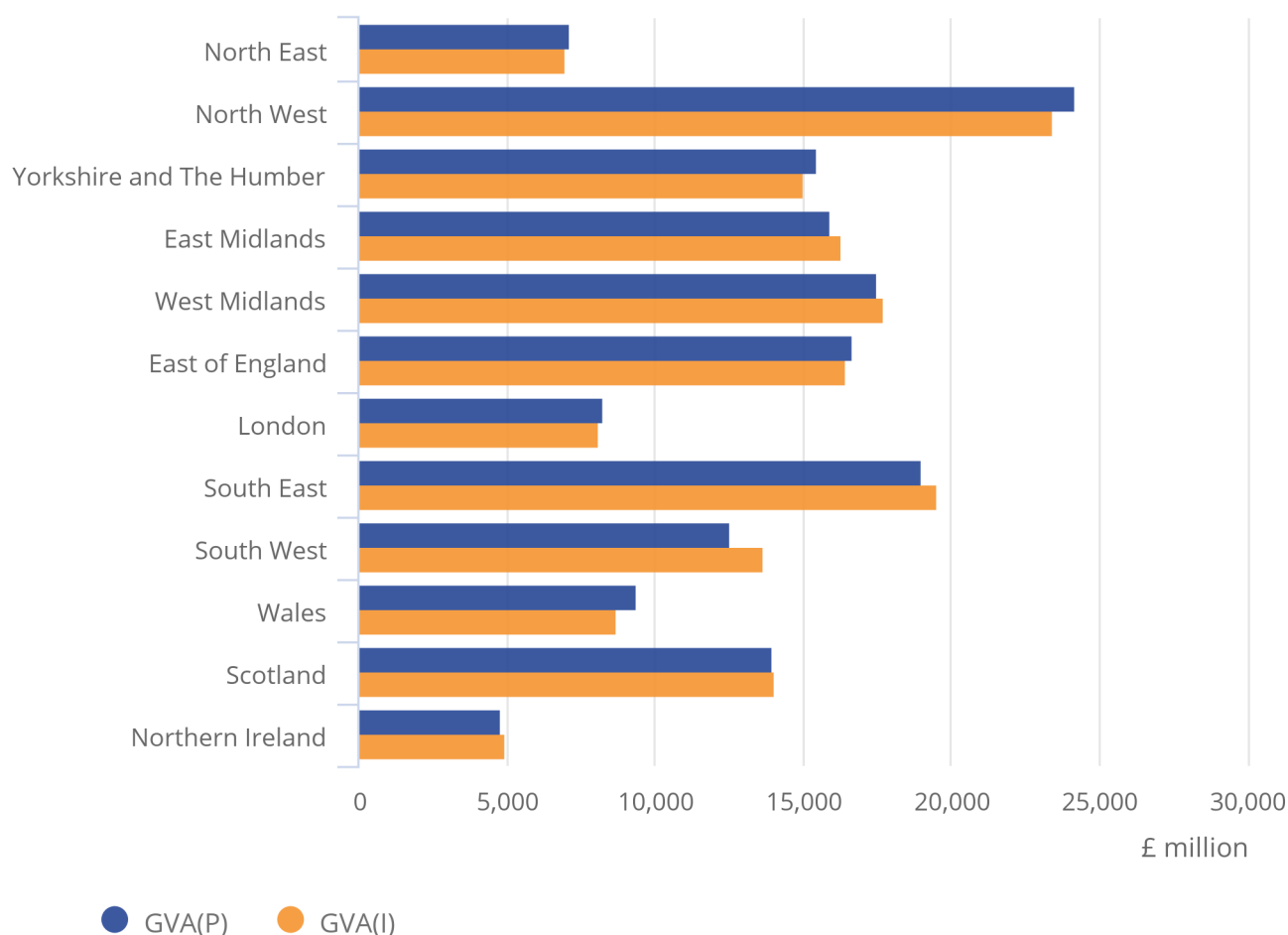
Source: Office for National Statistics

Source: Office for National Statistics

In contrast to the previous 2 charts, Figure 7 shows coherence between current price estimates for the manufacturing industry in 2014 for GVA(I) and GVA(P) across the NUTS1 regions.

**Figure 7: NUTS1 comparison of the manufacturing industry in GVA(I) and GVA(P), 2014**

Figure 7: NUTS1 comparison of the manufacturing industry in GVA(I) and GVA(P), 2014



Source: Office for National Statistics

Source: Office for National Statistics

## 8 . Future work plans

Historically we have produced regional gross value added (GVA) by both the income approach (as National Statistics) and the production approach (as experimental statistics). We plan to take the strengths from both measures and use them to produce a new balanced measure of regional GVA. This will give users a single measure of economic activity within a region. A first set of results will be published for consultation in spring-summer 2017. Depending on the results of that consultation, we hope to publish all 3 measures alongside each other in December 2017, with the balanced data being the lead series.

In order to produce a balanced measure of GVA, we will be advancing the latest year of GVA(P) figures published in December 2017 to t-1 (that is, the series will consist of the years 1998 to 2016). This brings the GVA (P) measure into line with the GVA(I) release.

We have published GVA(I) and gross disposable household income (GDHI) for local authorities in England in 2016. By the end of March 2017, we plan to extend the GVA(I) data to cover the whole of the UK, and the GDHI data by the end of July 2017. By September 2017 we plan to include “real” measures of GVA. Further work in 2017 and 2018 will look into the viability of disaggregating these local authority data further down into output areas for GDHI and workplace zones for GVA.

We have recently published a [feasibility study on regional household final consumption expenditure \(HFCE\)](#). Producing this at a regional level would complete the suite of household accounts by measuring spending on consumer goods and services. It will also pave the way for a regional savings ratio. Work will be carried out in 2017 to further examine data sources and concepts, with an aim to produce regional HFCE in 2018.

In the next regional GVA(P) release we plan to take on an improved method for allocating owner occupied imputed rental (OOIR). In Blue Book 2016 the regional allocation of owner occupied dwellings was allocated using a data source available regionally, however the privately rented dwellings continued to use a data source which was only available nationally. For Blue Book 2017 national accounts intend to move to a regional-based data source for privately rented dwellings as well. We intend to implement these regional sources following Blue Book 2017.

Further details about our development programme are available in the article [Supporting devolution: developments in regional and local statistics](#).

## 9 . What’s changed in this release?

In keeping with the UK National Accounts commitment to meeting the European Commission definition of [Gross National Income](#) and the new [European System of Accounts \(ESA2010\)](#), there have been changes made to the UK National Accounts measure of gross value added (GVA). These impact upon the regional GVA estimates in the form of different national totals for the various components of income, even where no explicit changes to the regional allocation have been needed. Of these, a change to the treatment of [owner-occupied imputed rental](#) has resulted in the greatest impact on the national figures. There are currently no regional data available to allow us to implement this change in our regional GVA estimates; however, we hope to make this change in 2017 to become consistent with the UK National Accounts methodology.

We have carried out a review of the way we measure the manufacture of coke and refined petroleum industry (SIC Sub-section CD) in regional GVA and have made some changes to improve consistency with the reality of the industry. A discrepancy was found between the conversion to SIC 2007 in GVA(I) compared with GVA(P), with the GVA(P) conversion found to be the better of the 2. The GVA(I) series was re-converted, bringing the 2 measures closer together. Alongside this, extensive industry research has been carried out to influence adjustments made to the raw data in both GVA(I) and GVA(P) to reflect reality as accurately as possible.

In last year’s release, there was a change in the average house prices used to calculate the regional allocation of imputed rental of owner-occupied dwellings. The new data used ONS median house prices instead of mean house prices, which reduces the impact of the most expensive houses and improves the consistency of estimates over time. The exception at the time was Northern Ireland: mean house prices were used for Northern Ireland as median house prices were unavailable, however we have now been able to source median house price data for Northern Ireland consistent with the rest of the UK regions and countries. This has had an impact on GVA estimates for real estate activities (SIC Section L) in Northern Ireland.

We have changed the way we treat public sector industries in GVA(P). We have a new National Control for the sector, using an indicator of Average Survey of Hours and Earnings (ASHE) in the public sector multiplied by public sector employees from the Business Register and Employment Survey (BRES) to regionally distribute the national total.

## 10 . Quality and methodology

The regional [GVA\(P\) Quality and Methodology Information](#) document contains important information on:

- the strengths and limitations of the data
- the quality of the output: including the accuracy of the data, how it compares with related data
- uses and users
- how the output was created

### Quality

The principal data source used for the regional allocation of gross value added by the production approach (GVA (P)) is the ONS Annual Business Survey (ABS). The ABS estimates represent approximately two-thirds of the UK economy. We use ABS data for approximate GVA and total purchases (intermediate consumption) at both NUTS1 and NUTS2 levels, which are used to derive regional output (calculated as GVA plus intermediate consumption). For industries not covered by the ABS sample we use a number of regional data sources, details of which can be found in section 3.5 of the [regional accounts methodology guide](#).

Following the first release of experimental GVA(P) estimates in December 2013, an issue was identified concerning the deflation methodology used to produce the constant price real figures (chained volume measures, or CVM). The original method used output deflators that were consistent with the UK GDP(O) statistics, but did not take into account the difference introduced into the annual national figures (the ones published in the National Accounts Blue Book) through the use of expenditure-based deflation within the annual supply and use tables (SUT). This difference results in stronger real-term growth in the expenditure-deflated figures over the span of the time series data.

We published an [article](#) in January 2014 describing the issues around this methodology and the implications for users. The main conclusion is that for users interested in comparing real GVA growth across regions, or with the UK as a whole, a more accurate picture can be obtained by using regional estimates that are constrained to sum to the national total in constant prices. This method has now been adopted as the basis for regional GVA(P) estimates.

Unconstrained estimates are still available in separate tables, as these estimates present a more accurate picture of the relative performance of different industries within a given region (since they are not affected by the coherence adjustments applied to certain industries in order to balance the SUT nationally). Users should note, however, that owing to the use of output deflators these unconstrained estimates show real growth in output rather than real growth in GVA. It is therefore not appropriate to compare these unconstrained estimates across different regions or with the UK as a whole

### Methodology

The GVA(P) estimates are compiled using a "top-down" approach. National accounts supply and use tables (SUT) provide national totals for 112 industry components. Regional indicator datasets are used to calculate regional proportions for each industry. These proportions are then used to allocate the UK total output and UK total intermediate consumption for each industry, prior to the calculation of regional GVA(P) for each industry. The UK totals are consistent with the [UK National Accounts Blue Book 2016](#). A consequence of this methodology is that current price regional GVA(P) will always match the latest national totals for each industry, even though at regional level GVA(P) and GVA(I) estimates may differ due to the different methods used to compile them.

Constant price GVA(P) is derived by deflating the current price estimates for each of the 112 industries using national industry deflators obtained from the UK Gross Domestic Product (Output) system. These deflators are consistent with the National Accounts Blue Book 2016 and they are used because no regional price indices are currently available. The Eurostat Manual on Regional Accounts (2012) recommends that in the absence of regional prices the use of national deflators is acceptable, provided that deflation occurs at a minimum level of 38 industries. Greater industrial detail allows the deflation to take account of regional variation in industrial, and hence product, composition.

In order to derive constant price GVA, output and intermediate consumption should ideally be deflated separately, using prices relating to outputs and intermediate consumption respectively. This process is known as double deflation. However, there are no suitable input price indices available for deflating intermediate consumption. For this reason the constant price GVA(P) estimates in this statistical bulletin are derived using single deflation of current price GVA(P). The process produces a specific constant price series for each industry. To allow aggregation to broader industry groups for publication, the current and constant price series are used to produce a chained volume measure (CVM). The GVA(P) release provides estimates for 33 industries, at constant prices given in CVM, with the effects of inflation removed.

An additional benefit of producing both current price and constant price estimates is that we can use them to derive aggregate level deflators for each region and for each industry within each region. These "implied" deflators are not true regional price indices, since they are based on national prices, but they do reflect regional differences in the products contributing to GVA. We have included an extra table presenting these implied deflators in the datasets published with this bulletin.

Regional GVA(P) is a workplace-based measure. The estimates are provided at t-2 (where t is the current year) for NUTS1 and NUTS2 levels of geography.

For further information, the [regional accounts methodology guide](#) is available on our website.

## Revisions

Revisions to NUTS1 and NUTS2 regional GVA(P) estimates in this statistical bulletin cover the period 1998 to 2014.

Very few statistical revisions arise as a result of errors in the popular sense of the word. All estimates, by definition, are subject to statistical error but in this context the word refers to the uncertainty in any process or calculation that uses sampling, estimation or modelling. Most revisions reflect either the adoption of new statistical techniques or the incorporation of new information which allows the statistical error of previous estimates to be reduced. Only rarely are there avoidable errors such as human or system errors and such mistakes are made clear when they are discovered and corrected.

The main reasons for revisions are detailed in the What's changed in this release? section.

Further detail is available in the revisions triangles on our website. Direct links to each dataset are available:

- [Revisions triangles constrained index of real gross value added \(production approach\) by SIC07 industry \(chained volume measure\)](#)
- [Revisions triangles gross value added \(production approach\) by SIC07 industry in current basic prices](#)
- [Revisions triangles regional gross value added \(production approach\) implied deflators](#)
- [Revisions triangles unconstrained index of real gross value added \(production approach\) by SIC07 industry \(chained volume measure\)](#)

# 11 . Links to related statistics

## Alternative measures of gross value added (GVA)

These estimates are experimental and do not have National Statistics status. We also publish annual estimates of regional GVA(I) at current prices, which are National Statistics and remain our primary source of regional GVA. The [most recent estimates of GVA\(I\)](#) were published on 15 December 2016.

## Alternative regional constant price publications

There are additional regional constant price publications produced by the Devolved Administrations of the UK. These are all quarterly estimates and are therefore more current than annual regional GVA(P) estimates. The constant price indices for Scotland and Wales are designated as National Statistics and should therefore be considered to be more reliable than the experimental GVA(P) estimates. Where there are differences between the current price GVA(I) and GVA(P) estimates we advise users to make use of these quarterly indices in preference to the annual GVA(P) estimates:

[Gross domestic product \(GDP\) for Scotland](#) – chained volume measures of GVA at basic prices are produced by the Scottish Government. This release uses similar sources and methods to UK GDP at basic prices and is designated as a National Statistic.

The [Northern Ireland Composite Economic Index \(NICEI\)](#) is an experimental quarterly measure of the performance of the Northern Ireland economy based on official statistics. The NICEI provides an appropriate short-term indicator for the Northern Ireland economy in advance of more complete figures such as our annual Regional Accounts information for Northern Ireland.

The Welsh Government (in conjunction with ONS) produces a quarterly [index of production and construction](#) and a quarterly [index of market services](#) series for short-term output indices covering most of the private sector economy in Wales. These show quarterly growth in output in real terms from 1998.

## Regional gross disposable household income (GDHI)

While regional GVA estimates provide an indication of the economic activity happening within regions, it is not an indicator of wealth. ONS also produce estimates of [regional GDHI](#), which is the amount of money that individuals in the household sector have available for spending or saving and can therefore be considered a measure of wealth. Regional GDHI is a residence-based measure, meaning it allocates money to the areas in which people live. Further information on regional GDHI can be found in chapter 4 of the [regional accounts methodology guide](#).

## Regional and sub-regional productivity

Gross value added (GVA) per head can be a useful way of comparing regions of different sizes. This is particularly the case where there are no large net-commuting effects, when GVA per head can act as a good proxy for measures of economic performance such as productivity. However, it is not such a good proxy for those areas with high net in- or out-commuting. This is because it compares a workplace measure of economic output (GVA), which includes the contribution of in-commuters, with a residence-based denominator (population). For such areas it is advisable to refer to our productivity data for a direct measure of economic performance. ONS estimates of regional and sub-regional productivity, based on the GVA data in this publication, will follow in a subsequent ONS bulletin. This bulletin, which for the first time will combine regional [productivity data and productivity data for sub-regions](#), will be released on 6 January 2017.